# Regroover PRO
# USER MANUAL

BY accusonus

# Contents

# Welcome to Regroover!

Regroover is an Artificial-Intelligence beat machine that extends traditional music sampling. Regroover is based on accusonus' patent-pending "advanced audio analysis" ($a^3$) technology which also powers drumatom!

Regroover's A.I. engine analyzes an audio clip and extracts the fundamental audio elements in separate tracks called *Layers*. Regroover allows you to reach deep within your audio clips and extract previously unreachable sound elements. For example, if your clip is a drum loop, Regroover will extract layers containing the kick, the snare and the cymbals or any ination of those that is meaningful to the A.I. engine. If you use Regroover with an ambient soundscape loop, the resulting layers will be more abstract (and perharps more interesting).

After Regroover has extracted the layers from your audio clip, it's time for you to start using them to create fresh and exciting music! You can use the layers to go beyond traditional music sampling and kickstart your inspiration. With Regroover your can:

- Extract layers from different clips and create new, unique audio clips and loops

- Remix and rearrange the layers to create variations of your audio clip

- Extract isolated parts from layers and create your own signature sounds and kits

- Experiment with the settings of the analysis engine to extract inspiring sound elements

Regroover is a unique beat machine and instrument that we hope will provide you with new sounds, capabilities and workflows and allow you to create more music, faster and in a very stimulating way!

# Installation & activation

You can find the latest Regroover installer in your accusonus account page in the "Downloads" section (http://accusonus.com/dashboard). For more information about installation and activation see the Activation Manual, which you can find along with the installer.

## Requirements

Your computer must have:

- an Intel (or Intel compatible) CPU

- a minimum of 2GB RAM memory

- at least 250MB free space on your hard disk

- a minimum a screen resolution of 1280x800 pixels

## Supported formats

Regroover is available as a **virtual instrument** plug-in in the following formats:

- AU (32/64-bit), VST (32/64-bit) for Mac OS X 10.8 to 10.11

- AAX (64-bit) for Mac OS X 10.9 to 10.11

- VST (32/64-bit) and AAX (64-bit) for Windows 7 (with Service Pack 1) or higher

We have tested Regroover in the following DAWs:

- Ableton Live 9.5

- Logic Pro 10.2

- Steinberg Cubase 7.5 (64-bit only)

- Avid Pro Tools 11.3 and 12.5

- Cockos Reaper 5.22

- Presonus Studio One 3.0

- ImageLine FL Studio 12.0

- Bitwig Studio 2.0

- Propellerhead Reason 10 (Mac only)

Regroover **is not supported** in the following:

- Steinberg Cubase 32-bit

- Propellerhead Reason 10 (Windows only)

There are just too many combinations of DAWs and plug-in formats out there, so there's always something we might have not tested. If you don't see your DAW above, you can always download the *free, fully-functional 14-day trial* and see if Regroover is supported for yourself. If you encounter any problems, let us know at support@accusonus.com

# Experience Regroover in two minutes!

You can get started with Regroover Pro in just six steps:

1. **Import an audio clip** by clicking [ LOAD CLIP ] (or by drag & drop). Regroover will automatically split your clip in layers. By default the number of layers is four.

2. **Listen to the result** by clicking [ ▷ ] or by starting your HOST playback. Use the on [⏻] and solo [S] buttons to listen to any layer combination.

3. **Experiment with the number of layers** using the "Layers" slider to change the analysis result.

   > Remember to hit ' *SPLIT'* for the change to take effect.

4. **Create instant variations** of your loop by moving the left and right markers of each Layer.

5. **Construct your kit from Layer regions**. Double-click on a Layer and drag & drop the selected region to a slot in the Expansion Kit.

6. **Load external audio files** on a Pad using [↪] and modify the kit sounds from the Editor Tab.

# Import and playback of audio clips

## Importing an audio clip

To start using Regroover you need to import an audio clip. Regroover supports .wav, .aif/.aiff and .caf files of standard sample rates, with a maximum duration of 30 seconds. You can import an audio clip by choosing one of the following options:

- Click on the [ LOAD CLIP ] button (available only in an *empty* Regroover instance).

- Drag & drop a clip directly into Regroover.

- Select "Load Clip" from the [ PROJECT ] drop down menu.

    Once a clip is imported, Regroover will automatically split it into Layers. The *Clip Info Box* will display the clip's file name.

> Each time you import a new clip, Regroover will clear all previous data and work you've done on the Layers. See "Saving your work" section for more information on saving Regroover's state and data.

## Resampling

When you import an audio clip, it is automatically resampled to match the DAW project's sample rate, *before* any processing takes place. If you wish to change the sample rate of your DAW session while working on a project, Regroover will also resample the audio clip to the new sample rate without losing any of your project information.

## Sync

Regroover can sync the imported audio clip to your HOST. When you import a clip, Regroover will detect the clip's BPM. The estimated value will appear in the *BPM text editor*. By default, Regroover is in "Sync" mode which means it will automatically warp the audio clip to match the BPM of your HOST. You can edit this value, or use the x2 /2 buttons if you are not happy with the estimation.
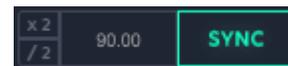
While the "Sync" mode is enabled any change in the BPM estimation will warp the audio clip accordingly. Regroover treats this as a *new* audio clip and **all your Layer edits will be cleared**.

If you change the HOST BPM value, the "SYNC" button will start blinking. The audio clip will remain synchronized to the previous BPM of your HOST and Regroover will be unsynced to your new HOST BPM until you enable SYNC again.

## Grid

The waveforms in the Layers section can be displayed over a grid, only when "Sync" is enabled. With the grid enabled, Layer markers and annotations snap to musical time intervals (1/4, 1/8, etc). By default, the grid is set to 1/16 resolution. You can choose the desired grid resolution or turn it off using this menu:
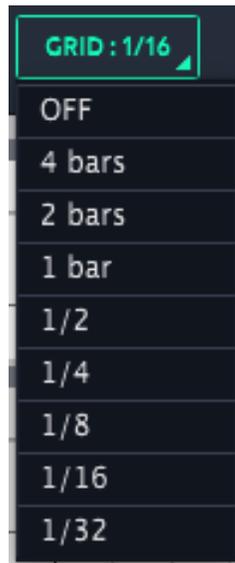


If the ⎇ key is pressed while dragging a Layer marker or annotation, snapping is disabled.

The available grid resolutions depend on length of the imported audio clip. For longer audio clips, small grid resolutions are disabled.

# Audio playback

### Sync to HOST mode

With the HOST button active, Regroover is in "Sync to HOST" mode. While in this mode, Regroover will follow your HOST playback. Hit play in your HOST and Regroover will loop all Layers while taking into account the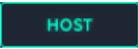 Layer marker positions for each layer. Note that in this mode, Layer playback stays in Sync with your HOST arrangement, and looping is based on your Pattern Length selection (see below).

### Play button

Use the ▷ button to preview Regroover without starting your HOST playback. Note that in this mode, Layer playback will loop based on your Pattern Length setting.

### Pattern Length

The (Pattern Length) setting allows you to define the length at which Regroover will restart the looping of your Layers' playback. You can also *click and hold* on the pattern length icon to render a mixdown of the current pattern. The resulting audio file's length is defined by the pattern length.
You can choose between the following pattern length settings:

- **1-8 bars**

- **Clip Length** Sets the Pattern Length to be the same with your imported Clip length

- **None** Loops each Layer individually, based on their markers, with no restart occurring.

### Master Limiter
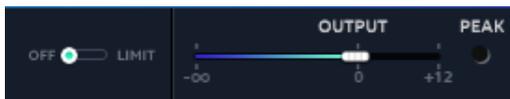
A Limiter has been added to the master section of Regroover to control the loudness. The switch will turn the Limiter ON or OFF, limiting the signal at 0dB before going through the master gain. A PEAK led, found next to the master gain slider, indicates when the signal becomes too hot and exceeds the 0dB threshold. Notice: The PEAK led will still indicate some clipping if the master gain is pushing the limited signal above 0dB.

**Audition mode**

The audition mode is helpful when you want to listen to a specific part of a Layer. Use the ⇧ + ⌘ (Mac) or ⇧ + ctrl (Win) modifiers and click on a Layer. Regroover will playback the audio from the point you clicked to the end of the Layer, or the selected audio if you click on a selection. If you release the keyboard modifiers before the end of the layer, playback will stop. You can click on any part of any layer and playback will begin as long as you hold the modifiers.

## Layers mixer controls

Each layer has the following basic mixing controls:

- **ON:** ⏻ Turn a layer's audio track on or off.

- **Solo:** S Solo a layer's audio track. By default the Solo is exclusive. You can click while holding the ⌘ (Mac) or ctrl (Win) modifier to Solo multiple layer tracks.

  > Solo is post fader, post pan and post mono to stereo.

- **Stereo Enhancer:** Using the stereo enhancer, you can adjust the balance between the mid(M)/side(S) parts of the signal. The mid signal M is the sum of the left and right channels, which gives only the mono information of the signal and the side signal S is the difference of the two, providing the stereo information only.

- **Output routing:** OUT 1 Regroover supports up to 16 DAW stereo output tracks. You can route each layer track to any of those tracks using the dropdown menu.

  > See the appendix for information on multiple output instruments in various DAW.

- **Gain and pan**: The gain slider controls the layer track's volume. The pan knob controls the stereo position.

  > The pan knob operates as a simple balance knob for stereo tracks.

## Layer Effects Section

Regroover Pro comes with a set of effects that allows you to quickly shape the tone of each layer. It features a gate an EQ, a compressor and a saturator with a transient shaper in its chain. The effects are bypassed by default and automatically enabled when a parameter is changed or by clicking on the on/off button.

### Gate

A gate cuts the signal level whenever it falls below a threshold. Louder sounds pass through unchanged, but softer sounds, such as noise or the decay of a sustained hit, are cut off. When the gate is fully closed (no signal passes through) the GR bar should be fully illuminated.

- *Threshold*: Signals that fall below this level (in db) are cut off.

- *Attack*: Time it takes to fully open the gate.

- *Hold*: Time the gate stays open after the signal falls below the threshold.

- *Release*: Time to close the gate again.

- *Flip*: Inverts the behaviour of the gate. Parts of the signal that are louder than the threshold will be muted and only the lower ones will pass through the gate
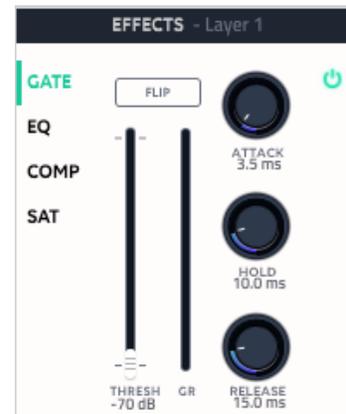
### EQ

The EQ shapes the sound of incoming audio by changing the level of specific frequency bands. There is a low shelf and a high shelf filter as well as a peak with adjustable frequencies and gain settings.

## Compressor

By reducing the highest parts of the signal, called peaks, a compressor raises the overall level of the signal, increasing the perceived volume.

- *Threshold*: The threshold control sets the level at which the compression effect is engaged. A signal will be compressed only when it passes above the threshold.

- *Ratio*: The ratio of signal reduction when the threshold is crossed e.g a ratio of 2:1 indicates that a signal exceeding the threshold by 2 dB will be attenuated down to 1 dB above the threshold.

- *Gain*: Set the amount of gain applied to the compressed signal.

- *Auto*: Turn on/off automatic gain compensation.

- *Attack*: Set the time it takes for the compressor to react when the signal exceeds the threshold

- *Release*: Set the time it takes for the compressor to stop reducing the signal when the signal drops below the threshold.

## Saturator

The saturator adds colouration to a signal by enriching its *harmonic spectrum*. You can use it in a subtle setting to add warmth to a layer or in heavier settings to drive close to distortion.

We have also added a unique *transient shaping tool* which lets you control the attack and sustain phases of a signal. Essentially, this processor allows you to drastically boost or attenuate transients with accuracy and transparency and then feed them into the saturator. You can use it for example to reduce the reverb/tail on a snare or to make a kick sound snappier.

- *Transients*: Control the transients of your sound. 0% is bypass, 100% boosts the attack to max and attenuates the release and vice-versa.

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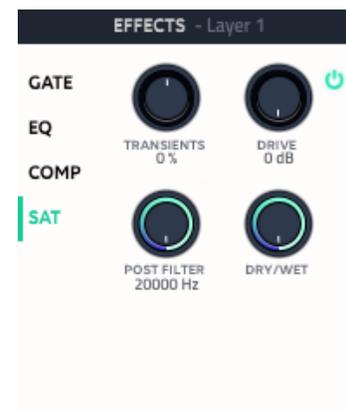
- *Drive*: Set the amount of the harmonic distortion applied to the signal.

- *Post-filter*: Set the cutoff frequency of the lowpass filter to control the harmonics created by the saturator.

- *Dry/Wet*: Dry wet control between the original and the saturated signal.

# Split your clips in meaningful layers



*Split* is the operation during which Regroover analyzes the audio clip you have imported and extracts *layers*. The first split takes place automatically when you import a clip. You can change the resulting layers by changing the analysis parameters, using the annotation tool and performing more splits. To perform a split just hit the *SPLIT* button.

## Analysis parameters

You can change the result of a *SPLIT* by using the two *analysis* parameters:

- The *Layers* slider allows you to select the number of layers Regroover will use to split the audio clip. This corresponds roughly to the number of audio elements you wish to extract from the clip. Experiment with different results by changing the value of this slider.

  > Select small values for simple audio clips and higher values for more complex clips with many audio elements.

  > For this change to take effect you need to click *SPLIT* to perform a new analysis of your audio clip.

- You can use the *Activity* slider to indicate how busy your audio clip is. For most cases you can leave it at the default setting, between "Low" and "High".

  > If you have an audio clip with slowly changing material set the slider value to "Low". If you have a busy audio clip with many sources set the slider value to "High".

  > For this change to take effect you need to click *SPLIT* to perform a new analysis of your audio clip.

## Annotation tool

The *annotation* tool is useful if you want to edit and reshape the layers produced by Regroover. Clicking on the "eraser" icon  activates the annotation tool. You can double click on a layer to create an *annotation region*. This indicates that

Regroover must **move** all audio from that region and assign it to another layer. Note that this is not a simple "copy/paste" operation and will change the audio of all layers. A new split must be performed during which Regroover's A.I. engine will take all annotated regions into account and produce new layers.
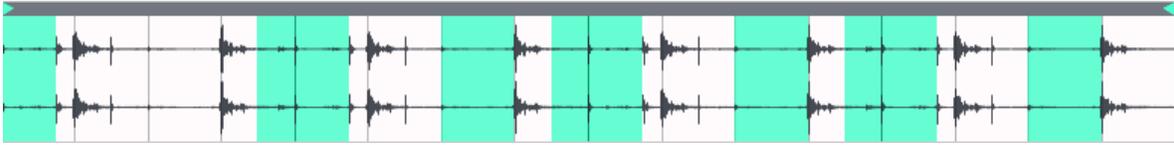


You can resize annotation regions by dragging either end. You can move them around by dragging them along the layer. You can use the audition mode ( ⇧ + ⌘ + click for Mac ⇧ + ctrl + click for Win inside an annotation region) to playback the region and make sure your selection is correct. You can delete a region by clicking anywhere inside the region while holding the ⇧ modifier.

> If you turn off the annotation tool, the annotations *are not deleted*, but Regroover will ignore them in the next split.

## Locking a layer

If you are satisfied with the sound elements of a layer and you want to keep them untouched you can *lock* the layer by clicking on the "lock" icon 🔒 . While a layer is locked, it cannot be annotated and any subsequent splits will not affect the audio data.

> Using locked layers and annotations can help you direct Regroover's output and shape the layers to your liking.

## Renaming a layer

You can rename the Layers as you wish, giving them a more meaningful name for example, by selecting a Layer and double-clicking on the Layer name

# Create Expansion Kits from your layers

## Expansion Kit area

The Expansion Kit found at the bottom right of the Layer's Tab comprises 16 slots or **pads**. You can load audio regions for the layers to each of those pads. You can listen to a pad by clicking on it. The label of each slot denotes the corresponding MIDI note that triggers the sound contained in the pad.

| Select region | Hold | Render | Drag |
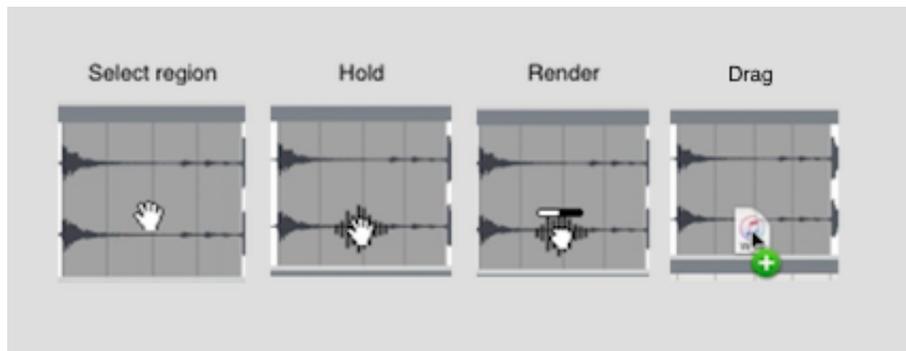
## Drag & drop regions

You are able to construct expansion kits using parts of the layers extracted by Regroover. Double-click on a Layer's waveform to create a gray region. The size and the position of the selected region can be adjusted in the same fashion as annotations. The gray region corresponds to an audio part of the layer that will be transferred to the Expansion Kit. To perform this action, click on the lower half of the region, hold your mouse while the region renders and drag & drop it to one of the 16 pads of the Expansion Kit.

This workflow produces Post FX/Fader rendered audio files, which can also be dropped to your DAW's arrangement window or in a folder.

# Preview & edit the sounds of the Expansion Kit

## Overview

You can edit the sounds in the Expansion Kit pads using the *Editor* tab. The Editor tab has four areas: *Pads*, *Envelope*, *Mixer* and *Waveform*. Every time you select a pad, these Envelope, Mixer and Waveform areas are updated to provide info for the currently selected pad.

## Preview and mix the sound

Each pad has the following set of controls

- **ON:**  Turn the pad on or off.

- **Solo:**  Exclusive-solo of the pad.

- **Stereo Enhancer**:  Using the stereo enhancer, you can adjust the balance between the mid(M)/side(S) parts of the signal. The mid signal M is

the sum of the left and right channels, which gives only the mono information of the signal and the side signal S is the difference of the two, providing the stereo information only.

- **Load external audio:** ⬲ Load an external audio clip (with a maximum duration for 30 sec) in the pad.

- **Play button:** ▶ Preview the sound of the pad. This button remains activated while the sound is being played.

- Rename a Pad by double clicking on the Pad title.

- Delete a Pad by selecting a Pad and pressing the ⬅ key on your keyboard.

The Mixer are offers standard controls per pad:

- **Gain Slider:** Adjust the output gain of the pad.

- **Pan knob**: Control the stereo position of the pad.

- **Output routing**: OUT 1 Route the output of a pad to a track in your DAW.

## Shaping the sound

- **Envelope:** Adjust the envelope of your sound by altering the position of the X-Y nodes ⦿ . Horizontal movements specify the time-point of the loaded sound that will be processed by the envelope. Vertical movements define the volume of the sound at this particular time-point. Note that the design of the envelope distributes automatically the portions of the signal to be affected by the node movements, regardless of the length of the loaded sound.

- **Waveform:** Waveform displays the sound of the current pad and provides some playback controls. Reverse button ↺ REVERSE reverses the playback as well as the visual representation of the sound.

- **FX:** In the FX tab you can use EQ and a Compression to further refine and enhance the sound of your Pads

# Regroove your clips

## MIDI and Layers, Layer markers

You can playback each layer using MIDI notes. Regroover receives MIDI note messages from the DAW or from an external MIDI controller. Each layer corresponds to the note displayed on the layer track (notes C3 through F3 for layers 1 to 6 respectively). The note labels will be activated when the corresponding MIDI note is hit. In addition, a global MIDI indication at the top of Regroover, will change state when Regroover receives MIDI input signal.

> The corresponding notes for Cockos Reaper are C4 through F4. The corresponding notes for FL Studio are C5 through F5.

The *Layer markers* are very useful when you want to control the beginning and end point of MIDI playback for each layer. You can drag the left ◤ and right ◥ markers to select the region you want to playback using the MIDI notes. The markers for each layer are independent, but you can hold the ⇧ modifier while dragging to align all corresponding markers from all layers. You can also move the Layer markers as a pair by clicking and dragging between them.

> The Preview playback of Regroover **follows** the marker positions.

## MIDI and Expansion Kit, Pad markers

The pads' MIDI indications in the Editor tab behave in a similar manner. The note label of each pad is activated when the incoming MIDI signal contains note-on information about it. The sounds loaded in the Expansion Kit pads can be triggered using an external MIDI controller or by drawing MIDI patterns in the DAW note editor (notes C4 through D#5 for pads 1 to 16 respectively).

> The corresponding notes for Cockos Reaper are C5 through D#6. The corresponding notes for FL Studio are C6 through D#7.

The *Pad markers* of each pad can be found in the Waveform area and are very useful when you want to control the beginning and end point of MIDI playback of the pad. Drag the markers ◤ and ◥ to select which particular area of the sound will be available for MIDI playback.

> An important difference between Layers and Expansion Kit is velocity. Layers' MIDI is **insensitive** to velocity levels (Set always velocity to max). On the other hand, Expansion kit's velocity is taken into account.

## MIDI Settings

Regroover allows you to separately choose a MIDI mode for Layers and Expansion Kit, amongst three configurations which can be found in the *SETTINGS* window:

- **Trigger mode** triggers layer/pad playback from the beginning to the end and stops after playback reaches the end.

- **Toggle mode** toggles playback of layers/pads. The first note on MIDI event will begin playback from the beginning and loop until another note on event is received.

- **Hold mode** loops over the layer/pad audio for as long as you hold down the corresponding note.

Layers' default MIDI mode is **hold**. Expansion Kit's default MIDI mode is **trigger**.

MIDI playback (for any mode) is affected by layer/pad Mixer controls and Effects settings.

# Saving your work

## Saving a DAW project

DAW projects that contain Regroover instances contain all the required data so you can continue your work, apart from the imported audio clip.

If the location of the audio clip is changed, Regroover will notify you for the missing clip and will ask you to locate it.

## Regroover projects

A Regroover project is a self-contained file with the `.regroover` extension. You can save all the required information and data from a Regroover session in such a project. The main advantage of using Regroover projects is that you can move them around from one computer to another, from one DAW to another and share them with other Regroover users.
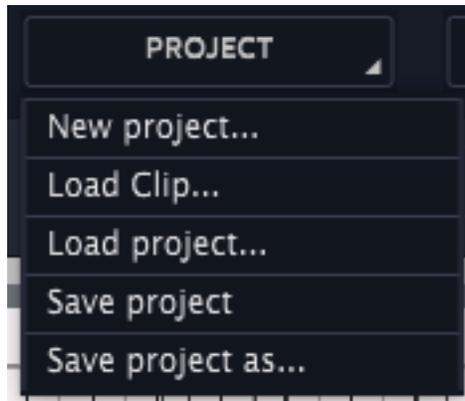


Click on the *PROJECT* button of the top menu to access the project menu. Select *Save project* or *Save project as...* to save your Regroover project. Once a project is saved the project's name will appear in the PROJECT button. For your convenience, go to *SETTINGS* and select a default directory where all Regroover projects will be saved. Select *Open project...* to load a Regroover project or simply drag & drop a Regroover project file on Regroover's window.

A ".regroover" file created using Regroover Pro can be imported in Regroover Essential. This allows a Regroover Pro user to share ideas with the whole Regroover community.

When sharing DAW projects containing Regroover, it is necessary to save and deliver the corresponding Regroover Project alongside the DAW project. In any other case when the DAW project is opened in a different environment, Regroover instance won't contain any data.

## Exporting Layers and Pads



Click on the export button at the top bar to access the different options for exporting audio files (.wav format) from Regroover Pro to a folder of your choice. All the exported audio files are *Post FX/Fader* and the sample rate will be the same as your DAW session's sample rate. Basically, what you hear is what you get.

- *Layers*: Export each layer as a separate audio file

- *Layers Mixdown*: Export all layers in a single audio file.

- *Pattern Mixdown*: Export the pattern created from marker selections as an audio mixdown. Loop Length defines the number of bars.

- *Marker Selections*: Export the audio slices that are defined with marker selections in each layer, as separate files.

- *Marker Selections(Pattern)*: Export the audio slices that are defined with marker selections in each layer, as separate files also taking into consideration the pattern length.

- *Expansion Kit Pads*: Exports each pad individually as an audio file.

Export is disabled during any kind of playback (Preview mode, audition mode, DAW playback)

# Appendix

Here you can find information on how to enable multiple output instruments in various DAWs.

## Ableton Live

1. Insert Regroover Pro in a MIDI track.

2. Create one to five new Audio Tracks depending on how many Layers will be created. The Regroover MIDI track carries the audio of Output 1, so if you want to route all Layers separately, the minimum number of tracks you will need to create is one less than the number of your Layers.

3. Specify which Regroover Layer is routed to which Regroover Output from the Output Routing drop down menu of each Layer. In this example Layer 2 is routed to Regroover Output 10. You can have the same output for more than one Layer, for example Output 5 could carry the audio of both Layer 1 and Layer 3.

4. In Ableton click on the Audio From drop down menu in one of the created Audio Tracks and select Regroover Pro. On the next menu, select the Regroover Output you wish to receive on this track. Remember that the Regroover MIDI track carries the audio of Output 1 and that is why the routing options of the drop down menu start with # 2-Regroover Pro.

5. Set the Monitor Mode of the Audio Track to IN.

## Pro Tools

1. Insert Regroover Pro in an Instrument Track.

2. Create one to five new Aux Tracks depending on how many Layers will be created. The Regroover MIDI track carries the audio of Output 1, so if you want to route all Layers separately, the minimum number of tracks you will need to create is one less than the number of your Layers.

3. Specify which Regroover Layer is routed to which Regroover Output from the Output Routing drop down menu of each Layer. In this example Layer 2 is routed to Regroover Output 10. You can have the same output for more than one Layer, for example Output 5 could carry the audio of both Layer 1 and Layer 3.

4. In Pro Tools I/O settings of the created Aux Track, click on the Input drop down menu and select plug-in. Then choose Regroover Pro and the Output you want to receive on this Aux Track. Remember that the Regroover Instrument Track carries the audio of Output 1 and that is why the Input options of the drop down menu start with Output 2.

## Steinberg Cubase

1. To create a Regroover Pro instance go to Project→ Add Track→ Instrument and select Regroover Pro from the list of instruments.

2. In Cubase, if you load a VST into the rack, only the first output channels is enable by default. To add further channels or activate all of Regroover's Outputs, after Regroover instantiates go to Devices→ VST Instruments and click on the small arrow icon ( ) next to Regroover. Then, activate the channels you need or select All Outputs from the pop-up menu.

3. Specify which Regroover Layer is routed to which Regroover Output from the Output Routing drop down menu of each Layer. In this example Layer 2 is routed to Regroover Output 10. You can have the same output for more than one Layer, for example Output 5 could carry the audio of both Layer 1 and Layer 3.

4. Click on the arrow on the bottom left of the Instrument track to reveal all Regroover outputs.

## Logic X Pro

1. To create a Regroover Pro instance go to Track→ New Software Instrument Track→ Instrument and insert the multi-output version of Regroover Pro from the list of AU instruments under the accusonus folder.

2. Click View → Show Mixer and select the Regroover track. Click on the (+) button to create Aux Tracks. Create as many AUx tracks needed depending on how many Layers you have. The Regroover Instrument track carries the audio of Output 1, so if you want to route all Layers separately, the minimum number of tracks you will need to create is one less than the number of your Layers.

3. Specify which Regroover Layer is routed to which Regroover Output from the Output Routing drop down menu of each Layer. In this example Layer 2 is routed to Regroover Output 10. You can have the same output for more than one Layer, for example Output 5 could carry the audio of both Layer 1 and Layer 3.

4. Logic will automatically route Output 2 to Aux 1, Output 3 to Aux 2 etc, but you can always reconfigure which Regroover Output will be received in each Aux Track from the input menu of the mixer. Regroover 3-4 corresponds to stereo Output 2, Regroover 5-6 corresponds to stereo Output 3 and so on.

## Cockos Reaper

1. Select Track → Insert virtual Instrument on new track and choose AUi Regroover Pro or VSTi Regroover Pro from the instruments list.

2. A pop-up window will appear asking you if you want to add multiple tracks for the instance. Select Yes, otherwise a Stereo instance of Regroover Pro will be created.

3. Specify which Regroover Layer is routed to which Regroover Output from the Output Routing drop down menu of each Layer. In this example Layer 2 is routed to Regroover Output 10. You can have the same output for more than one Layer, for example Output 5 could carry the audio of both Layer 1 and Layer 3.