



FaderMate Moving Fader Automation System  
Cockos Reaper Setup Guide - v1.0.0 (August 2018)

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# Table of Contents

Version History.....	3
1 Introduction.....	4
2 Before You Begin.....	4
3 Basic Setup.....	5
4 Volume Envelope Settings.....	10
4.1 Background.....	10
4.2 Envelope Range.....	10
4.3 Envelope Scaling.....	11
5 Automation Modes.....	13
6 Synchronising With Other Applications.....	14
6.1 MIDI Considerations.....	14
6.2 Reaper as Master.....	16
6.3 Reaper as Slave.....	17

# 1 Introduction

This guide explains how to use FaderMate with Cockos Reaper.

It was prepared with reference to Reaper version 5.77 running on Microsoft Windows 10.

Some details may vary slightly depending upon the versions of Reaper and Windows you are running.

***NOTE: This document is not an exhaustive product guide for Reaper. If you need more in-depth information about operating the software, please refer to***

***<https://www.reaper.fm/userguide.php>.***

## 2 Before You Begin

Before starting the setup process, please ensure that you have:

- Connected your MIDI interface to the computer correctly
- Connected the FaderMate MCU to the MIDI interface as outlined in the *Product Manual*. This can be downloaded from <http://fadermate.co.uk/downloads.html>
- The HUI full scale settings for all FCUs in their default configuration

### 3 Basic Setup

It is first necessary to configure the FCUs in your FaderMate installation as HUI banks in Reaper.

Select the menu item **Options > Preferences**.

You will see the *Preferences* window. Select the option *Control/OSC/web* in the left-hand pane as shown in Figure 3.1

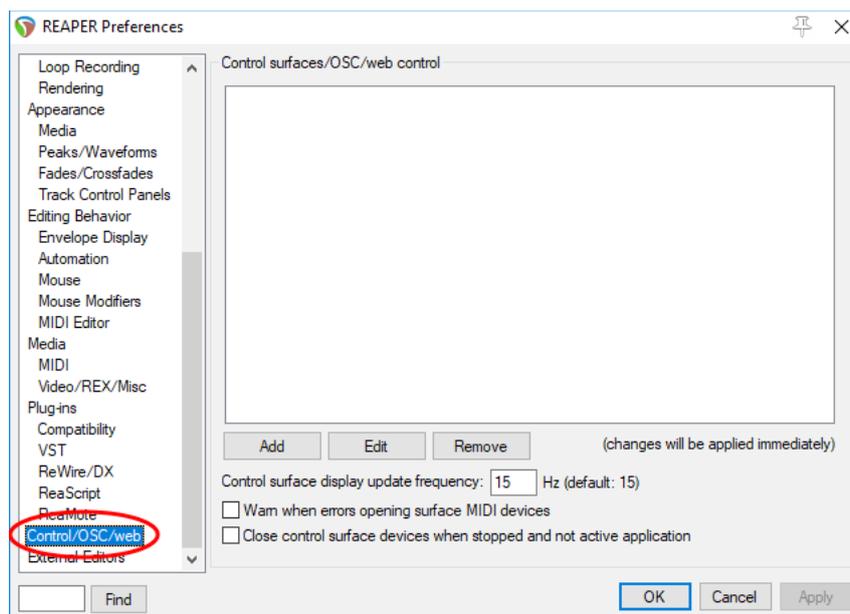


Figure 3.1 – Control Surface Options

**NOTE:** Repeat the following steps once for each FCU you would like to connect.

Click **Add**.

You will see the *Control Surface Settings* window. Click the dropdown menu and select the option *HUI (partial)* as shown in Figure 3.2.

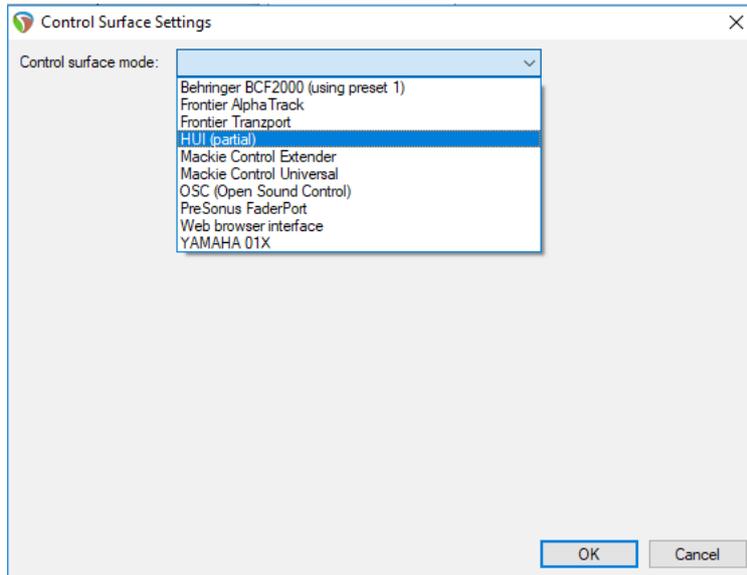


Figure 3.2 – Adding a HUI Device

Figure 3.3 shows the *MIDI input* dropdown. Select the MIDI input which is connected to the FCU bank you are configuring.

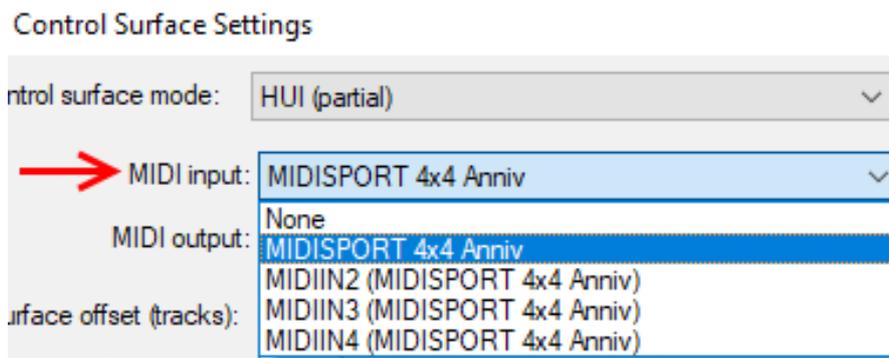
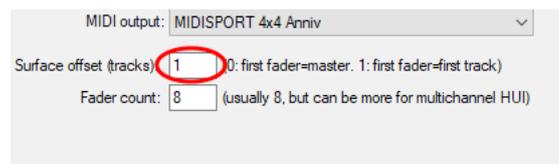


Figure 3.3 – MIDI Input Selection

Select the MIDI output in a similar way using the *MIDI output* dropdown.

Now set the *Surface offset* parameter (shown in Figure 3.4) appropriately.



*Figure 3.4 – ‘Surface offset’ Parameter Entry*

If you wish to control Reaper’s master volume with the first fader on your console, this parameter should be set to 0, 8, 16 or 24 for FCUs 1 to 4 respectively.

If you only want to interact with track volumes (the most likely case), *Surface offset* should be set to 1, 9, 17 or 25 for FCUs 1 to 4 respectively.

The *Fader count* parameter should be left as the default value (8).

Figure 3.5 shows the *Control Surface Settings* window after the following settings have been entered:

- **FCU index:** 1 (first 8 faders)
- **MIDI input:** M-AUDIO MIDISPORT 4x4 (Input 1)
- **MIDI output:** M-AUDIO MIDISPORT 4x4 (Output 1)
- **First fader:** Controls first track (not master)

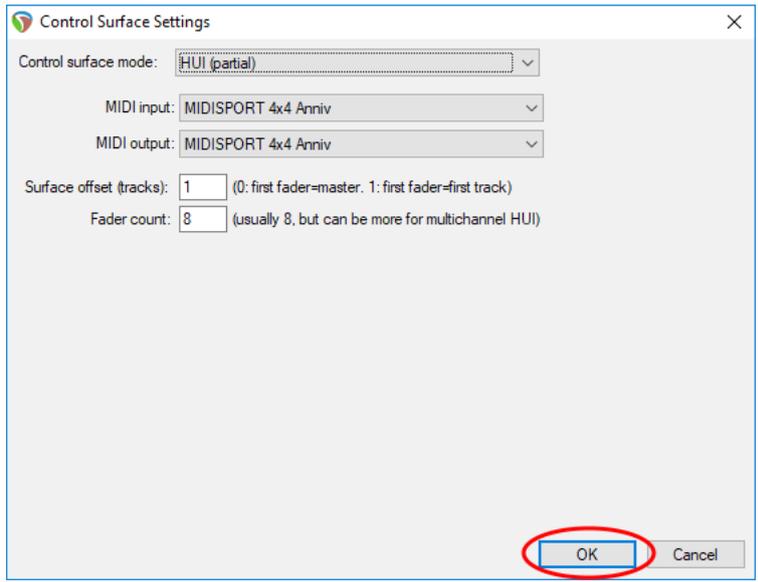


Figure 3.5 – Control Surface Settings For FCU 1

Press **OK** to accept your settings (indicated in Figure 3.5).

You will now be returned to the *Preferences* window with the *Control/OSC/web* option still selected. You should see an entry in the *Control surfaces/OSC/web control* pane for every HUI instance which has been configured so far.

For example, after configuring FCUs 1, 2 and 3, the *Preferences* window will look something like Figure 3.6.

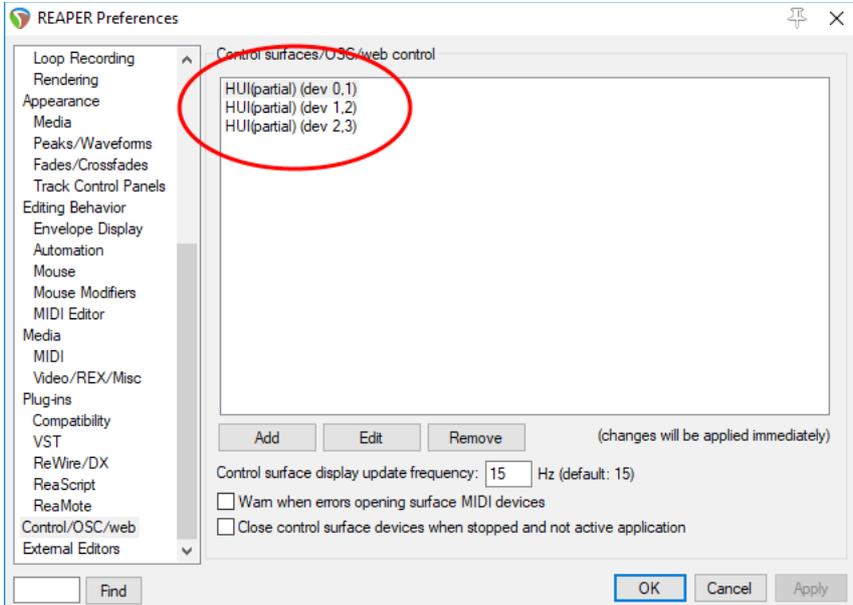


Figure 3.6 – Control Surface Preferences With 3 FCUs Configured

Press **OK**.

You can verify that FaderMate and Reaper are talking to each other by adding tracks to a Reaper project and performing the following tests:

- Move track faders on Reaper's *Mixer* and verify that the corresponding physical faders on your console move in a similar way (proves that Reaper can transmit MIDI data to FaderMate)
- Move physical faders on your console and verify that the corresponding track faders on Reaper's *Mixer* move in a similar way (proves that FaderMate can transmit MIDI data to Reaper)

## 4 Volume Envelope Settings

### 4.1 Background

FaderMate interacts with track volumes.

That is, in general, when a physical fader is moved downwards, a Reaper track volume is reduced. Correspondingly, when a Reaper track volume is reduced, a physical fader moves downwards.

Therefore, whether FaderMate is being used as a control surface or as an analogue moving fader system, the automation data will be stored in the volume envelopes associated with some tracks in a Reaper project.

In order to achieve the desired behaviour, it is necessary to adjust some of the default settings for volume envelope behaviour.

### 4.2 Envelope Range

By default, Reaper's track volume envelopes have a range from  $-\infty$  to +6dB. However, the default volume range of Reaper's faders is  $-\infty$  to +12dB.

This means that although your FaderMate system will move Reaper's faders through their full range of movement (and vice-versa), any volume envelopes you record will be clipped at +6dB. If you played such an envelope back, you would notice that your physical faders never 'reached the top'.

To remedy this, it is necessary to modify Reaper's volume envelope settings.

The volume envelope settings can be found in the **Editing > Envelope Display** pane of the *Preferences* window as shown in Figure 4.2.1.

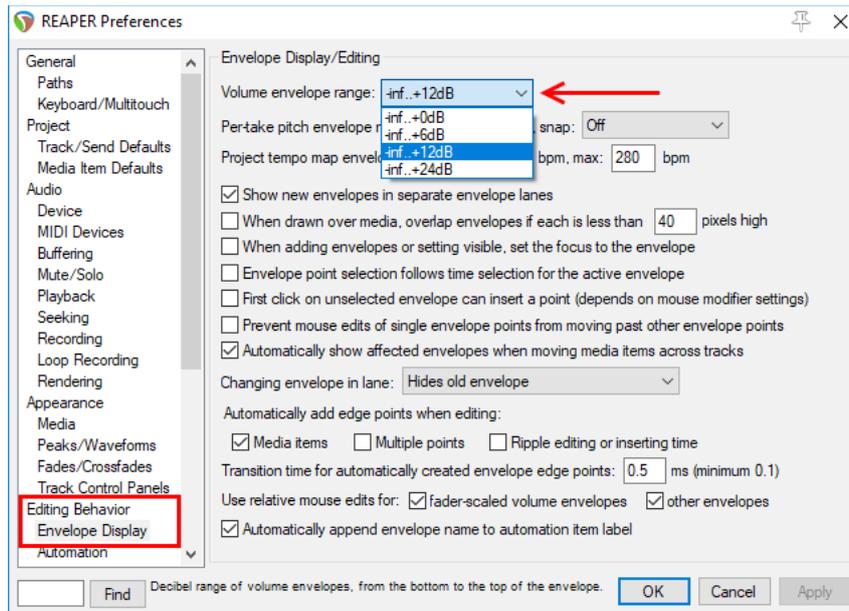


Figure 4.2.1 – Modifying Volume Envelope Settings

Change the *Volume envelope range* setting to “-inf..+12dB” using the dropdown indicated by the arrow in Figure 4.2.1.

Press **OK** to accept the change.

**NOTE:** The “Volume envelope range” parameter is global, i.e. it applies to all tracks in the project.

### 4.3 Envelope Scaling

By default, Reaper’s track volume envelopes are scaled according to amplitude. At the bottom end of the envelope’s range, a small distance on the screen corresponds to a large change of gain in dB (which in turn causes a large fader move).

Under normal circumstances, to make the moving faders behave as expected, it is necessary to make the track volume envelopes map geometrically to the travel of the physical faders.

That is, if you manually draw an envelope point which looks roughly a quarter of the way from the bottom, you can expect the physical fader on the console to be a quarter of the way from the bottom of *its* travel too.

To set a track volume envelope to the appropriate mode for use with FaderMate, right click in the volume envelope lane for the track in question and choose menu option **Envelope defaults > Volume envelope: fader scaling** as shown in Figure 4.3.1

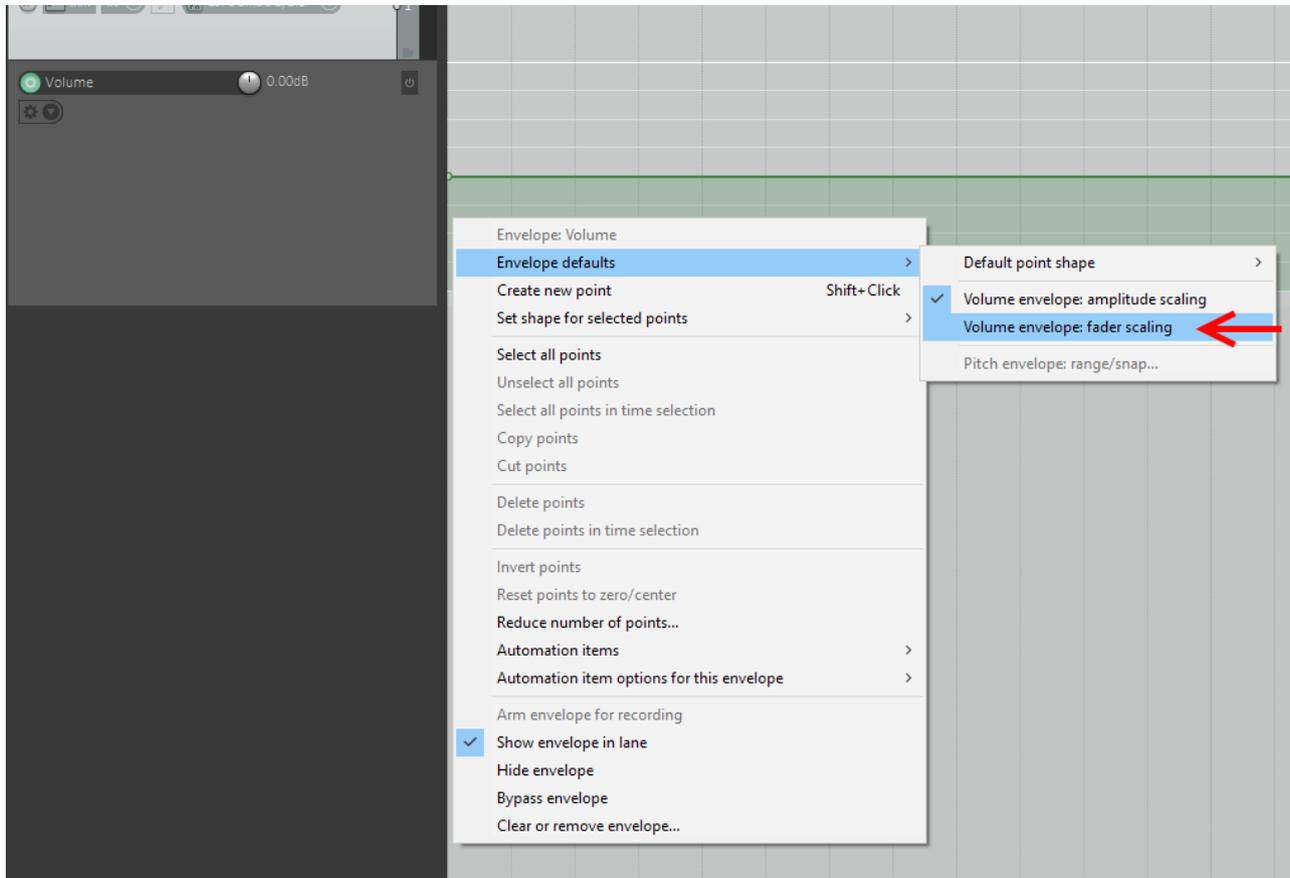


Figure 4.3.1 – Setting Volume Envelope Scaling Mode

**NOTE: The volume envelope scaling setting only applies to a single track. It is necessary to perform this step for every track which will interact with FaderMate.**

## 5 Automation Modes

Reaper offers several modes in which automation envelopes can operate.

To see the full list of modes which can be applied to a particular envelope (along with a short description of what they do), right click in the area underneath the envelope title to access the envelope menu as shown in Figure 5.1.

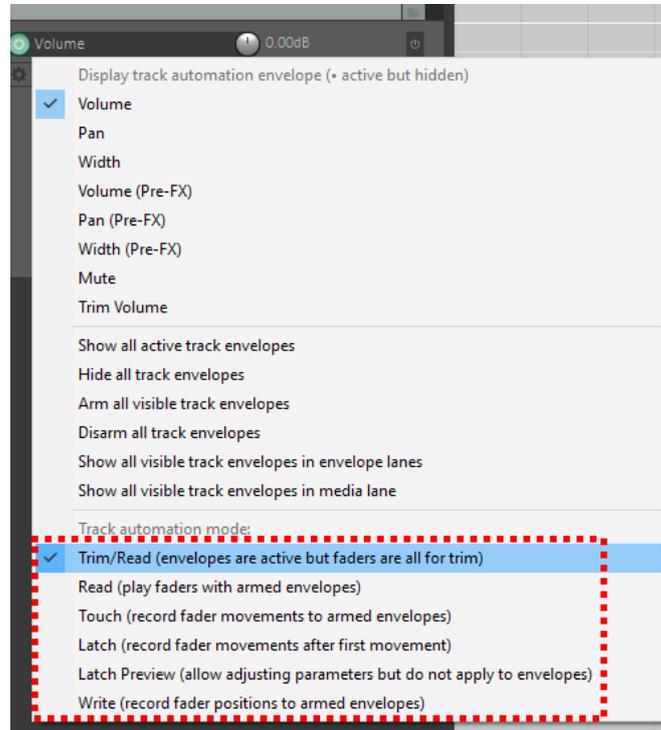


Figure 5.1 – Envelope Menu

Options for the available automation modes are indicated by the dashed red box.

The modes of particular interest when using FaderMate are as follows:

- **Read.** An envelope that has already been recorded will control the physical fader when the project is played back. Although you will be able to stop the physical fader from moving along with the envelope by touching it, any changes you make will not be recorded.
- **Write.** If you play back the project, moving the physical fader will write corresponding changes to the envelope. The existing state of the envelope will not cause the physical fader to move.
- **Touch.** An envelope that has already been recorded will control the physical fader when the project is played back. If you touch the physical fader, your moves will override the existing envelope and write the changes back. When you let go of the physical fader, its movements will revert back to following the existing envelope points.

## 6 Synchronising With Other Applications

It is possible to synchronise Reaper's playback in time using various different methods. However, this section only covers the use of *MIDI Timecode (MTC)*.

For more details about MTC, refer to: [https://en.wikipedia.org/wiki/MIDI\\_timecode](https://en.wikipedia.org/wiki/MIDI_timecode).

Timecode synchronisation can be particularly useful in several cases:

- You are using a different DAW package, would like to do an '*Out of the Box*' mix but would like to keep your automation data in a separate project (to avoid having 'empty' tracks in your project)
- Your preferred DAW does not allow enough 8 channel HUI banks to support your automation requirements (e.g. Pro Tools only allows 32 channels of HUI-based automation) but you have 2 FaderMate MCUs and 48 moving faders installed in your console
- You would like to use something other than a DAW to store your audio (e.g. a tape or ADAT machine) but you still want to take advantage of the automation system.

***NOTE: Reaper for Windows will not allow playback to start unless an audio interface is connected to your computer. Therefore, even if you are only using Reaper as a means of storing/recalling automation data, it is necessary to make sure that an unused ASIO audio device is available so that Reaper will let you play your project.***

### 6.1 MIDI Considerations

If you wish to synchronise playback of your Reaper project with another MTC-compatible device, you will require a spare MIDI output (if Reaper will be the master) or input (if Reaper will be the slave). Note that the extra input or output is an additional requirement over and above the requirements for connecting FaderMate.

By default, MIDI inputs and outputs are disabled in Reaper unless you proactively enable them.

***NOTE: The MIDI inputs and outputs used for the FaderMate automation data itself do not need to be enabled. In fact, if you enable the FaderMate inputs/outputs using the following procedure, FaderMate will not work. Only perform the procedures here for MIDI inputs/outputs which will be used to pass MTC data. MIDI inputs and outputs used by FaderMate must be left in the 'disabled' state.***

To modify the settings for a MIDI input or output, select menu item **Options > Preferences** and then navigate to **Audio > MIDI Devices** as shown in Figure 6.1.1.

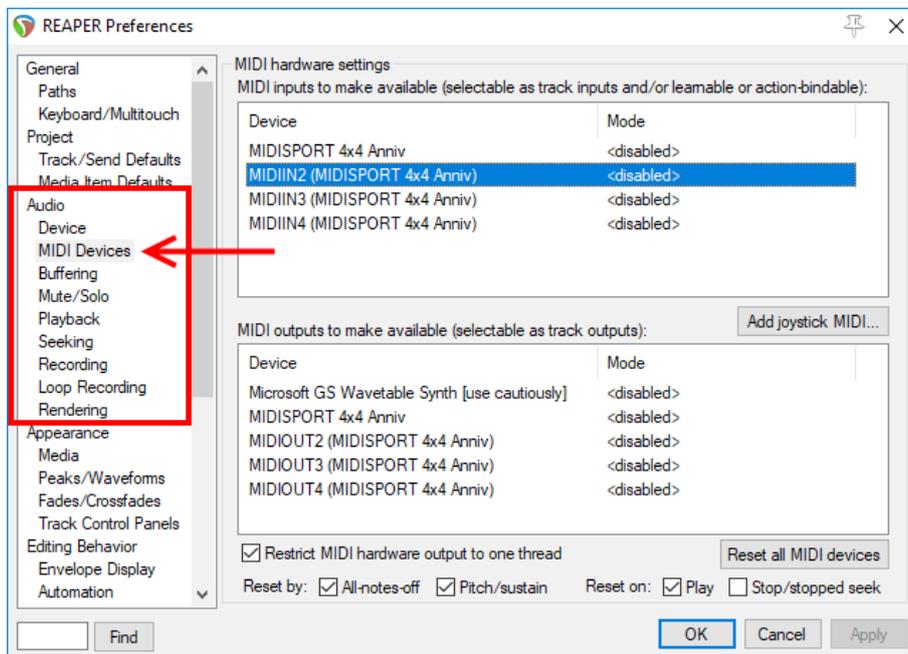


Figure 6.1.1 – Accessing MIDI Device Settings

To enable a MIDI input (in order to make Reaper the MTC slave), right-click on the input in the *MIDI inputs to make available* pane and select *Enable input* as shown in Figure 6.1.2.

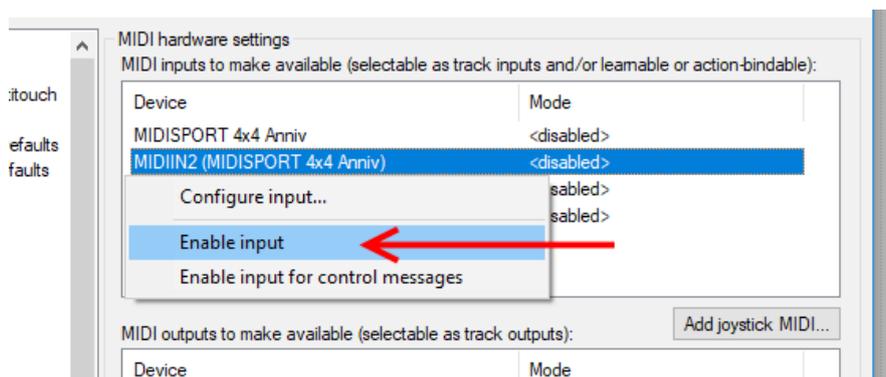


Figure 6.1.2 – Enabling a MIDI Input

To enable a MIDI output (in order to make Reaper the MTC master), right-click on the output in the *MIDI outputs to make available* pane and select *Enable output* as shown in Figure 6.1.3.

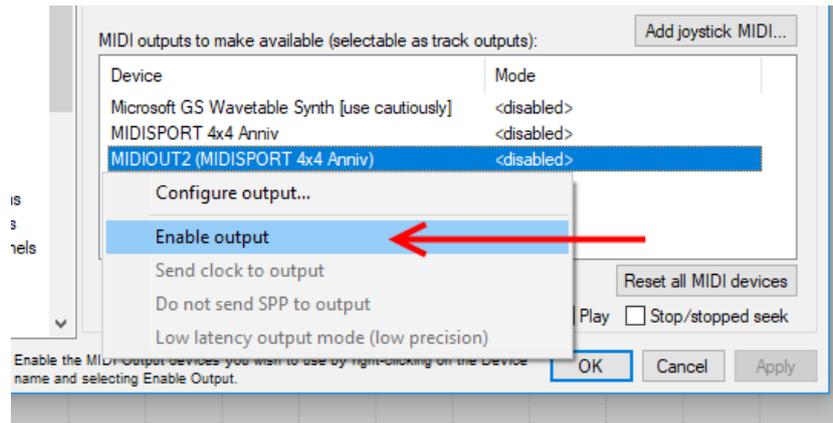


Figure 6.1.3 – Enabling a MIDI Output

Click *OK* to apply the new settings.

## 6.2 Reaper as Master

In order to use Reaper as your MTC master, it is necessary to insert a timecode generator track by selecting menu item **Insert > SMPTE/LTC/MTC Timecode Generator** as shown in Figure 6.2.1.

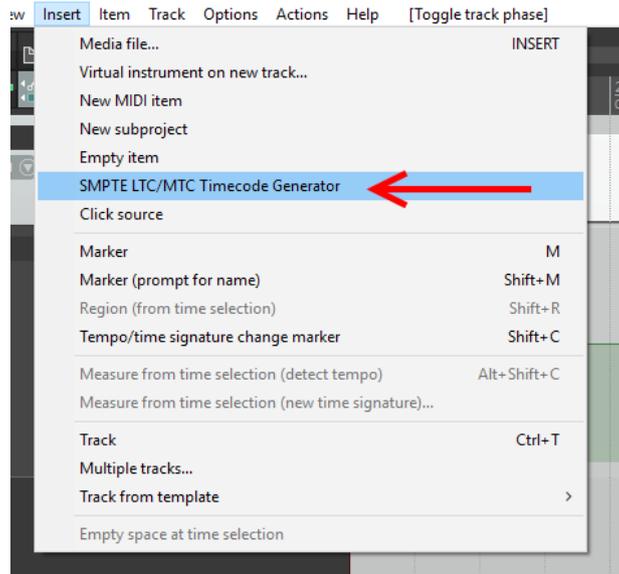


Figure 6.2.1 – Adding a Timecode Generator Track

You must ensure that the track is routed appropriately in order to get the timecode to the MTC slaves in your system.

In order to modify the timecode generator properties, click the ‘i’ information icon above the track as shown in Figure 6.2.2.

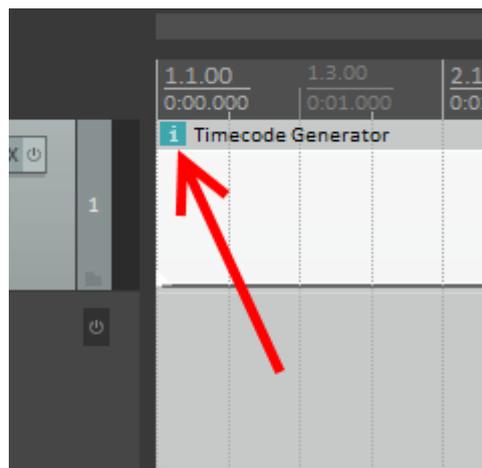


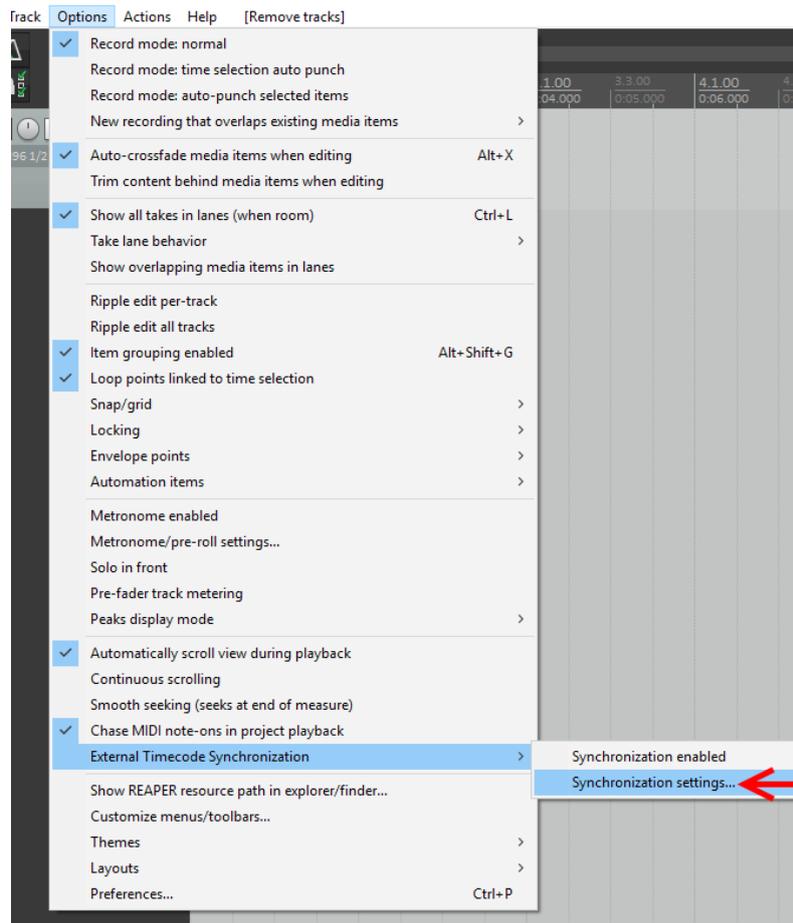
Figure 6.2.2 – Launching Timecode Generator Properties

This will launch the *Media Item Properties* window in which the timecode generator can be tweaked as necessary.

### 6.3 Reaper as Slave

If you would like to synchronise Reaper to an MTC master (e.g. a different DAW), you must configure the synchronisation settings. To do this select menu item **Options >**

**External Timecode Synchronization > Synchronization settings** as illustrated in Figure 6.2.1.



*Figure 6.2.1 – Launching Sync Settings*

This will launch the settings window shown in Figure 6.2.2.

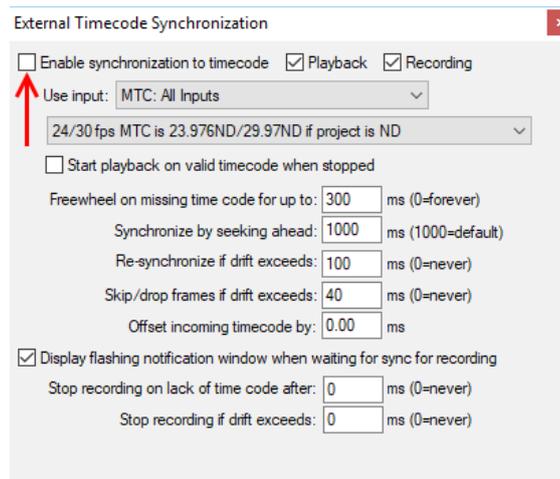


Figure 6.2.2 – Sync Settings Window

In order to use MTC for synchronisation, the *Use input* dropdown must be set to *MTC: All inputs*. This will cause Reaper to listen for valid timecode signals on all available enabled MIDI inputs.

Configure the appropriate settings and then ensure that the “*Enable synchronization to timecode*” check box (indicated by the red arrow) is checked.

# Version History

<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Details</b>
1.0.0	27 August 2018	AJN	First release