JimAudio

GROOVE RIDER II

User Manual
v1.0.6

This manual reflects software version 1.0.6

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Contents

1. Basic Structure of Groove Rider 2

1.1 Pattern

A **Pattern** is a main structure element of the GR-2. Synonym to a Pattern in other musical software is a Project, Track, Song or a Composition.
Each Pattern consists of **16 Parts**.
Each Pattern has its own clip grid of **16 x 16 clips**.
Each Pattern has its own song timeline (used when Song mode is enabled) with maximum of 1000 clips per each Part.
Each Pattern can have three **MFX** (Master Effects).
Each Pattern has two **Send Effects** busses: **Send A** and **Send B**. Each of these busses has 3 effect slots.
Each Pattern has a **Master Bus** with 3 effect slots.
Each Pattern has its own set of **Pattern Parameters**, which are accessible from the Pattern Selector (tap the top title bar to enter it). Only one Pattern can be loaded for playback / editing at one time. The name of currently loaded Pattern is always shown in the top title bar. To play loaded Pattern, just tap the Play button.

Each Pattern always work in one of the two pattern modes: either in **Session Mode** or in **Song Mode**. You can always see which mode is currently selected: when in **Song Mode**, the SONG button (located in the Top Panel) will have **yellow** color, otherwise it will be gray/white when in **Session Mode**.
Use **Session Mode** for the quick start, to draft your musical ideas into Clips. Session Mode is also good for live performances, when you can start or stop certain clips manually in realtime and even jump between entire clip scenes, arranged into 16x16 Session Grid on the Clips Page.
Use **Song Mode** when you want to construct / arrange a full-length song or composition from the clips you have created in the Session Mode.

1.2 Pattern Banks

Patterns are organized into **Pattern Banks**. Each Pattern Bank can have unlimited number of Patterns. Pattern banks are accessible from the Pattern Selector (tap on the top Title Bar to enter it), where you can create, rename and delete user Pattern Banks, as well as the Patterns which they contain.

1.3 Part

A **Part** represents one independent musical part (can be thought as a synonym to a *Track* in other musical software). There are 16 Parts per each Pattern, numbered from 1 to 16.
Each Part has its own unique set of Part Parameters, which determine Part's sound, applied IFX and its specific playback options.
Each Part can be assigned to one of 3 Part Types: **Melodic**, **Drum Rack** or **Pure Acid Drums**:
- **Melodic** Part can produce melodic sounds and consists of up to 3 instrument Layers;
- **Drum Rack** Part can play drum instruments or samples, and have up to 16 Layers (drums);
- **Pure Acid Drums** Part is a special type of part, containing the drum module of JimAudio Pure Acid app.
Each Part has **3 IFX** (Insert Effect) slots with configurable signal flow route;
Each Part has its own **Arpeggiator** (can be switched on/off).
Each Part has its separate **3-band Equalizer** with configurable options.
Each Part can be assigned to send its audio to one of 3 available **MFX** effects, or bypass them.
Each Part can hold up to **16 different Clips** in the Session Mode Grid, and up to 1000 Clips on the timeline of the Song Mode. Only one Clip can be played at one time on the Part, and it is called **Current Clip** (or **Active Clip**).

1.4 Selected Part

Only one Part can be selected and accessed at one time, and it is called **Selected Part**. You can select a specific Part by tapping **< PART >** button's left or right side (button located on the left of the Middle Bar, next to the **SHIFT** button). The colored led indicator inside this button displays, which Part is currently selected. In the Trigger Pad Mode, pressing a Pad will automatically select the corresponding Part and play its sound. You can also select any desired Part by holding **< PART >** button and tapping **Pad 1** to **16**.

You can adjust the Parameters of Selected Part in the Part Parameters Page (tap on the Part tab under the main transport buttons).

1.5 Layer

Layer is a placeholder for one musical instrument. Every Part can host from one to several **Layers**. Each Layer can be accessed from its own tab on the screen. Each Layer can host only one instrument from the following list:

- Synthesizer
- Sampler
- WaveTable Synth
- SoundFont Player
- Pure Acid Bass
- Poison-202 Synth
- AUv3 instrument or Midi FX.

Note: Layers of the Drum Rack type of Part can host only one of the first 4 instrument types from the list above - Synth, Sampler, WaveTable or SoundFont.

Each Layer has its own **Filter** with unique settings, its own **ADSR** generator and **LFO** modulator, plus its own **Mix** and **Pan** knobs. Each Layer can be assigned to output its audio to one of the 3 available **IFX** slots on the Part. Only one selected Layer of the Part can be visible and accessible at one time.

1.6 Clips

Clip is a set of Midi notes and/or parameter automation lanes. Each Part can host up to 16 Clips in Session Grid Mode and up to 1000 Clips on the timeline in the Song Mode. Each Clip contains its own midi note data and parameter automation data, which can be edited at any stage. Only one clip of the Part can be played at one time, and the Clip which is currently playing is called **Current Clip** or **Active Clip**.

1.7 Pads

A **Pad** is one of 16 buttons (Pads) in the bottom section of GR-2. Depending on the current Pad Mode, each Pad can represent either a Part with corresponding **Part** number, or a specific **Note**, **Chord**, **Slice** or **Drum**. Pads can be assigned to have different colors, corresponding to the Part color they are representing. Color change can be done on the Part Parameters Page.
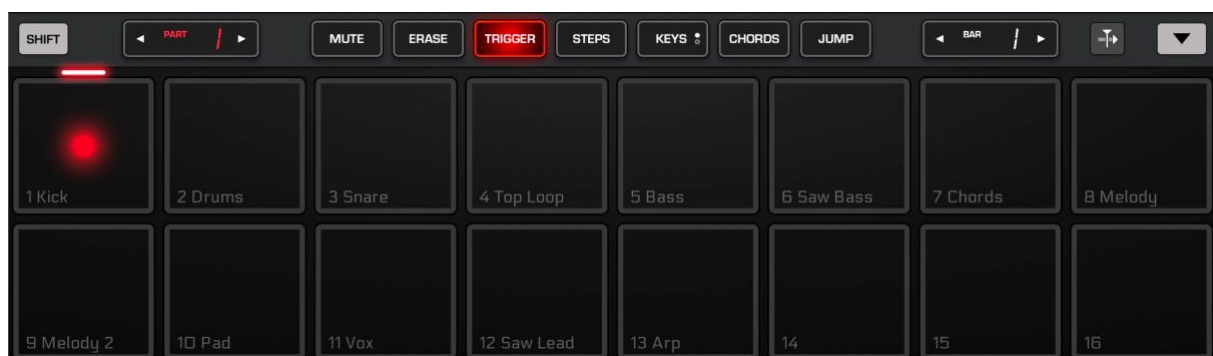
2. Layout of Groove Rider 2

2.1 Top Panel Bar

Top Bar of GR-2 is always visible on the screen and contains such controls as (left to right): Transport buttons (**Stop**, **Play**, **Record**), **Browser** button, **Undo/Redo** buttons, Title Bar in the middle (tap it to open/close the Pattern Selector), page select buttons (**Sound**, **Clips**, **Edit**, **Song**, **Buses**, **Mixer** tab), and a **Settings Menu** hamburger button in the end.

Record button allows you to record notes in real-time, as well as parameter Automation and knob movements for the currently Selected Part. You can also record a movement of three MFX controls using their touchpad area, however, recording MFX is possible only when GR-2 is in the **Song Mode**.

UNDO button allows you to cancel one last recent change of some parameter in a Pattern. Useful when making a lot of edits. **REDO** cancels one last Undo and returns you back. When you save changes to your Pattern, the undo history is cleared.

Title Bar displays current Pattern name and can also show temporary info messages from GR-2. In Song Mode, Title Bar also shows playback cursor time signature in a format "**Bar** . **Beat** . **Step**". There's also a CPU usage indicator in the left end of the Title Bar. When it flashes red it means that CPU is overloaded with audio unit processing and you need to remove some of them to make audio processing lighter.

Title Bar also shows pattern playback cursor during playback in a form of thin white line growing from left to right in the bottom of the Title Bar. It can be helpful since usually it is tightly linked to the clip switching time (and a Pattern Length parameter), showing a moment when a newly selected clip can be started during playing live.

In the right corner of the Title Bar sometimes you can see an AUv3 icon . It appears to let you know that current Pattern has AUv3 audio units loaded in it. You can also see this icon in the patterns list inside the Pattern Selector, showing which of saved patterns contains AUv3 audio units. This indication can help if you are playing/mixing your set live with GR-2, since loading new AUv3 units during live playback can potentially cause audio drop outs or sound glitches, so it's your own responsibility to use them or not in your live set. Normally, GR-2 designed to not have any audio issues when playing live or mixing Patterns, which contain only internal GR-2 instruments and don't use any AUv3 audio units.

2.2 Middle Panel Bar

Middle Bar contains following controls (from left to right): **SHIFT** button, **< PART >** selector, *Pad Mode* buttons (**MUTE, ERASE, TRIGGER, STEPS, KEYS, CHORDS (SLICES / DRUMS), JUMP**), Bar/Octave selector, **Follow Cursor** button and **Collapse / Expand** button in the end.

SHIFT button is used for additional control over certain functions. For example, holding **SHIFT** while moving a knob/fader will allow a more precise adjustment of the parameter. **SHIFT** is also very useful in Note Editor and on the Song Page, allowing to select multiple notes or multiple clips. Holding **SHIFT** while adjusting velocities for a group of selected notes allows you to make velocity ramps. On the Mixer page using **SHIFT** with **SOLO** buttons can allow to solo multiple Parts at a time. **SHIFT** + double tap a knob starts Midi Learn.

Part select button indicates, which Part is currently selected. Tap its left or right side to select another Part.
Buttons from **Mute** to **Jump** select one of the available **Pad Modes**, which will be described below.
Bar/Octave selector selects either current bar (when it's white) or currently playing octave (when it's red).
Follow Cursor button turns On / Off the automatic chasing the playback cursor in Note or Song Editor.
Collapse / Expand button allows you to change Pads Panel size or completely collapse it down.

2.3 Pad Modes explained

There are seven different **Pad Modes**, which determine Pads behavior. You select between them by using the seven Pad Mode buttons, located in the Middle Bar. A corresponding Pad Mode button will light up when you tap it. Each Pad Mode is described below:

MUTE mode. When it this mode, Pads are acting as a Mute button for each Part and display a symbol "**M**" in each Pad. A Pad is lit, when the corresponding Part is muted (not playing), and is dark, when that Part is being not muted (playing).
If you solo some Part (e.g., from the Mixer Page), Mute button will change its caption to **SOLO**, and each Pad will display a symbol "**S**", indicating that you are in the SOLO mode. In SOLO mode, you can listen to one Part, which is currently soloed.

> **Mute Sync mode**. By default, Mutes in the mute mode work immediately, when user hits a corresponding Pad or button. You can enable so called "**Mute Sync**" mode, to make mutes work in sync to the **Beat**, **Bar** or **Pattern**. This is extremely useful during live performances. Enable it from the Settings menu -> General -> Mute Settings -> "*Mute Sync*" parameter.

ERASE mode. Use this mode to erase some already recorded notes in your Clips. Each Pad in this mode represents the corresponding Part and displays a Record " ● " symbol in the center. Press Play, and while Pattern is being played, press a Pad at some moment of time, when you want to erase the note that is currently playing. It lets you to quickly erase specific notes without getting deep into the Note Editor mode. If you hold down the Pad while the whole pattern loop is played one cycle, it will erase all the notes in the currently played Clip on selected Part.

> *Tip: You can also erase several Part's notes by holding several Pads simultaneously during playback.*

TRIGGER mode. This is standard drum machine layout, where you can play all the 16 Parts from the one screen. In this mode, each Pad represents each of the 16 Parts. If you hit the Pad, it will immediately play the corresponding Part's note (its pitch depends on currently selected *Key* Pattern Parameter). When you hit a Pad in the TRIGGER mode, a corresponding Part will be automatically selected.

STEPS mode. This mode is accessible only when you are editing a Clip in the **Note Editor** (**Edit Page**). In this mode you can quickly edit Steps (notes) of the Clip the same way as on most popular drum machines. When in this mode, each Pad represents one of 16 steps of currently played Clip. You are able to see and edit only one **Bar** in this mode. The **Bar Selector** in the Middle Bar shows you, which **Bar** is currently visible, and you can switch to another Bar by tapping **Bar Selector** left or right arrows.
Pressing a Pad in the STEPS mode places/removes a note into a corresponding Step. When you place a note, its octave and pitch will correspond to the value of the *Step Selector*, located on the **Pad 1**. To change the value of the *Step Selector*, tap Pad 1 and drag it Up or Down. You will notice that Pads will lit On/Off, displaying only those notes of the Clip, whose pitch equals to the current value of *Step Selector*.
Hold the **SHIFT** button to see and access all the pitches simultaneously. It allows you to immediately see all existing Steps and delete some of them, if needed, without the need to change the Step Selector to each note pitch consequently.

KEYS mode. This mode turns Pads into a virtual keyboard, so you can play notes, according to the currently selected *Key* and *Scale*. Bar Selector in this case turns red, represents currently selected *Octave* and allows you to change it if you tap the left / right arrows.

If you tap **KEYS** button for a second time, it will toggle between **Pads mode** and **Keyboard mode**. In **Keyboard Mode** you will see a panel with *Pitch Bend* and *Modulation Wheel* controls. This panel located on the left side of the Keyboard and can be hidden or shown by tapping on the small triangle switch, located right under the **SHIFT** button (see Figure below).

On the opposite side of the small triangle switch there's a small menu icon, revealing a settings menu popup for the onscreen Keyboard (shown in the Figure below). From this menu you can switch between **Normal** Keyboard mode and **Scale lock** mode, when Keys locked only to the notes of the selected Pattern Scale. You can also change the number of white keys visible on the screen (**More Key**s / **Less Keys**), as well as turn On / Off the **Vertical Velocity**. When it is On, the lower you tap on the key will result in more loud note with higher velocity and vice versa. You can also change the color of onscreen Keyboard by going to the main Settings Menu -> General -> System -> Keyboard Style (choose Normal or Dark style).

You can change Keyboard Octaves either by tapping the Octave Selector button, or tapping the very top edge of the Keyboard keys right under the Middle Bar to reveal an octave selector, which you can then drag left or right and even use pinch gesture to scale the Keyboard horizontally.

CHORDS / SLICES / DRUMS mode. Depending on the type of currently Selected Part, this button will show different caption. For the Melodic Parts it will be **CHORDS**. If the Part contains a Layer with a Sampler with Slice Mode Enabled, the button will show **SLICES** caption. Finally, for the Drum Rack type of Parts the button will show **DRUMS** caption.

- **CHORDS** mode allows you to play scale chords, according to the current *Key*, *Scale* and *Chord Set* Pattern Parameters, which can be set from the Pattern Selector (tap on the Top Title Bar).

- **SLICES** mode allows you to trigger 16 sample Slices, created previously in the built-in Sampler, loaded on the Layer of Selected Part.

- **DRUMS** mode allows you to trigger 16 Drum sounds, placed on the Layers of the **Drum Rack**. Drums mode also works for the Parts of type "**Pure Acid Drums**".

JUMP mode. Allows to immediately change the playback order of pattern steps. Use it to create interesting fills and breaks during live performance. In this mode, every Pad represents one Step (1/16th Note). Hold one or several Pads to create fast repetitive jumps between held Steps. Release all Pads to return back to the main beat.

2.4 Pattern Selector

2.4.1 Functions Overview

Pattern Selector is a panel, which can be opened / closed by tapping on the Top Title Bar. From the Pattern Selector you can **Open**, **Save**, **Rename**, **Delete** your Patterns, manage User Banks and adjust certain **Pattern Parameters**.

In the left column " **Banks** " you can see a list of available User and Factory Pattern Banks. Select one of them to reveal its contents. Tap the small "plus" icon to expand a list of all available User Banks. In the end of this list there will be a "**New User Bank…**" button which will allow you to create a new empty User Bank if you wish to.

The middle column, called " **Patterns** ", shows a list of Patterns in the currently selected User or Factory Bank.

- To create a new empty Pattern, tap the **NEW** button in the bottom bar of Pattern Selector.

- To save currently loaded Pattern, tap **SAVE** or **SAVE AS..** button in the bottom bar.

- To open another Pattern into GR-2, select desired Pattern from the pattern list and tap **OPEN** button in the bottom bar (OPEN button is shown only when playback is stopped).

- To switch to another Pattern during playback (e.g. during live performance), first select the desired Pattern from the pattern list and tap **LOAD** button. After new Pattern is loaded into memory, you will see a blinking green " READY > " indicator. At this stage you will have two options:
    1) either to switch to the new Pattern immediately in sync with the beat (tap **START** button), or
    2) enter special crossfade mode between two Patterns - Pattern Cross Mixer (tap **MIX A > B** button). Pattern Cross Mixer will be described in detail later.

- To rename a Pattern, tap desired Pattern from a list and then tap **RENAME** button.

- To rename User Bank, first tap desired User Bank in the "Banks" column and then tap **RENAME** button. Note, that you cannot rename currently active User Bank (Pattern of which is currently opened).

- To delete a Pattern, tap desired Pattern from a list and then tap **DELETE** button.

- To delete User Bank, first tap desired User Bank in the "Banks" column and then tap **DELETE** button. Note, that you cannot delete currently active User Bank.

Pattern Parameters of the currently opened Pattern are displayed in the right column of the Pattern Selector. These parameters are self-explanatory.

- Tap several times on the blinking **TEMPO** button to set the Pattern Tempo (Tap-Tempo function).
- Double tap on the tempo value to enter desired Tempo manually.
- Hold **SHIFT** while tapping < > tempo buttons to adjust tempo more precisely.
- **Length** parameter sets the **Pattern Length**. It does not limit anything in the Pattern, it only affects the pattern sync length (for switching Clips and Mutes in sync to the given number of bars) and also sets the default clip loop length when a new empty Clip is created.

2.4.2 Pattern Cross Mixer

Pattern Cross Mixer window can be accessed from the Pattern Selector during playback, when you select a new Pattern to load, then tap the **LOAD** button, and after pattern loads, tap the **MIX A > B** button in the bottom bar of Pattern Selector.

Pattern Cross Mixer allows you to perform a smooth transition between two different Patterns when playing live set on the GR-2, in the style of a classic DJ mix. Sequence of actions during a classical DJ mix usually as follows:

1) Turn down the Pattern B **Low** EQ knob to cut off the bass frequencies from the incoming Pattern B before it starts to play.
2) Wait for so called cue point in the playing Pattern A (usually end of a bar) and then tap **START** button just 1-2 beats before the new bar starts. Pattern B will start to play in sync with Pattern A.
3) Slowly move the crossfader from left to right. Somewhere in the middle mix position release the crossfader and swap the bass knobs by simultaneously decreasing bass on Pattern A and increasing bass on Pattern B (turning the **Low** A knob *counter wise* and the **Low** B knob *clockwise*). In the end you should have **Low** A knob at zero position and **Low** B knob at center position.
4) Continue moving the crossfader from the center all the way to the right. The bottom button will turn to green "**Done**". Tap it. Transition is done and window will close.

Of course, you can develop your own method of cross mixing, or maybe you will want not to use Equalizer knobs during the mix at all. It is up to you.

The upper crossfader (TEMPO) smoothly transitions Tempo BPM from Pattern A to Pattern B.

The lower crossfader (MIX) mixes sound from Pattern A to Pattern B.

By default, these two crossfaders are linked, meaning that you can only move them simultaneously. But you can tap on the "Lock" icon between them to unlock the crossfaders and control each independently, if you want more control and freedom during the mix.

If Pattern A (or B) is in the Song Mode, a red "SONG MODE" indicator will show up to inform you, that this Pattern is finite and will end at some point and you should hurry up with your mix. Under the red SONG MODE indicator, you will see a time elapsed counter in seconds, showing how many seconds you have until the Pattern ends. Ideally you should adjust your timing to finish your mix right at the moment when Pattern A ends.

LIMITER button in the top of the window turns On / Off the master output Limiter effect. The same button you can find on the Mixer Page in the top right corner of the screen, they both control the same master Limiter. This button is placed here, because when mixing two patterns, the overall sum output level can jump too high, so better to have Limiter On during the mix.

Note: It can happen so that due to the big CPU load, when two patterns will start to play simultaneously, CPU resources will not handle the load and audio will start to interrupt or glitch. In this situation you can always cancel mix either by tapping the red STOP button, or by closing the Cross Mixer window itself by tapping the small cross icon in the top left corner of Cross Mixer window.

3. Sound Page

3.1 Sound Page Overview

From the **Sound Page** you can control almost everything what defines the sound character of the Part. To enter **Sound Page**, tap on the **Sound** tab, located in the Top Bar. From **Sound Page** you can adjust various parameters of currently Selected Part and its Layers, as well as Part Insert FX, Part Level & Pan, Part Equalizer, Send Effect amounts and more.

Sound Page consists of three main sections. The left section contains **Layer parameters**, which are specific to each selected Layer of the Part. In the center there is a **central display**, which visualizes some of the settings and works as additional control display. The right section contains 3 IFX effect slots and other Part parameters like EQ, Level, Pan, Send A/B, which are individual for each specific Part.

Central display, when in its default mode, visualizes the sound output of GR-2. You can tap on the small **VISUALS** button in the bottom right corner of central display to reveal a menu with several options for the sound visualization. When the Part Meter bars are selected to be shown in the central display (as in the Figure above), you can tap any of these bars during playback to immediately go to the corresponding Part.

In the upper row of the Sound Page you can see a group of tabs and buttons, from left to right:

- **Part Parameters** tab. Tap it to open Part Parameters page, where you can adjust parameters of currently selected Part. Tap this tab and hold to open **part hold menu** with available options to Copy, Paste, Clear Part or save Part to user preset.

- **Layer 1, Layer 2** … tabs. Tap one of these tabs to open corresponding Layer page. Each Layer page is independent from the other Layer pages and represent only one selected Layer. All parameters, which define the sound of selected Layer, located in the left side of the Sound Page and include 4 sections: Oscillator, Filter, Envelope and LFO. Tap Layer tab and hold it to open **layer hold menu** with available options like Copy / Paste Layer, Move Layer left / right, Edit Layer key range, Save Layer preset and Delete Layer.

- **Plus (" + ") button**. Long tap it to open **Add Layer** popup menu. From this menu you can select what type of Layer you wish to add to the Part.

- **S (solo) button**. Allows to temporarily solo one currently selected Layer.

- **Routings button** . Opens a page where you can adjust the output node for currently selected Layer, as well as other parameters, described later in 3.4 Routings Page.

- **XY button**. Toggles between the normal mode and XY mode for the IFX nodes. In normal mode IFX nodes display their parameters as knobs. In XY mode you can control parameters by dragging the cursor along the rectangular pad, where X axis connected to one certain IFX parameter and Y axis to another.

- **M (mute) button**. Allows to mute/unmute Selected Part.

- **S (solo) button**. Allows to solo/unsolo Selected Part.

3.2 Part Parameters Page

Tap the upper left tab on the Sound Page to open the **Part Parameters page**. Here you can see a set of parameters, which will be applied to the entire Selected Part (Part 7 in the Figure above):

- **Part Type**: select one from 3 available types (Melodic, Drum Rack or Pure Acid Drums);

- **Part Label**: change how this Part will be labelled on the Pads and in the Mixer Page;

- **Default Note**: this setting mainly used to change default note pitch when playing Pads in the Drum Rack mode or while playing sample Slices. Also, it affects octave and/or note key when playing Pads in the Trigger pad mode on Melodic Parts. Default Note can also affect the octave for preset previews when saving Part and Layer user presets.

- **Default Velocity**: defines which velocity value will be used when placing a new note in various edit modes of GR-2. Also defines note velocity when playing onscreen Pads (if Velocity Pads setting is Off).

- **Velocity Pads** setting, has 3 options: Off – Pad velocity will be taken from Default Velocity setting, all Pads of current Part will play notes with the same velocity; Vertical – the higher you touch a Pad, the louder will be a note; Radial – for louder notes touch a center of the Pad, for more quiet notes touch Pad edges or somewhere between.

- **Time Shift**: shift (or delay) the whole Part (incl. Song timeline clips) forward or backward in time. Maximum value is +/- 1, which corresponds to 1/16th note.

- **Mute Group**: use values greater than zero to create mute groups with other Parts, assigned to the same Mute Group. This allows to mute all Parts of specific mute group by muting only one of them.

- **Active Parameter Set**: select one from the available Parameter Sets on this Part, or create a new Parameter Set by tapping on the menu icon next to the Set value. Parameter Sets allow each Clip on a Part to have its own sound parameters and even its own set of IFX effects, which will be dynamically switched during pattern playback as the Clip starts or stops to play. In result you can have drastically different sounds assigned to specific Clips by using just only one Part for it. For more details, refer 3.2.3.

3.2.1 Part Arpeggiator

Part Arpeggiator can add variety to the notes playing on a Part. Each Part in GR-2 has its own independent Arpeggiator module, accessed from the Part Parameters page. You can switch it On/Off by tapping **ARP.ON** button. You can also choose Arpeggiator's rhythmical pattern (from the 43 available); Arpeggiator mode, that defines playback direction (Up, Down, Up/Down, Random, Trigger); number of octaves used (1-4); note repeat (1-4); Arpeggiator Speed, Gate and Swing parameters.

3.2.2 Part Groove

Part Groove is the fastest and easiest way to add liveness to your music. Select a groove type you want to apply to the notes on this Part from 33 available types, and use knobs **To Time** and **To Vel** to define, which amount of groove shift will be added to notes start time position and to note velocities. Use **Rand Vel** knob to instantly add randomness to the playing note velocities.

3.2.3 About Parameter Sets

Parameter Sets is a special feature of GR-2, which allows you to have several different sound setups on one single Part. For example, you want a sound #1 to play with the Clip 1, and then sound #2 to play with the Clip 2, and then again sound #1 but with a totally new IFX chain to be played with the Clip 3. This is easy to achieve using Parameter Sets. At first, you must create a couple of Parameter Sets for some certain Part by tapping the hamburger menu icon next to the **Active Parameter Set** on a Part Parameters Page. Then you will be able to assign created Parameter Sets to any Clip of this Part in the **Clips Page**, by long tapping the Clip and selecting "**Parameter Set : X**" from the popup menu. Then you just switch to that Clip, tweak some Layer or Part parameters there (including changing IFX parameters and even their types), then switch to another Clip and do desired changes there. As simple as that. Note, that Parameter Sets are effective when used with internal GR-2 instruments, and do not work for AUv3 audio units.

- Which parameters can vary between different Parameter Sets on the same Part?

Layer parameters as **Pitch, Glide, E1, E2, Filter Cutoff, Resonance, Filter Env**; all **ADSR** parameters; all **LFO** parameters; full **Synthesizer Program** setup; Sampler **Grain, Flux** and **Beat Decay** Warp parameters; Layer **Mix & Pan**; **Pure Acid** and **Poison-202** Integration parameters; **Part Groove** knobs; **Arpeggiator** parameters; Part IFX Routings, all **IFX** effect types and their knob values (except for IFX Equalizer).

- Which parameters cannot be changed by switching Parameter Sets?

Part parameters such as **Part Level, Pan, Send A / B, Part Equalizer** (all params), Layer instrument type, most of the Settings Page parameters for the built-in instruments and most of the Sampler parameters. Also, you cannot swap loaded Samples / WaveTables / SF2 files.

3.3 Layer Parameters

In the left part of the Sound Page there are 4 sections of Layer Parameters: Oscillator, Filter, Envelope and LFO section.

OSCILLATOR section defines the source of the sound signal and has parameters like PITCH, GLIDE (Portamento), E1 and E2 (special two Edit parameters, which depend on the currently loaded instrument type and its mode). E1 knob can be modulated by LFO and/or automated, while E2 knob can be automated only.

FILTER section sets the parameters of a Filter, applied to the source signal, with the following knobs:

> CUTOFF knob: controls Filter's cutoff frequency.
> RESO knob: controls Filter's resonance;
> ENV knob: applies ADSR envelope from the Envelope section to a Filter cutoff parameter;
> KBD.TRK knob: defines how much the cutoff frequency must follow currently playing note pitch (key).

ENVELOPE section controls the ADSR envelope shape of the Layer sound with classic envelope controls like ATTACK, DECAY, SUSTAIN and RELEASE.

LFO (or Modulator) section controls Layer LFO (Low Frequency Oscillator) with knobs DEPTH and SPEED. There is only one LFO modulator on each Layer.

MIX knob sets the output level of selected Layer, and PAN knob controls Layer's stereo panorama setting.

> *Tip: you can double tap a knob or a fader to reset its Parameter to default value.*
> *Tip 2: hold SHIFT and double tap the knob to activate Midi Learn mode, in which you can assign incoming midi controllers to specific knobs.*

Each of these four sections has its own EDIT button, which allows access to a more detailed parameter settings with their visual representation. When you tap EDIT button, central display of the Sound Page will show additional UI of the sound section for your control.

Oscillator Edit page is specific to the instrument type, loaded on a Layer, and will be described in a separate chapter dedicated to all GR-2 internal instruments.

3.3.1 Filter Edit display

Tap **EDIT** in the Filter section to enter **Filter Edit** display. From here you can select Filter type from 5 available filter types:

- **LP** (Low Pass Filter),
- **BP** (Band Pass Filter),
- **HP** (High Pass Filter),
- **PEAK** (Peaking Filter, same as All Pass Filter),
- **NOTCH** filter.

For the selected filter type you can select Filter Slope (6, 12 or 24 dB/oct), as well as turn On/Off the **SOFT CLIP Q** option (acts like a soft clip limiter when using high resonance values, resulting in a more smooth and musical filter character).

You can also toggle Filter On/Off by tapping **ON** radio button in the top left corner of display.

Tap and drag the (+) control of the Filter to adjust Cutoff and Resonance parameters visually without need of using knobs. You can also record automation of the Filter movement by dragging (+) control when in the Record mode.

3.3.2 Envelope Edit display

Tap **EDIT** in the Envelope section to enter Envelope Edit display. Here you will see visualized ADSR envelope and a bunch of options. In the top row of the display there are 3 radio buttons:

- **OFF** : turns off Envelope influence on the output level. In this mode, output level is constant and with zero attack and release.
- **ADSR ▸ AMP** : Envelope On, standard mode;
- **RELEASE ▸ AMP** : only Release part or the Envelope affects output signal level; It can be useful when you want the A, D partials of the Envelope to be used for the other purposes (e.g. to control Filter or Pitch), while leaving sound's Release enabled for the output level.

There are 5 knobs, 3 of which define the shape of A, D and R partials of the Envelope: **ATTACK SHAPE**, **DECAY SHAPE** and **RELEASE SHAPE**.

ADSR ▸ PITCH knob defines amount of ADSR applied to the pitch of the current Layer.

ADSR ▸ EDIT 1 knob defines amount of ADSR applied to the current **E1** edit parameter of the Layer.

You can drag the A, D, S and R control points to tweak the Envelope form directly, instead of moving corresponding knobs in the Envelope section. You can also tweak the shape of A, D and R partials by swiping up / down in the middle of the corresponding section on the ADSR graph.

3.3.3 LFO Edit display

Tap **EDIT** in the LFO section to enter LFO Edit display. Here you will see one visualized LFO cycle and its parameters. In the upper row there are 3 radio buttons and one tri-switch:

- **INVERT** : turn it On to invert LFO along the X-axis
- **BPM** : when turned On, LFO speed is synced to some fraction of the Pattern BPM Tempo;
- **RETRIG** : when On, LFO will start from the beginning of a cycle every time a new note plays on this Part;

Tri-switch on the right has three positions: **BIPOLAR**, **UNIPOLAR** and **HALF**. Each of these settings defines positioning of the LFO curve relative to the X-axis.

LFO form can be selected from available 8 types: Sine, Triangle, Saw, Saw2, Square, Trapezoid, EG and Random.

In the bottom row there are six knobs – six available LFO destinations, where LFO can be applied. **AMP** destination applied to the output level of the Layer. **EDIT 1** – to the **E1** parameter. IFX destination applied to one predefined parameter of every IFX effect (by default, to IFX 1). You can open Layer Routings menu to adjust, which amount of LFO should be applied to each of three IFX on the current Part.

You can drag the **(+)** control on the LFO display to modify the Shape of the LFO cycle. By dragging the **(<>)** control you can change LFO initial Phase. Swipe up or down in the graph to adjust LFO Depth (same as moving **DEPTH** knob in the LFO section).

3.4 Routings Page

Tap Routings button [icon] to enter Routings Page. From Routings Page you can assign Layer Output setting: IFX 1, 2 or 3 (buttons **IFX 1**, **IFX 2** or **IFX 3**). You can also bypass all IFX for the Layer by tapping and deselecting all of these 3 buttons. Layer Output setting is individual for each Layer.

You can also adjust the LFO amount, applied to each of three IFX effects on the selected Part (**Layer LFO to IFX** knobs). This setting is also individual for each Layer.

Mod Wheel Destinations knobs define, where the Modulation Wheel midi controller on current Part will be applied. There are 3 possible destinations, and the LFO Depth is the default one, meaning that by default Modulation Wheel controls the LFO Depth. This setting is also individual for each Layer.

Part IFX Routing. These four buttons at the bottom of the page define, how 3 IFX effects are interconnected between themselves on the current Part. It allows you to break them into sub chains.

For example, **SERIES** setting (default) gives you single chain consisting of 3 effects. **PARALLEL** setting gives you 3 chains, one IFX per chain. **MIXED 1->2 | 3** gives you 2 chains, first chain includes IFX 1 and 2, second chain includes IFX 3. **MIXED 1 | 2->3** gives 2 chains, first has single IFX 1, second chain has IFX 2 plus IFX 3. By varying Layer Output setting from IFX 1 to 3 you can decide, which IFX sub chain should process each Layer of the Part.

PARALLEL setting allows you to process layers independently in a separate IFX slot. This can be very useful
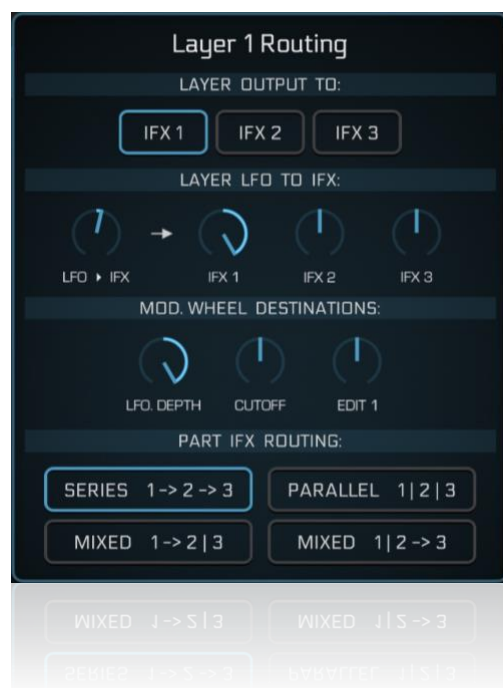
especially on the Drum Rack parts; it lets you to process each separate drum with one IFX effect of choice from the 3 available on the Part. Part IFX Routing setting is individual for each separate Part.

3.5 Part IFX

There are 3 Insert Effect (IFX) slots available for each Part. They are shown to the right next to the central display on the Sound Page. Tap on the empty slot with [+] symbol to add new IFX effect by selecting it from a list of 44 available IFX effect types.

Tap on the name of already loaded effect to change it to another one from a list. Tap the IFX On/Off button, located in the top left corner of each effect, to turn corresponding effect On/Off.

Tap and hold on the name of any loaded IFX effect to reveal its popup menu, which will provide such options as to Move effect Up/Down, Copy, Paste, Reset and Delete the effect.

Notice those 4 triangle arrows between IFX slots, which visualize currently selected signal flow. It can help you to understand what you are doing when changing the **Part IFX Routing** and **Layer Output** settings, described in the previous chapter 3.4 Routings Page.

Current available IFX list in GR-2 features following effects: Delay, Free Delay, Tape Delay, HAAS Delay, Chorus, Reverb (available for the Drum Rack Parts only), Flanger +, Flanger -, Equalizer, Equalizer X-Band, Exciter, LP / HP / Peak / DJ Filters, Talk Filter, Phasers (8 variations), Analog Drive, Overdrive, Distortion, Pure Drive, Slicer, Slicer 2, Filter Slicer, Auto Pan, Ducking, Off Beater, Decimator, Bit Crusher, Ring Mod, Stereo Width, Pitch Shifter, three Compressors (2:1, 4:1 and 8:1 ratio), Sidechain Compressor, Sidechain Gate and Limiter.

3.5.1 About Sidechain Effects

There are two sidechain effects available: Sidechain Compressor and Sidechain Gate. Besides the knobs, available in every IFX effect, there's one additional control in sidechain effects - **Sidechain Source**, located in the bottom left corner of the IFX slot in a form of a small square symbol. A number, located to the left of this square symbol, corresponds to the Part number, selected as sidechain source signal, or is **OFF** if there's no source selected yet. Tap this small square to enter the **sidechain source select** menu.

Notes when using sidechain IFX on Parts:
- Part, selected as sidechain source, is not allowed to have its own sidechain effects.
- Part, which already has sidechain IFX effect, cannot be used as sidechain source for any another Part;
- Part cannot be side-chained to itself.

These 3 limitations are the reasons why certain Parts sometimes cannot be found in the available **sidechain source select** list.

3.6 Part Equalizer

Each Part in GR-2 has its own Equalizer with specific settings. Equalizer can be accessed from its section, located right after the IFX section on the right side of the Sound Page. There are 3 knob controls: **LOW**, **MID** and **HIGH**, which you can use to color your sound immediately.

However, if you want more precise control over the Equalizer setup, tap the **EDIT** button, located in the top of the Equalizer section to enter Equalizer display, shown in the Figure to the right.

There are two types of Equalizers available – **Biquad** and **X-Band**. **Biquad** is usually used to tweak the sound spectrum in a moderate amount, while **X-Band** equalizer can entirely cut off the bands to the -Inf level.

You can use knobs to adjust EQ parameters, or you can drag the **L, M, H** control points on the graph.

3.7 Part Signal Flow

Every Part produces a sound signal, which flows corresponding to the following scheme:

```
Layer 1 Oscillator -> Filter -> Amp  x  Layer 1 Mix     ┐
Layer 2 Oscillator -> Filter -> Amp  x  Layer 2 Mix     ├-> IFX -> Part EQ  x  Part Level -> Part Output
Layer 3 Oscillator -> Filter -> Amp  x  Layer 3 Mix     ┘
```

Layer Oscillator is a sound source and can be one of the built-in instruments, such as Synthesizer, Sampler, WaveTable Synth or SoundFont player. It can also be integrated Poison-202 or Pure Acid module, or any AUv3 audio unit, whatever instrument is loaded on a Layer. Number of Layers can vary from 1 to 3 (16 on the Drum Rack Part).

Part Output can be set by tapping the corresponding button, located in the top of the OUTPUT section of the Sound Page (top right corner of the screen). There are 6 available destinations to select from: Master Bus, MFX 1, MFX 2, MFX 3 effects; FX A Bus and FX B Bus.

After the signal leaves the Sound Page, it then continues its path on the FX Buses Page, which will be described in detail in the separate chapter.

4. Clips Page

4.1 Clips Page Overview

From the Clips Page you can launch and stop midi Clips and Clip Scenes, as well as to create them and arrange, move around, copy, paste, duplicate, assign Follow Actions to them. Clip Page normally used when a Pattern is in Session mode (Song mode is Off). However, Clips also can be used in the Song mode, with a difference that starting any Clip will bypass the corresponding Song mode track and its timeline.

There are 16 rows and 16 columns in the Clip Session grid. Parts (1-16) are organized horizontally, along the X-axis. Scenes (1-16) are organized vertically, along the Y-axis at the right side of the grid. You can drag the grid up or down. In the upper bar of the Clips Page you can see the Part numbers, each with its own Mute (M) and Solo (S) button. At the end of this bar on the right side there are two small buttons, Selection Mode (with rectangle icon) and Follow Actions Mode (with gear icon). They intended to enter additional modes, which will allow to perform more operations on the Clips.
Clips which contain any recorded automation will display a small "A" icon in the bottom left corner of a Clip.

- To launch a Clip, tap on it one time. Clip will start automatically when synched to the beat;

- To stop a Clip which is already playing, tap it one time;

- To launch the whole Scene of Clips, tap the green "play" icon of the corresponding Scene in the right column;
- To stop all currently playing Clips, launch any empty Scene (which does not have any Clips on it);

- To Edit Clip contents, double tap on a Clip;

- To reveal clip popup menu, long tap on a Clip;

- To create a new empty Clip, double tap in the empty clip slot. An empty Clip of default clip length will be created. Note that default clip length can be changed from the Pattern Selector -> Pattern Parameters -> Pattern Length parameter.

- To copy a Clip, long tap on it and select Copy from the popup menu;

- To paste copied Clip, long tap the destination clip slot and select Paste from the popup menu;

- If a Part has a number of created Parameter Sets, you can assign certain Parameter Set to any Clip on this Part. To do so, long tap on the Clip and select "Parameter Set : X" from the popup menu, then select the Parameter Set you want to use in this Clip. Parameter Sets will be automatically switched with the Clips during the playback, allowing you to change various sound parameters of a Part or its Layers just by switching between different Clips.

4.2 Clip Select Mode

Tap on the small Select Mode icon , located in the upper right corner of the Clips Page, to enter Clip Select Mode. The button will turn white, indicating that you are now working in the Clip Select Mode and usual functions like launching Clips is not be available when in this mode. To exit Clip Select Mode, just tap this button again. In Clip Select Mode you can do following operations:

- To select any Clip, tap on it;

- To select multiple Clips, tap and hold until selection lasso will appear, and then drag it around to select more clips;

- To add or remove certain Clips to / from the current selection, hold SHIFT button and tap a Clip (or use hold for multi-selection);

- To deselect all, tap in the empty clip slot;

- To move selected Clip(s), tap on a Clip and drag it to another desired clip slot;

- To duplicate selected Clip(s), hold SHIFT button and drag selected Clip(s) to the new clip slot;

- To delete a group of selected Clips, tap and hold on them to open popup menu, and select "Delete Clip(s)" from this menu;

4.3 Follow Actions

With Follow Actions you can make clips in the session grid to automatically launch another clip during playback, using certain order or even randomly. Tap on the small gear icon ⚙, located in the upper right corner of the Clips Page. It will turn white, and all the Clips in the grid will reveal their Follow Actions settings (as shown in the Figure below).
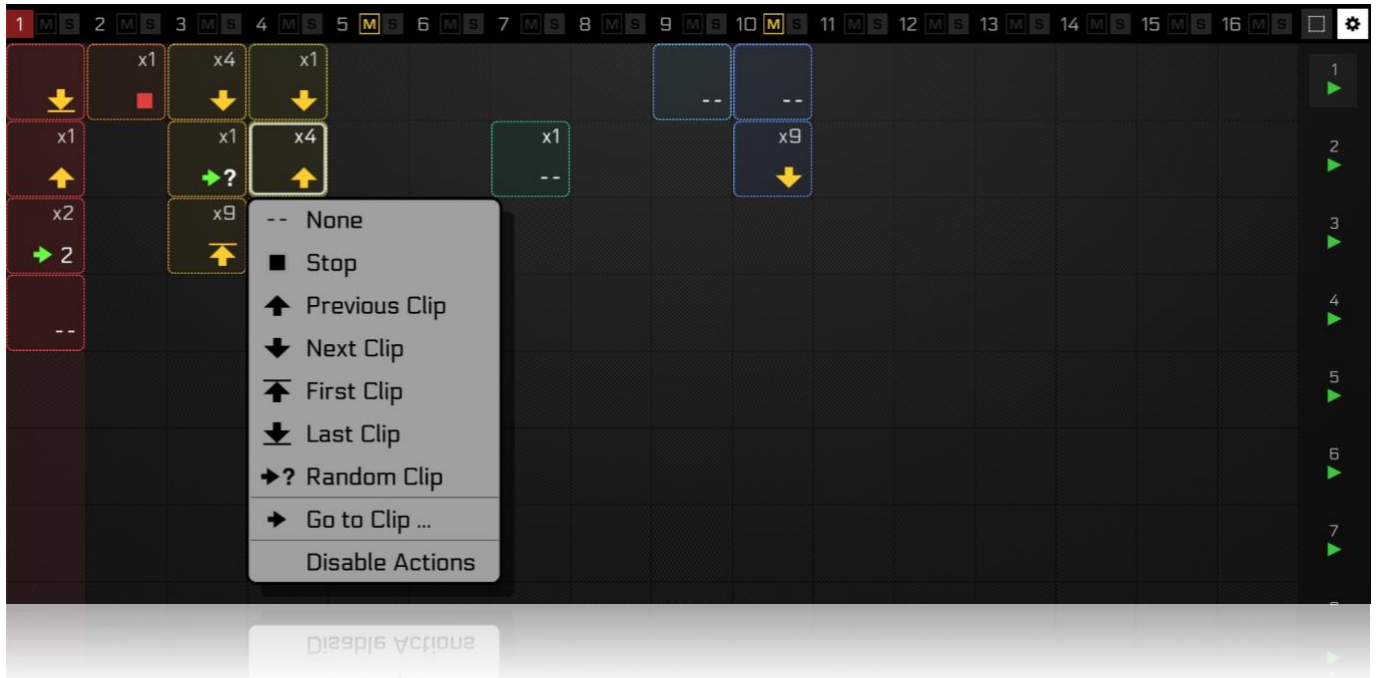
A Follow Action is an action, which will be performed on a Clip after it finishes playing its one full cycle (or several cycles, if set). Number of cycles is shown in the top right corner of a Clip as white x1, x2, x3… value. Clips that does have any Follow Action will only display "- -" symbol. To assign a Follow Action, tap on the bottom right corner of the Clip. A popup menu will show up, as displayed in the Figure above, where you can choose a type of Follow Action you want to assign:

- None : select it to remove Follow Action from a Clip;

- Stop : Clip will be stopped after playing X cycles;

- Previous Clip : go to the previous Clip in a column (one above) after playing X cycles;

- Next Clip : go to the next Clip in a column (one below) after playing X cycles;

- First Clip : go to the first Clip in the group of adjacent Clips after playing X cycles;

- Last Clip : go to the last Clip in the group of adjacent Clips after playing X cycles;

- Random Clip : go to random non-empty clip slot in a column after playing X cycles;

- Go to Clip… : you can enter any number from 1 to 16 to jump to the specific Clip in a column after X cycles will be played;

- Disable Actions : use this to bypass all Follow Actions in a Pattern without need of manually removing them on each Clip.

To set the number of cycles, which Clip should play before the Action will be performed, tap the upper right corner of a Clip and drag your finger up or down. Possible range for this number is between x1 and x256 (maximum).

4.4 Using Clip Scene Grid in Song Mode

While Clips Page mainly used in Session mode, there are several useful things you can do on Clips Page when your Pattern is in the Song mode.

- Hit Record on an empty song and launch Clips and Scenes as they play. Your live clip session performance will be recorded onto song's timeline, and you can later edit it.

- Add Clip from Clips Page to a Song Page timeline by long tapping on the Clip and selecting "Add to Song" from the popup menu;

- Launch Clips and Scenes during playback of the Song. Corresponding Song tracks will be automatically bypassed, letting your Session Clips to play. After this at some point if you want to go back to the proper playback of the song timeline, go to the Song Page and tap the blinking "Back to Song" button;

- Copy Scene from the Song Page back to the Clips Page. On a Song Page select some Clip (or some time region), which starts at the bar you want as a Scene start. Then, tap hamburger menu -> Copy Range. It will copy Clips in a specified time region to the clipboard. Then go to Clips Page, and in the empty clip slot long tap -> popup menu -> Paste Clips. The whole horizontal row (Scene) will be filled with the Clips copied from the Song timeline. Note, that copied Clips may sound a bit differently, than they were in the Song Mode, because of limitations of the Session Mode comparing to a Song Mode.

4.5 Print Midi feature

There can be a situation, when you have some midi processing activated on a Part. For example, you have a Part with Arpeggiator turned On, and you have a Clip, which is playing notes to control this Arpeggiator for it to generate its arpeggios. Or some AUv3 Midi Effect is loaded on a Layer, that generates Midi Note events. And you may want to capture these generated notes into a new Clip for further editing. This is where a **Print Midi** function comes into play. It allows you to record Midi Notes, generated on a Part, into a new midi Clip. To do so:

1) Ensure that playback is **stopped**.
2) Ensure that the **Song Mode** is **OFF**. Print Midi works only in Session Mode.
3) Ensure that a function you are going to record is **On** and **not bypassed**:
   a. If you are recording **Arpeggiator** output, ensure that the Arpeggiator is **On**, and that the Clip with your notes controlling the Arpeggiator is **armed to playback** on this Part (shows play icon on it).
   b. If you are recording an **AUv3 Midi Effect's** output, check that the Layer with this Midi Effect is **ON**; that the Midi Effect itself has Midi Out capability, and that the **Midi Output** is currently **enabled** on the Layer. If you have a Clip with source notes, it also must be armed to playback.
4) You can set **Pattern Length** parameter in the **Pattern Selector** to a number of Bars you want to be printed into a Clip.
5) On the Clips Page, long tap into the empty slot on the same Part, and from the popup menu select "**Print Midi Here**". Printing process will start and new Clip will be created.

If the "Print Midi Here" menu is not shown in the clip popup menu, it means that some condition from the list above was not met.

After the midi notes were successfully printed into a Clip, all midi processing on this Part will be automatically bypassed for your comfort, to prevent recorded material to be processed again, leading to unwanted results.

5. Edit Page

5.1 Overview

Edit Page (alternative names - **Note Editor**, or **Clip Editor**) is intended to edit Clip notes and automation. Tap on the **EDIT** tab in the Top Bar to open it. Notice a small clip icon, displayed inside the **EDIT** tab (green in the Figure below), which shows, if there is a launched clip (Active Clip) on Selected Part. If the clip icon is empty, it means there's no active clip selected on the Part (i. e. all clips are stopped). When you entering Editor by tapping the **EDIT** tab, it will automatically open currently active clip, and if there's no active clip, Editor will open an empty piano roll with a message "*No clip selected on this part*", and all the functions will be disabled. In this case you should go to the Clips Page (or Song Page) and directly double tap the Clip you want to edit.

In the upper row of the Editor Page there are main controls, from left to right:

- **Part & Clip** number text label, shows which Part and what Clip ID is currently opened. Tap this text label to reveal a drop-down list, showing available Clips of the currently selected Part. Select one from a list to immediately open it in the Clip Editor without the need of going to the Clips Page and select it from there. Choose **New..** to immediately create new Clip (in Session Mode only).

- "**Play**" icon, tap it to launch or to stop currently opened Clip;

- "**Loop**" icon, shows whether this Clip is looped (lit), or non-looped (grayed). Non-looped (one-shot) Clips play one time to the end and get stopped. They don't have a specific length set.

- [♪] Note symbol button. Tap it to switch between Normal mode and Scale Lock mode; Also, when you edit automation, tap this button to close automation editor.

- [# DRUM] Drum button. Shown only on Drum Rack Parts. Also, can be labeled "SLICE" if shown on a Part where the Slice mode is available. Tap this button for a drop-down menu, which allows to select drum (slice) viewing mode.
  - "Show All Drums" (or "Show All Slices") mode will allow to see all 16 drums (or slices), where each drum (slice) will be on its own separate lane.
  - "Show All Pitches" (or "Show All Notes") mode allows to see a merged picture of all drum pitches (or slice notes), written in the Clip.

- o "Drum XX Pitches" (or "Slice X Notes") modes allow you to access only one specific drum (or slice) and edit all of its pitches along the piano roll.

- **Automation button.** If there were any automations in the Clip, you would see the number of recorded automations next to this button. Tap button (or the label) to open automation drop down menu. If there's no automation here and you want to add one, you must start recording and move the control (knob or fader) on the Sound Page (or Mixer Page) to record some automation for desired control. Then you will be able to access automation curve by tapping this button.

- **Selection Tool.** Tap to enter selection mode, in which you can select and move notes around. Long tap in the empty clip area to activate selection rectangle, which will allow you to select several notes at once. Hold SHIFT while selecting to add or remove notes from selection. Move selected notes by dragging them. Hold SHIFT while moving to temporarily disable note's snapping to grid.

- **Pencil Tool.** Tap to enter the pencil draw mode, in which you will be drawing new notes as you tap in the empty area. Tap any existing note to delete it. Tap and drag to change note pitch up/down and note length of the new note.

- **Brush Tool.** In brush mode you will be able to draw a series of notes (their length depends on current Snap to Grid setting); Hold SHIFT while drawing to toggle mono / poly drawing mode. Monophonic mode is good for one-voice riffs and melodies, while polyphonic mode good for chords and drum patterns.

- **Eraser Tool.** Erase single notes, or use long tap for multi-selection.

- **Mute Tool.** Use it to mute certain notes which you don't want to be played but don't want to delete them also. Muted notes displayed with thin gray outlines. Use long tap for multi-selection.

- **Hamburger Menu button.** There's a list of operations you can do with selected notes from this drop-down menu, such as Copy, Paste, Cut and Delete notes, Split them at cursor, Halve or Double timing of selected group of notes, Duplicate them. A "*Duplicate Loop*" function will be shown in this menu if no notes are selected. This function can help, for example, to quickly double the number of bars in the current Clip at one tap.

- **Quantize button.** Tap it to reveal Quantize Panel, where you will be able to select desired quantize size and perform a quantize on selected group of notes (QUANTIZE button). ENDS button in the Quantize Panel toggles the option to quantize note endings.

- **Snap to Grid button.** Tap it to reveal Grid Settings Panel. A small dot icon in the left top corner of this button indicates if Snap is currently On. Long tap this button to toggle Snap On/Off without entering the panel.

- Mute Part button (M). Use to Mute / Unmute current Part (same button as in the Mixer).

- Solo Part button (S). In case you need to hear the Clip in solo.

5.2 Note Modifiers

When you select one or several notes, you'll notice 5 additional white buttons, called Note Modifiers, which will appear on the left and bottom of the Note Editor. Tap any of them and drag in the corresponding direction to change Note Position (" MOVE "), Pitch (" ♪ "), Length (" LEN "), Velocity and Trigger Condition (" % "). The latter will be described in detail in the next chapter 5.3 Trigger Conditions Explained.
If a Sampler instrument is loaded on some Layer of the current Part, you will also see a Sample Reverse modifier (" R "), which will allow you to turn on/off the Sample Reverse for selected note(s). If Reverse Modifier is grey, it is Off. Green color means Reverse is On, full length. Yellowish color means Reverse is On, but half length.

- Hold down **SHIFT** while moving up or down the Velocity modifier to make quick velocity ramps. This feature works only if more than one note is selected.

- Hold down **SHIFT** while moving Note Positions or Note Lengths to temporarily bypass the Snap to Grid function if it was On.

5.3 Trigger Conditions explained

There may be some cases, when you would want a note in your Clip to be triggered only at certain moment of time. A most common example for this is the Crash Cymbal, which you would want to be played only once at the beginning of the Clip, and then never again while this Clip loops. Or once per 8 clip playback cycles. Or even randomly, with a given probability value. You would also want some notes in a Clip to be played only when you activate a special "Fill" mode. Trigger Conditions can help you to program a 1-bar Clip to sound like it has multiple different bars, with drum fills or some extra notes, which will appear only on the certain clip's playback cycle. All these aspects can be covered using *Trigger Conditions*.

In the Note Editor you can edit Trigger Conditions of any note by selecting a note (or several notes) and moving the (" % ") modifier up or down. If you drag the value forward, you will see different trigger condition options, described below. If you drag the value backward, you will see a probability options for a given note.
Holding down the **SHIFT** button changes the units of value adjustment.

Trigger condition types and their descriptions:

--- means that no trigger condition is assigned to the currently selected note; A note will be played normally, every time it is triggered by a sequencer.

XX% percentage value indicates, that a probability of playback is assigned to the current note. A note will be triggered randomly, with a given probability, from 1% (very rare) to 99% (very often).

Prev this value indicates, that current note will be triggered in accordance with the most recent evaluated trigger condition in the current Part. It copies the condition of the *previous* note in the Part. Use it to group several notes, that intended to be played using exactly the same trigger condition, which precedes them.

!Prev the same as "**Prev**", but uses the opposite (inverted) value of the most recent evaluated trigger condition on the current Part. A note will be played, if the previous trigger condition was not triggered, and vice versa.

NPar this value indicates, that current note will be triggered in accordance with the most recent evaluated trigger condition in the Neighboring Part. Neighboring Part is the part with previous index number. This value is mostly used if you need to interconnect several conditional notes, which belong to different (neighboring) Parts.

!NPar the same as "**NPar**", but uses the opposite (inverted) value of the most recent evaluated trigger

condition in the Neighboring Part. A note will be played, if the previous trigger condition on the Neighboring Part was not, and vice versa.

1st   means, that the note will be triggered only once, during the first playback cycle of the Clip.

!1st   the same, as "1st", but inverted. A note will be triggered every time, except during the first playback cycle of the Clip.

Fill   this value indicates, that a note will be triggered only when the *Fill mode* is activated. To activate the *Fill mode*, just hold down the SHIFT button during pattern playback. A Fill mode is deactivated when you release the SHIFT button.

!Fill   the opposite of previous condition: a note will be triggered when *Fill mode* is not activated, and will be silent while *Fill mode* is active.

A:B   this type of trigger condition is used, when you want a note to be triggered once during the given number of Clip playback cycles.

Examples:

1:4   a note will be triggered on the 1st of each 4 playback cycles (on 1st, on 5th, on 9th and so on);
2:3   a note will be triggered on the 2nd of each 3 playback cycles (on 2nd, on 5th, on 8th and so on);
1:2   a note will be triggered on the 1st of each 2 playback cycles;
2:2   a note will be triggered on the 2nd of each 2 playback cycles;
4:4   a note will be triggered on each 4th playback cycle (4th, 8th, 12th, 16th and so on).

!A:B   the opposite of "A:B". Condition value is inverted. It means, a note should be triggered every time, except for those cases, that match the "A:B" condition described above. Examples:
!1:4   a note will be skipped on the 1st of each 4 playback cycles, but will play normally on the 2nd, 3rd and 4th playback cycles;
!2:3   a note will be skipped on the 2nd of each 3 playback cycles (on 2nd, on 5th, 8th and so on);
!1:2   a note will be skipped on the 1st of each 2 playback cycles;
!2:2   a note will be skipped on the 2nd of each 2 playback cycles;
!4:4   a note will be skipped on the 4th playback cycle (4th, 8th, 12th, 16th and so on).

6. Song Page

6.1 Song Page Overview

At some point when playing with Clips in Session Grid of your pattern, you will want to put clips together in a certain order to create a full composition, or a Song. This is what Song Page is intended for. Tap SONG tab to open the Song Page. Tap SONG MODE button to switch Song Mode On or Off. Song Timeline is enabled only when the Song Mode is On. When Song Mode is On, the SONG button and the tab becomes yellow.

On this page you will see 16 tracks, each of them represents one Part of the loaded Pattern. In the bottom of the track list there will be 3 additional tracks: FX A Return, FX B Return and MASTER. These 3 tracks cannot host any clips and can store effect automation data only. FX A and FX B tracks can store automation of the effects, loaded into the slots of FX A and FX B Return buses (see FX Buses Page). MASTER track can store automation of the Master Bus effects and automation of the MFX effects. Note, that the automation of FX A and FX B bus effects, Master bus effects and the MFX effects can be recorded and played only when the Song Mode is On.

- You can zoom in and out into timeline by using a pinch in/out gesture with two fingers.
- Double tap in the timeline to create an empty Clip.
- Tap any Clip to select it. Tap any Clip holding SHIFT to expand selection region (add to selection).
- Drag selected Clip(s) forward, backwards or even between the tracks.
- Drag Clip Start and Clip End points to change them.
- When one or several Clips are selected, tap the hamburger menu button to perform various operations on selected Clips.
- Double tap any Clip to open it in the Note Editor.
- Use the Selection Tool to select several Clips or select certain time region of the Song.
- Use the Eraser Tool to erase clips fully or partially.
- Use the Mute Tool to mute / unmute certain Clips at your wish.
- Tap the Automation button (when it's yellow) to reveal a drop-down automation menu, similar as in the Edit Page for the Clip automation. The menu will have a list of previously recorded song automations for the corresponding Part. Tracks which have recorded automation are marked with the small "A" icon under the Part name in the left panel of Song Page. To get access to the new automation, you must first record this automation by tapping Record button, and then during recording to move the control you want to automate.

7. FX Buses Page

7.1 Overview

On this page you can setup both FX A and FX B effect chain, Master Bus chain, and also have access to the MFX effects. FX A and FX B buses (or chains) are represented in the first column (FX A, blue color) and in the second (FX B, green color). Each chain has 3 effect slots, where you can load build-in bus effects as well as AUv3 audio unit effects. Master bus is the last column (red color), also has 3 effect slots. Three MFX pads are displaced in between (they are Reverb, Mod Delay and DJ Filter on the Figure above).

Couple of words on how the signals flow from the Parts into the FX buses:
- **FX A Return** bus receives the mix of all Parts audio outputs, multiplied by their **Send A** level values, plus the output of the Parts, which have set their Part Output parameter to **FX A**.
- **FX B Return** bus receives the mix of all Parts audio outputs, multiplied by their **Send B** level values, plus the output of the Parts, which have set their Part Output parameter to **FX B**.
- **MFX 1, 2, 3 Effect** receives output of those Parts, which have Part Output parameter set to **MFX 1**, **MFX 2** and **MFX 3** correspondingly.
- **Master Bus** receives a mix of signals from those Parts, which have their Part Output parameter set to **MASTER**, plus the output from the MFX effects and both FX buses (depends on currently selected signal routing configuration).

In the right of the FX Buses Page there is a master channel slot, the same as on a Mixer Page. It has the **Master Level** fader, which sets the output volume for the entire Pattern (this value is unique for each Pattern and saved within each Pattern). Two knobs **RTN A** and **RTN B** set the output volume level for the FX A and FX B buses in the final mix. Red **LIMITER** button turns On/Off the output sound limiter; this button state is global setting in the GR-2 app and is not saved within the Patterns.

In the bottom part of the master slot there's a **LUFS** indicator, which allows you to monitor the output loudness of your composition comparing to the LUFS standard. The golden rule about LUFS is that if you can rise an output loudness of your composition up to -7 LUFS without significant audible distortion, then it means you have mixed and balanced your track properly.

Another golden rule for the Master Bus is to always use a Maximizer (or Limiter) effect on the last (3ʳᵈ) slot of the Master Bus (as shown in the Figure above).

Here a list of operations you can do on the FX Buses Page:

- You can Solo FX A or FX B bus by tapping the (**S**) button on the top of corresponding effect chain.

- You can change signal routing by setting the destination point for each FX bus by tapping the Route button ⟳ above each FX bus chain and MFX. After changing the routing, you will notice the schematic arrows will change their directions, helping you to understand the modified signal flow.

- To load a bus effect into the empty slot, tap the (+) rectangle and then select desired effect from the list.

- To load a bus effect into already occupied slot, tap on the effect's name (next to the effect's ON button) and select the new effect from the list. To empty the slot, choose "---" from the effect list.

- To change MFX effect type, tap the "plug" icon in the top left corner of the MFX effect, and then select desired MFX effect type from a list.

- To change order of the effects in the chain, long tap on the bus effect's name to reveal a popup menu, where you can Move effect up / down, as well as to Delete it and Reset (to defaults).

- Tap on the XY button, located in the top right corner of the FX Buses Page to toggle XY mode. Note, that when XY mode is On, you will not be able to change effect type unless you turn XY mode back to Off and tap on the effect's name.

7.2 Bus Effect Types

Here is a list of bus effect types, which can be assigned on the FX and Master buses: Delay, Delay Free, Tape Delay, Chorus, Flanger +, Flanger -, Equalizer, Equalizer X-Band, Exciter, LP / HP / Peak / DJ / Talk Filters, Phaser (7 variations), Analog Drive, Overdrive, Distortion, Pure Drive, Slicer, Slicer 2, Filter Slicer, Ducking, Off Beater, Decimator, Bit Crusher, Stereo Width, Compressor (2:1, 4:1 and 8:1 ratio), Sidechain Compressor, Sidechain Gate, Limiter, Maximizer and AUv3 audio unit effect.

All these effects can be automated in the Song Mode. To record automation, tap Record button and Play, and then move any desired control during the recording. Automation is stored in the FX A, FX B or MASTER track of the Song Page, and can be edited once it has recorded.

8. Mixer Page

8.1 Overview

On the Mixer Page, you can see all 16 Parts at one time as mixer channels. In this view, you have an instant access to every Part's Level fader, Pan knob, Send FX A & FX B knob, as well as Part's Mute and Solo buttons. This helps to instantly adjust the mix of the Pattern by controlling all the Parts at one time on one page.

If you collapse down the Pads panel in the bottom, a Mixer Page get more screen space and will reveal additional knobs, such as Equalizer controls **LO**, **MID** and **HI** for each Part. Double tap Part's icon in the bottom of the channel strip to immediately open its Sound Page.

At the right of the Mixer Page there is a master channel slot (the same as on FX Buses Page). It has the **Master Level** fader, which sets the output volume for the entire Pattern (this value is unique for each Pattern and saved within each Pattern). Two knobs **RTN A** and **RTN B** set the output volume level for the FX A and FX B buses in the final mix. Red **LIMITER** button turns On/Off the output sound limiter, which prevents from overloading the output; this button state is global setting in the GR-2 app and is not saved within the Patterns.

In the bottom part of the master slot there's a **LUFS** indicator, which allows you to monitor the output loudness of your composition comparing to the LUFS standard. The golden rule about LUFS is that if you can rise an output loudness of your composition up to -7 LUFS without significant audible distortion, then it means you have mixed and balanced your track properly.

8.1.1 Moving / Displacing the Parts. You can move and change the order of Parts in your Pattern from the Mixer Page. To do so, long tap on the Part's icon in the bottom of the channel strip. The channel will popup. Drag it left or right to a new place and drop. After such rearranging Parts numbers will change, corresponding to a new Part's order.

8.1.2 Multi-Soloing the Parts. Hold down **SHIFT** button while tapping **Solo** buttons on the mixer page to make multi-soloing of the Parts. You can also just tap one **Solo** button and swipe it to the left or right to solo or mute several parts in a row!

9. Browser

9.1 Overview

Browser is a window, where you can easily manage your media files, located in GR-2 Documents folder, as well as built-in Factory content. Tap the BROWSE tab to open the Browser. In the left column of the window there are 2 tabs: **User** and **Bank A**.

      User tab contains all the user files (samples, wavetables, soundfonts), located in the GR-2 *Documents* folder, as well as manually saved **Part**, **Layer** and **Drum Rack** presets. **Bank A** tab allows to access built-in Factory samples, wavetables and presets. Content is marked with color to help to distinguish between these tabs: **User** icons and folders are *blue*; **Bank A** Factory icons and folders are *yellow*.

      On the right side of the Browser window, you can see the content, folded into 6 sections: Samples, WaveTables, SoundFonts, Layer Presets, Part Presets and Drum Rack Presets. Tap any section to expand it and view its contents. Tap on the section label again to collapse and go back to the sections list (you can also use Right Swipe gesture to go back).

- To open any folder in the content list, tap it twice.

- To exit opened folder one level up, tap twice on the "Back" label on the top of the list, or use Right Swipe gesture.

- To preview a Sample, WaveTable or a Preset, tap it one time. It will become selected and the preview will start to play. Adjust the level of preview playback by adjusting the headphones knob in the bottom left corner of the Browser window.

- To load selected file into currently selected Layer or Part, tap "LOAD to PART X : LAYER Y" button, located in the bottom of the window. This button is enabled when appropriate file is selected.

- To Rename or Delete any file from the list (or even a folder), first select it by tapping it, and then use Left Swipe gesture to reveal the red "Menu" button. Tap this red button and select appropriate action from the dialog.

Note: you can freely delete sample files or even folders from the User tab, as well as from the GR-2 Documents folder. It will not affect existing saved Patterns, as all the files, used by Patterns, are already cached inside GR-2 internal file cache, which is independent from the Documents folder.
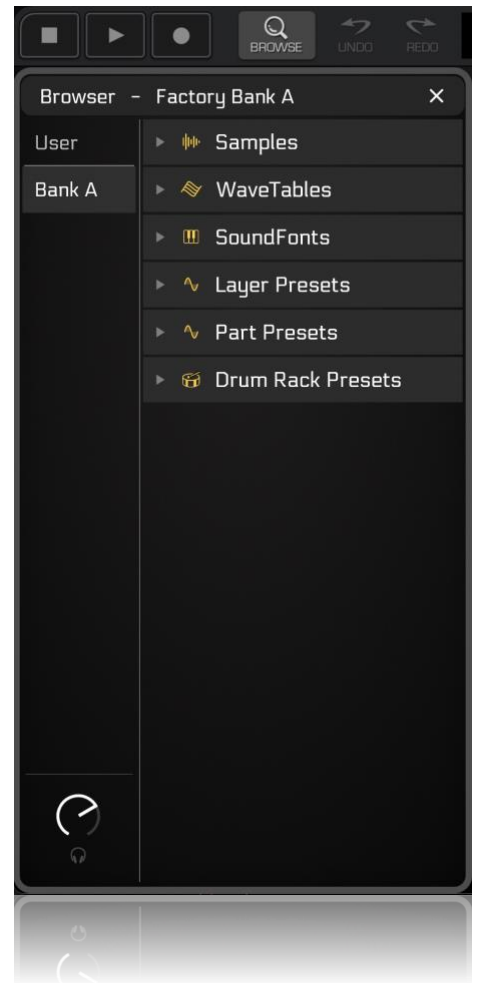
10. Built-In Instruments

10.1 Synthesizer

To add a Synthesizer Layer to Melodic Part, long tap on the free Layer " + " tab and select "Add Synth" from the drop-down list. To access its interface (shown in the Figure), tap the EDIT button in the Layer Oscillator section.

Synthesizer instrument has 2-oscillator sound engine. Two oscillator windows (OSC 1 and OSC 2) display currently selected waveform for each oscillator (both set to Saw in the Figure). The MIX knob between them sets the volume balance between oscillators (some controls may appear disabled, depends on currently selected Modulation Type algorithm).

SuperSAW Detune and Mix knobs. These knobs are enabled only when a Super Saw waveform is selected for OSC 1 or OSC 2, and control two classic Super Saw parameters, that define its sound.

EDIT 1 and EDIT 2 knobs are clones of the corresponding E1 and E2 knobs of the Layer (Oscillator Section). Two buttons, next to these knobs, allow to choose a parameter, which will be controlled by each of these knobs. EDIT 1 parameter can be modulated with on-layer LFO, while EDIT 2 parameter is constant and can be changed only using automation.

Available oscillator waveform types are Saw, Square, Sine, Triangle, Super Saw, Noise, Noise Decimated, Chip Noise and Reso Noise. Number of available waveform types may vary and depends on currently selected Modulation Type and oscillator index.

Synthesizer supports 7 Modulation Types, which can be selected by tapping on the corresponding radio buttons in a list at the left side of the Synth interface. Here's some explanation of Modulation Types:

- **OFF** : In this mode both oscillators are generating their own independent signals. You can control the Pitch of Oscillator 2, Detune (affects both oscillators), and Mix between the Oscillators. Only in this mode there are four Noise waveform types available in the menu for the Oscillator 1. If you select one of them, the "**Noise Filter**" parameter will appear on the EDIT 1 knob, allowing to tweak noise color of the selected waveform.

- **SYNC** : In this mode Oscillator 2 frequency and phase is synchronized to the frequency of Oscillator 1. You can control Pitch of Oscillator 2, Mix and Detune.

- **XFM** : So called "Cross FM Modulation" mode. In this mode Oscillator 1 is cross-modulated by the Oscillator 2. You can control Oscillator 2 pitch, Mix between oscillators and XFM depth.

- **RING** : Ring modulation mode. Output of both Oscillators is being multiplied, resulting in various metallic color effects when changing the pitch of Oscillator 2 and Mix between Oscillators.

- **BOOST** : Both Oscillators are processed with a soft-clip saturator. You can control the gain level (Boost) and pitch of Oscillator 2.

- **PW / PHASE** : In this mode both Oscillators set to have the same waveform from 4 available (Saw, Square, Sine or Triangle). By adjusting the PW parameter, you change the Pulse Width when Square waveform is selected, or the Phase when Saw, Sine or Triangle waveform is selected.

- **PW + SYNC** : This mode combines Sync and Pulse Width modulation types. Oscillator 2 is always set to Square, and its frequency is synchronized to the frequency of Oscillator 1. EDIT 1 knob is locked to control the pitch of Oscillator 2, resulting in Sync modulation. EDIT 2 knob is locked to control the Pulse Width of Oscillator 2.

You can tweak Synthesizer parameters by yourself, to create your own unique sounds. Or you can select from

a list of 282 ready synth programs. To open this list, tap on the hamburger menu icon in the top right corner of the Synthesizer interface.

10.1.1 Synthesizer Settings

Each Synthesizer Instrument has its own unique set of internal settings. To access them, tap on the Settings icon in the top left corner of the Synthesizer interface window.

On the Synth Settings screen you can edit the **Micro Scale Tuning** of the Synthesizer by dragging 12 sliders up or down, which will result in fine-tuning the corresponding note in a scale by maximum +/- 100 cents up or down. This way you can create non equal tempered scales to be used in ethnic music styles. To return slider value to the normal middle position, hold down **SHIFT** button while dragging the slider.

- **PITCH** knob performs a midi transposition of the Synthesizer (similar to transposing all notes up or down in the Notes Editor).

- **BEND RANGE** knob sets the pitch bend range, from 2 to 24 semitones.

- **SCALE TUNING** knob sets the pitch step between two adjacent keys of the Synthesizer. When set to 0, there is no difference in pitch of all keys from C-2 to G8, and they all will sound with the same pitch. Use it when you don't want Synthesizer sound to depend on the pressed key pitch. When set to middle position (100 cents, default), the pitch step between two adjacent keys equals 1 semitone which is default for 12 tone equal tempered scale. When set to maximum (200 cents), pitch step will be 2 semitones and the whole keyboard will transform into a Whole tone scale.

- **POLYPHONY** knob. Sets the maximum number of simultaneously played voices, from 1 to 16. Set it to minimum to turn Synth into a mono (solo) voice mode. Larger values can result in a heavier CPU load.

- **VEL to AMP** knob. Sets the amount, at which the Midi Note Velocity parameter will affect the voice loudness.

- **VEL to FILTER** knob. Sets the amount, at which the Midi Note Velocity parameter affects the Layer Filter.

- **VOLUME** knob sets the output volume level of the Synthesizer.

When using a Synthesizer Instrument on a Drum Rack Part, the **PITCH** knob of the Synth Settings screen will be replaced with the **EXCL GROUP** knob. This parameter allows to assign a Synth to certain Exclusive Group (from 8 available). Exclusive Groups are widely used in the synthesizers and sound modules. They allow to mute sounds which are assigned to the same exclusive group, allowing only one sound from the exclusive group to play. This is useful, for example, when playing Hi Hats sounds, where you have 2 different sounds (one for Closed Hi Hat and the other for Open Hi Hat), and you want triggering one of them to immediately mute the other, to sound more realistic.

10.2 Sampler

10.2.1 Overview

To add a Sampler Layer onto Melodic Part, long tap on the free Layer
" + " tab and select "Add Sampler" from the drop-down list. You can
also add a Sampler by loading any sample from the Browser's
Samples section, which will automatically add a Sampler Layer and
load selected sample into it. To access its interface (shown in the
Figure), tap the EDIT button in the Layer Oscillator section.

 If the Sampler is empty (no sample loaded yet), you will not
see a waveform in the Sampler display. You can tap the LOAD button
to open sample list, which is very similar to the Browser window list,
showing you files and folders. Note that you can only access user
samples from the Sampler (files, located in the GR-2
Documents/Samples folder), and you cannot access Factory content
from here.

 To zoom in / out the waveform display, tap the waveform with
one finger and drag it up or down. Move your finder left or right while
holding it to scroll thru the sample waveform forward and backward.

 At the bottom of the Sampler interface there are 4 knobs. START knob sets the start position of the
loop region in the sample (position from where it will start to play every time a note is triggered). LENGTH
knob sets the loop region length. DECIM knob sets the amount of Decimator effect, applied to the output of
the Sampler. BOOST knob boosts the gain of the sample and adds a Distortion due to introduced clipping.

 By default, START parameter is assigned to the E1 knob of the Layer Parameters, and the LENGTH
parameter assigned to the E2 knob. However, you can swap them by tapping the "E1 – E2 Assign" control,
located at the bottom. There are 3 assignment options available, allowing you to pick one of 3 parameters
(START, LENGTH or DECIM) for the E1 knob (which is the only Edit knob that can be modulated with the on-
layer LFO, as mentioned before).

 FORWARD / REVERSE button sets the playback direction of the sample.

 Tap the EDIT… button to open loaded sample in the Sample Editor. Sample Editor will be described
in detail later in this manual.

10.2.2 Sample Loop Modes

There are several looping options you can select for the loaded sample, and the middle button (next to the
LOAD button) allows to set Loop Mode:

- **No Loop**. In this mode sample plays only once when a note is triggered, from the start of the
  selected loop region. Sample stops when:
  o it reaches the end of the loop region during the Note is being held;
  o after a Note was released and when Envelope's Release phase is over (if ADSR Envelope on
    this Layer is set to either ADSR to AMP or RELEASE to AMP);
  o immediately when a Note is released (if ADSR Envelope on this Layer is set to OFF).

- **Loop**. In this mode sample's playback is continuously looped from the start to the end of the loop
  region. Sample looping in this mode is not classical. It performs micro cross fades at every loop
  region end. It allows loop to sound smoothly without clicking; however, this mode is not suitable for
  creating perfect matched classic loops without any smoothing. Sample stops:
  o after a Note was released and when Envelope's Release phase is over (if ADSR Envelope on
    this Layer is set to either ADSR to AMP or RELEASE to AMP);
  o immediately when a Note is released (if ADSR Envelope on this Layer is set to OFF).

- **Ping Pong**. Same as Loop, but the playback goes between the start and the end of the loop region
  by changing play direction from forward to reversed and vice versa every time it reaches the region
  bounds (i.e., playback bounces between region start and region end like a ping pong ball). This

mode helps sometimes to make loops sound smoother. Note: Ping Pong mode is available only when Sample Warping is OFF.

- **One-Shot**. In this mode sample plays one time from the start to the end of the loop region. Sample stops when:
  o it reaches the end of the loop region during the Note is being held;
  o after a Note was released and when Envelope's Release phase is over (if ADSR Envelope on this Layer is set to either **ADSR to AMP** or **RELEASE to AMP**);
  o at the end of the loop region (if ADSR Envelope on this Layer is set to OFF), not depending on when a Note gets released, thus, allowing to play the loop region fully (so called one-shot).

- **Pass Thru**. Used when Slice mode is ON. Allows slices to ignore their end points and continue to play thru all the slices to the end of the sample during a Note is being held. Sample stops:
  o when sample end is reached during Note is being held;
  o after a Note was released and when Envelope's Release phase is over (if ADSR Envelope on this Layer is set to either **ADSR to AMP** or **RELEASE to AMP**);
  o immediately when a Note is released (if ADSR Envelope on this Layer is set to **OFF**).

- **Start -> Loop**. Playback starts at the beginning of the whole sample (not just at the beginning of the loop region) and then loops within the loop region. In this mode loop is classical, without any fades or smoothing, and can be used to create perfect matched classic loops. Sample stops:
  o after a Note was released and when Envelope's Release phase is over (if ADSR Envelope on this Layer is set to either **ADSR to AMP** or **RELEASE to AMP**);
  o immediately when a Note is released (if ADSR Envelope on this Layer is set to **OFF**).

- **Start -> Loop -> End**. Playback starts at the beginning of the whole sample, then loops within the loop region while Note is being held. After Note is released, loop region is ignored and sample continues to play all the way to its end. Looping in this mode also classical, without smoothing cross fades. Sample stops:
  o after a Note was released and when either Envelope's Release phase is over (if ADSR Envelope on this Layer is set to either **ADSR to AMP** or **RELEASE to AMP**), or when playback reaches the end of the whole sample;
  o immediately when a Note is released (if ADSR Envelope on this Layer is set to **OFF**).

- **Loop -> End**. Playback starts at the loop region's start, then loops within the loop region while Note is being held. After Note is released, loop region is ignored and sample continues to play all the way to its end. Looping in this mode also classical, without smoothing cross fades. Sample stops:
  o after a Note was released and when either Envelope's Release phase is over (if ADSR Envelope on this Layer is set to either **ADSR to AMP** or **RELEASE to AMP**), or when playback reaches the end of the whole sample;
  o immediately when a Note is released (if ADSR Envelope on this Layer is set to **OFF**).

10.2.3 Sample Warp

Sample Warping is a technique, which involves certain time-stretching algorithms to shrink / expand sample length to exactly fit the given pattern tempo. Sample Warping is very common technique among the most popular software sequencers and DAWs. In GR-2, Sampler instrument supports this feature too. When talking about Warping, it usually means that we are dealing with some sample loop, which we want to be automatically stretched to the current tempo. Groove Rider 2 supports warping of sample loops, which must be already perfectly looped and contain the exact number of beats from the following list: 1, 2, 4, 8, 16, 32 or 64 beats. However, if a sample is not perfectly looped, you can still try to edit it in the built-in Sample Editor.

There are two buttons in the Sampler interface, which control Sample Warping, shown in the Figure on the right. First button switches Warping On / Off. Second button shows currently selected Warp Mode (currently it is "Beat Slice"), and opens a Warp Settings window when tapped (shown in the Figure below).

In the Warp Settings window, you can see a set of buttons, from left to right:

On / Off button (on the left), which just doubles the corresponding button from the main Sampler interface and switches Warping On and Off;

Warp Mode select button (in the middle), which displays currently selected Warp Mode ("**Beat Slice**" in the Figure). Tap it to select desired Warp Mode from 3 available: Beat Slice, Repitch or Texture.

Beats Number button (on the right). Tap it to change the number of beats which your sample contains, especially if it plays too fast or too slow. Adjust this number to make your sample match the pattern tempo in desired way. There also two small buttons under the Beats Number button, which allow to change a number of beats by dividing or multiplying current number of beats by a factor of 2. Use them to make quick adjustments without the need of going into the menu.

Let's talk about Warp Modes. As already mentioned above, there are 3 Warp Modes available:

- **Beat Slice** mode. In this mode, a sample is being automatically split into a number of smaller sub-slices (not to mix with manually created Sample Slices, a separate independent function which will be discussed further). Each sub-slice is getting stretched to the pattern tempo and then played back at certain time positions. When this mode is selected, there will be two additional buttons and one knob shown in the Warp Settings window, which control the additional parameters of Beat Slice Warping, such as:

  - o **Beat Snap** button ("Transients" button in the Figure above). Tap it to choose a method how sample will be split into sub-slices. "**Transients**" setting means that the sample will be split into sub-slices at positions, snapped to the detected transient points. This can be effective on drum loops and samples with distinct rhythmic elements and sharp attacks. Other settings, like **Bar, 1/2, 1/4, 1/8** and so on, mean that the sample will be split into sub-slices equally, at positions snapped to the grid, according to selected setting. These can be useful on samples without clear distinct rhythm and slow attacks, where the transients can fail to be detected properly.

  - o **Beat Stretch** button (a button with two arrows in the Figure above). Defines a way, in which every sub-slice will be prolonged in time, when a sample is being slowed down as it will inevitably introduce small gaps between the sub-slices. When **Repeat** or **Ping Pong** values are selected, a sub-slice length is prolonged by a small repeating looped pattern at the very end of each sub-slice, filling the gaps between them. **One-Shot** type of stretch does not change the sub-slice length and just leaves silent gaps between the sub-slices.

  - o **DECAY** knob. Introduces a short decay envelope inside each sub-slice, making them sound shorter.

- **Repitch** mode. Does not perform any time stretching, just changes the pitch of the entire sample to match the given pattern tempo. No additional parameters are shown when in this mode.

- **Texture** mode. A classical time-stretch algorithm. Shows two additional knob controls: **GRAIN** and **FLUX**, which directly affect the time-stretching sound. You can experiment with these two knobs to achieve interesting results.

10.2.4 Sample Slices

Every sample, loaded in a Sampler, can be split into 16 Slices, which then can be triggered separately. By default, Slice Mode is OFF, and the SLICES… button in the Sampler interface window is gray (refer Figure in 10.2.1). Tap on this button to open the Slice Settings window. Enable Slice Mode by tapping **On / Off** button. To automatically split your sample into slices, tap the **AUTO** button, and choose which method to use from the given two: **Transients** or **16 slices**. Transients – a sample will be split at automatically detected transient points, and only first 16 points will be used. 16 slices – a sample will be split into 16 equal slices across the whole sample length.

Tap the Left ("<") and Right (">") arrow buttons to select a Slice you wish to edit. Index of currently selected Slice is shown between these two buttons, and the Slice will be selected on the visual waveform display. For each selected Slice you can tweak 3 parameters, represented with 3 knobs: **START**, **LENGTH** and **PITCH**.

You can play and record created Slices by triggering the onscreen Pads when a Pad Mode "**SLICES**" is selected. If you want to play different pitches of the same Slice, you must first tap desired Slice Pad when in "**SLICES**" Pad Mode, and then switch to the "**KEYS**" Pad Mode, where you will be able to trigger different notes of currently selected Slice.

Note, that when Slice Mode is On, the **E1** and **E2** Layer Parameter knobs will be disabled.

10.2.5 Sampler Settings

Each Sampler Instrument has its own unique set of internal settings. To access them, tap on the Settings icon in the top left corner of the Sampler interface window. Sampler Settings window is very similar to the Synth Settings window, discussed in the section 10.1.1, except that there is one more knob setting called **VEL to S.POS**, which defines the amount, at which a Midi Note Velocity value will affect the starting sample position when a Note is triggered. Positive values of the knob: the greater the Velocity value, the larger sample start offset. Negative values vice-versa: the smaller the Velocity value, the larger sample start offset.

10.3 WaveTable Synthesizer

10.3.1 Overview

WaveTable synthesis built on using short wave loops to produce output signal. These short wave loops represent one period of a waveform, and are stored in a special .wav format files. Each of these files usually contains a number of a separate one-period waves (to tens or even hundreds), and every wave differs with its own timbre and character. These waves are then played back, and modulating the wavetable position parameter creates a dynamic timbre change, which emulates the sound of different synthesizers.

To add a WT Synth Layer onto Melodic Part, long tap on the free Layer " + " tab and select "Add WaveTable" from the drop-down list. It will load a blank WT synth on currently selected Part. You can also load any preloaded build-in WaveTable from the Broswer by selecting from a range of built-in Factory Bank A wave tables. To access its interface (shown in the Figure), tap the EDIT button in the Layer Oscillator section.

In the WaveTable interface you can see a 3D graph, displaying all the waveforms of loaded WaveTable file. Tap **LOAD** button to open loader and access your WaveTable files, previously placed into GR-2 Documents/WaveTables folder. Note, that only Serum wav format wave tables are compatible with GR-2. Factory WaveTables are not accessible from this loader, but you can find them from Browser -> Bank A -> WaveTables.

WAVE POS knob selects one wave from all available waves (total number of waves is shown in the top left corner). A bright colored wave in the 3D graph is the one currently selected by the Wave Pos parameter. Use LFO to EDIT 1 modulation to add some dynamic changes to the sound by manipulating wavetable position.

WARP knob decreases a pulse width of one wave period, and can be used as additional timbre variator.
Normally, **WAVE POS** know is mapped to **E1** Layer control, and **WARP** is mapped to **E2** Layer control. You can swap this assignment by tapping the **E1 – E2 Assign** control. Therefore, **WARP** can be linked to E1 control and be modulated with on-Layer LFO.

10.3.2 WaveTable Synth Settings

Each WaveTable Instrument has its own unique set of internal settings. To access them, tap on the Settings icon in the top left corner of the WaveTable interface window. **WT Settings** window will open. It is very similar to the *Synth Settings* window, discussed in the , except that there is one more knob, called **VEL to W.POS**, which defines the amount, at which a Midi Note Velocity will affect the wavetable position parameter when a Note is triggered.
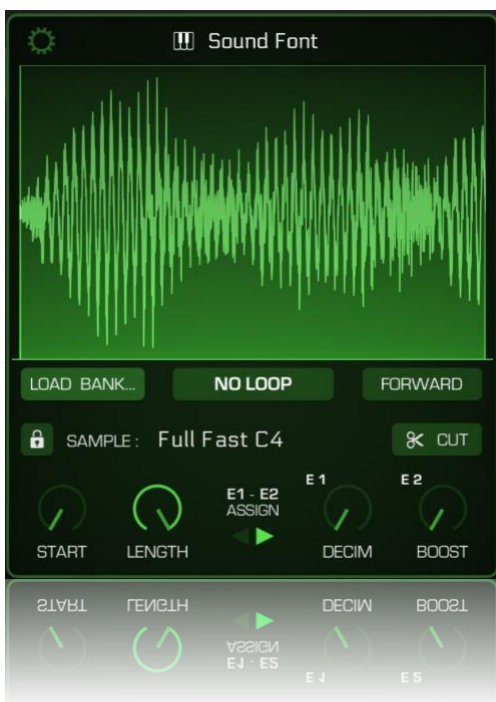
10.4 Sound Font Player

10.4.1 Overview

Groove Rider 2 supports import and playback of Sound Font 2 (.sf2) files. Sound Font files are sample banks with specially pre-programmed key and velocity layers, drum sets, instruments and banks. One sound bank can have up to several hundreds of instrumental presets. Groove Rider 2 comes with one built-in Sound Font, which contains almost all the Factory samples, including different drum samples and kits, as well as various melodic sampled instruments.

To add a SF2 Sound Bank Layer to a Melodic Part, long tap on the free Layer " + " tab and select "Add SF2 Sound Font" from the drop-down list. It will load a blank Sound Font synth to currently selected Part. To access its interface (shown in the Figure), tap the EDIT button in the Layer Oscillator section.

LOAD BANK button opens sound bank loader dialog, from where you can select and load sf2 files, previously placed in the GR-2 Documents/SoundFonts folder. Next to the LOAD BANK button there is a **Program Select button**, on which a currently selected sound bank program and its number displayed. Tap this button to enter a list of all available programs, contained in the loaded sound bank, and select one which you want to use.

Sound Fonts often consist of multi-layered programs, which can use a set of samples, distributed along the keyboard. Some of them even played simultaneously, arranged in two, three and more sample layers. However, there is a way how you can isolate one particular sample and use it solely, as you would do in the Sampler. "**Lock**" button serves for this purpose. Tap it to lock the recent played sample.

In Locked mode, the interface will look as shown in the Figure at the left. There will be more controls available, such as **Loop Mode** button (loop modes already described well in the Sampler section 10.2.2), **Forward / Reverse** button, region **START** and **LENGTH** knobs (available only in Locked mode), **DECIM** and **BOOST** knobs for the corresponding effects. You can also use **E1 – E2 Assign** control to swap these parameters (it works also in Locked mode only).

CUT button. Tap it if you want most recently played sample to be isolated and converted into Sampler instrument, which will replace current Sound Font. Then you will be able to continue to work with it as with a separate sample, loaded into a Sampler, and even edit it in the Sample Editor. It will no longer be linked to a sound bank it was taken from.

10.4.2 Sound Font Player Settings

Each Sound Font Player Instrument has its own unique set of internal settings. To access them, tap on the Settings icon in the top left corner of its interface window. **Sound Font Settings** window will open. It is very similar to the *Synth Settings* window, discussed in the section 10.1.1, with all identical parameters.

11. Pure Acid and Poison-202 Integration

11.1 Pure Acid Integration

Pure Acid integration feature allows to use sounds of JimAudio Pure Acid bass and its drum module inside Groove Rider 2 without need of loading Pure Acid AUv3 audio unit. It saves system resources, consumes less memory and minimizes Pattern loading time. Of course, you can still load Pure Acid as an AUv3 audio unit inside GR-2 and use all of its features, or even use both.

Note: Pure Acid integration is fully available in GR-2 only if you have already purchased the Pure Acid app and it is installed on this device. If you don't have it, you will only have the ability to use it during 5 days trial. After trial expires, its interface will be blurred, but the sound will still remain to work.

11.1.1 Pure Acid Bass Layer

To add Pure Acid Bass Layer to a Melodic Part, long tap on the free Layer " + " tab and select "Add Pure Acid Bass" from the drop-down list. Pure Acid Bass Layer interface looks as in the Figure to the right.

Pure Acid Bass Layer represents a classic TB-303 one-voice bassline synthesizer instrument. All knob controls are classic 303 controls: PITCH, CUTOFF, ENV MOD, ACCENT, RESO and DECAY. WAVE selector selects wave form type, either Saw or Square. DISTORTION, HPF and DRIVE knobs add internal distortion effect.

About accents. In TB-303 all incoming Midi Notes are played with the same volume, except that there are 2 accent states for them, which depend on Velocity. Midi Notes with Velocities 1 - 99 are considered unaccented, and the ACCENT parameter for them is ignored. Midi Notes with Velocities 100 - 127 considered as accented, and ACCENT parameter adds both volume boost and filter envelope accent to such notes.

Pure Acid Bass Layer also has its own LFO in the corresponding section to the right of the Layer. LFO can be used to modulate bass Pitch and Filter Cutoff, as well as standard parameters like Layer Mix, Layer Pan and IFX on the current Part.

11.1.2 Pure Acid Drums

Pure Acid Drums module can be loaded on any Part by changing Part's Type to "Pure Acid Drums" from the Part Parameter page. Also it can be done by selecting "New Pure Acid Drums" from the free Layer " + " long tap menu. Pure Acid Drums module can be the one and only Layer on a Part; no other Layers can be added.

When loaded on a Part, its interface looks as shown on the Figure to the left. In the bottom left side there is a Drum Selector – 16 mini pads, by tapping on one of them you select the Drum you want to edit parameters for. Every knob linked to a specific drum parameter; knobs **SEND A** and **SEND B** define the amount of selected drum sound to be sent to the FX A and FX B effect buses.

Drum Output setting lets you specify, where a selected Drum sound will be routed to, and the options are 3 buttons **IFX 1**, **IFX 2** and **IFX 3**. You can also select neither IFX slot by deselecting all 3 buttons, in this case a Drum will bypass any on-Part IFX effects.

11.2 Poison-202 Integration

Poison-202 integration feature, similarly to Pure Acid integration, allows to use sounds of JimAudio Poison-202 synthesizer inside Groove Rider 2 without need of loading Poison-202 AUv3 audio unit. This approach saves system resources, consumes less memory and minimizes Pattern loading time. Of course, you can still load Poison-202 as an AUv3 audio unit inside GR-2 and use all of its features, or even use both.

Note: Poison-202 integration is fully available in GR-2 only if you have already purchased the Poison-202 Synthesizer app and it is installed on this device. If you don't have it, you will only have the ability to use it during 5 days trial. After trial expires, its interface will be blurred, but the sound will still remain to work.

To add Poison-202 Layer to a Melodic Part, long tap on the free Layer " + " tab and select "Add Poison-202" from the drop-down list. Poison-202 Layer has a simplified interface, which looks as in the Figure to the right.

On the top there's a display, showing selected Poison-202 preset name. Left and right arrowed buttons select next or previous preset. Tap on the display itself to open a Presets List dialog on the central display of GR-2, where you will be able to browse through all available presets of Poison-202.

In the Presets List, use right swipe (or double tap "Back" item) to close current presets bank and go up to the banks list level, where you will be able to explore all Poison-202 banks from A to F, as well as User presets bank, stored in the standalone Poison-202 app. Double tap any folder to open it.

11.2.1 Poison-202 Settings

Every Poison-202 Layer has its own unique set of internal settings. To access them, tap on the Settings gear icon in the left bottom corner (refer Figure). **Poison-202 Settings** window will open, which is very similar to the *Synth Settings* window, discussed in the section 10.1.1. Except that there is one more knob, labeled **VEL -> XFM**, which sets the amount, at which a Midi Note Velocity will affect the XFM parameter of Poison-202.

12. Sample Editor

Sample Editor lets you to edit any sample, loaded into Sampler instrument, right in place without using any third-party tools for this. Sample Editor can be opened from a Sampler interface by tapping the **EDIT..** button.

Once opened, it can be used to process only one sample, and you won't be able to open Sample Editor on any other Sampler Instrument unless you close currently opened Sample Editor.

Waveform display controls:

- Zoom In/Out the waveform display by using pinch gesture with two fingers;
- Tap a sample to set both Selection Start and Selection End locators into the desired position. Then tap and drag the locator triangles under the waveform display to the right to make a Selection;
- Tap Selection Start or Selection End locator to move it to a new position;
- Hold **SHIFT**, tap the waveform and drag it from left to right to set Selection to a certain region in the sample;
- Double tap the sample waveform to select it entirely.

Buttons in the lower section of the Sample Editor mostly perform editing operations on current Selection.

- **FADE IN, FADE OUT** – use these to create fades in the sample;
- **REVERSE** – reverses the Selection;
- **GAIN** – allows to change a volume gain of a Selection by typing in a number in percent;
- **NORMALIZE** – scans the Selection for the maximum peak level and rises the volume to a maximum possible value without clipping;
- **MS CONVERT** – use it to convert the sample from Stereo to Mono and vice-versa;
- **CUT, COPY, PASTE** – standard operations, performed on a Selection;
- **TRIM** – delete all except the Selection region;
- **UNDO** – undoes the last operation performed on the sample. Note, that when a Sample Editor is open, global pattern Undo button (in the top bar) will be disabled, unless you close the Sample Editor;
- **LOCATORS R, W** buttons. When R button is enabled, every time you trigger a note on this Part, the Selection region will be automatically reset to match the sample region, currently set in the Sampler (Reads locator positions from Sampler to Sample Editor). When W button is enabled, every time you change Selection Start or Selection End locators, they will be stored into a Sampler (Writes locator positions from Sample Editor to Sampler);
- **RECORD** button. Immediately starts recording audio into a sample. Tap again to stop recording.

- **IN: MASTER** button, selects current audio recording source. You can choose to record from current device **Audio Input** (built-in Mics or attached audio cards), Groove Rider's **Master Out**, and from a specific **Part**.
- **SAVE** button saves new changes, made to a sample, into a Sampler instrument, from which the Sample Editor was opened;
- **SHARE** button, use to share the sample with other apps or devices.
- **Close** (" X ") button in the top right corner of the window closes the Sample Editor and asks, if a modified sample needs to be saved first.
- **Minimize** button (" _ ") next to the close button. Tap it to collapse Sample Editor into a compact minimized form, placed in the Middle Bar (shown in the Figure to the right). This is very useful when you want to get access to the various parameters of GR-2, while recording audio. Minimized Editor has two buttons, **Record** and **Maximize** (" ▲ "). Use Record button to start/stop the audio recording. User Maximize button to expand the Editor back to the full window.
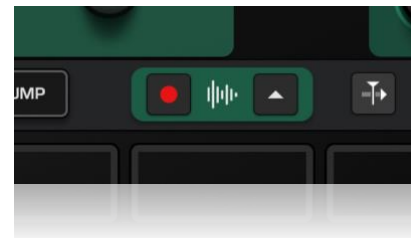
When you edit a sample in Sample Editor, GR-2 automatically creates a copy of the original sample in the internal hidden cache. So, the editing will not affect any other Pattern, where this sample has been already used before. Editing also will not affect any of the sample files, stored in GR-2 Documents/Samples folder. If you want to store edited sample as a file, you should use the **SHARE** button.

13. Global Settings

Tap on the hamburger menu button in the top right corner of GR-2 to open Settings Menu, where you can configure global settings for the GR-2. Settings are organized into groups (General, Audio, Midi, Export). Full list of settings is shown in a following Table.

Setting name	Description
13.1 General Settings	
CLIPS	
Clip Switch Sync	Defines a moment, when the next selected Clip should switch to playback. Two options available: **Pattern Sync** (default) and **Bar Sync**. In Pattern Sync, clips are switched depending on current **Pattern Length** parameter, at the end of each pattern repeat. In Bar Sync, clips are switched at the end of each Bar during the playback.
Auto Color Clips	When set to ON, copying or moving a Clip to another Part will automatically color this Clip to match the destination Part's color. When OFF, Clip colors keep unchanged.
Show Overviews	Setting for the Song Page. When set to **ON**, timeline Clips are always displaying their content overview (notes) on them. Set it to "**When Zoomed**" to display overviews only when clips are zoomed in, to save CPU power, especially if the FPS on your device is too low during moving / resizing the timeline view.
RECORD	
Rec Quantize	Automatic note quantize during Record. Has three settings: **Off** (no quantize during Record), **Note Start** (only note's start times are being quantized during Record), **Start + End** (note's start times AND their lengths are being quantized during Record)
Metronome	Metronome settings: **Off**, **Rec 0** (clicks only during Record), **Rec 1** (clicks during Record and makes a pre-count of 1 Bar), **Rec 2** (clicks during Record and makes a pre-count of 2 Bars), **Always On** (metronome plays constantly, even during regular playback).
Metronome Gain	Use to adjust metronome click's volume
MUTE SETTINGS	
Mute Sync	Select sync mode for part Mutes. When **OFF**, part Mutes act immediately, as you tap them. In other modes (**Beat Sync**, **Bar Sync**, **Pattern Sync**) part Mutes will automatically wait for a next Beat, Bar or Pattern start after you tapped them. Mute Sync can be very useful in live performance.
Stop Muted Parts	When set to **NO** (default), muted Parts will continue to play their musical events and render the sound (silently) when you mute them. When set to **YES**, every time you mute a Part, GR-2 will stop sending any musical events to this Part, as if it was stopped.
RENDER PRESET PREVIEWS	
For Melodic	Turns On/Off rendering of a short audio previews each time when a Layer or Part preset is saved.
For Drum Rack	Turns On/Off rendering of a short drum rack audio previews each time when a Drum Rack preset is saved.
SYSTEM	
Keyboard Style	Sets the color style of on-screen midi keyboard. Choose between **Normal** (classic keys) and **Dark** (inverted keys).
Screen FPS Limit	Sets the graphics rendering FPS. Use it to lower FPS rate (and impact on CPU/GPU) when you need to economy battery charge on the device.

13.2 Audio Settings

AUDIO	
Sample Rate	Current sound engine's playback sample rate. In case if you try to select another sample rate, but it changes back to the original value, it means that the selected sample rate is not supported by your device.
Buffer Size	Select the audio buffer size. The lesser this value, the less the latency of playback (when you play notes live with your fingers), but the more CPU power will it require on your device.
Background Play	Turn it ON if you want to use Groove Rider's audio while it is in the background.
Background Timer	A timer, used to automatically switch off the Groove Rider's audio engine, when it does not play any sounds but is still working in the background. In case if you have forgot to close the app from the background, not to drain the battery on your device.
AUDIO INPUT	
Audio Input	Enable it if you want to record audio in the Sample Editor
Audio Source	Select audio source for record from the list of available sources
Input Gain	Set input gain of selected audio source
Record Bit Depth	Select the bit depth for the recorded audio from 3 available options: **Int 16, Int 24, Float 32**.
SYNC	
Ableton Link	Tap the button to reveal the Ableton Link settings dialog. *Ableton Link* is a protocol, used to synchronize playback of Groove Rider 2 app with other apps and devices, which also have a support of Ableton Link.
IAA Host Sync	Allows or disables using of the Inter-App Audio host synchronization. You may want to turn it to **Disabled**, if, for example, you are connected to the IAA host, but want to use Ableton Link sync instead of the Host Sync (the Host Sync, if enabled, always has the priority over the Ableton Link sync).

13.3 MIDI Settings

MIDI IN	
Midi In	Selects Midi Input source port for receiving midi data
Midi In Mode	In **Single channel** mode, all incoming midi events are redirected to one currently Selected Part. So, the user can play and control only one Part, which is currently selected in the interface. In **Poly channel** mode, every Part receives data on its separate midi channel from 16 available, with corresponding number.
Midi In Channel	Select channel filter for receiving midi data when used in **Single channel** midi mode.
Velocity Curve	Selects midi input's notes velocity response curve.
VIRTUAL MIDI	
Virtual Midi In	Enables / disables Groove Rider's Virtual Midi In port
Bluetooth Midi Devices	Opens the dialog to configure connected Bluetooth Midi Devices
MIDI CC CONTROL	
Midi Knob Mode	Determines how GR-2 reacts to incoming midi control change events: *Catch* or *Jump*. In *Catch* mode, controlled parameter will start to change only after incoming midi controller's value will match the internal parameter's value. In *Jump* mode, parameter will change immediately, which often can lead to an audible value jump.
Midi Learn…	Activates Midi Learn mode. You can also activate Midi Learn by holding **SHIFT** button and double tapping any knob control, until it starts to blink.
Reset Midi Learn…	Resets midi controllers mapping to the factory default

13.4 Export Menu	
Share Current Pattern	Select it to export currently opened Pattern in .gr2 file format to another device or to Files
Share Current Bank	Select it to export currently opened User Bank with all its Patterns to a single .gr2 format file. If a bank has a big number of Patterns already, this process can take a long time, because all used samples data and the AUv3 state data is exported withing the bank file too.
Render Pattern to Audio File	Select it to render currently opened Pattern to a .wav audio file. The dialog will prompt you to enter a number of Pattern repeats to be rendered (from 1 to 32 max). Available only when the Song Mode is OFF.
Render Song to Audio File	Select it to render currently opened song to a .wav audio file. Available only when the Song Mode is ON.
Export Bit Depth	Select the bit depth format for rendering song / pattern audio, from 3 available options: **Int 16, Int 24, Float 32**.

14. Importing Files in Groove Rider 2

14.1 Understanding File Structure of GR-2

A few words about how GR-2 works with files. Unlike most DAW's, Groove Rider 2 uses two data locations:

1. First location is application's *Documents* folder, which you can access using the *Files.app*, or you can use GR's internal import functions to import your sample files and even folders in here. *Documents* folder has 3 subfolders, named *Samples* (place your **wav**, **aiff** and **flac** samples into this folder), *WaveTables* (place your **wav** Serum format wavetables here) and *SoundFonts* (place your **sf2** files here). You can place these files there in any way you want, and GR will access them, allowing you to load and use these files in your patterns. Think of *Documents* as a temporary media storage (just like a USB stick), where you place your files to load them into your patterns inside GR.
2. Second location is GR's *Internal sample cache*. It is hidden from the user and controlled automatically. When you load some user sample from *Documents* folder into one of your patterns, this sample is automatically being copied to the internal sample cache and no longer connected with the original sample file in the *Documents* folder. All currently loaded patterns inside GR are also located in the internal cache. You cannot access them directly. However, you can import and export these patterns inside/outside of GR by using build-in functions (Settings Menu -> Export Menu).

This approach gives the following benefits:

First, you can safely delete/move/reorganize contents of the *Documents* folder without risk to your patterns. You can even entirely delete all the contents of the *Documents* folder, and your patterns will still load and work with all the user samples on the right places! This is because all the data is stored in the well-organized internal cache.

Second, the Internal cache holds only those samples, which are being used by your patterns. So, it is quite easy just to call *Export Patterns Bank* utility, and all your user patterns will be exported to a single *.gr2* file including all the samples and sound fonts used in them! Without any extra unused data. And later you can restore it all just by importing this single file back into GR. No need to mess with samples and project folders.

Third, if you decide to replace a sample in one of your patterns with another one, all the other your patterns which could share the same sample will remain unchanged.

Groove Rider 2 is capable of importing user samples in **wav**, **flac** and **aiff** format of up to 5 minutes long each.

There are several ways of importing your user samples into Groove Rider, described in the following sections below. Choose one which is more suitable for you.

14.2 Importing files and folders using Documents Picker

This is the easiest and fastest way to do it. When you browse a samples list inside the GR-2, if you go to the top level folder of the tree (root folder), scroll down all the way to see two import options: **Import Samples from Files…** and **Import Sample Folder from Files…** . Select the desired one, and the *Files.app* dialog will appear on the top of GR interface, allowing you to select sample(s) to import from any accessible location on your device. This method can be used not only for **Samples**, but also for **WaveTables** and **Sound Font** files.

14.3 Importing files using Files.app

You can copy samples easily between different apps inside your device using *Files.app*. The process is straightforward. Open *Files.app*, select "**On My iPad / iPhone**" from a *Locations list* and you will see a list of app folders, which support *Files.app*. Open desired app's folder to see a list of document files it contains. Select one or several files and copy them to the corresponding Groove Rider 2 folder (**Samples**, **WaveTables** or **SoundFonts**), using standard interface functions.

14.4 Importing a sample from another app using Share Sheet

Most of musical apps support sharing their samples with other apps by providing corresponding share button. Normally, after tapping such share button, a share sheet will appear with the list of apps and services, which can receive given file. In this list, you will be able to find Groove Rider 2 icon. Tap it, and the sample file will be copied right into the corresponding GR-2 **Documents** folder (without need of using Files.app). As always, copied sample can then be found in the **Browser** -> **User** -> **Samples** list (or correspondingly in the **WaveTables** or **SoundFonts** list).

14.5 Importing several samples at once in a zip file

To import several samples into GR-2 at once, you must first archive them into one .zip file. Then, send this .zip file to GR-2 using standard iOS share sheet, or service like AirDrop, DropBox, email etc. GR-2 will show up a dialog, asking you to type in a folder name, where you want all the zipped samples to be extracted inside Groove Rider's *Documents* folder. You can type any folder name you want, and your samples will be extracted to that location.

14.6 Deleting imported user samples from GR-2

You can delete user samples, previously imported into GR's user samples folder, right from the app's interface. To do so, open the Browser window. Then tap User bank, and then open **Samples** section and *swipe left* with your finger over a sample (or even a folder) you wish to delete. A red "**Menu**" button will appear with two options, Rename and Delete. Choose "**Delete**" to confirm the deletion.

Note, that even if you delete a sample file, which is currently being used in one or several of your patterns, those patterns will still remain unchanged since all samples used by a pattern are already stored in the *internal sample cache*.

14.7 Importing Patterns created in Groove Rider GR-16

Groove Rider 2 supports import of patterns, created in Groove Rider GR-16. This is done directly using a Share Sheet in GR-16. Only one pattern can be imported at one time. To import a pattern, open the GR-16 standalone app, then open a Pattern you want to export to GR-2. After that, go to GR-16 Settings Menu -> Export -> Share Pattern, and in the share sheet select Groove Rider 2. Then follow the prompt messages which will appear in the GR-2 app.

15. Midi Specification

15.1 Midi Input

There are two midi input modes in GR-2: Single channel and Poly channel. As described above, in **Single channel** mode, all incoming midi events are redirected to one currently Selected Part (you can also set up a receive channel filter for this from the Settings menu). So, the user can play and control only one Part, which is currently selected in the interface. In **Poly channel** mode, every Part receives data by its separate midi channel from 16 available, with corresponding number.

Midi CC#	Controlled parameter	Midi CC#	Controlled parameter
1	Modulation Wheel	76	ADSR Sustain
7	Part Level	84	Layer Glide (Portamento)
8	Part Pan	85	Layer Pitch
10	Layer Pan	86	Layer E1 parameter
11	Layer Mix	87	Layer E2 parameter
71	Layer Filter Resonance	89	LFO Modulator Speed
74	Layer Filter Cutoff	88	LFO Modulator Depth
77	Layer Filter Env	91	Part Send A Amount
73	ADSR Attack	92	Part Send B Amount
75	ADSR Decay	120	All Sounds Off
72	ADSR Release	121, 123	All Notes Off

15.2 Using external Midi notes to trigger Pads and Slices

You can use your midi controller or keyboard to play all 16 Pads from one midi channel, using **Single channel** Midi Mode and **Trigger** pad mode. This reflects the way you trigger Pads on the GR-2 screen, when it is in Trigger pad mode. In this case, every Pad will be mapped to the corresponding midi note on a keyboard.

1. Set **Midi Mode** (from Settings menu) to **Single channel**
2. Select **TRIGGER** Pad Mode (press TRIGGER button)
3. Play midi notes to GR-2 from your midi controller. In this mode, every two octaves (24 notes) on midi keyboard are mapped to Pads (1-16) with 8 unused notes left in each second octave. So, Pad 1 is mapped to midi notes C1, C3, C5 etc., Pad 2 is mapped to midi notes C#1, C#3, C#5 etc. and so on to the Pad 16, which is mapped to midi notes D#2, D#4, D#6… These two octaves are repeated across the keyboard for convenience. For more detailed info, see the table below:

Pad 1	C-1, C1, C3, C5, C7	Pad 9	G#-1, G#1, G#3, G#5, G#7
Pad 2	C#-1, C#1, C#3, C#5, C#7	Pad 10	A-1, A1, A3, A5, A7
Pad 3	D-1, D1, D3, D5, D7	Pad 11	A#-1, A#1, A#3, A#5, A#7
Pad 4	D#-1, D#1, D#3, D#5, D#7	Pad 12	B-1, B1, B3, B5, B7
Pad 5	E-1, E1, E3, E5, E7	Pad 13	C-2, C0, C2, C4, C6, C8
Pad 6	F-1, F1, F3, F5, F7	Pad 14	C#-2, C#0, C#2, C#4, C#6, C#8
Pad 7	F#-1, F#1, F#3, F#5, F#7	Pad 15	D-2, D0, D2, D4, D6, D8
Pad 8	G-1, G1, G3, G5, G7	Pad 16	D#-2, D#0, D#2, D#4, D#6, D#8

*Tip: You can also play selected Part's **slices** by sending midi notes in similar way. The only difference is that you need to select Part, which supports slices (SLICE mode button is displayed and it is selected).*

15.3 Using Midi Learn

With Midi Learn feature you can make various knobs in GR-2 to be controlled by Midi from your external Midi Controller.

To enter Midi Learn mode, hold SHIFT button and double tap onto any GR-2 **knob**, until it starts to flash. When control is flashing, you can see the Midi CC# number, assigned to this control, as it shows in the top Title Bar of GR-2 (or "- - -" if it is not assigned yet). When in this mode, you can tap and select any knob you want. If they start to flash, it means they are available for assignment.

Next: to make an assignment after you've selected the desired knob and it is flashing, start moving your midi control on your external controller. You'll notice a new Midi CC number will be displayed in the Title Bar, and selected knob will start to move.

To save changes, you must tap on the top Title Bar. If you will not, your changes will be cancelled and discarded.

You can assign several controls during one Midi Learn session. Just don't forget to tap on the Title Bar to save changes in the end. Also remember: if you tap somewhere outside of any control, or you tap a control, that cannot be assigned, Midi Learn mode will be cancelled and your changes will be discarded.

15.3.1 Locking Midi CC to a specific Layer or Part

When using GR-2 in **Single channel** midi mode, external Midi Controller can control only a Part which is currently selected, and only a Layer, which is currently visible on the screen. From the other side, when using GR-2 in the **Poly channel** midi mode, there's no way for example, to control parameters of Layer 2, 3 and greater from midi. In these situations, and also for other scenarios, you may want to lock specific Midi CC to control only a specific Layer (or specific Part) parameter, regardless of what is currently selected. This is how it can be done:

- When a knob is flashing in the Midi Learn mode, tap on this knob again to open knob popup menu.
- From the popup menu select "**Lock to this Layer**" (or "**Lock to this Part**") to lock currently assigned Midi CC to currently selected Layer or Part.
- If the knob already locked, you can unlock it by selecting "**Unlock CC**" from this popup menu;
- You can also remove any midi assignments from the knob by selecting "**Remove Midi CC**".

16. External Keyboard Commands

Groove Rider 2 is compatible with external Bluetooth keyboards, paired with your iPad. A list of all supported keyboard commands is shown in the table below.

Key	Function
Space Bar	Play / Stop
Esc	Note Editor: Unselect All
Delete	Note Editor: Delete Selected
Tab	Go to Next Page
Shift + Tab	Go to Previous Page
"-" , "+"	Change size of the Pads Panel
⌘ -	Minimize Pads Panel
⌘ +	Maximize Pads Panel
⌘ 1	Open Sound Page
⌘ 2	Open Clips Page
⌘ 3	Open Edit Page
⌘ 4	Open Song Page
⌘ 5	Open FX Buses Page
⌘ 6	Open Mixer Page
Shift ⇧	Shift button
Left Arrow	Previous Part
Right Arrow	Next Part
A … K	Pads 1 - 8
Z … <	Pads 9 – 16
⌘ A	Note Editor: Select All
⌘ S	Save Pattern
⇧ ⌘ S	Save Pattern As…
⌘ D	Note Editor: Duplicate
⌘ Z	Undo
⇧ ⌘ Z	Redo
⌘ X	Note Editor: Cut
⌘ C	Note Editor: Copy
⌘ V	Note Editor: Paste