Guide to Using Cockos REAPER for Music Production

Written by

Joseph Canning

for

Advanced Technical Writing

Table of Contents

Audience Analysis

This guide is intended for musicians who want to use the digital audio workstation (DAW) REAPER made by the company *Cockos* for music production tasks. The audience is comprised of amateurs who have a low amount of familiarity with music production and REAPER. Universally, members of the audience are adept computer users. Novice users seek quick, condensed information to get them oriented in the program.

Introduction

REAPER is a low-cost DAW with a broad feature set, making it suitable for a wide range of audio tasks. It is used by amateurs as well as audio professionals for its reliability, flexibility, and speed. The hobbyist website Home Music Creator states in their review of the product that it is "excellent value for money" [1]. This guide is focused on getting you acquainted with the parts of REAPER that are essential for producing music recordings. Topics covered will include project setup, transport and track management, channel strip effect chaining, automation, and project export.

Project Setup

In REAPER, the toolbar is always visible along the top of the window, and it is the primary way to access most of the program's features. To make a new project:

1. Click **File** in the toolbar.
2. Select **New project** in the dropdown menu. After a brief loading screen, you will have an initialized project without a name.
3. Click **File** in the toolbar again.
4. Select **Save** in the dropdown menu to name your project.

> ***Note***: Save often to ensure that you do not lose your work.

Advanced Setup Options

To access other project settings:

1. Click **File** in the toolbar.
2. Select **Project Settings** in the dropdown menu.
3. In the pop-up menu, ensure the `Project Settings` tab is selected.

Within the pop-up menu, many more situational options can be changed. The project's sample rate is visible near the top; make sure it's a value compatible with your hardware. Project tempo and time signature can be adjusted to a desired value in this menu as well. If you wish to change any resampling or pitch shifting algorithms, that is also done in this menu.

Using the Transport and Track View

The thin strip along the bottom of the screen with controls and text inside of it is referred to as the transport. The light-colored area above the transport with thin vertical bars running through it is called the track view.

Transport

The transport is used to navigate through the project. In the leftmost part of the screen (see *Figure 1* below), there is a pair of buttons that will take you to the beginning and end of the project. To the right of those buttons is the **Stop**, **Play**, and **Pause** buttons. The red button to the right of **Pause** is the **Record** button.

The middle part of the transport (see *Figure 2* below) contains readouts letting you know the state of your project, such as what measure you have selected and how many seconds you are into your project. You can also adjust the project tempo and time signature from the transport.

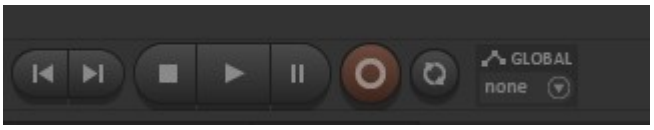

Figure 1: The leftmost portion of the transport is visible above.

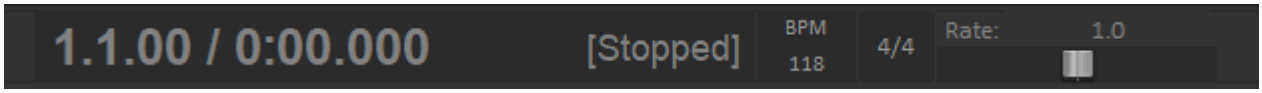

Figure 2: Above is the middle portion of the transport.

Track View

In REAPER, audio information is contained in clips which are arranged on the track view. To see anything in the track view, audio clips need to be in the project. Import audio clips into your project by pressing the **Insert** button on your keyboard, and click **OK** on all dialog boxes.

Tracks

Track controls are contained within boxes along the left edge of the track view. Each box has identical controls. They are visible in the top left of *Figure 3* on the next page. Clicking the black box allows you to give the track a name. To the left of the box is the red **Record arm** button. To the right, the track's volume and panning can be adjusted. The **M** and **S** buttons mute and solo the track respectively.

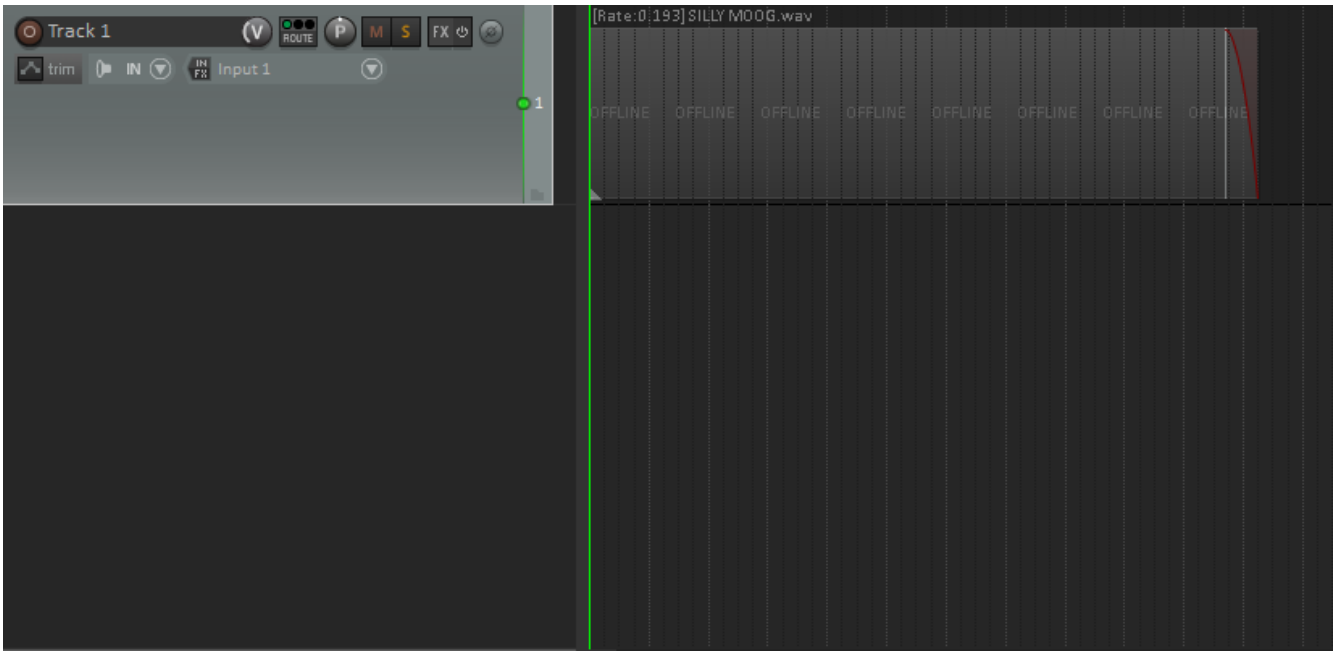

Figure 3: Above is the track view with a single track added named "Track 1" with an audio clip. The waveform is not visible inside the audio clip in this image, but it should be visible in your project.

Audio Clips

Audio clips are boxes in the track view with an audio waveform visible inside of them. An audio clip is visible in the top right of *Figure 3*. Clicking on a clip and dragging it horizontally will move the clip forward or backward in time. By default, the clip will snap to the nearest beat, making it simple to line up all of the different clips that comprise your song. If you need more precise arrangement, hold **Shift** while dragging to prevent snapping.

Double clicking a clip will bring up a pop-up menu with advanced options. Here, you can give a clip a unique name and adjust its volume and panning separately from its track. Hitting the **Normalize** button will automatically increase the volume of the clip such that its audio's loudest peak sits at 0 dB. You can also shift the pitch of the audio up or down. The length of the fade in and fade out can also be adjusted or the fades can be removed.

Using Channel Strips and the Mixer View

A channel strip is essentially a track with an effects chain allowing other programs (plugins) to modify the audio passing through the channel strip in some way. Channel strips are visible inside the mixer view which is hidden by default. To make it visible, press **Ctrl + M** on your keyboard. Each track will now have a corresponding channel strip along the bottom of the screen (see *Figure 4* on the next page).

The large fader on a channel strip controls the track's volume. The large red button at the bottom is the **Record arm** button. The large button labeled `Routing` allows you to create custom audio routing that can feed one track's audio into another. All other controls have the same function as those on the track view and look similar.

Figure 4: The mixer view is shown above with two channel strips for the tracks `Track 1` and `Track 2` and the stereo buss labeled `MASTER`. `Track 1` has the *ReaEQ* effect plugin inserted into its first effect slot.

Recording Audio

The channel strip interface makes it simple to record audio completely within REAPER:

1. Click the **Record arm** button on the channel strip belonging to the track you want audio on. The button should now be brightly lit.
2. Right click the **Record arm** button. In the dropdown menu, navigate to `mono` for mono audio or `stereo` for stereo audio.
3. Select **Input 1** (for mono) or **Input 1/2** (for stereo).
4. Click the **Record** button in the transport.
5. Play your instrument!

> ***Note***: Every audio interface is different, so `Input 1` may be called something different. Try the available inputs until your playing is audible inside REAPER.

Effects

The dark box containing beveled slots near the top of the channel strip is called the effects chain. Placing effects here such as EQ, compression, and reverb will change the sound on the corresponding track. To add an effect:

1. Click a slot in the effects chain.
2. In the effects browser pop-up menu, type in the name of the effect you want to use.
3. Click the **Add** button in the bottom right.

Automation

Automation is the automatic change of an effect's parameter over time. For example, a high-pass filter might be automated to gradually open up before quickly closing again. REAPER allows for virtually all parameters of all plugins compatible with it to be automated. The official REAPER user guide calls the two forms of automation envelope automation and parameter modulation [3].

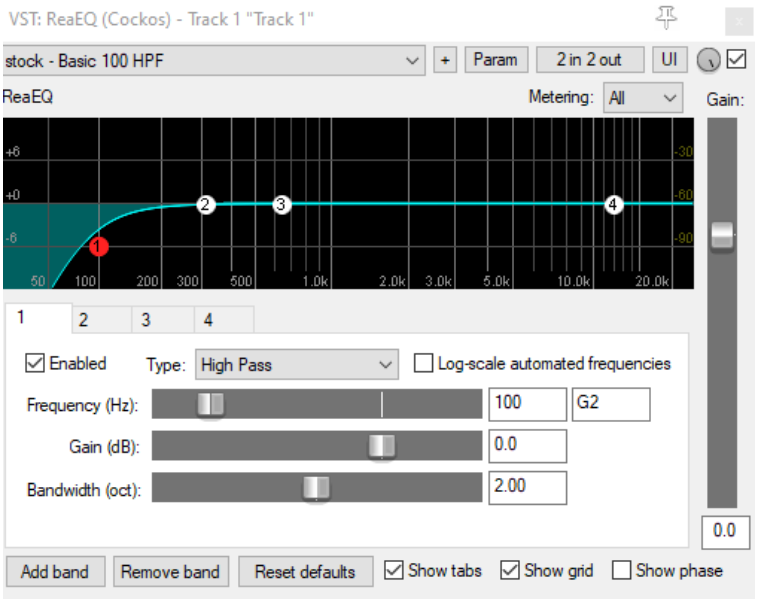

Figure 5: The plugin wrapper is shown above with the ReaEQ plugin.

Envelope Automation

This method of automation uses an envelope with an arbitrary number of points to change a parameter along its curve. To enable envelope automation:

1. Open a plugin in your project by clicking its name in the effects chain of a channel strip.
2. Click the parameter within the plugin's interface that you wish to automate.
3. Click the **Param** button in the top right of the plugin wrapper interface (see *Figure 5* above).
4. In the dropdown menu, click the button that says **Show envelope**.
5. The envelope is now visible in the track view. Hold **Shift** on the keyboard and click the envelope to create movable points along the curve.

Parameter Modulation

Modulating a parameter using an LFO (low frequency oscillator) produces a pulsating or rhythmic effect. To enable parameter modulation:

1. Follow the steps under the Envelope Automation section above.
2. Click the button with the sine wave symbol on the automation envelope track in the track view.
3. In the pop-up menu, click the LFO checkbox.

Your custom envelope will now be ignored. Instead, only the movement of the LFO—visible inside the parameter modulation window—will control the value of the parameter. Various aspects of the LFO can be adjusted such as its frequency and waveform depending on the effect you wish to achieve.

Exporting Your Project

Once you are happy with your song, you will want to export your project to an audio file that can be played with a music player. REAPER provides a sophisticated rendering system that supports many formats. The official REAPER user guide recommends the 16 bit WAV format for CD audio and the MP3 format for files shared over the web [3]. Additionally, there are export features that make it easy to ensure that your music is optimized for streaming platforms.

Rendering

An audio file is created by rendering your project. To bring up the render interface, click **File** in the toolbar and then **Render** in the dropdown menu. *Figure 6* below shows the pop-up render interface. The amount of options might be overwhelming at first, but the following steps will be sufficient for most users:

1. Ensure the **Source** selection box at the top of the window reads `Master mix` and that the **Bounds** selection box to its right reads `Entire project`.
2. In the `Output` section, click **Browse** to select the location you want your file to be written to.
3. Also under `Output`, in the `File name` text box, type in the name of your file.
4. Skip down to the tab near the bottom of the window that reads `Primary output format`, then click on the **Format** selection box and select `MP3`.
5. Click the **Save Settings** button at the bottom of the window so that you can modify these settings later if needed.
6. Click the **Render 1 file** button.

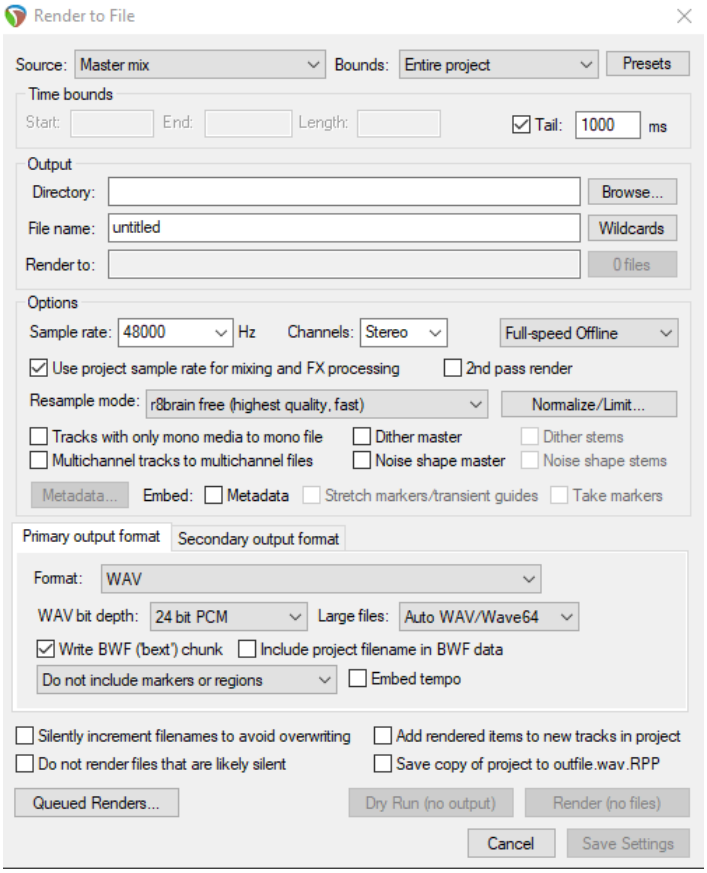

Figure 6: Above is the pop-up render interface.

Additional Rendering Options

Most of the other selections and check boxes inside the render window have niche uses reserved for advanced users; however, some options are more generally useful. For example, the rightmost selection box under **Options** allows you to pick a rendering speed and control playback. REAPER's user manual states that the idle options leave computer resources free for other tasks, and the online options allow you to hear playback during rendering [3].

Directly below the speed selection box is a button labeled **Normalize/Limit**. It brings up a pop-up menu with a checkbox for a normalize process and a limit process. Enabling normalize will amplify the audio to a certain level. The default LUFS-I threshold value is suitable for music that will be uploaded to streaming services and must not exceed an arbitrary loudness level, per the audio software company *Izotope* in their article on loudness normalization [2]. Enabling limit will reduce the peak levels of your audio, increasing headroom.

Conclusion

REAPER is a low-cost alternative to other DAWs with similar functionality. This guide has covered the most important areas of REAPER for the novice music producer: project setup, the track view and the transport, the mixer view and channel strips, automation, and project export. Understanding these key facets of the DAW are essential to using it efficiently in your work.

Other Resources

This guide provides the fundamental steps necessary to make music with REAPER, but it is by no means comprehensive. The internet is host to a wealth of resources providing information and insights about REAPER, many of which are worth looking at if you have any questions or want to explore the program further.

The REAPER website has an official user guide as well as other general information on the product. REAPER Blog is a site hosting mainly videos that give insightful tips and tricks. The official REAPER Forum is the best resource for troubleshooting and discussion. Additional support and discussion can be found on Reddit.

References

[1] Douglas, Paul. “Is Reaper a Good Daw? Suitable for Professional Use?” *Home Music Creator*, 20 Feb. 2022, https://homemusiccreator.com/is-reaper-good-daw/.

[2] “How to Master for Streaming Platforms: Normalization, LUFS, and Loudness.” *IZotope*, Izotope, Inc., 22 Oct. 2021, https://www.izotope.com/en/learn/mastering-for-streaming-platforms.html.

[3] Various. “Up and Running: A REAPER User Guide v6.68.” *Cockos*, Cockos, Inc., 1 Sept. 2022, https://dlz.reaper.fm/userguide/ReaperUserGuide668c.pdf.