REAPER Update Summary Guide

Main changes, versions 6.66 to 6.70

This document has been produced primarily for the benefit of those users who have a printed, hard copy User Guide.

It reproduces in each case sections which are either new or which have changed significantly. Relatively minor tweaks and twiddles are not included here. The "litmus test" that has been applied is whether these changes seem likely to have, or might possibly have, any significant impact on your way of working.

The document is intended to assist you in keeping your documentation up to date.

You can print off those pages which are relevant to you, file them, and make a mark or annotation in your hard copy guide to that effect.

This Update Summary Guide will itself be updated regularly with future new releases.

Summary of Contents

Version 6.66

Video and Media Import preferences.

Version 6.67

Region/Marker Manager – new features
Region Render Matrix – new features
New feature – Retroactive MIDI recording
Performance Meter – improvements

Version 6.68

Adjusting media item fades
Smart tools and armed actions

Version 6.69

Startup – option to suppress scanning new/updated VST plugins.
Project settings – options to define default number of track channels and parent send channels.
Media explorer preview – shift+mousewheel can be used to horizontally scroll during zoomed preview.
Region/marker manager – optional to display take markers outside visible part of media item.
Render – optional rendering stems pre-fader supported.
Render – option to write output render stats for each rendered file.
Preferences: Media import preferences separated from general Media preferences.
MIDI device settings: option to exclude SPP data when sending clock to device.

Version 6.70

Mouse modifier contexts now listed in alphabetical order.
Render option added to render only those track channels that are sent to parent.
Various actions added for stem rendering, including to render multichannel (parent only) stems.

REAPER User Guide

Main changes, version 6.65

August 2022

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Any minor tweaks and twiddles are not included here, but are listed on page 13 of the main document.

Changes to track pan dialog

Pan Law and Pan Mode

When two channels are mixed the result is louder if both are panned dead center than if they are each panned to the extreme left and right. Pan laws enable you to compensate for this. You can choose a default pan law for new tracks in your advanced **project settings.**

Right-click on the pan control to choose a **pan mode** (see right). Pan modes are explained more fully in Chapter 11 when we look at stereo panning. In brief, however, you have a number of options – **Stereo balance/mono pan** is the default (see Project Settings). This is equivalent to the mode used in versions before REAPER 4. Some of the screen shots used in this guide show dual pan controls.

You can change the **pan law** for individual tracks. Right-clicking over a track's pan fader opens a window with an option to **Override default track pan** law. Selecting from the list (in a range 0.0 dB to -6.0 db) or type in your own value. A negative setting causes the signal at the center to be attenuated as panning increases.

The **Gain compensation (boost pans)** option can be enabled to cause the signal's audio strength to be boosted as it is panned further away from the center. The -3 dB and -6 dB settings correspond exactly to equal power and equal gain respectively.

The last dropdown presents three options – sine taper, linear taper and hybrid taper. In short, with linear taper the overall sound increases as you pan towards the center. Non-linear tapers seek to compensate for this. You 'll find more technical information about pan laws here: https://samplecraze.com/tutorials/the-pan-law/
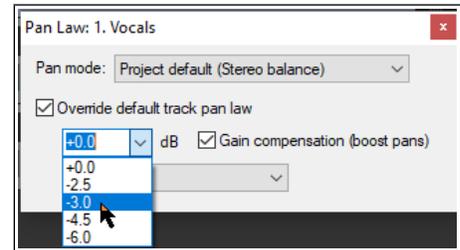
Individual FX context menus include options to Add with preset, Rename FX, Create keyboard shortcut and Set default preset.

Track FX Basics

FX can be used with REAPER, for purposes such as EQ, compression, chorus, reverb and more. Track FX (JS, VST, VST3 and DX, VSTi , VST3i and DXi, and, for Mac users, AU) can be added to tracks and media items from the FX browser or by directly inserting them into the track or item FX Chain. Media item FX are explained in Chapter 6. Many FX plug-ins are supplied with REAPER, including Jesusonic and Cockos effects.

We'll examine many of these later in this User Guide, especially in Chapters 6 and 16. For now, let's just focus on some general aspects of how audio FX fit in to the REAPER scheme of things. To access any of these FX, simply follow these procedures:

FX can be added to any track or item FX directly from the main FX Browser window. Each track and item also has its own FX window: these are most suitable for managing the individual FX parameters and the FX chain itself, although FX can also be added to individual track and item FX from within this window.

From the FX browser...	You can do this ...
Open the FX Browser	Choose **View, FX Browser** command or press **Shift F**.
Add FX to a track or item	Drag and drop FX from FX Browser to track panel or mixer panel or item.
Add FX with preset	Right click on FX name, choose **Add with preset** from menu.
Add several FX to a track or item	Use **Ctrl left click** to build selection. Drag and drop selection from FX Browser window to track panel or mixer panel or item.
Add one or more FX to a number of tracks or items	Select the tracks (track panel) or items (arrange view). Select the FX. Right click over any selected FX, choose **Add to selected tracks** or **Add to active takes of selected items**.
Rename the FX	Right click on FX name, choose **Rename FX...** from menu.
Create keyboard shortcut	Right click on FX name, choose **Create shortcut ...** from menu. This shortcut can now be used to insert that FX into any track or media item.
Set default preset for FX	Right-click on FX name, choose **Set default preset** and select a preset from the list.
Insert previously saved FX chain in a track or item.	In FX Browser, select **Chains** in left hand panel. Drag and drop required chain to track panel or mixer panel or item.
Create new track and add FX	Drag FX from FX browser window to empty area of track panel.
Dock FX Browser	Right click on title bar, choose **Dock FX browser in docker** To undock, right-click on browser tab and deselect **Dock FX browser in docker**.
Advanced technical default options	More advanced technical options are documented in the section **Advanced plug-in defaults.**
From a track FX window...	You can do this ...
Open a track's FX window	Click on track's **FX** button. If no FX chain already exists for this track, click on **Add** button.
Add FX to track FX chain	Double-click on the required FX in FX browser window.
Add several FX	Use **Ctrl click** to build selection, then click on FX browser **Add** button.
Set FX to bypass (toggle)	In the FX chain, click on the FX name, press **Ctrl B**.
Set FX to offline (toggle)	In the FX chain, click on the FX name, press **Ctrl Alt B**. Unlike bypassed FX, offline FX will consume no CPU.

You can now make changes to pitch, rate and/or volume either by using the rotary/fader controls or by typing.

Media Item Preview
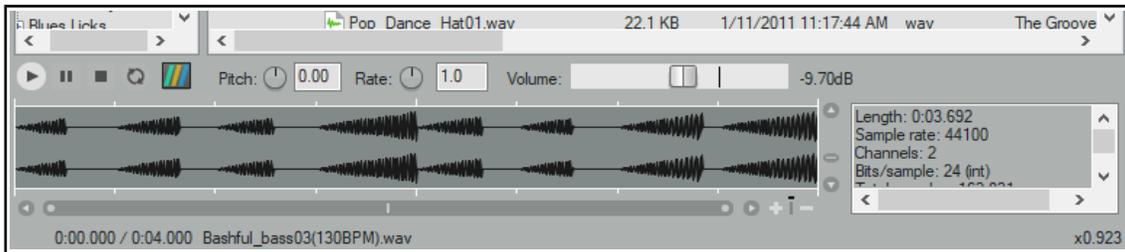
Usually you will want to audition items before inserting them into a project. The media explorer allows you to do this. The Auto play option (on the toolbar) can be used to ensure that by default an item is automatically played when you select it. You also have a number of options available which determine exactly how the preview feature will behave. Also, as you will see in the section that follows this one, you have a great number of options for determining just how items are inserted into your project.

Use the **Media Information** tool (second on toolbar) to toggle display of the media information box.

Also, identify the main playback controls. The **Transport Bar** buttons (L to R) are Play, Pause, Stop and Toggle Repeat. The horizontal fader (far right) adjusts the volume of playback. Now make yourself familiar with the following features:

In order to do this ...	Do this ....
Select a file to audition	Recommended: make sure **Always show waveform peaks for selected media** on the **Options** menu is enabled. Click on file in media explorer main panel, or use the keyboard up/down arrow keys on your to move thru the list.
Preview an .RPP file	Ensure **Preview REAPER.RPP projects** in **Options** menu is enabled. Select .RPP file within media explorer. You can also enable **Do not auto-render .RPP proxy**.
Show preview position in fractions of seconds	Enable **Display preview position in fractional seconds** in **Options** menu.
Audition a file: play and stop	Select file in media explorer's main panel. To start, click on the **Play** button in the preview panel, or press the right arrow key or spacebar on your computer keyboard. To stop, click on the **Stop** button in the preview panel, or press the left arrow key or spacebar.
Play item as a continuous loop	Enable the toggle repeat button on the preview toolbar.
Preview with start on bar enabled	Enable **Start on bar** (on toolbar). Optionally, enable **When start on bar enabled, wait for next bar to start preview** (Options menu)
Audition only a portion of a file	Make time selection (as shown here) then use spacebar to start/stop. Drag and drop from either the start or end of selection to extend/shorten it.
Zoom in/out of waveform	Scroll mousewheel up/down.
Scroll zoomed waveform	Shift drag left/right.
Adjust height of peaks display	Hover mouse over top of display area to show mouse cursor as a double-headed arrow. Drag up or down.

In order to do this ...	Do this ....
Play all files in sequence (needs repeat to be off)	Select **Auto advance to next file after preview** from the **Options** menu. Press **Spacebar**.
Automatically audition file when selected	Enable the **Auto play** tick box.
Synchronize to current project	Enabling **Start on bar** will ensure that in auditioning the item during project playback, the item playback will be co-ordinated so as to start on a bar.
Audition item within current project	Click on the **Routing** button and enable **Play thru ... selected track**. Insert a new track into your project and keep it selected. If you wish, enable both **Repeat toggle** and **Start on bar**. When started, playback will be thru the selected track – you can experiment with volume, panning, track FX, etc. When you also play the project, you will hear the item played with the project.
Use crossfades (optional)	The **Options** menu has an option to **Crossfade when switching between items**. The **Configure crossfade** option lets you set crossfade length,
Tempo match (use toolbar to toggle and choose options)	With this on, the tempo of the selected item is matched to that of the project. Other options include **Tempo match half** and **Tempo match double**.
Modify volume	Use **Options** menu to **Apply preview volume to inserted media.**
Pitch/Rate rotaries and **Volume fader**	Use these to make adjustments while auditioning, or type values in edit boxes next to the controls. The **Detect pitch** toolbar button displays the pitch in the preview window when auditioning. Enable **Options, Apply preview pitch rate to inserted media items** to apply pitch when inserting a media item.
Pitch and rate options	Right click on either the pitch or the rate control knob for a context menu of options, also available from the Media Explorer Options menu: **Preserve pitch when tempo-matching or changing play-rate** (toggle) **Reset pitch and rate when changing media** (toggle) **Pitch shift knob behavior** (options are **Continuous**, **Cents**, **Quarter tones**, **Semitones**) **Pitch shift knob range** (options are +/- 2, 6 or 12 semitones).
Normalized volume options	The **Options** menu includes **Normalize preview volume** [to -0 dB or -12 LU] **if peak volume has been calculated**, and **Apply normalized volume to inserted media items**. See also **Media Explorer Actions**.

Within the FX browser you can define default global settings for individual FX, including Run as, Compatibility, Keyboard input and Oversampling.

Floated individual FX windows have options to embed UI, access keyboard shortcuts, and for oversampling

Advanced Plug-in Defaults

There are a number of options available in the Add FX browser which you can use to define default settings for individual plug-ins. These will automatically be applied to that plug-in instance whenever it is added to a track or media item. Most of these deal with advanced technical matters: if you a relative newcomer to digital ausio, you might wish to skip over this section.
You can access these by right-clicking over any plug-in name in the FX browser list.

Right-click on any FX in the FX browser for a menu of options. Most of these are explained in the section **Track FX Basics**. In addition, the following options allow you to set individual plug-in defaults.

Menu Item	Submenu options
Run as	The default setting is **Automatic,** but you can change this to any of **Separate process**, **Dedicated process**, **Native only** (p**revent bridging**. There is also an option to **Embed the bridged UI**. For more information, see **Bridging and VST Plug-in Run Mode**.
Compatibility settings	This is especially useful for plug-ins that might have known or suspected compatibility issues. You can enable or Options available are **Save minimal undo state**, **Avoid loading undo states where possible**, **Inform plug-in when track channel count changes**, **Hard reset on playback start**, **Hard reset on playback start**, **Save state as VST bank**, **Buggy plug-in compatibility mode**, **HiDPI compatibility mode when floating windows.** There is also a further sub-menu to manage **Automation notifications**. Options are **Defaults** (set in preferences), **Ignore when plug-in window not open**, **Ignore when not from UI thread**, **Ignore all notifications**, **Process all notifications**. For more information about some of these options, see the section **VST and VST3 FX Compatibility Settings**.
Default settings for new instances	Any of these options can be enabled if you wish them to be automatically applied whenever the particular FX is added to a track or item: **Send all keyboard input to plug-in**, **Show embedded UI in TCP** or **MCP** (if supported), as well as a sub-menu of options for **FX instance oversampling**. Options are **Up to 88.2k/96k**, **Up to 176.4k/192k**, **352.8k/384k**, or **Up to 705.6k/768k**. The section **FX Chain Settings and Preferences** explains oversampling.

Advanced Floated FX Window Options

The essentials of floating individual FX windows have been covered in Chapter 2: see **Controlling Track FX**.In addition, a number of more advanced options are available from a context menu (right-click on the title bar).

Menu Item	Submenu options
Embed UI in TCP or **MCP**	Where appropriate, these options will be enabled. See the section **Embedding FX GUI in TCP or MCP**.
Send all keyboard input to plug-in	Enabling this will ensure that keystrokes such as up and down arrows will be applied within the FX window rather tah arrange view.
Chain/FX instance oversampling	This allows oversampling to be applied just to the individual FX instance, or to the track or item FX chain. Options are the same as in the table immediately above this one.

Section 21.3

Render stats: various improvements including option to open rendered file in media explorer.

Rendering a Project

Sample output from dry run render

Information (including % complete) is displayed in real time while rendering.

Whether dry rendering or rendering to a file, click on the **Stats/Charts** button to:

- Calculate and display True Peak, LUIFS-I, LUFS-M, LRA, LUFS-S and/or RMS-1.
- Jump to the first clip position in project.
- Jump to loudest sample.
- Display render statistics information

This button also includes options to **Open statistics charts in web browser**, (with or without **hide file paths**) and to **Jump to the loudest sample position in project**.

This display will include a detailed graph of render statistics, including loudness values. This is the case after both a dry run and an actual rendering.

When you are **rendering to a file**, the information displayed in this window is similar. In addition, there are options to **Close the render window** or **Return to render setup.** Three additional buttons are displayed, to **Launch the file**, **Open the folder**, or to open and display the file in the **Media Explorer**.
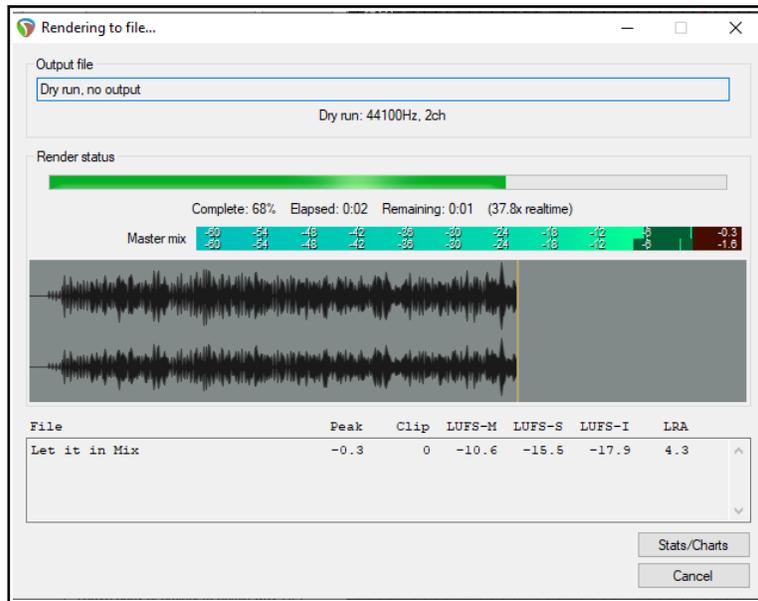
REAPER User Guide

## Main changes, version 6.66

August 2022

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Any minor tweaks and twiddles are not included here, but are listed on page 13 of the main document.

Pages 387, 424
Sections 20.8, 22.9.2

These sections are best understood when considered together. Only change is that Video Preferences and Media Import Preferences have been separated.

Video Preferences

Output options are shown below that.
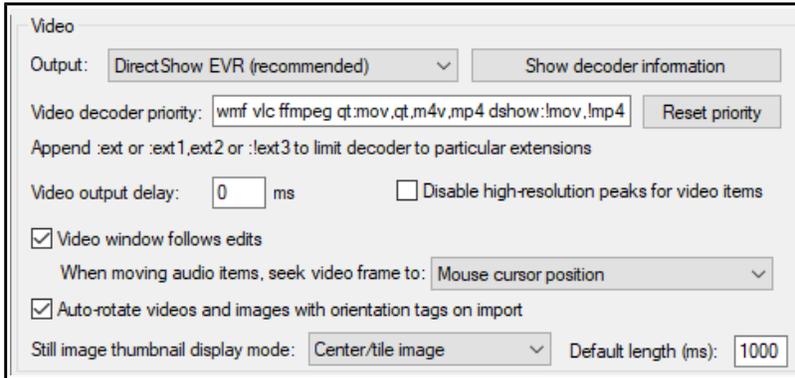
There is an option to open a window within Preferences to **Show decoder information**. You can, if you wish, edit the **Video decoder priority list** to change the order in which priority is allocated. By default, VLC format is assigned the highest priority.

The option to specify **Video output delay** can be used if necessary to improve playback synchronization. This can be a small positive or negative amount. There is also an option to **disable high-resolution peaks**. Enabling the option **Video window follows edits** ensures that the video window will synch to the seek point when audio items are moved or resized.

Still image thumbnails can be hidden or displayed in center/tile mode, full height mode or stretch/image mode. You can also specify the **default length** for thumbnail images.
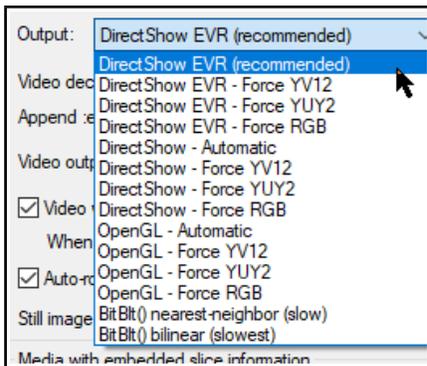
You can further choose your preferred behavior when audio items are moved, so that the video window displays content at the mouse cursor position, the start of the audio item, or a snap offset of the audio item.

Note also an option to **Auto-rotate videos and images with orientation tags on import**.4

The **Video file item properties** dialog (accessed by choosing **Source properties** from the item context menu) includes options to **Ignore audio** and for handling **Hi-res peaks**. There is also an option to **Copy audio settings to all video sources**.

In addition, the **File, Render** command can be used to export video from REAPER - see Chapter 21.

Note also that the **Performance meter** includes an option to **Display video load**.

Media Import Preferences

For **Video** preferences see Chapter 20. The **Media Import** options include how you wish to deal with **embedded slice information**, in particular how to **import files** and how to handle **slice tails**.

Options for importing media with tempo information in metadata or file name are determined by whether or not the tempo is reliable or suggested. There are options **After adjusting tempo, set imported media to auto-stretch at tempo changes** and to **Warn about potential playback when importing raw PCM audio**.
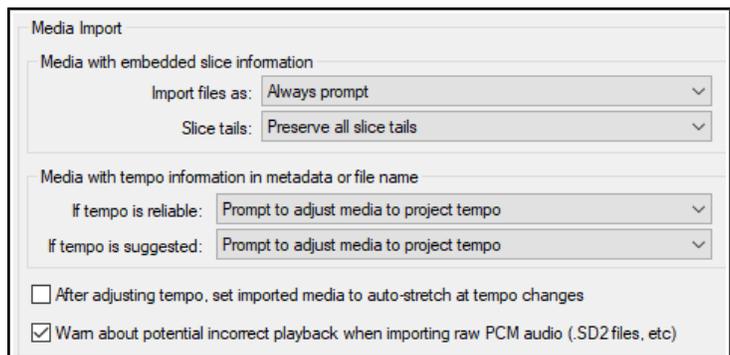
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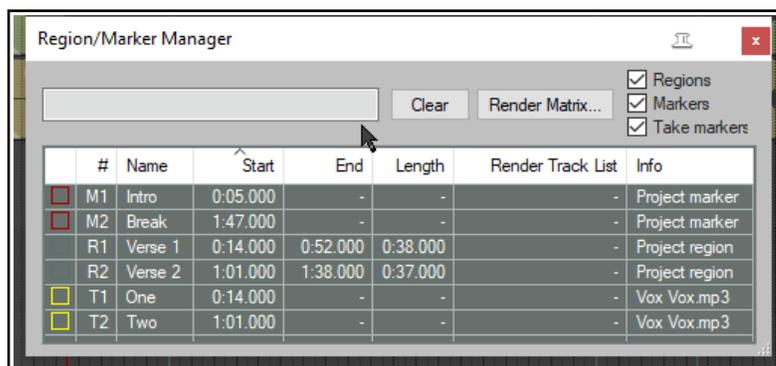
These sections are best understood when considered together. Enhancements include being able to select (within the Region/Marker Manager) individual tracks or any required number of tracks to be rendered within a region and being able to specify a required number of channels when rendering regions.

The Region/Marker Manager

The **View, Region/Marker Manager** command toggles this display, used to manage regions and markers (including **take markers**).

The region/marker manager organises markers and regions using its buttons, its controls, and its context menu (displayed by right-clicking on its title bar or in its background area.) This includes options that can later be used within the **Region Render Matrix** for rendering.

For additional options for the display of region names and numbers on the ruler, see **Ruler Layout Options**.

To do this ...	... you do this
Select which region/marker types to display	Use check boxes in top right corner of R/M Manager window.
Choose which columns to show/hide	Right click on any column header, select from list.
Sort rows by any column header	Click on column header, twice to reverse sort order.
Change column order	Drag header(s) left or right.
Edit marker/region name	Double click on name.
Zoom to region in arrange view	Double click region number.
Go to marker in arrange view	Double-click marker number.
Select several markers/regions	Click on first name, then Ctrl click on others to build selection.
Delete markers/regions (but not the media items within them)	Make selection, press **Delete**.
Change region/marker color	Click in small color box in first column, use color picker.
Change marker name	Double click on marker name, enter new name.
Change marker/region start/end time or length	Double click on current value, enter new value.
Filter marker region list using filter box above the table. See also **Using Search Filters**	Type text string– e.g. *verse* to list only markers/regions containing that text string. Supports boolean search, e.g. *lead* OR *break* finds names including either of those strings.
Find marker/region in manager from the ruler	Right-click on marker/region name on ruler, choose **Select in Region/Marker Manager.**
Specify tracks to be included when region is rendered	Build selection of tracks in arrange view, then select region, click in **Render Track List** cell, and choose **Render only selected tracks**, *or* click in the region's **Render Track List** cell and select tracks from menu list, or **All Tracks**.
Add tracks to region render list	Select from the region's **Render Track List** dropdown.
Renumber markers, regions in timeline order	Select command from the Region/Marker Manager context (right click) menu.
List markers and regions separately	Enable this option from the manager's drop down menu.

To do this ...	... you do this
Import regions/markers from .CSV or .TXT file	Choose either to merge or import from context menu.
Add/remove child tracks to render list with parent	Enable this option in the context menu.
Export regions/markers to file	Choose this command from context menu.
Dock R/M Manager in the docker	Choose this command from the context menu.
Seek playback when selecting marker or region	Enable this option in context menu.
Automatically play region thru then repeat or stop when selecting a region	Enable this option in context menu.

To do this ...	... you do this
Import regions/markers from .CSV or .TXT file	Choose either to merge or import from context menu.
Add/remove child tracks to render list with parent	Enable this option in the context menu.

These sections are best understood when considered together. Enhancements include being able to select (within the Region/Marker Manager) individual tracks or any required number of tracks to be rendered within a region and being able to specify a required number of channels when rendering regions.

Rendering Regions

This section requires you to have a sound knowledge of REAPER's regions. - see Chapter 9.

Defining your region rendering requirements can use a combination of three possible windows: **Render to File**, **Region/Marker Manager** and **Region Render Matrix**. For the most part you will not need to use all three together, but it will help you if you understand how these three windows can work together.

Of course, there are many reasons why you might wish to use and work with regions without rendering them as regions. However, there are other circumstances when you might wish to do this. After making your choices in the **Render Track List** column of the Region Render Matrix you could go to the **Render to File** dialog if you wish, selecting **Region render matrix** or **Region render matrix via master** as appropriate, with bounds set to **All project regions**.

However, there can be advantages in taking your **Render Track List** specifications (for example which regions to render and which tracks to include) into the **Region Render Matrix** where those choices will automatically be reflected, as in the example shown here.

The **Region Render Matrix**, presents you with

a number of further options as well as offering a direct route to the **Render to File** dialog. You can access this directly from arrange view, without needing first to visit the Region/Marker manager. Thus, it can be accessed in any of three ways:

- From the main menu choose **File** then **Region Render Matrix**, or
- Click on the **Render Matrix...** button in the Region/Marker Manager window.
- In the **Render to File** dialog (**File, Render...**), select **Region render matrix** from the Render drop down list, then click on the **Region Matrix...** button (see below right).

To understand how this matrix works, look at the example below right. It uses a simple project of five tracks (including a folder). The song includes three regions – Verse 1, Verse 2 and Verse 3 .


In the first column (Verse 1), the two guitar tracks (tracks 3 and 4) are checked. This would result in two files, one for each of these tracks, being rendered for Verse 1.

If we had checked All tracks, a separate file would have been rendered for each track, including the folder – five tracks in all.

In the second column (Verse 2) nothing has been checked: this verse will therefore not be rendered at all.

In the third column, Master mix has been checked. This would result in one file being rendered for Verse 3 – a master mix of all tracks, with no individual files for any of the tracks.

Within the Region Render Matrix, you can also click on the **?** symbol (top left corner) to open a Help screen with more information.
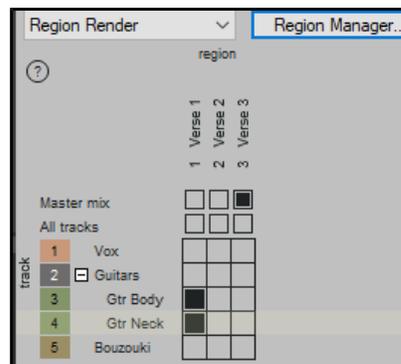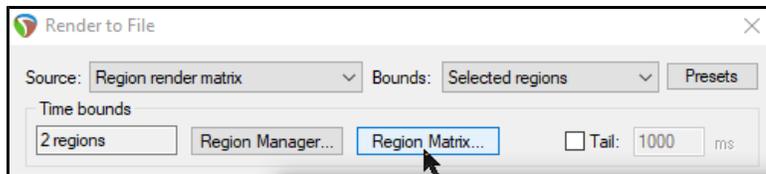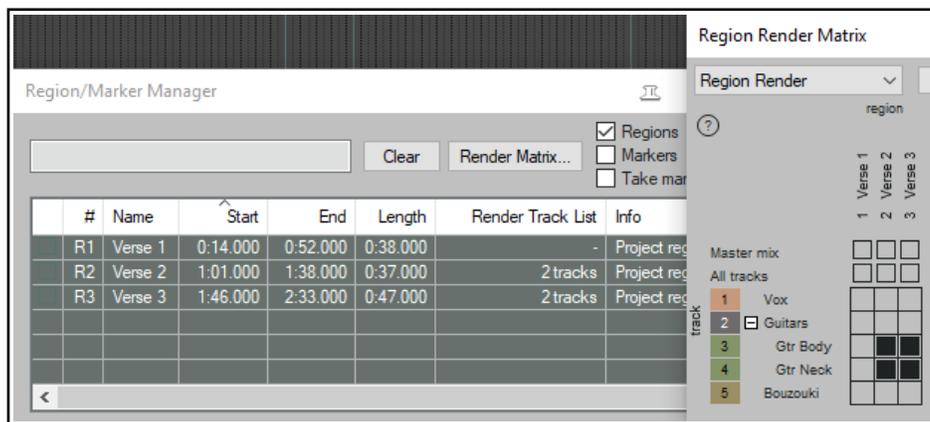
Remember, you can make your selection in either the Region Render Matrix or the Region/Marker Manager – the other one will be automatically updated, as shown here:
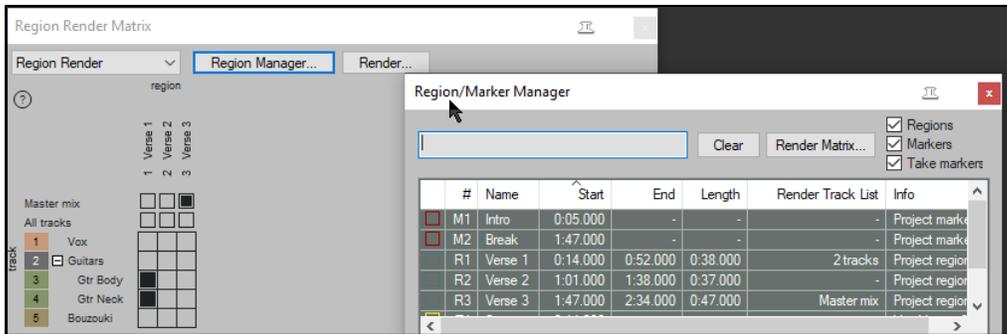
The Region Render Matrix right-click menu offers some useful shortcuts for selecting what is to be rendered and other options. This saves you having to keep clicking within the matrix to make your selections.

Render this track for this region simply does what it says.

Render this region will render all tracks in this region to a single file.

Render this track will render all regions for this track to a single file.

Render force mono/stereo/multichannel will render in the selected format (mono, stereo or multichannel) whichever choice you make from **This track for this region**, **This region**, or **This track**. For multichannel rendering you will need to specify the number of channels.

Select region simply selects the region.

You can choose to **Dock** or **Undock** the matrix window in the docker.

When you have made your choices, clicking the **Render...** button will open the **Render to File** dialog, then select **Region render matrix** and **All regions**.
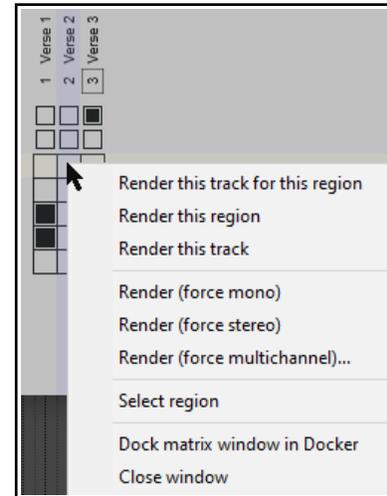
Output format, etc. are specified in the usual way. Use a backslash in the file name wherever you wish to create subdirectories. If you choose, for example, as your file name **$project\ $region-$track** then the output files produced will include the project file name, region name and track name, with each region's files being placed in its own separate sub-directory. The file name **$project\$track-$region** would include project name, track name and region name, with this time a separate subdirectory for each track.

When ready, choose **Render xx files...** or **Queued Renders...** to proceed.

This is a new feature. It enables you to practice your MIDI keyboard skills to your heart's content … then when you wish you'd recorded that perfect take to retroactively do so!

Retroactive MIDI Recording

REAPER's action list (main section) includes five actions which enable you to record MIDI material retroactively. This enables you to experiment with your keyboard so that if you create a passage that you like you can retroactively record it. These actions (which can be assigned to a toolbar if you wish) are:

    MIDI: Clear retroactive history
    MIDI: Insert all available retroactively recorded for armed and selected tracks
    MIDI: Insert all available retroactively recorded for armed tracks
    MIDI: Insert recent retroactively recorded for armed and selected tracks
    MIDI: Insert recent retroactively recorded for armed selected tracks

Example

This example uses REAPER's Virtual MIDI Keyboard, but you could use any installed external MIDI input device.

1. In Arrange view, create a new track and add a virtual instrument (e,g, ReaSynth) to its FX chain.

2. Click on the track's red record arm button to arm it. Right click over the button and make sure that **Monitor input** is enabled.

3. Right click on the record arm button, select Input MIDI, then your input device (e.g. Virtual MIDI keyboard), then a channel or All Channels.

4. Run the action **MIDI: Clear retroactive history** to clear out any existing history from the buffer.

5. Arm the track but do *not* press the record or play buttons on the transport bar.

6. Make sure that this track is selected and play a few notes on your input device. Stop playing after a few seconds.

7. Run the action **MIDI: Insert recent retroactively recorded for armed and selected tracks**

8. The notes that you have just played will be inserted as a new midi item.

These two sections are closely related. Main improvements are in options for displaying CPU utilization and Real Time CPU meters.

Analyzing FX Performance

FX plug-ins can impose a heavy load on your computer's CPU. To help you overcome this, you can use the **Performance Meter** to closely monitor your FX in the following ways:

- You can check how much CPU is being used by the FX in your various tracks and in the master.
- You can disable and enable FX chains for individual tracks, quickly, easily and conveniently, all together in one place.
- You can toggle on and off the mute status for your tracks, again all in one convenient place.

To display the Performance Meter, press **Ctrl Alt P**, or use the **View, Performance Meter** command.

Example

In the example shown (right), the Master track with 3 plug-ins is using 0.05% and the Vocals, with four plug-ins, is using 0.23%. Media items on this track are using a further 0.01%.

If any track shows an unexpectedly high reading examine the track FX f to help identify the reason for this. To open a track FX chain, double click on the track name or number in the Performance Meter window.

This feature is useful if a project has many tracks. You can use the Performance Meter window to browse your project file, checking it track by track, without having to scroll or navigate thru Track View. You can also toggle FX Bypass for any track, selection of tracks, or all tracks in the **Track View** or **Mixer View**. The table below summarises these options.
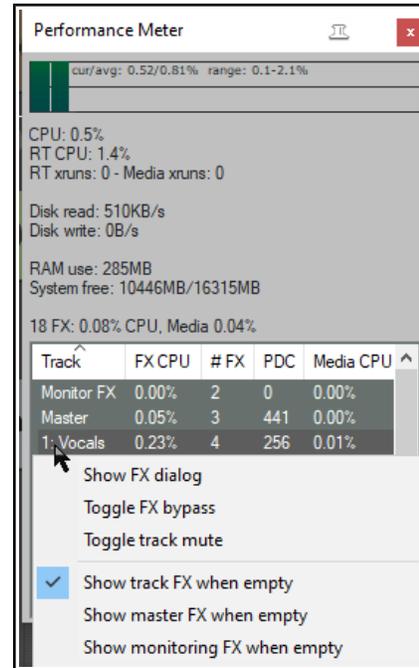
In order to do this ...	In Mixer or Track View, do this ...
Toggle FX Bypass On/Off for that track.	Click the **FX Bypass** button for any track.
Toggle FX Bypass On/Off for all tracks in the selection.	Select a number of tracks (**Ctrl Click**) then click the **FX Bypass button** for any track in the selection.
Toggle FX Bypass On/Off for all tracks.	Hold **Ctrl** key while clicking any track's **FX Bypass** button.

The first of the performance meter's two right click menus is accessed by right clicking in the track list area.

In order to do this ...	In the Performance Meter window do this ...
Open FX Window for that track.	Right click on track name, choose **Show FX Dialog.**
Toggle FX Bypass On/Off.	Right click on track name, choose **Toggle FX Bypass.**
Toggle track mute for that track.	Right click over any track, choose **Toggle Track Mute**.
Show in/hide from Performance Meter (PM) list tracks with no FX.	Right click on any track, enable/disable **Show track FX when empty.**
Show hide in PM master track/ monitoring when these have no FX.	Right click on a track, enable/disable **Show master FX when empty** and/or **Show monitoring FX when empty**.

The other menu (see below) selects what you want shown in the window. Right click anywhere in the main Performance Meter area to display this. You can also use this menu to move the window to the docker.

Tip: You can select several tracks – using **Ctrl Click** – then right click over any of their track numbers in the Performance Meter to Toggle FX bypass and/or Track Mute status for all tracks in the selection.

Customizing the Performance Meter

You can customize the information shown on the performance meter, making your selections from its context menu (see right). Amongst the items that can be displayed or hidden are:
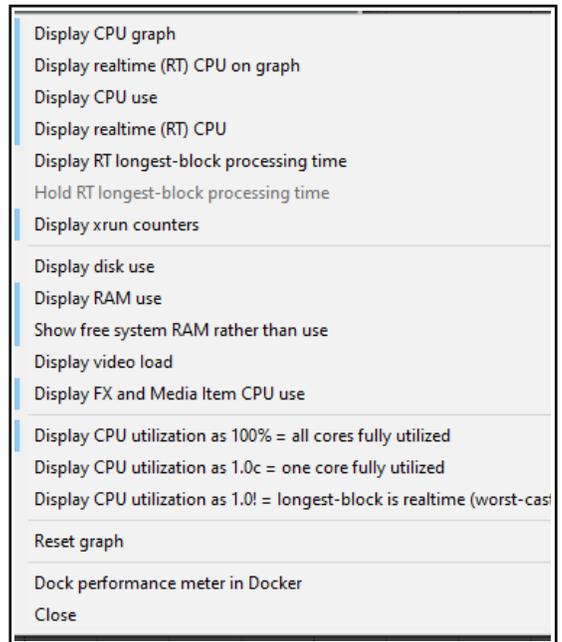
CPU Graph	CPU Use	Disk Use
RAM Use	Free System RAM	FX CPU use

There are also options to display CPU utilization with all cores or one core fully utilized, or longest block is realtime (worst case scenario). The last of these can help diagnose problematic real-time plug-ins.

The Performance Meter track list can be sorted by clicking on any column heading. It can also be docked or undocked.

If ReaMote has been installed and enabled (see Chapter 23), the Performance Meter will display an additional ReaMote column.

Note: The RT ("Real Time") CPU meter measures the amount of CPU time used by the audio thread servicing the sound device. Since it is measuring a single thread, it reflects only the CPU time used by one core, and gives you an indication of how much leeway you have in processing. With anticipative FX enabled (and few tracks record armed), RT CPU will generally be pretty low, as most things should be done asynchronously, allowing the real time thread to quickly put things together.

Display CPU graph
Display realtime (RT) CPU on graph
Display CPU use
Display realtime (RT) CPU
Display RT longest-block processing time
Hold RT longest-block processing time
Display xrun counters

Display disk use
Display RAM use
Show free system RAM rather than use
Display video load
Display FX and Media Item CPU use

Display CPU utilization as 100% = all cores fully utilized
Display CPU utilization as 1.0c = one core fully utilized
Display CPU utilization as 1.0! = longest-block is realtime (worst-cast

Reset graph

Dock performance meter in Docker
Close

REAPER User Guide
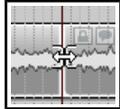
Main changes, version 6.68

September 2022

This document reproduces those sections of the User Guide that are either new or have important modifications.

Any minor tweaks and twiddles are not included here, but are listed on page 13 of the main document.

This section has been edited mainly to include relative edge edits.

Adjusting Media Item Fades

If you select any item in a track and zoom in close enough, you will see a fadeout curve at the end of that item. You can change both the shape and duration of this curve, either using the mouse, or thru the **Item Properties** dialog box.

1. Select the rightmost item on one or more tracks. In this example (right) two tracks have been selected. These items might be, but need not be, vertically aligned.

2. Hover your mouse over the vertical white line that marks the start of the fade. The mouse changes to display a curved shape.

3. Click and hold down the left button. Drag left to increase the length of the fadeout (see below left) then release the mouse. Notice that the fadeout curve is now more gradual. If you were to slip edit any or all of these items, the fadeout would keep its shape and duration – it would just begin sooner.

4. Make sure that your media items are still selected.

5. Right-click over the vertical line that marks the start of the fadeout. A menu of different curves will be displayed (see right). You can select any of these.
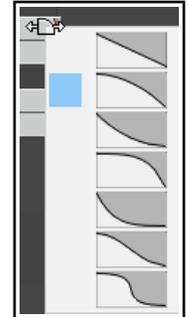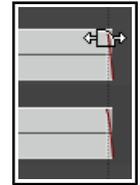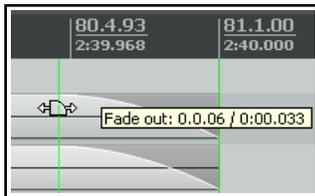
Instead of using a mouse, you can use the **Item Properties** dialog box (press **F2**) and make changes there. Also, you can use **Alt left click** to delete a fade, or **Ctrl left click** to cycle thru the different shapes.

The **Options, Preferences** dialog box includes an option on the **Project Media Item Defaults** screen to specify default fade and crossfade length, overlap, and shape characteristics. See also **Chapter 22**.

In addition, the **Preferences, Mouse Modifiers** page (shown right) gives you additional functionality by using modifier keys with your mouse when working with fades and crossfades. Options are available for left click, left drag and double-click.


For example, holding Shift while dragging the mouse left or right will move a crossfade left or right. Alt drag will move and stretch the fade. Other default settings are shown above. These actions can be used on a single media item, or on a selection of media items, and can be customized (see **Chapter 15**).

Relative vs Absolute Edge Edits

Unless defined as relative, media item fade edits work in absolute mode: this means that within a selection, only those items whose edges align exactly along the timeline will be affected. Actions which work in relative mode (in this context, for example, Ctrl Alt left drag) will be applied to all items in a selection, regardless of where they lie on the project timeline.

In the example shown here (right), relative edge fading is being applied to three tracks by using **Ctrl Alt left drag**. All three are edited, even though their positions do not all align.
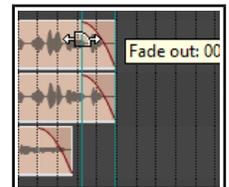
This section has been renamed and edited to place more emphasis on and a clearer explanation of armed actions

Smart Tools and Armed Actions

If you have used other DAW software (such as Cubase, Pro Tools or Sonar) before coming to REAPER, then you might be used to using a toolbar for various editing tasks, such as splitting, deleting or muting items. You have already seen that this method of working is not native to REAPER. However, if you wish, you can create your own smart tools whose actions can be armed and used in a way similar to that with which you are familiar.

The Actions List includes numerous of actions suitable for this sort of treatment.

This example will use the action. **Item: Split item under mouse cursor**. Other suitable actions include **toggle item mute**, **item properties toggle** solo, or to **delete items**.

Without armed actions, any tool which makes reference to the mouse cursor, for example, would otherwise be useless – because the mouse cursor will be over the toolbar, not any media item, when the tool is clicked! By using smart tools we solve this problem.

To create a Smart Tool for any action or custom action, you first need to assign the action or custom to the toolbar, as explained in the section before this one. In this example, we have created a button to **Split Item Under Mouse Cursor**. Then, to use it as a smart tool, simply do this:

1. Right click over the tool. If you hover the mouse there long enough, a tool tip will be displayed. Move the mouse over any media item and it will change to a letter **A** (indicating that the toolbar action is armed).
2. Left click on (in this example) the item to which you want the action applied, at the exact position that you want the action to occur. In this case, the item beneath the mouse cursor will be split.

Once a tool is armed it will remain armed until you "unarm" it. For example, as long as a smart tool to toggle item mute is armed then every time you click on an item the mute status of that item will be toggled on/off. To unarm it, either right click on the armed tool. or press **Esc** immediately after using it.

REAPER User Guide

Main changes, version 6.69

October 2022

This document reproduces those sections of the User Guide that are either new or have important modifications.

Any minor tweaks and twiddles are not included here, but are listed on page 13 of the main document.

Additional option added to bypass scanning new/updated VST plugins on startup.

REAPER Startup Tips

By default, REAPER opens with the last used project. As you will see in Chapter 22 (Preferences, General), you can disable this behavior. Also, you can use hot keys when starting REAPER to override the default behavior.

| Action	Booster Key(s)
Open REAPER without loading last project.	**Shift** (while starting REAPER)
Open REAPER without loading any default project template.	**Ctrl Shift** (while starting REAPER)
Open REAPER without scanning new/updated VST plugins.	**Ctrl** (while starting REAPER).

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Section 4.6

Reaper Startup Tips

Additional option added to use Shift+ Mousewheel up/dpwn for horizontal scroll in zoomed preview window. Note that Shift drag left/right is also available.

Page 32

Project Settings: Advanced

- **Item Mix Behavior.** Determines behavior when one media item is placed on top of another. Options are for enclosed items to replace enclosing items, items always to be mixed, or for the newer item to replace older item.
- Track mixing depth. If unsure, leave at the default setting.
- The option to allow **feedback in routing**. Feedback routing can in some instances be useful, but can risk damaging audio equipment. *If in any doubt, do not select this option.*
- The option to **synchronize** project with an external device timecode.
- Rewire client settings. These are shown below right.
- There are options to limit **project length** and r**ecording time**, also to set the default state for **Preserve pitch when changing rate**.
- Option to **prevent bezier envelope segments being affected by surrounding non-bezier points.**
- Default number of **track channels** and **parent send channels** for new projects.
- Specifying a **default pan law** for your tracks. The pan law determines how the relative track volume behaves when that track is panned more or less to one side or the other. **Gain compensation boost** can be enabled or disabled. Pan laws are discussed in more depth later in Chapter 2.
- Default track pan mode. You have choice of pan modes, some mono, some stereo. See Chapter 11.
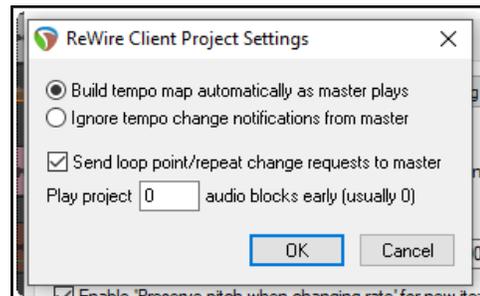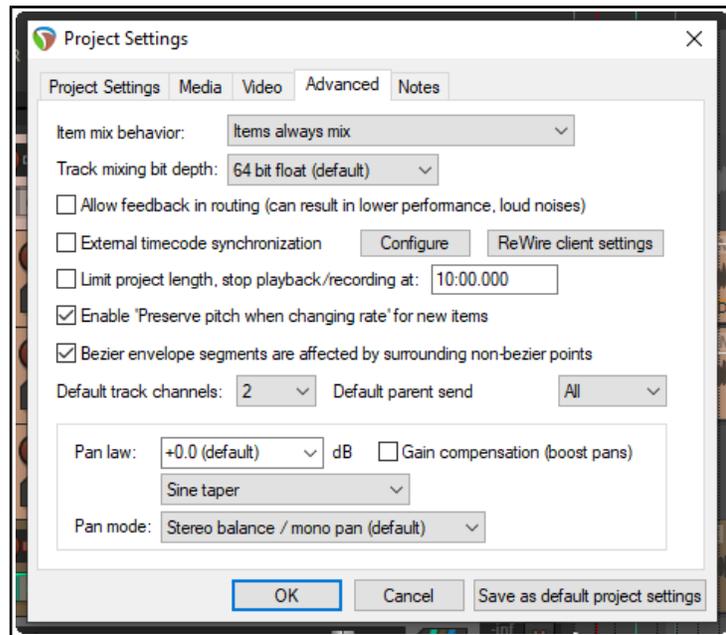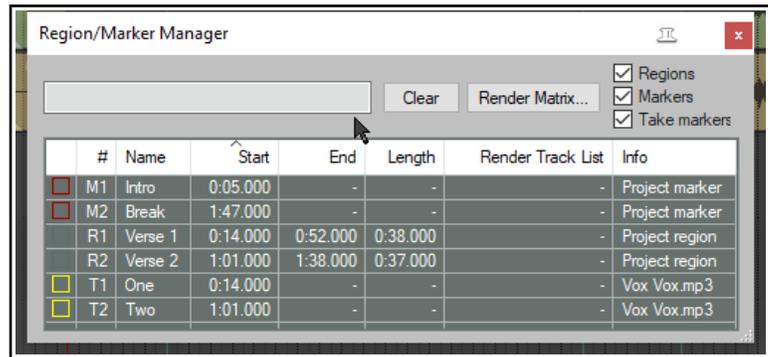
The Region/Marker Manager

By default, take markers outside the visible part of the medi item are not show. There is an option on the context menu to display these.

The Region/Marker Manager

The **View, Region/Marker Manager** command toggles this display, used to manage regions and markers (including take markers).

This manager organises markers and regions using its buttons, its controls and its context menu (displayed by right-clicking on its title bar or in its background area.) This includes options that can later be used within the **Region Render Matrix** for rendering.

For additional options for the display of region names and numbers on the ruler, see **Ruler Layout Options**.

To do this ...	... you do this
Select which region/marker types to display	Use check boxes in top right corner of R/M Manager window.
Choose which columns to show/hide	Right click on any column header, select from list.
Sort rows by any column header	Click on column header, twice to reverse sort order.
Change column order	Drag header(s) left or right.
Edit marker/region name	Double click on name.
Zoom to region in arrange view	Double click region number.
Display take markers outside visible media item	Select command from Region/Marker Manager context (right click) menu. By default these are not displayed.
Go to marker in arrange view	Double-click marker number.
Select several markers/regions	Click on first name, then Ctrl click on others to build selection.
Delete markers/regions (but not the media items within them)	Make selection, press **Delete**.
Change region/marker color	Click in small color box in first column, use color picker.
Change marker name	Double click on marker name, enter new name.
Change marker/region start/end time or length	Double click on current value, enter new value.
Filter marker region list using filter box above the table. See also **Using Search Filters**	Type text string– e.g. *verse* to list only markers/regions containing that text string. Supports boolean search, e.g. *lead* OR *break* finds names including either of those strings.
Find marker/region in manager from the ruler	Right-click on marker/region name on ruler, choose **Select in Region/Marker Manager.**
Specify tracks to be included when region is rendered	Build selection of tracks in arrange view, then select region, click in **Render Track List** cell, and choose **Render only selected tracks**, *or* click in the region's **Render Track List** cell and select tracks from menu list, or **All Tracks**.
Add tracks to region render list	Select from the region's **Render Track List** dropdown.
Renumber markers, regions in timeline order	Select command from the Region/Marker Manager context (right click) menu.
List markers and regions separately	Enable this option from the manager's drop down menu.

To do this ...	... you do this
Import regions/markers from .CSV or .TXT file	Choose either to merge or import from context menu.
Add/remove child tracks to render list with parent	Enable this option in the context menu.
Export regions/markers to file	Choose this command from context menu.
Dock R/M Manager in the docker	Choose this command from the context menu.
Seek playback when selecting marker or region	Enable this option in context menu.
Automatically play region thru then repeat or stop when selecting region	Enable this option in context menu.

To do this ...	... you do this
Import regions/markers from .CSV or .TXT file	Choose either to merge or import from context menu.
Add/remove child tracks to render list with parent	Enable this option in the context menu.

Rendering a Project

New options available to render stems pre-fader and save outfile stats for individual file to render_stats.html.

Rendering A Project

As you'll find out before the end of this chapter, the **File, Render...** command has several uses. One is for rendering a complete project down to a single stereo file.

When you have finished your recording and edits, added FX and automation, arranged all your tracks …. now you want to produce an end product for distribution.

If you're aiming for an audio CD, you will need one 16-bit stereo wave file for each song on the CD.

If you're distributing thru the web, then probably you will need stereo MP3 files. Regardless of format, each project will ultimately need to be rendered down to one file.

To do this, use the **File, Render** command (**Ctrl Alt R**). The dialog box (right) shows the various options. You must specify a directory and file name: if you wish, use the **Browse** button for either or both of these. Your other choices will depend on the ultimate destination of your material. A summary of **Render to File** dialog box options follows below.

Option	Explanation
Source **(see also summary table at end of this chapter).**	**Master mix** mixes all media to a single file, **stems** sends selected tracks to separate files, or choose **both** (more later in this chapter). Other options are **region render matrix** (see later in this chapter) or **selected tracks** or **media items** or **razor edit areas** (optionally **via the master**).
Bounds: options vary according to Source (e.g. bounds options for Master Mix bounds are shown here on right)	Select **custom time range** (enter in edit boxes), **Entire project**, **Time selection** (made in arrange view), **Custom time range** (enter start and end times in dialog) or **Project regions** (selected in Region/Marker Manager or Region Render Matrix). For **Entire project**, markers named =START and =END (if present) will be used to define start and end of project for rendering.
Bounds: project markers/selected markers	Choosing **project markers** causes a separate item to be rendered from each project marker to the next. Choosing **selected markers** causes a separate item to be rendered between each selected marker and the next marker.
Presets button	Displays a menu of options to saves settings as a preset, or load, rename or delete a previously saved preset. These can include **Bounds and output** settings only, **Options and format** settings only, or **All settings**.

Option	Explanation
Directory and **File name**	Any directory specified in Preferences will be used by default. Otherwise, type in a directory of your choosing or use the **Browse** button. *See Preferences ([General, Paths and Keyboards)](#) for more about relative and absolute paths* Use **Wildcards** to include in the filename data such as track name or number, project file name, and/or date/time stamps (Chapter 21.2.1).
Sample Rate	Select a value in the range 8000 to 192000, depending on output format and other factors. Some examples follow in the table after this one.
Channels	Choose **mono**, **stereo** or select a number for **multichannel** output.
On or Off-Line Speed (see also note below table)	Full-speed (default) for fastest rendering. Others include 1 x offline, online (play mix while rendering), online (idle) and offline x 1 (idle). Idle assigns a lower system priority to the render thread, freeing PC resources for other tasks.
Use project sample rate...	If enabled the project sample rate will be used for mixing and FX/synth processing. If in doubt, leave this enabled.
2nd pass render	Audio plays once before rendering, so that FX tails (e.g. reverb) are applied.
Normalize/Limit/Fade	**Normalize** to **RMS-I**, **LUFS-I, True Peak, Peak**, **LUFS-M max** or **LUFS-S max** to a target level or **Brickwall limit** to **Peak** or **True Peak**. Optionally, only normalize files that are too loud. **Fades** can be applied (in and/or out) of a length and shape that you specify.
Resample mode	Various options allow trade off between speed and quality. Default is 192.
Use project rate	Enabled this automatically uses project sample rate for mixing/processing.
Tracks with only mono media ...	Enabling this ensures that mono channel rendering will automatically be applied to tracks where all media items are mono or with a mono Item Setting.
Multichannel tracks...	These can be rendered to multichannel files. An example follows shortly.
Dither, Noise shaping (master mix and/or stems)	Not available with all output formats, commonly used when rendering 24 bit (or higher) audio material to 16-bit WAV format for audio CD. Creates a smoother transition to the lower sample rate in the rendering process.
Render stems prefader	This option is available if the source option includes stems.
Metadata	Click this button to embed metadata in the rendered file – see Chapter 21.2.2.
Primary/Secondary output format	Select the primary format for rendering your material (or choose dry run, no output). You may also choose a secondary format, for example, to render two separate files, one in WAV and the other in (say) MP3 format. Choose WAV, AIFF, CAF, audio CD image, DDP, FLAC, MP3, OGG Vorbis, OGG Opus, video (Ffmpeg/libav encoder), video (GIF), or WavPack lossless compression.
Format specific options	Other options depend on the format, e.g., for WAV or AIFF files, bit depth, for FLAC encoding depth and data compression level, for MP3 bitrate mode (e.g., variable or constant) and the actual bitrate, and so on. For WAV files, you may embed markers and/or regions as cues in the output file(s), and/or project tempo. The option **Include project filename in BWF description** is also available for WAV format: it associates rendered files with the source project – see Chapter 12.
Silently increment filenames...	Prevents you from accidentally overwriting an existing file: an incremental number (001, 002, etc.) will be added if an existing file name is used.
Embed tempo	This option is available for WAV and AIF files only. See section **Embedding Transient Information when Rendering** for detailed explanation.
Do not render ...	Optionally, do not render files that appear to be silent.
Add rendered items to new tracks...	If enabled, this option causes your rendered file(s) to be added to the project as new tracks.
Save copy of project to outfile.wav.RPP	Tells REAPER to make a time and date stamped copy of your project file, preserving all settings exactly as they are at the time of rendering.

Option	Explanation
Save outfile stats	Creates html file with separate stats for each rendered file.
Queued renders	Add to or open render queue for rendering.
Render x files or **Dry Run** (see screenshot below)	Choose render to render one or more files, according to your options. Choose dry run to "test" render without actually rendering any files. Values (as appropriate) for Norm, Peak, Clip, RMS, Lrange and LUFS are displayed as the file is rendered. Click **Info** button for further analysis.
Delay queued render to allow samples to load	Resolves problems that can be caused when samples (especially large samples) need to be loaded before rendering.
Save settings	Saves the render settings without rendering any files.

Media import preferences now separated from general Media preferences.

Media Preferences

The **Media** page of the **Options, Preferences** window lets you customize your Media settings.

General Media Settings

Options to **Set media items off line when application is not active** and to **Allow videos to go offline.**

Toggle option to **Prompt to confirm filename on "open copy in editor"**.

Set tail length when FX applied to items and takes.

Duplicate take FX when splitting: Determines whether any existing FX in an item's FX chain are automatically copied to new items that are created when the original item is split.

Waveform media peak cache settings

Generate peak caches: You can determine if you want peak caches generated **on import**, and/or **on project load**, also whether to **Show status window**. .

Desired cache resolution: Determines the precision to be used.

Options to **Put new peak files in peaks/subfolders relative to media** and **Store peak caches in alternate path if unable yo write to media file directory**.

Option to **Always generate spectral peak information**.

Option to **Automatically rebuild peaks**.

Option to **Automatically rebuild peaks if necessary when enabling spectral peaks**.

Media, Import Preferences

When inserting multiple media items: You can choose whether the **default behavior** should be to **insert as separate tracks**, to **insert sequentially in a single track**, for **REAPER** to determine which appears the more appropriate, or whether you wish **to be prompted each time**.

Copy imported media items to project media directory: helps you to keep together files that belong together.

Whether to use the media file name to **Automatically name unnamed tracks on media import** and whether to **Remove trailing numbers.**

Whether to **Allow drag import to insert tracks** (see chapter 4.7).

Other **Media Import** options include how you wish to deal with **embedded slice information**, in particular how to **import files** and how to handle **slice tails**.

Options for importing **media with tempo information in metadata or file name** are determined by whether or not the tempo is reliable or suggested. There are options **After adjusting tempo, set imported media to auto-stretch at tempo changes** and to **Warn about potential playback when importing raw PCM audio.**

Synching to an External Device

MIDI device output settings now has separate option whether to include SPP data when sending clock to device.

Sending Clock/SPP from REAPER to an external MIDI Device

To send Clock/SPP data from REAPER to an external MIDI device, you need first to have enabled the feature under **Options, Preferences, MIDI Devices**. Then …

Double-click on the MIDI output device name to open the Configure MIDI Output dialog box, **and select the option Send clock to this device.**

There is an option to **exclude song position pointer data (SPP)** from the MIDI clock signals. There is also an option to **Open device in low latency/low precision mode**.
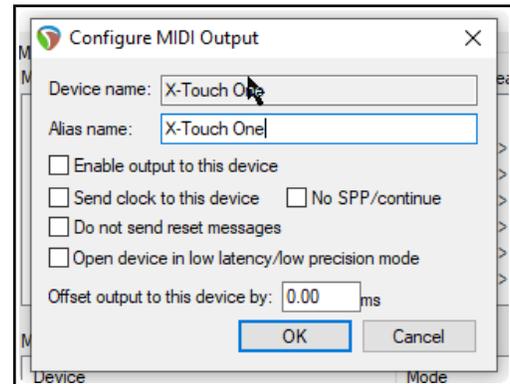
REAPER User Guide

Main changes, version 6.70

November 2022

This document reproduces those sections of the User Guide that are either new or have important modifications.

Any minor tweaks and twiddles are not included here, but are listed on page 13 of the main document.

Page 288
Section 15.19

Mouse Modifier contexts now listed alphabetically

We've come across the mouse modifiers page of REAPER's preferences settings several times already. This page is where you can change any of REAPER's default mouse modifier controls and also add more of your own. Some pointers to keep in mind:

- **Modifier keys**. Windows users can use any of these modifier keys, in any combination, for any mousewheel action: **Shift**, **Ctrl**, **Alt**, **Win**

  Mac users may use any of these modifier keys, in any combination:
  Shift, **Command**, **Option**, **Control**

- **Contexts**. The Contexts drop down list on the Mouse Modifiers page of your preferences window lists the contexts in which you could use your mouse and for which you could need modifiers (see right). When you select an item from this list, current mouse assignments for that context are displayed.

For most contexts you will find a number of variations, depending upon the exact kind of mouse action being undertaken. For example, separate mouse modifiers can be applied to media items depending on whether the mouse action being applied is a simple left click (which by default selects the item), left drag (which by default moves the item) or a double-click (which by default opens MIDI items in the MIDI editor, or displays media item properties for audio items). Some contexts (e.g. Arrange view) also make middle button mouse actions available.

You aren't going to learn all of these at once, and some of them you may never need. For example, if you never do any work with MIDI then the various MIDI contexts are unlikely to be important to you. Take the time to identify those which you are likely to use the most and think about how you can improve them. The procedure for customizing REAPER's mouse modifiers is as follows:
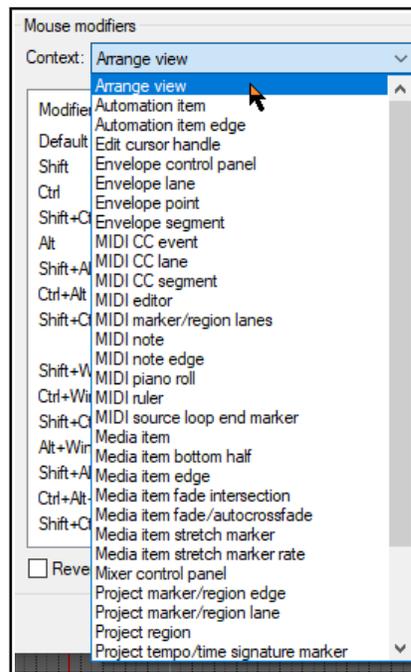
Render: option added to render only those track channels that are sent to parent

As you'll find out before the end of this chapter, the **File, Render…** command has several uses. One is for rendering a complete project down to a single stereo file.

When you have finished your recording and edits, added FX and automation, arranged all your tracks …. now you want to produce an end product for distribution.

If you're aiming for an audio CD, you will need one 16-bit stereo wave file for each song on the CD.

If you're distributing thru the web, then probably you will need stereo MP3 files. Regardless of format, each project will ultimately need to be rendered down to one file.

Use the File, Render command (Ctrl Alt R). The dialog box (right) shows the various options. You must specify a directory and file name: if you wish, use the Browse button for either or both of these. Your other choices will depend on the ultimate destination of your material. A summary of Render to File dialog box options follows below.
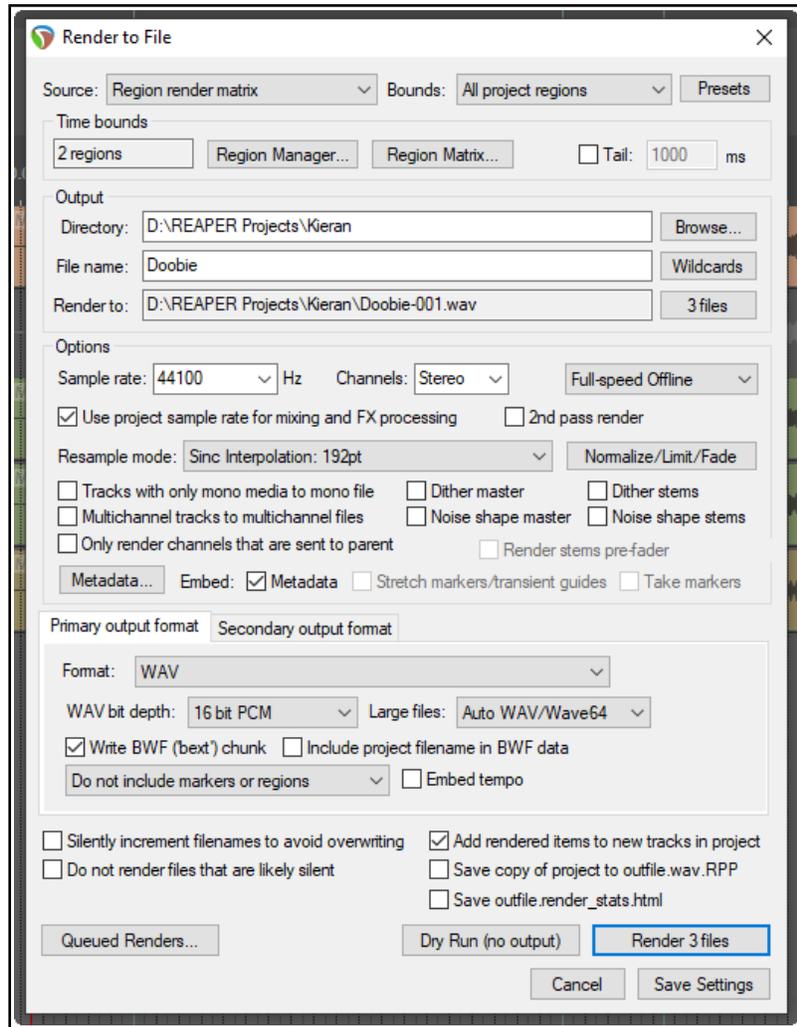
Actions added for stem rendering, including to render multichannel (parent only) stems.

Stem Render Actions

REAPER's Actions List includes several actions that can be used to accommodate particular requirements when stem rendering. To browse all these actions, search the Actions List for the text string *stem render*.

For example there are actions for:

2nd pass rendering: these ensure that REAPER will play the render area through a second time before rendering: this ensures that effects such as reverb tails are included in the rendered item.

Rendering selected area of tracks to mono, stereo or multichannel, including other options, such as to mono, stereo or multichannel.

Rendering selected area of tracks to multichannel (parent send only) stem track