WAVELAB PRO 12

Audio Editing And Mastering Suite

steinberg

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This document provides improved access for people who are blind or have low vision. Please note that due to the complexity and number of images in this document, it is not possible to include text descriptions of images.

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New Features

The following list informs you about the most important improvements in WaveLab Pro and provides links to the corresponding descriptions.

New Features in Version 12.0.20

Highlights

Startup Assistant: Design Improvements

- The design of the **Startup Assistant** has been optimized, with a special focus on ease of use. See Startup Assistant Window.

Audio Montage: New Option for Resolving Sample Rate Mismatches

- If the sample rate of your audio montage differs from the sample rates of the audio files that you want to insert into it, as an alternative to creating and using copies of the audio files and setting them to the sample rate of the audio montage, you can now also choose to set the audio montage to the sample rate of the audio files. See Resolving Sample Rate Mismatches between Audio Montages and Audio Files.

Audio Montage: Split to Match

- This new option on the **Process** tab in the **Audio Montage** window allows you to divide the active clip into several smaller clips that are automatically matched to the position and length of selected clips on another track or lane. See Splitting Clips to Match Them to Reference Clips.

More New Features

Loudness and Spectral Profiles: Auto-Update

- The new **Auto-Update** option, which is available for the Spectral Profile and the Loudness Profile, prompts WaveLab Pro to automatically perform the corresponding analysis again, as soon as any audio files have been modified. See Loudness Profile Tab.

Improved Search Function for Effect Plug-ins in the Inspector Window and in the Master Section

- You can now use key commands to search for and select a particular plug-in after typing part of its name into the **Search** field. See Adding Effects via the Inspector Window.

Audio Montage: Excluding Individual Reference Tracks From Loudness Adjustment

- When using the **Loudness Matching** function, you can now prevent individual reference tracks from being affected by the ensuing loudness adjustments. See Loudness Matching for A/B Comparisons.

Rainbow Color Design Helpers

- Additional design options have been added to the **Rainbow Waveform Settings** dialog. See Rainbow Waveform Settings Dialog.

Last but Not Least

New Title Number Variable for Naming Schemes

- Among the naming scheme auto variables for the **Title** element, you can now choose whether to set the index to a zero-padded 2-digit number ("01") or to a number whose zero-padding is based on the title count ("1"). See Naming Scheme Dialog.

Loudness Analysis: Adjustable Font Size

- You can now choose from several font sizes for displaying the Loudness analysis results. See Options Section of the Loudness Analysis Report Window.

Zero Crossing Point Detection: Upward Crossing Point/Any Crossing Point

- You can now choose whether you want WaveLab Pro to detect any zero crossing point in the audio, or to limit the search to zero crossing points that mark an upward slope. See Editing Tab (Audio Files Preferences).

New Features in Version 12.0.0

Highlights

New Language: Simplified Chinese

- Simplified Chinese has been added to the languages available in the application.

Startup Assistant

- The new **Startup Assistant** allows you to choose the working environment that suits your workflow, to create and open files or projects, and to establish your audio connections – all in a single place. In addition to this, it offers you WaveLab-related information and news and provides useful links. See Startup Assistant Window.

Steinberg Built-in ASIO Driver

- A new Steinberg built-in ASIO driver with automatic sample rate conversion is now available. See Selecting the Steinberg Built-In ASIO Driver (Windows only).

Enhanced Project Structure and Handling

- Projects in WaveLab have been conceptually revised with regard to their ease of use. You can now back up entire projects in a consolidated folder or as a ZIP file, allowing you to transfer them to other computers or share them with other users. See Projects.

Loudness Analysis

- The new **Loudness Analysis** tool allows you to analyze your audio and to compare it with reference material, to check it against an audio standard, and to create reports of the results. See Loudness Analysis.

Visual Analysis: Loudness Profile

- The new **Loudness Profile** feature allows you to visualize a detailed graphical loudness and dynamics analysis of your audio. See Visual Analysis: Loudness Profile.

Visual Analysis: Spectral Profile

- The new **Spectral Profile** feature allows you to visualize the average frequency of your audio. See Visual Analysis: Spectral Profile.

Audio Montage Backup

- This new option on the **Process** tab allows you to copy the audio montage, along with all the files it references, either to a new independent folder or to a ZIP archive file, so that you can use it on another computer or share it with other users. See Process Tab (Audio Montage).

Audio Montage: Sidelining Tracks

- The **Sideline Track** option allows you to hide and deactivate tracks, temporarily disconnecting them from the audio montage, and to activate them again at any time. See Sidelining Tracks.

Audio Montage: Null Test Tracks

- A new track type for use in audio montages is available, allowing you to easily perform null tests in your audio montage. See Null Test Tracks.

Audio Montage: Monitoring Specific Frequency Ranges for A/B Comparisons

- You can now set and customize filters for monitoring specific frequency ranges while comparing your audio montage output with a reference track, or a reference track with another reference track. See Monitoring Individual Frequency Ranges by Isolating Them.

Audio Montage: Loudness Matching with Reference Tracks

- There is now an option to automatically adjust the output of your audio montage to the loudness of a reference track, to provide an objective basis for A/B comparisons. See Loudness Matching for A/B Comparisons.

Master Section: Option to Assign Playback Plug-ins to Speaker Configurations

- You can now associate up to eight individual speaker configurations with playback plug-in chain presets. See Speaker Configuration Pane.

Rainbow Display

- In the new **Rainbow** display, which is available both in the **Audio Editor** and in the **Audio Montage** window, audio waveforms are visualized in multiple colors, reflecting the spectral features of the audio material. See Rainbow Display.

Cross-Application Copying Operations

- To optimize cross-application workflows, WaveLab offers new drag and drop/copy and paste options that allow you to transfer any audio range from WaveLab to any other application, either with or without effects. See Cross-Application Copying Operations.

ARA Plug-in

- The WaveLab Pro **Audio Editor** can now be integrated into various external audio applications that support the ARA interface and VST 3. See WaveLab as an ARA Extension.

More New Features

Black Valve

- **Black Valve** is a plug-in dedicated to modern vocal processing, containing various modules for different aspects, such as cleaning, adding more character, and typical vocal effects. The plug-in is described in the separate document **Plug-in Reference**. See Black Valve.

EQ-P1A

- **EQ-P1A** is a vintage tube EQ plug-in with a unique sound and a famously low frequency boost and attenuation, based on a classic analog equalizer. It offers low and high shelving filters and an additional high peak filter. The plug-in is described in the separate document **Plug-in Reference**. See EQ-P1A.

EQ-M5

- **EQ-M5** is a characterful vintage tube EQ plug-in , especially suited for mid processing. It offers low, mid, and high peak filters. The plug-in is described in the separate document **Plug-in Reference**. See EQ-M5.

Raiser

- **Raiser** is a versatile limiter plug-in that can increase the loudness of the audio material to a high extent. Its range goes from smooth limiting of solo tracks and full mixes to a rather aggressive limiting, best suited for percussive material. The plug-in is described in the separate document **Plug-in Reference**. See Raiser.

SampleAlign

- The **SampleAlign** plug-in allows you to delay one audio channel in a stereo file, relative to the other channel; that is, to modify the samples of either one of the channels or both the left and the right audio channel. The plug-in is described in the separate document **Plug-in Reference**. See SampleAlign.

TestGenerator

- The **TestGenerator** plug-in comes with an improved signal generator, additional types of waveforms, and noise. It now allows you to use a pulse signal and to activate/deactivate the output signal for each channel separately. The plug-in is described in the separate document **Plug-in Reference**. See TestGenerator.

VoxComp

- **VoxComp** is a compressor plug-in designed for processing vocals. It uses a highly adaptive algorithm, which makes it easy to achieve the desired results. The plug-in is described in the separate document **Plug-in Reference**. See VoxComp.

Improved Help System: Comprehensive Tooltips for Controls in All Dialogs

- Tooltips are now provided for the controls in all dialog boxes. See Help System.

Displaying Keyboard and Mouse Input

- You can now display your mouse and keyboard input activity in real time, which is useful for screenshots and screencasting purposes, such as demos, presentations, and tutorials. See Visualization of Keyboard and Mouse Input.

Rendering to Contextual Folders

- WaveLab Pro now offers contextual folders as the target location of your rendered audio. See Contextual Folders.

Audio Montage: Optional dB Level Ruler

- You can now display a level ruler in the **Audio Montage** window. See Time Ruler and Level Ruler.

New Naming Scheme Filter

- You can now apply filters to transform naming scheme elements. See Naming Scheme Dialog.

Automatic Maximum Vertical Zooming

- This new automatic zoom feature adjusts the waveform view to fill the vertical space, as you horizontally scroll or zoom into quieter sections. See Automatic Maximum Vertical Zooming.

Navigation Sync

- The new **Navigation Sync** feature helps you to compare audio material by synchronizing different views of audio files and audio montages, so that any scrolling or zooming actions you perform in one of them are automatically applied to the others in real time. See Navigation Sync.

Loudness Overlay

- You can now overlay the **Waveform** or the **Rainbow** view in the **Audio Editor** and the **Audio Montage** window with an **RMS Loudness** view and adjust the transparency of the **RMS Loudness** overlay. See Loudness Overlay.

Waveform Overlay

- You can now overlay the **Spectrogram** or the **Wavelet** view of the **Audio Editor** with the **Waveform** view and adjust the transparency of the **Waveform** overlay. See Waveform Overlay.

Audio Cue Point Detection

- Both in the **Audio Editor** and in the **Audio Montage** window, when you select audio by dragging, WaveLab Pro now automatically identifies suitable start and end points for audio segments, which are referred to as **Audio Cue Points**. See Audio Cue Point Detection.

New Tab-to-Transient Functionality

- You can now use `Tab` for forward and backward navigation across audio cue points, a.k.a. transients. See Settings for Audio Cue Point Detection.

Audio Editor: New Automatic Crossfade Option

- You can now activate automatic crossfading for operations such as cutting, pasting, inserting, muting, cropping, or deleting segments of your audio. See Edit Tab (Audio Editor).

Opus File Format

- WaveLab now supports the Opus file format, both for decoding and encoding. See Opus Audio File Encoding Dialog.

Audio Editor: Crossfade Options in the Gain Dialog

- You can now apply crossfades while adjusting the gain of a specific audio range, to create a seamless transition and to prevent abrupt clicks between the selected range and the surrounding audio on playback. See Gain Dialog.

Audio Montage: Options to Quickly Reduce the Level of an Audio Selection

- Two new options in the Level section of the **Envelope** tab allow you to reduce the level of an audio selection by -6 dB or -9 dB via a single mouse click. See Envelope Tab (Audio Montage).

Audio Montage: New Clip Alignment Options

- The **Align Clips** dialog now offers two additional methods for aligning clips: **Alignment to Anchor** and **Audio Correlation**. See Align Clips Dialog.

Audio Montage: Source File Replacement in Bulk

- The new **Bulk Audio File Replacement** feature allows you to replace the source audio files of all clips of an audio montage at the same time. See Source File Replacement in Bulk.

Audio Montage: Revised Super Clip Feature

- The super clip feature has been revised and simplified to make it easier to create, edit, and handle super clips and sub-montages. See Super Clips.

Audio Montage: Activation or Deactivation of All Plug-ins in the Inspector Window

- The **Inspector** window now allows you to activate or deactivate all effect plug-ins at the same time. See Inspector Window.

Audio Montage: Separate Sliders for Pre-Gain and Post-Gain Adjustments

- The **Gain** pane now has separate sliders for each stage of the audio chain. See Inspector Window.

Color-coded Plug-in Caption Bars

- You can now use context-based color-coded caption bars for plug-in windows, which make it easier to distinguish the effect plug-in types. See Color Codes for Effect Plug-ins.

Audio Montage: Safe Mode to Identify Plug-In Issues

- In case you experience any plug-in-related issues with an audio montage, you can now open it in **Safe Mode**; that is, open it without loading any plug-ins. See Opening Audio Montages in Safe Mode to Identify Plug-in Issues.

Audio Montage: Replicating Plug-in Settings

- You can now transfer settings that you made for a plug-in to other instances of the same plug-in in the same audio montage, saving you the time and effort to set the parameters for each plug-in individually and enabling you to easily synchronize plug-in settings for several tracks or clips. See Replicating Plug-in Settings and Applying Them to Other Plug-ins in the Audio Montage.

Audio Montage: New Loudness Meta Normalizer Options for Clips

- You can now set the active clip in your audio montage to a specific loudness and shift the loudness of all other clips by the same value. In addition to this, WaveLab Pro can now automatically identify and adjust the clip with the highest peak level, so that it meets the

specified peak limit, and offset all other clips accordingly. See Loudness Meta Normalizer Dialog.

Audio Montage Consolidation

- The new **Consolidate** function gathers all audio files used in an audio montage and saves them in a single folder, thus ensuring that no assets are missing when you transfer your work to another machine or share it with other users. See Audio Montage Consolidation.

Chapter Generator for YouTube and Spotify

- The new **Chapter Generator** allows you to divide your audio material into chapters via marker pairs and to create a text file listing them, for use on YouTube or Spotify. See Generating Chapters for YouTube and Spotify via Markers.

Spectral Editing: New Auto-Play Option

- With the new Auto-Play option activated, the selected audio range is played back automatically, each time you edit the audio material, taking the current pre-roll and post-roll settings into account. See Spectrum Tab.

Increased Maximum Time Range for Spectrum Processing

- The maximum length of an audio region that WaveLab Pro can handle for spectrum processing has been increased from 60 seconds to 20 minutes. See Spectrum Processing.

Plug-ins: Option to Ignore VST 2 Plug-ins

- You can now prevent WaveLab Pro from searching for and displaying plug-ins using the old VST 2 standard. See Plug-ins Tab (Preferences).

Audio Montage: Plug-in Warm-Up

- You can now specify a warm-up phase for plug-ins, which can enhance the interaction between plug-ins and audio montage clips. See All Audio Montages Tab.

Last but Not Least

Enhanced Audio Analyzer Plug-in

- The **Audio Analyzer** monopass batch processor plug-in has been enhanced. The plug-in is described in the separate document **Plug-in Reference**. See Audio Analyzer.

Enhanced Meta Leveler and Loudness Meta Normalizer Plug-ins

- The **Meta Leveler** and the **Loudness Meta Normalizer** batch processor plug-ins have been enhanced. The plug-ins are described in the separate document **Plug-in Reference**. See Meta Leveler and Loudness Meta Normalizer.

Quantizing Audio Selections based on Time Ruler Marks

- You can now make audio selections snap to time ruler marks and quantize the audio selection at the same time. See Quantizing Audio Selections based on Time Ruler Marks.

Option to Synchronize Cursors

- You can now synchronize the edit cursor position with the playback cursor position via the status bar. You can also use this option to activate a clip that is currently located at the cursor. See Status Bar.

New Time Grid Option

- You can now display a grid in the **Audio Editor** or for clips in the **Audio Montage** window, aligned with time ruler marks; that is, the major ticks on the time ruler. See Time Ruler Menu.

Sample Blocks as a Time Ruler Unit

- You can now divide the time ruler into **Sample Blocks**, and you can make adjustments to specify their scope. See Time Format Dialog.

New Option for Opening Files via Drag and Drop or the File Explorer/macOs Finder

- Using drag and drop or the File Explorer/macOS Finder to open files, you can now choose whether or not to open the most recently used files in conjunction with the new file/files. See Starting WaveLab by Opening Files.

Color-coded Tab Names

- A purple tab name now indicates that no audio file is associated with a tab. See Tab Change Indicators.

New Refresh Button in the File Browser Window

- In the **File Browser** window, there is now a button to manually reload the content, to reflect any updates and changes. See File Browser Window.

Zooming while Selecting an Audio Range

- You can now zoom in or out while selecting an audio range. See Zooming while Selecting an Audio Range.

Second Timecode Window

- You can now open a second **Timecode** window, to display the time from two different reference points. See Timecode Window.

Text/Excel as a Supported File Format

- Following users requests, we re-introduced the option to save audio files as Text/Excel files (file extension .atxt). See Supported File Formats.

Option to Indicate the Timeline position of Rendered Regions and a Date and Time via BWF Metadata

- In the **Metadata** dialog, WaveLab Pro now allows you to generate BWF time references for rendered audio files, and to automatically add the creation time and date of your audio files via the **BWF** tab. See Metadata Dialog.

Global Terminology Changes

- "CD", in the sense of a compilation of songs or titles, respectively, has been renamed to the more general term "album". The term "CD" is now reserved for referring to compact disks as a medium. In addition to this, "CD track" has been replaced by the more general term "title". See Audio Montage Window.

Audio Montage: Stopping Recording When Record Position Reaches Selected Marker

- The **Stop When Record Position Reaches Selected Marker** option now allows you to automatically stop recording when the record position reaches a selected marker. See Track Control Area for Stereo and Mono Tracks.

Audio Montage: Option to Bypass All Effects in the Track Control Area

- In the **Effects** pop-up menu of the track control area, there is now an option to bypass all effects. See Track Control Area for Stereo and Mono Tracks.

Improved Clip Cue Point Options

- The cue point options have been revised and extended. See Edit Tab (Audio Montage).

Independent Folders for Each Source File on Rendering

- In the **Audio Editor** or in the **Audio Montage** window, the new **Keep Independent Folder for Each Source File** option allows you to maintain independent render paths for individual audio montages or audio files and ensures that, when switching audio montages or audio files, the render path changes accordingly. See Render Tab (Audio Montage).

Option to Reveal Selected Files in the Explorer

- This option automatically opens the File Explorer/macOS Finder to indicate the location of selected audio files after rendering them. See Render Tab (Audio Montage).

Audio Montage: Copying Audio Files to the Audio Montage Folder on Importing

- When importing audio files into audio montages, you can now choose to create a copy of the original audio file in the audio montage folder or one of its subfolders, and whether or not to save this choice for future imports. See Import Files Dialog.

Audio Montage: Copying Raw Clips to the Active Track

- You can now copy selected clips in their "raw" state; that is, without any effects or automation applied, to the active track. See Clips Menu.

Improved Text Report Options

- When exporting clip lists, marker lists, or file lists as text, there are now additional options to choose from in the corresponding dialogs. See Export Clip List as Text Dialog.

Audio Montage: Context Options Info Bar

- When you move or resize clips in the **Audio Montage** window, the key commands for the **Ripple** and the **Auto Grouping** options are now displayed on a new **Context Options** info bar above the tab bar. This makes it easy to access them without interrupting your workflow or the need to remember the corresponding key commands. See Options for Moving and Crossfading Clips.

Audio Montage: Including Reference Tracks when Using Ripple and Auto Grouping

- You can now choose to include reference tracks when performing **Ripple** and **Auto Grouping** actions. See Options for Moving and Crossfading Clips.

Audio Montage: Assigning Random Colors to Clips

- To make it easier to identify individual clips, you can now prompt WaveLab to automatically assign a random color to each of your selected clips. See Coloring Clips.

Audio Montage: New Option to Move the Edit Cursor to an Envelope Point

- You can now easily move the edit cursor to the exact position of an envelope point via the **Envelope** context menu of the **Audio Montage** window. See Moving the Edit Cursor to an Envelope Point.

Audio Montage: Faster Navigation across Envelope Points

- In the **Audio Montage** window, you can now quickly navigate to specific envelope points and select them. See Navigating across Envelope Points.

Audio Montage: Playing All Title Starts and/or Title Ends

- You now have the option to play all title starts and/or title ends of an album. See Album Window.

Audio Montage: Increment Value for ISCR Codes

- You can now specify an increment value for ISRC code generation. See Album Wizard Dialog.

Audio Montage: New Album Wizard Option to Adjust Markers without Changing the Clip Positions

- You can now insert markers while maintaining the positions of the clips in the titles of your album. See Album Wizard Dialog.

New Insert Mode Option for Effect Plug-ins

- With **Insert Mode** activated, all plug-ins below the selected slot are automatically moved one step down when you add a new plug-in. See Effects Pane.

Importing Markers from CSV Files

- You can now import markers from CSV files. See Importing Markers from CSV Files.

Redesigned Spectrogram Options Dialog

- The **Spectrogram Options** dialog has been redesigned. See Spectrogram Options Dialog.

Adding Master Section Plug-ins to a Batch Processor Using Drag and Drop

- You can now add Master Section plug-ins to the plug-in list of the Batch Processor by dragging. See Adding Plug-ins to a Batch Process.

Combining Plug-in Chains in the Batch Processor

- You can now combine multiple plug-in chains by appending new plug-in chains to previously loaded ones in the **Batch Processor** window. See Saving and Loading Plug-in Chains in the Batch Processor.

Auto-Hide Option for Slide-Out Windows

- You can now choose whether you want slide-out windows to automatically close when you click outside of the window or shift the focus to another part of the application or to keep them open. See Display Tab (Global Preferences).

Adjustable Edit Cursor Blink Rate

- You can now adjust the blink rate of the edit cursor to suit your preferences. See Display Tab (Global Preferences).

Customizable Playback Cursor

- You can now customize the playback cursor according to your requirements, and to better distinguish it from the edit cursor. See Display Tab (Global Preferences).

Customizable Tooltip Display Delay

- You can now set the time after which tooltips appear when you move the mouse over user interface controls. See Display Tab (Global Preferences).

Audio Montage: Option to Show or Hide Clip Side Cues

- You can now choose whether to show or hide clip side cues; that is, small red arrows at the right or left border of a clip that indicate that the clip has been trimmed and only part of it is currently visible. See All Audio Montages Tab.

Audio Montage: Envelope Points Snapping to Anchors

- When you edit envelope points with the mouse, you can now set them to snap to active anchors. See Snapping Envelope Points to Anchors.

WaveLab Pro Introduction

Thank you for purchasing WaveLab Pro and embracing audio editing and the art of mastering. Welcome not only to the number one choice for mastering professionals, but also to a community of passionate users who are true masters of their craft.

For more than 25 years, WaveLab Pro has been the go-to choice for audio mastering, analysis, editing, restoration, batch conversion, and authoring.

Used by high-end studios, producers, broadcasters, sound designers, musicians, audio archives, and security and safety services alike, WaveLab's comprehensive suite of audio processing tools, its ability to host third-party plug-ins, and its extended external effects support make it by far the best-equipped single solution for a wide array of audio tasks. Yet, the technology never gets in the way of your workflow: With its clear, highly customizable and intuitive user interface, it is the perfect fit for your style of working. In addition to this, flexible batch processing boosts your efficiency.

Carefully crafted by experienced software engineers and developed in close collaboration with users, WaveLab's remarkable choice of user-friendly features and the outstanding quality of its audio engine help you to deliver exceptional results, every time you use WaveLab.

We look forward to seeing WaveLab Pro play a major part in helping you produce amazing audio, while at the same time, making the process more intuitive and productive than ever before.

Have fun!

Your WaveLab Team

Platform-Independent Documentation

The documentation applies to the operating systems Windows and macOS.

Features and settings that are specific to one of these platforms are clearly indicated. In all other cases, the descriptions and procedures in the documentation are valid for Windows and macOS.

Some points to consider:

- The screenshots are taken from Windows.
- Some functions that are available on the **File** menu on Windows can be found in the program name menu on macOS.

Help System

You can access the help system in several ways. The documentation is available online, on steinberg.help.

Documentation

The documentation consists of several documents.

To visit steinberg.help, do one of the following:

- Enter **www.steinberg.help** in the address bar of your web browser.

- In WaveLab, select **Help** > **steinberg.help**.

- To open the help for an active dialog on steinberg.help, click the question mark button ⑦ at the bottom right, or press `F1` (Windows)/ `Cmd` - `?` (macOS).

Operation Manual

The main WaveLab Pro reference documentation, with detailed descriptions of operations, parameters, functions, and techniques.

Plug-in Reference

Describes the features and parameters of the included plug-ins.

Scripting

Describes the objects and functions you can call in a WaveLab Pro script.

DDP Player

Describes the features and functions of the included **DDP Player**.

Tooltips and Further Information

- To display tooltips, hover over an interface item, such as a control in a dialog box, and briefly wait without moving the mouse any further.

  TIP

  You can customize the time it takes for the tooltip to appear via the **Tooltip Display** option on the **Display** panel of the **Global Preferences**.

  NOTE

  Many tooltips contain a **Tell me more** field, which you can click to view additional information.

- To use the menu help, move the mouse over a menu item.

- To see information on how to perform editing in the **Audio Montage** window via the mouse and the modifier keys, move the mouse over the **Audio Montage** window. The help text is displayed on the info line at the bottom of the window.

What's This

The **What's This** help feature provides extended tooltips about interface icons and functions. Some **What's This** tooltips include a link to a dedicated help topic on steinberg.help.

To access the **What's This** help feature, do one of the following:

- In a window, press `Shift` - `F1`, and move the mouse over an interface item, or select **Help** > **What's This?**.

RELATED LINKS

Visualization of Keyboard and Mouse Input

You can set WaveLab to display your mouse activity and the modifier and navigation keys you press in real time. This feature is useful for screenshots and screencasting purposes, such as demos, presentations, and tutorials.

To display your mouse input as you click and modifier and navigation keys as you press them, do one of the following:

- Select **Help** from the menu bar at the top of the workspace, and activate **Visualize Mouse and Modifier Keys** in the pop-up menu.
- Press **Alt/Opt** - **F1** .

As a result, a small window is displayed, which reflects your mouse and key input activity.

Examples: Visualization of Input Activity

Left mouse button   Right mouse button   Modifier keys
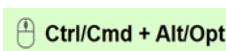
In addition to this, you can drag and move the small window to any position on the screen, and you can customize the display.

To customize the display, right-click to open a menu with the following options:
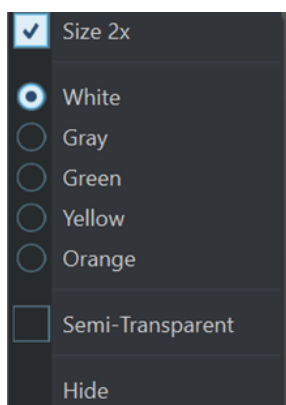
Size 2x

Scales the display of the mouse input and the modifier keys to twice the original size.

White

Sets the background color of the window to white.

Gray

Sets the background color of the window to gray.

Green

Sets the background color of the window to green.

Yellow

Sets the background color of the window to yellow.

Orange

Sets the background color of the window to orange.

Semi-Transparent

Reduces the opacity of the window.

Hide

Hides the display of the window.

To deactivate the display of the mouse and key input activity, deselect **Visualize Mouse and Modifier Keys** in the **Help** menu, or press `Alt/Opt` - `F1` .

Documentation Structure

In our documentation, we divide information into three different types of topics, according to their content.

Descriptions of the User Interface

Topics that describe the functionality of user interface items and list the options and settings of dialogs, panels, or other items.

Descriptions of Basic Concepts

Topics that describe concepts and explain the functionality of a specific software feature.

Descriptions of Procedures

Topics that provide step-by-step instructions for how to perform a specific task. These topics often provide an example for why you might want to follow the steps and a brief summary of the result, including consequences to be aware of.

Because of this division of information, our documentation structure functions as a reference you can consult for specific information or instructions as required, rather than a guide you must read from start to finish.

TIP

Descriptive topics do not describe how to perform a task, and procedural topics do not explain what something is. To find general information about items or concepts, we recommend searching for them by name, such as "events". To find instructions for performing particular actions, we recommend including a relevant verb in your search, such as "recording".

Links at the bottom of topics guide you to further relevant content. You can also check the sidebar for nearby, related topics in the documentation structure.

Typographical Conventions

In our documentation, we use structural and markup elements to present information according to its purpose.

Structural Elements

Prerequisite

Describes any actions or conditions you must have fulfilled before starting a procedure.

Procedure

Lists the steps that you must take to achieve a specific result.

Important

Informs you about serious issues; for example, issues that affect the system, the connected hardware, or that risk data loss.

Note

Informs you about issues or other relevant information.

Tip

Adds further information or useful suggestions.

Example

Provides you with an example.

Result

Describes the result of the procedure.

After Completing This Task

Informs you about actions or tasks that you can perform after completing the procedure.

Related Links

Lists related topics that you can find in this documentation.

Markup

Bold text indicates the name of a menu, option, function, dialog, window, and so on.

EXAMPLE

In the **Audio Montage**, click **Edit**.

If bold text is separated by a greater-than symbol, this indicates a sequence of different menus to open.

EXAMPLE

Select **File** > **Preferences** > **Audio Connections**.

File names and folder paths are shown in a different font.

EXAMPLE

`example_file.txt`

Key Commands

Many of the default key commands, also known as keyboard shortcuts, use modifier keys, some of which are specific to each operating system.

Whenever key commands with modifier keys are described in this manual, the Windows modifier key is indicated first, followed by the macOS modifier key and the key.

EXAMPLE

Ctrl/Cmd-**Z** means: press **Ctrl** on Windows or **Cmd** on macOS, then press **Z**.

Getting Started

Once you have set up your system, the **Startup Assistant** provides easy access to common workflows and the related information, so that you can instantly start working in WaveLab.

RELATED LINKS
Setting Up Your System on page 30

Startup Assistant Window

The **Startup Assistant** allows you to choose the working environment that suits your workflow, to create and open files, and to establish your audio connections. In addition to this, the **Startup Assistant** offers you WaveLab-related information and news and provides useful links.

On starting WaveLab, the **Startup Assistant** window is opened automatically.
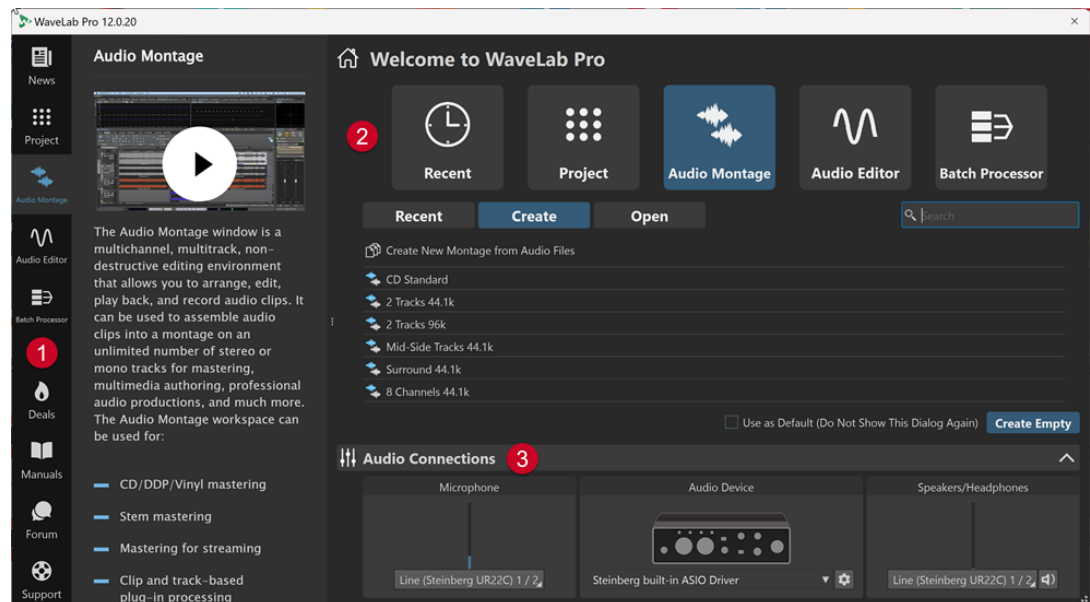
The **Startup Assistant** window is composed of the following elements:

1 Info panel:

-   ▤ **News** displays Steinberg-related news.

-   ⊞ **Project** displays general information about projects.

-   ⬥ **Audio Montage** displays general information about audio montages.

-   ∿ **Audio Editor** displays general information about audio file editing.

-   ⇥ **Batch Processor** displays general information about batch processing.

-   ◊ **Deals** displays information about current and upcoming Steinberg promotions and discounts.

-   ▥ **Manuals** links to the WaveLab documentation. The user manuals are available as PDF files and in WebHelp format.

- 🔲 **Forum** links to the WaveLab forums, where WaveLab users share their experiences and provide help to each other.

- ⊕ **Support** links to the Steinberg Support Team, where our WaveLab experts are always happy to help you solve any issues and to answer your questions.

2 Options to choose from:

- **Recent**: Allows you to choose from a list of your most recently used files and to open them by clicking the **Open** button or to open an empty workspace by clicking **Create Empty**.

  > TIP
  >
  > To show **Create Empty** again after inadvertently selecting an item in the list, click the empty space right below the last entry in the list, or deselect an entry by `Ctrl/Cmd` - clicking on it.

  > TIP
  >
  > You can use a filter to exclusively display recently used files of a particular type by clicking one of the buttons to the right of the **Recent** tab:
  >
  > - **Show All File Types** 📄 is the default setting, with no filter applied.
  > - **Only Show Project Files** ▦ exclusively displays recently used projects.
  > - **Only Show Audio Montage Files** ✦ exclusively displays recently used audio montages.
  > - **Only Show Audio Files** 〽 exclusively displays recently used audio files.
  > - **Only Show Batch Processor Files** ▤ exclusively displays recently used batch processors.
  >
  > **Search** 🔍 allows you enter text to find a particular file.

- **Project**: Allows you to create or open a project.

- **Audio Montage**: Allows you to create or open audio montages.

- **Audio Editor**: Allows you to create or open audio files.

- **Batch Processor**: Allows you to create or open batch processors.

Use as Default (Do Not Show This Dialog Again) allows you to skip the **Startup Assistant** from now on and to set the currently selected workflow as the default workspace.

> TIP
>
> With WaveLab Pro already started, you can prevent the **Startup Assistant** window from automatically opening in the future by manually opening it and deactivating **Show This Dialog At WaveLab Startup**.

To activate the **Startup Assistant** again, do one of the following:

- On starting the application, press and hold `Ctrl/Cmd` until the **Startup Assistant** opens.
- With WaveLab Pro already started, open the **Startup Assistant**, and activate **Show This Dialog At WaveLab Startup**.

3 **Audio Connections** panel:

- **Microphone**: Allows you to select your microphone.

- **Audio Device**: Allows you to select your audio interface. Clicking the cogwheel ⚙ button opens a dialog, where you can set parameters for your device.

- **Speakers/Headphones**: Allows you to select your speakers or headphones.

NOTE

The **Audio Connections** panel in the **Startup Assistant** allows you to set basic parameters. You can access more advanced settings by selecting **File** > **Preferences** > **Audio Connections**.

TIP

To prevent WaveLab Pro from scanning all of your devices each time you start the application and the **Startup Assistant** is opened, you can close the **Audio Connections** panel by clicking the upward arrow on the right side of its header. With complex setups, this results in a significantly shorter startup time.

NOTE

The **Startup Assistant** offers shortcuts to particular features and alternatives to established workflows of WaveLab Pro. This means that you can also accomplish all the tasks and access all the features that are available in the **Startup Assistant** in different ways and/or from other locations in the application. You can find the corresponding instructions in this manual.

Opening the Startup Assistant Manually

By default, the **Startup Assistant** window is opened automatically, each time you start WaveLab. After starting WaveLab, you can manually open the **Startup Assistant** window.

Do one of the following:

- Click **File** on the menu bar at the top of the workspace, and select **Open Startup Assistant**.
- Click the **Open Startup Assistant** icon 🏠 on the command bar.
- Press **Alt/Opt** - **Home** .

RELATED LINKS
Startup Assistant Window on page 20

Project Creation via the Startup Assistant

The easiest and quickest way to create a new project is to use the **Startup Assistant**.

TIP

To display general information on using projects in WaveLab Pro, click the **Project** tile on the info panel on the left side of the **Startup Assistant** window.

You have several options for creating projects via the **Startup Assistant**. You can:

- Choose a template.
- Select audio files, audio montages, and/or batch processors, optionally in conjunction with a template, to include them in a new project.
- Create an empty project.

NOTE

There are other ways to create projects in WaveLab, which may be more convenient for you, depending on your workflow. You can find the descriptions in the corresponding sections of this manual.

RELATED LINKS

Creating a Project via the Startup Assistant

The **Create** button in the **Startup Assistant** allows you to set up a new project, either from scratch or based on a template and/or existing audio files.

PROCEDURE

1. In the **Startup Assistant** window, select **Project**.

2. Click **Create**.
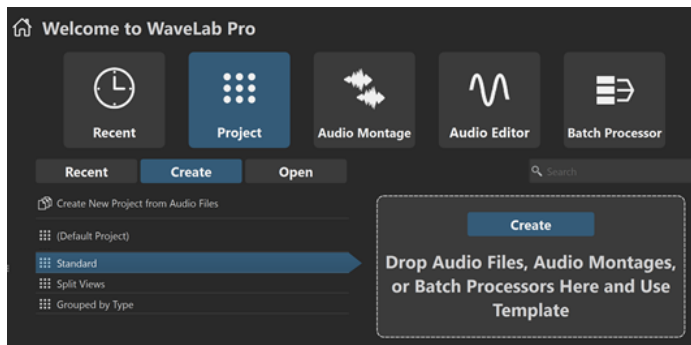
3. Do one of the following:

    ● To create a project based on a template, select the template. Double-click on its name, or click **Create** on the panel to the right of the list. To include existing files in the new project, drag the files that you want to use in your project onto the panel.

    ● To create a project using existing audio files, select **Create New Project from Audio Files**, and click **Create**.

      The file browser is opened.

      Navigate to your audio files, select them, and click **Open**.

    ● To create a project from scratch, click **Create Empty** at the bottom right.

      TIP

      To show **Create Empty** again after inadvertently selecting an item in the list, click the empty space right below the last entry in the list, or deselect an entry by **Ctrl/Cmd**-clicking on it.

4. Only applicable if you have chosen one of the first two options in the previous step: In the **Project Location** dialog that is automatically opened, assign a name. Optionally, click the downward arrow next to the **Name** field, and assign variable values, such as **Date** or **Time**, to the project. Specify where to save the project folder. Click **OK** to create your project.
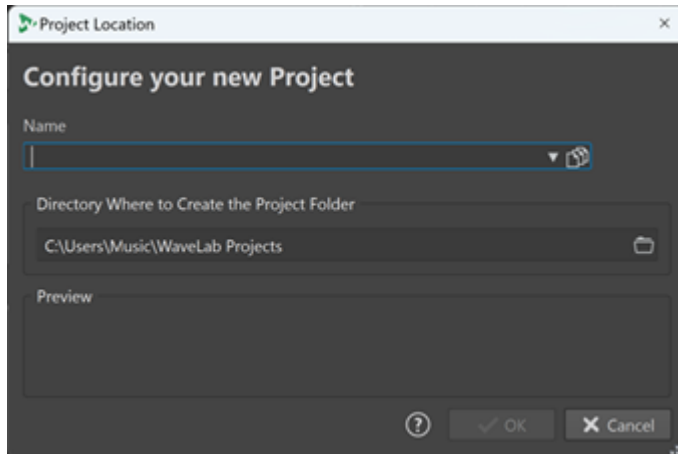
Opening a Project via the Startup Assistant

Using the **Open** button in the **Startup Assistant**, you can drag and drop to open an existing project or navigate to a project file to open it.

PROCEDURE

1. In the **Startup Assistant** window, select **Project**.

2. Click **Open**.
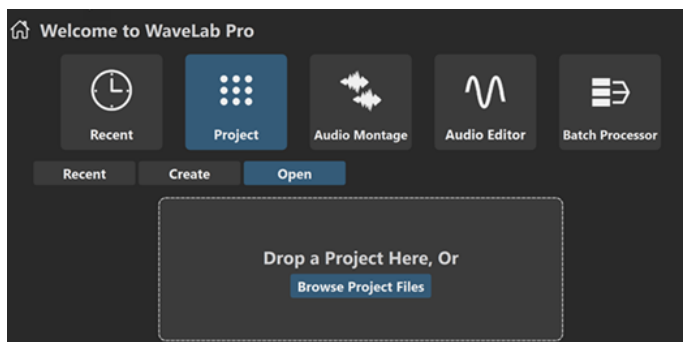
3. Drag a single project file onto the panel, or click **Browse Project Files** to navigate to a file.

RESULT

The project file is opened.

Audio Montage Creation via the Startup Assistant

The easiest and quickest way to produce output made up of several audio files, such as a podcast episode or an album, is to create an audio montage via the **Startup Assistant**.

TIP

To display general information on using audio montages in WaveLab Pro, click the **Audio Montage** tile on the info panel on the left side of the **Startup Assistant** window.

There are several ways of creating audio montages via the **Startup Assistant**. You can choose the approach that best suits your workflow:

- You can use existing audio files, optionally in conjunction with a template, as a basis and create an audio montage from them.

  As a result, a new audio montage is created in the **Audio Montage** window, which includes your audio files.

- You can start with the general setup of the audio montage by choosing a template. This allows you to select or record the corresponding audio files at a later point in time.

  As a result, a new audio montage is opened in the **Audio Montage** window, with the tracks and the sample rate set up as specified by the template.

NOTE

There are other ways to create audio montages in WaveLab, which may be more convenient for you, depending on your workflow. You can find the descriptions in the corresponding sections of this manual.

RELATED LINKS
Startup Assistant Window on page 20
Audio Montage on page 318
Creating Audio Montages from an Audio File on page 359
Inserting Audio Files into Audio Montages on page 390

Creating an Audio Montage via the Startup Assistant

The **Create** button in the **Startup Assistant** allows you to set up a new audio montage, either from scratch or using a template and/or existing audio files.

PREREQUISITE
You have access to one or several audio files.

PROCEDURE

1. In the **Startup Assistant** window, select **Audio Montage**.

2. Click **Create**.
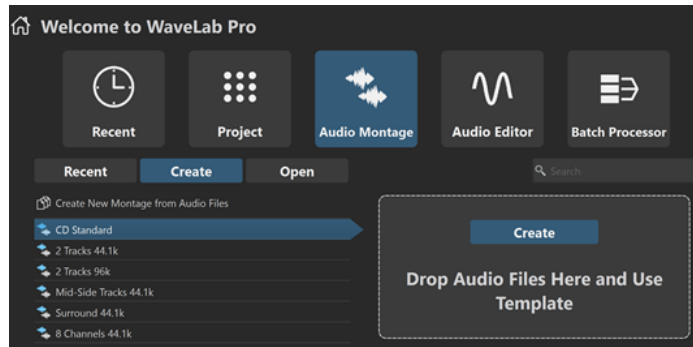
3. Do one of the following:

- To create an audio montage based on a template, select the template. Double-click on its name, or click **Create** on the panel to the right of the list. To include existing files in the new audio montage, drag the files that you want to use in your audio montage onto the panel.

- To create an audio montage using existing audio files, select **Create New Montage from Audio Files**, and click **Create**.

  The file browser is opened.

  Navigate to your audio files, select them, and click **Open**.

- To create an audio montage from scratch, click **Create Empty** at the bottom right.

TIP

  To show **Create Empty** again after inadvertently selecting an item in the list, click the empty space right below the last entry in the list, or deselect an entry by `Ctrl/Cmd`-clicking on it.

4. Only applicable if you have chosen one of the first two options in the previous step: In the **Audio Montage Location** dialog, enter a name, and define a target location for your audio montage folder. Click **Create** to create your audio montage.

Opening an Audio Montage via the Startup Assistant

Using the **Open** button in the **Startup Assistant**, you can drag and drop to open existing audio montages or navigate to audio montage files to open them.

PROCEDURE

1. In the **Startup Assistant** window, select **Audio Montage**.

2. Click **Open**.
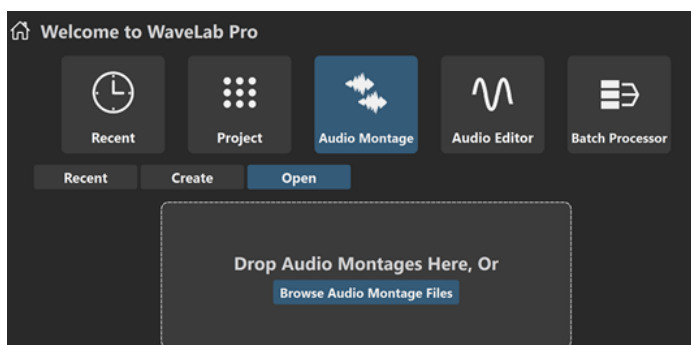
3. Drag one or several existing audio montage files onto the panel, or click **Browse Audio Montage Files** to navigate to the files.

RESULT

The audio montage files are opened in the **Audio Montage** window.

Batch Processor Creation via the Startup Assistant

The easiest and quickest way to create a new **Batch Processor** is to use the **Startup Assistant**.

TIP

To display general information on using batch processors in WaveLab Pro, click the **Batch Processor** tile on the info panel on the left side of the **Startup Assistant** window.

There are two ways of creating batch processors via the **Startup Assistant**. You can choose the approach that best suits your workflow:

● You can use existing audio files, optionally in conjunction with a template, as a basis and create a batch processor from them.

As a result, a new batch processor is opened in the **Batch Processor** window, which includes your audio files.

- You can start with the general setup of the batch processor by choosing a template. This allows you to select or record the corresponding audio files at a later point in time.

  As a result, a new batch processor is opened in the **Batch Processor** window.

NOTE

There are other ways to set up batch processors in WaveLab, which may be more convenient for you, depending on your workflow. You can find the descriptions in the corresponding sections of this manual.

RELATED LINKS
Startup Assistant Window on page 20
Batch Processing on page 781
Adding Audio Files to a Batch Process on page 793
Adding Audio Montages to a Batch Process on page 794

Creating a Batch Processor via the Startup Assistant

The **Create** button in the **Startup Assistant** allows you to set up a new batch processor using a template or existing audio files.

PROCEDURE

1. In the **Startup Assistant** window, select **Batch Processor**.

2. Click **Create**.
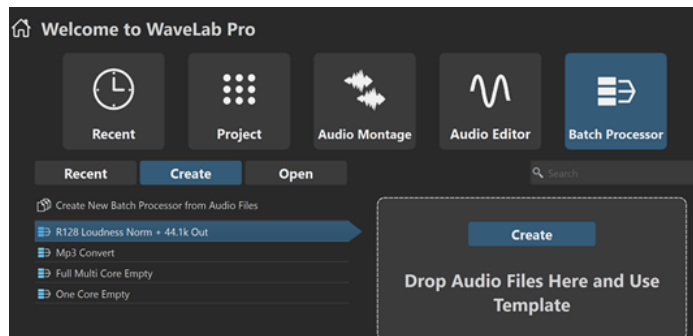
3. Do one of the following:

- To create a batch processor based on a template, select the template. Double-click on its name, or click **Create** on the panel to the right of the list. To include existing files in the new batch processor, drag the files that you want to use in your batch processor onto the panel.

- To create a batch processor using existing audio files, select **Create New Batch Processor from Audio Files**, and click **Create**.

  The file browser is opened.

  Navigate to your audio files, select them, and click **Open**.

- To create a batch processor from scratch, click **Create Empty** at the bottom right.

TIP

To show **Create Empty** again after inadvertently selecting an item in the list, click the empty space right below the last entry in the list, or deselect an entry by `Ctrl/Cmd`-clicking on it.

RESULT

The **Batch Processor** window is opened.

RELATED LINKS
Startup Assistant Window on page 20
Batch Processing on page 781

Opening a Batch Processor via the Startup Assistant

Using the **Open** button in the **Startup Assistant** allows you to open existing batch processors or to set up a new batch processor using existing audio files, in conjunction with a template.

PROCEDURE

1. In the **Startup Assistant** window, select **Batch Processor**.

2. Click **Open**.
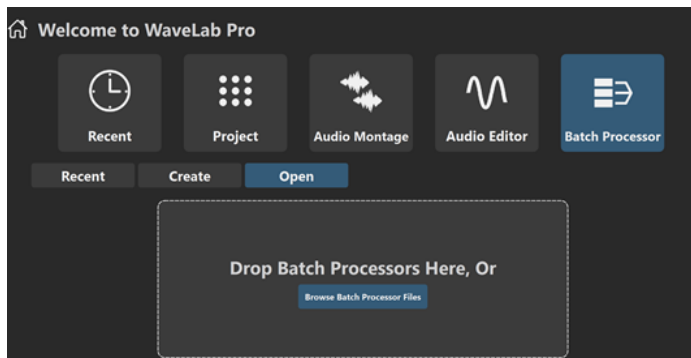
3. Drag one or several existing batch processor files onto the panel, or click **Browse Batch Processor Files** to navigate to the files.

RESULT

The batch processor files are opened in the **Batch Processor** window.

RELATED LINKS
Startup Assistant Window on page 20
Batch Processing on page 781

Setting Up Your System

Before you can start working, you need to set up your system.

IMPORTANT

Make sure that all equipment is turned off before making any connections.

Your system setup depends on many different factors, such as the kind of project, the external equipment that you want to use, or the computer hardware available to you.

RELATED LINKS
Defining Audio Connections on page 31

Audio Cards and Background Playback

You can run WaveLab Pro together with other applications, granting the currently active application access to the audio card.

When you activate playback or recording in WaveLab Pro, other applications cannot access the audio card. Likewise, if another application uses the audio card, WaveLab Pro is unable to play back.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. Select the **Options** tab.

3. Activate **Release Driver**.

4. Do one of the following:

   - To release the driver when WaveLab Pro is in the background, activate **When WaveLab Pro is in Background**.

   - To release the driver only when Cubase/Nuendo is in the foreground, activate **When Cubase/Nuendo is in Foreground**.

RELATED LINKS
Audio Connections Tab on page 33

Latency

Latency is the delay between when audio is sent from the application and when you actually hear it. While a very low latency can be crucial in a real-time DAW application such as Steinberg Nuendo or Cubase, this is not as relevant for WaveLab Pro.

When working with WaveLab Pro, what matters most are a stable playback and high editing precision.

The latency in an audio system depends on the audio hardware, its drivers and settings. In the event of dropouts, crackles, or glitches during playback, we recommend raising the **ASIO-Guard**

value on the **Options** tab in the **Audio Connections** or to increase the buffer size for the respective audio card via the ASIO control panel.

RELATED LINKS

ASIO-Guard

The ASIO-Guard allows you to pre-process all channels as well as VST plug-ins, which prevents dropouts and allows you to process more tracks or plug-ins.

High ASIO-Guard levels result in an increased ASIO-Guard latency. For example, when you adjust a volume fader, you hear parameter changes with a slight delay.

NOTE

Resampler plug-ins and other plug-ins with high latencies accumulate samples prior to processing them. This requires a higher ASIO-Guard setting.

RELATED LINKS

Setting up the ASIO-Guard

You can specify the length of the ASIO-Guard buffer.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. Click the **Options** tab.

3. In the **ASIO-Guard** menu, specify the length of the ASIO-Guard buffer.

   The higher the level, the higher the processing stability and audio processing performance. However, higher levels also lead to an increased ASIO-Guard latency and memory usage.

RELATED LINKS

Defining Audio Connections

To be able to play back and record audio in WaveLab Pro, you must specify how to connect the internal input and output channels in WaveLab Pro to your sound card and indicate the device to be used for audio playback and recording.

You can define the buffer settings for your device as well as set up connections to external effects. We recommend that you select at least two channels for stereo playback and recording.

If you have no third-party audio card, you can select the **Steinberg built-in ASIO** driver or **Built-in Audio** (macOS only) options. You can also use the **Steinberg built-in ASIO** driver with most third-party audio cards. This allows you to record and play at different sample rates.

RELATED LINKS

Selecting an Audio Driver

By selecting an audio driver, you allow WaveLab Pro to communicate with the audio hardware.

NOTE

On Windows operating systems, we recommend that you access your hardware via an ASIO driver developed specifically for the hardware. If no ASIO driver is installed, contact the manufacturer of your audio hardware for information on available ASIO drivers. In case no specific ASIO driver is available, you can use the **Steinberg built-in ASIO** driver.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. Open the **Audio Device** pop-up menu, and select your driver.

3. Optional: Click **Control Panel**, and make the required adjustments.

RELATED LINKS

ASIO Driver

Audio Stream Input/Output (ASIO) is a computer device driver protocol for digital audio specified by Steinberg. It provides a low-latency and high fidelity interface between a software application and the sound card of a computer.

RELATED LINKS

Selecting the Steinberg Built-In ASIO Driver (Windows only)

If no specific ASIO driver is available, you can use the **Steinberg built-in ASIO** driver.

The **Steinberg built-in ASIO** driver gives you access to the audio inputs and outputs provided by the Windows audio subsystem. In addition to this, the **Steinberg built-in ASIO** driver automatically performs sample rate conversion if the sample rate of a source audio file deviates from the sample rate of your audio device.

NOTE

The documentation for the **Steinberg built-in ASIO** driver is located here: `C:\Program Files\Steinberg\Asio\Help`

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. Open the **Audio Device** pop-up menu, and select the **Steinberg built-in ASIO** driver.

3. Optional: Click **Control Panel**, and make the required adjustments.

Audio Connections Tab

This tab allows you to specify how to connect the internal input and output buses in WaveLab Pro to your sound card and to choose a device for audio playback and recording.

● To open the **Audio Connections** tab, select **File** > **Preferences** > **Audio Connections**.

Global Settings

Audio Device

Allows you to select the audio device that you want to use for playback and recording audio. If you do not have a third-party audio card, you can select the **Steinberg built-in ASIO** driver or **Built-in Audio** (macOS only) options.

Port Names

Opens the **Audio Port Names** dialog, where you can specify a custom name for each input and output audio port.

Control Panel

When you select an ASIO driver, the **Control Panel** button is activated. Click the button to open the settings application of your sound card, which is usually installed with the sound card. Depending on your sound card and driver, this provides settings for buffer size, digital formats, additional I/O connections, etc.

Refresh

This button causes audio devices to be evaluated again to reflect device changes.

Playback Tab
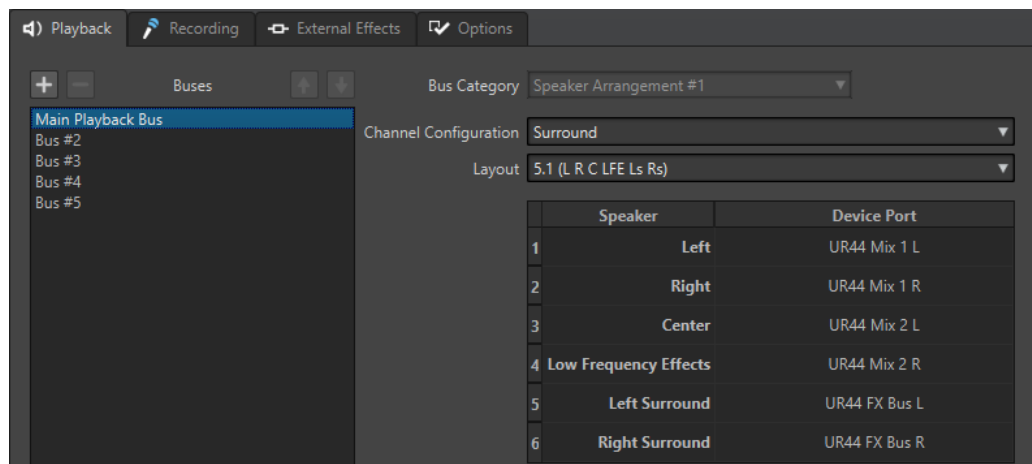
This tab allows you to add buses that are used for playback. If you are monitoring on a surround system, you can specify your surround speaker outputs here.

Add Bus

Adds a new playback bus to the bus list.

Remove Selected Bus ▬

Removes the selected bus from the bus list.

Move Bus Up ⬆

Moves the selected bus up in the bus list. This also modifies the bus order in the WaveLab Pro menus.

Move Bus Down ⬇

Moves the selected bus down in the bus list. This also modifies the bus order in the WaveLab Pro menus.

Bus List

Displays all buses. You can rename and move buses in the list. To rename a bus, double-click it, and enter a new name.

Bus Category

Allows you to assign a category to the selected bus. Depending on the category, you can select the buses in different areas of WaveLab Pro. The following categories are available:

- **Unused**

- Buses with the category **Reference Track** appear in the **Routing** menu of the reference track.

- Buses with the category **Before Playback Processing** appear in the **Playback Processing** pane in the **Master Section** when you click **Output Buses Before Playback Processing**.
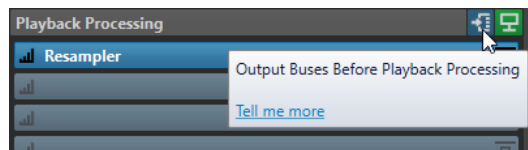
- Buses with the category **Speaker Configuration** appear in the **Speaker Configuration** pane in the **Master Section**. This allows you to switch between different speakers. **Speaker Configuration #1** is the main playback bus.

Channel Configuration

Allows you to route playback buses to device ports. You can choose **Universal**, **Stereo**, **Surround**, **Ambisonics**, **Multi Mono**, or **Multi Stereo**. In the table below the **Channel Configuration** menu, you can specify the **Device Port** for each channel of a playback bus.

Recording Tab

The first time an audio device is detected, WaveLab Pro automatically assigns input buses. You can use this configuration or edit the input buses.
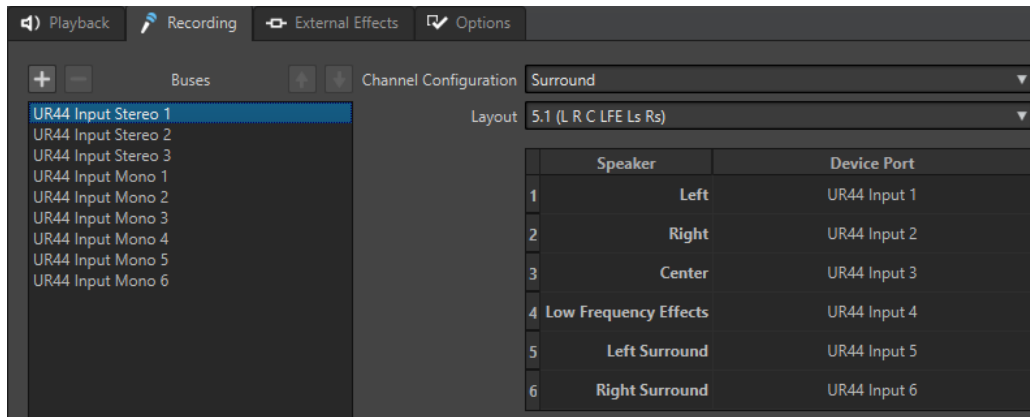
This tab allows you to add buses that are used for recording and input monitoring. The inputs that you define here are then available in the **Recording** dialog.

Add Bus ➕

Adds a new recording bus to the bus list.

Remove Selected Bus ➖

Removes the selected bus from the bus list.

Move Bus Up ⬆

Moves the selected bus up in the bus list. This also modifies the bus order in the WaveLab Pro menus.

Move Bus Down ⬇

Moves the selected bus down in the bus list. This also modifies the bus order in the WaveLab Pro menus.

Channel Configuration

Allows you to route recording buses to device ports. You can choose **Mono**, **Stereo**, **Surround**, **Ambisonics**, **Multi Mono**, or **Multi Stereo**. In the table below the **Channel Configuration** menu, you can specify the **Device Port** for each channel of a recording bus.

Buses List

Displays all buses. You can rename and move buses in the list. To rename a bus, double-click it, and enter a new name.

External Effects Tab
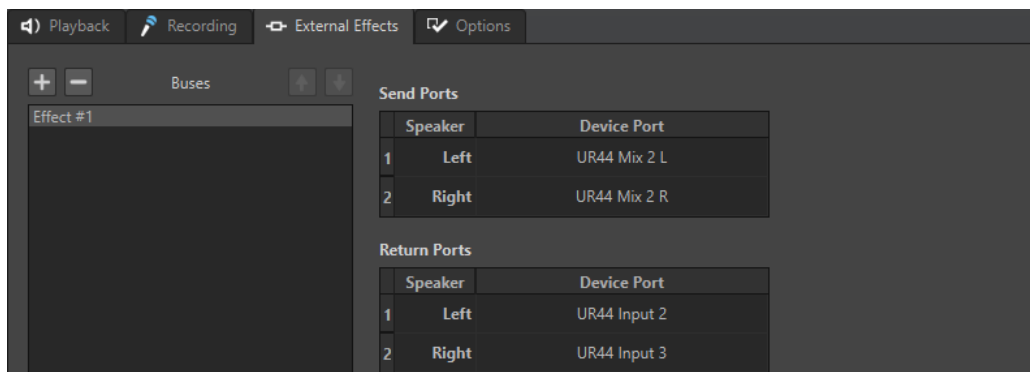
This tab allows you to add external effects. The external effect buses that you create here are available in the **Audio Bus** menu in the **External FX** plug-in.

Add Bus ➕

Adds a new bus to the bus list.

Remove Selected Bus ➖

Removes the selected bus from the bus list.

Move Bus Up ⬆

Moves the selected bus up in the bus list. This also modifies the bus order in the WaveLab Pro menus.

Move Bus Down ⬇

Moves the selected bus down in the bus list. This also modifies the bus order in the WaveLab Pro menus.

Bus List

Displays all buses. You can rename and move buses in the list. To rename a bus, double-click it, and enter a new name.

Options Tab

This tab allows you to specify the number of buffers and the control driver functionality.

ASIO-Guard

Increasing this value improves the elasticity of audio streaming to avoid dropouts. The higher the level, the higher the processing stability and the audio processing performance. However, higher levels also lead to an increased ASIO-Guard latency and memory usage.

Perform Short Fade In When Starting Playback

If this option is activated, a short fade in is performed when you start playback. This avoids clicks caused by waveforms that do not start at a zero-crossing point.

The fade is linear and either ten milliseconds long or corresponds to the audio device block size if the block size is below ten milliseconds.

Perform Short Fade Out When Stopping Playback

If this option is activated, a short fade out is performed when you stop playback. This avoids clicks caused by waveforms that do not end on a zero-crossing point. This also discards any audio signal that is caused by latency and any tail that is caused by reverb plug-ins.

The fade is linear and either ten milliseconds long or corresponds to the audio device block size if the block size is below ten milliseconds.

Release Driver

Allows you to run WaveLab Pro together with other applications and always gives the active application access to the audio card.

- If **When WaveLab Pro is in Background** is activated, the driver is released when WaveLab Pro is in the background.

- If **When Cubase/Nuendo is in Foreground** is activated, the driver is released when Cubase/Nuendo is in the foreground.

Preferred Sample Rate

Allows you to specify the **Preferred Sample Rate** for playback.

Sample Rate Change Timeout

After WaveLab Pro requests the audio device to operate at a new sample rate, the driver sends WaveLab Pro feedback when the task has been completed.

Most drivers do not require you to specify a sample rate change timeout. However, some drivers send delayed feedback or no feedback at all. For these cases, you can specify a timeout.

After the time you specify here, WaveLab Pro assumes the sample rate was accepted and attempts to start playback or recording. However, if WaveLab Pro receives feedback from the driver, the timeout expires.

If you experience sample rate change issues, increase the timeout to three or more seconds. The ideal time is the shortest time that works.

The bottom right of the **Master Section** displays a progress bar while waiting for the driver feedback.

RELATED LINKS
ASIO-Guard on page 31
Master Section on page 572
Playback and Transport on page 155
Recording on page 555

Specifying Custom Names for Audio Ports

You can specify custom names for each input and output audio port of your connected audio gear. When you save an audio connections preset, the custom audio port names are part of the preset. You can save multiple audio connections presets with different names for the same audio device.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. Click **Port Names**.

3. At the top of the **Audio Port Names** dialog, select **Output Audio Ports** or **Input Audio Ports** from the pop-up menu.

4. In the audio port list, double-click the port name that you want to edit, and enter a new name.
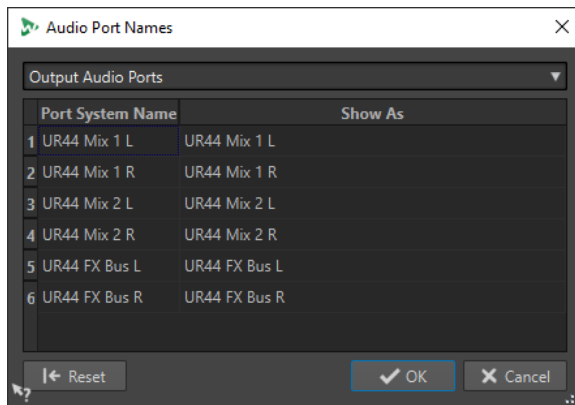
5. Optional: Repeat this for all the port names that you want to change.

6. Click **OK**.

Sending Mono File Audio Streams to a Dedicated Speaker

You can choose to send the audio stream of mono files to a dedicated speaker.

PROCEDURE

1. On the **Audio Connections** tab, click **Playback**.

2. From the **Channel Configuration** menu, select **Universal**.

3. Specify a **Device Port** for the **Mono File**.
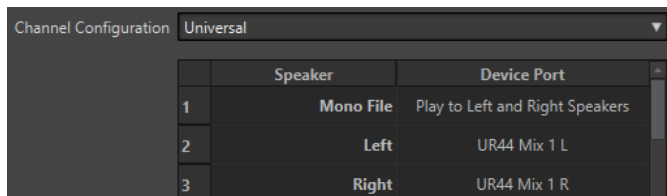
Combining Multiple Audio Devices on macOS

On macOS, you can combine several audio interfaces so that they appear and act as a single aggregate device.

To use a different audio device for output than for input in WaveLab, or to extend the number of inputs and outputs available to you, on macOs, you can combine multiple audio devices and create an aggregate device.

PREREQUISITE
You have connected all external audio devices that you want to use.

PROCEDURE

● Follow the detailed step-by-step instructions on the official Apple Support sites.

TIP

We recommend using "Aggregate Device" as a search term.

External Effects

You can use external effects with WaveLab Pro.

In order to use external effects, you must set up external effect buses. External effect buses consist of send buses (output) and return buses (input).

Each audio bus can have only one active external effect at a time. If the audio bus has more than one external effect, all other external effects are bypassed. If an external effect is no longer used and another external effect uses the same audio bus, the latter external effect is activated.

The external effects that you set up via the **Audio Connections** are available in the **External FX** plug-in.

You can use the **External FX** plug-in on the **Effects** pane of the **Master Section** and in the **Inspector** for audio montages as clip, track, and output effects.

EXAMPLE

If you add an **External FX** plug-in as an insert effect to the **Master Section**, the audio is sent to the corresponding audio output, processed in your external effect devices, and returned to the plug-in via the specified audio input.

IMPORTANT

You cannot use the **Resampler** plug-in with external effects.

RELATED LINKS

External FX Plug-in

The **External FX** plug-in allows you to add external effect devices to the **Master Section** and to the audio montage via the **Inspector**.

● To open the **External FX** plug-in, add it to the effects list of the **Master Section** or the **Inspector**.

Picture

> Allows you to add a picture to the **External FX** window. You can add a picture of your external effect to remember the settings for the external effect, for example.
>
> - To enlarge the picture, right-click it, and select **Show Picture**.
> - To remove the picture, right-click it, and select **Remove Picture**.

Audio Bus

> Allows you to select the audio bus for your external effect.

Latency

> External effects can introduce latency. WaveLab can automatically compensate for this if you select **Auto** (only active during rendering), or you can set the latency compensation yourself (in milliseconds). The latency introduced by the ASIO driver is automatically taken into account by WaveLab.
>
> **Detect** allows you to measure the latency of the audio signal.

Send Gain/Return Gain

> Allows you to adjust the send gain and the return gain. We recommend setting this to 0 dB. If necessary, adjust the input level on the external effect.
>
> The level meters allow you to check the incoming or the outgoing signal of your external effect device.
>
> The indicators at the top of the **Send Gain**/**Return Gain** sections indicate clipping, which leads to distortion when you convert the send signal to an analog signal.

RELATED LINKS

Assigning External Effects to Send Buses and Return Buses

To use external effect devices, you must assign them to send buses and return buses.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. Activate the **External Effects** tab.

3. Click **Add Bus**.

4. Select the bus from the bus list, and specify **Send Ports** and **Return Ports** for the bus.

    - **Send Ports** send the audio from WaveLab Pro to your external effects device.

    - **Return Ports** receive the audio that has been processed by the external effects device.

RESULT

The external effect buses are available in the **External FX** plug-in in the **Master Section** and in the **Inspector**.

RELATED LINKS
External FX Plug-in on page 39
Using External Effects on page 41

Using External Effects

The **External FX** plug-in allows you to add external effect devices to WaveLab Pro.

PREREQUISITE
You have set up external effects in the **Audio Connections**.

PROCEDURE

1. In the **Master Section** or **Inspector**, add the **External FX** plug-in to the effects list.

2. In the **External FX** window, open the **Audio Bus** menu, and select the bus that you have set up in the **Audio Connections**.

3. In the **Latency** section, click **Detect** to measure the latency of the audio signal.

    Latency is the time it takes for the audio signal to travel from WaveLab Pro through the external effect device, and back to WaveLab Pro. WaveLab Pro automatically adapts to the latency.

4. Use the **Send Gain** and **Return Gain** faders to adjust the gain of the outgoing and incoming audio.

AFTER COMPLETING THIS TASK

Now you can process a signal through the external effect, just like a software plug-in effect. While rendering a file via the **External FX** plug-in, playback is not available.

RELATED LINKS
External FX Plug-in on page 39
Assigning External Effects to Send Buses and Return Buses on page 41

CD/DVD Recorders

For general instructions on installing internal recorders or on connecting external recorders via USB or Firewire, refer to the user manual of your computer or recorder.

Verify that you have the latest firmware version installed on your recorder unit. For CD recorders, the existing firmware must support disc-at-once mode. In addition, running a unit with older firmware can prevent you from writing sub-index markers into the tracks, for example.

Remote Control Devices

You can remote-control WaveLab Pro.

You can control several operations with the knobs and sliders of your remote control device. For all commands that can be assigned to a keyboard shortcut, you can also assign a MIDI trigger.

Remote Devices Tab

The Remote Devices tab allows you to select a device to remote-control WaveLab Pro, and to see and edit the control map of MIDI control devices.

- To open the **Remote Devices** tab, select **File** > **Preferences** > **Remote Devices**.
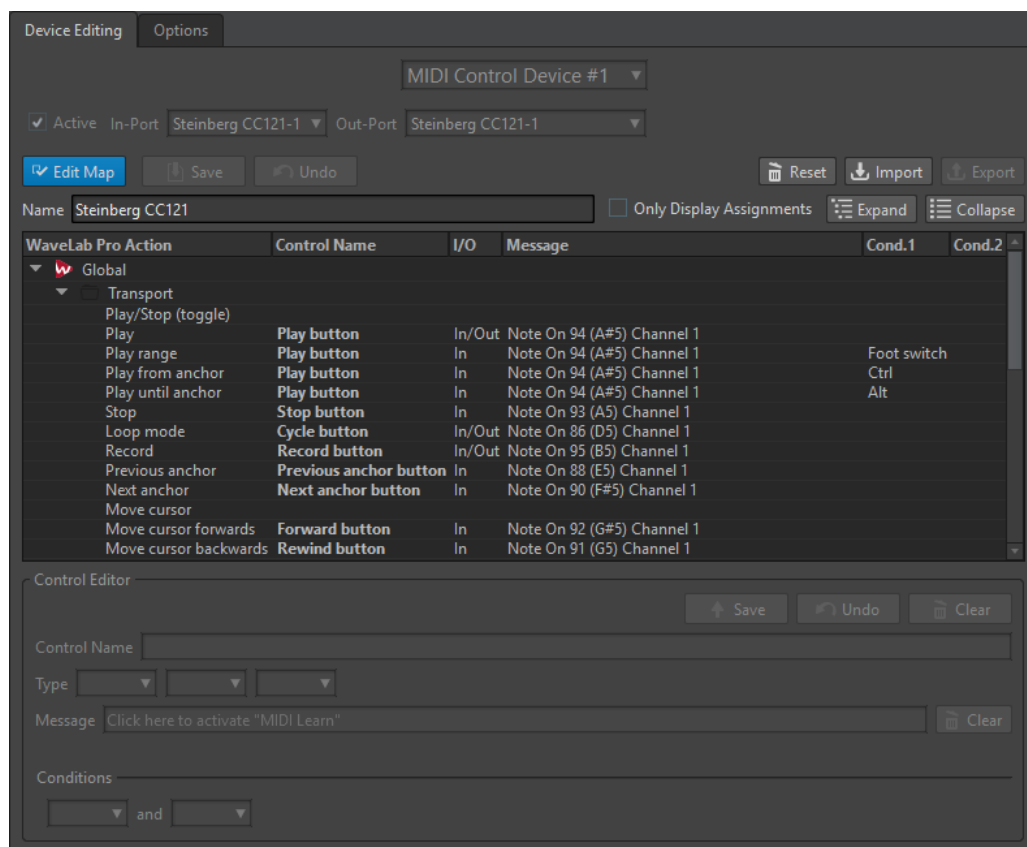
Device Editing Tab

This tab allows you to select a MIDI control device, to see the control map, to assign WaveLab Pro commands to MIDI controls, and to import/export control assignments.

Device Menu

Allows you to choose the MIDI device to edit. You can select **MIDI Shortcuts for Menus** to define the MIDI input port to be used for MIDI shortcuts. The shortcuts can then be assigned via the **Shortcuts** tab.

To choose a slot for a connected MIDI control device, you can select **MIDI Control Device #1 – #10** and assign a device by defining a MIDI input port and output port.

Active

Activates the selected device and scans the MIDI ports.

In-Port/Out-Port

Selects the MIDI input/output ports of the device that you want to use.

Edit Map

Activates the edit mode of the MIDI control map for the selected device. To leave the edit mode, click again.

Save

Saves the modifications you have applied to the MIDI control map.

Undo

Undoes the modifications you have applied to the MIDI control map.

Reset

If the map has a factory preset, clicking **Reset** resets all changes that have been made to the map. If the map has no factory preset, the map is cleared.

Import

Opens the file browser, where you can select a map definition file (XML file) supplied by a MIDI device manufacturer or another WaveLab Pro user, for example.

Export

Allows you to export a map definition file (XML file), to send it to another WaveLab Pro user, for example.

Name

Allows you to enter a map name.

Only Display Assignments

If this option is activated, the control map only displays the parameters that are associated with a remote control.

Expand/Collapse

Expands/collapses the folder tree of the control map.

WaveLab Pro Action List

This folder tree lists the parameters that you can remote-control. The top folder represents contexts. The related parameters can only be controlled if the context, such as an audio file, is active.

A remote control can be used in several contexts, provided that these are exclusive; for example, parameters that can be used for an active audio file or an active audio montage.

The **Global** folder contains the parameters that can be controlled at all times.

Control Editor – Save

After creating or modifying a control, click this button to save it.

Control Editor – Undo

After modifying a control, click this button to undo the changes.

Control Editor – Clear

Removes the settings applied to the selected control.

Control Name

Allows you to enter a name for the control.

IMPORTANT

Each control must have a name.

Type

In the **Type** section, you can edit the type of the selected control.

In case more than one type of control can be assigned to a parameter, you can select a type from the first pop-up menu. You can choose between relative and absolute editing for some parameters. For example, a **Master Section** slider can be associated to a remote motorized fader (absolute editing) or to an infinite knob (relative editing).

Several protocols are supported to interpret the MIDI messages. You can select a protocol from the second menu. The **MIDI Learn** function can automatically change this protocol, based on the received MIDI messages.

Remote controls send messages but can also receive messages from WaveLab Pro, to light up a button or to move a motorized fader, for example. You can select a mode from the third menu.

Message

Activates the **MIDI Learn** function. With this option activated, you can use the control (knob, fader, etc.) on your MIDI controller. When MIDI messages are received, they are analyzed after the MIDI activity stops for several milliseconds. The result is displayed in the **Message** field. The result is then used by WaveLab Pro as the control identifier.

Clear

Deletes the MIDI event that identifies the control.

Conditions

A modifier is a WaveLab Pro parameter that can be activated by a MIDI control (for example, a foot switch) or a computer key (**Ctrl/Cmd**, **Shift**, etc.). By associating a remote control with one or two modifiers, you can use a single remote control to edit different parameters.

Options Tab

This tab allows you to use the **MIDI Learn** function to assign the control of a MIDI remote control device to an operation.

Emulate Mouse Wheel

If this option is activated, the AI knob of Steinberg controllers acts as a mouse wheel on the WaveLab Pro user interface, except for plug-ins.

Edit Focused Numeric Field

If this option is activated, you can use the AI knob Steinberg controllers to edit the focused numeric field that you can find in many WaveLab Pro windows and dialogs.

Selecting a MIDI Remote Control Device

PREREQUISITE

The MIDI remote control device is connected to your PC/Mac.

PROCEDURE

1. Select **File** > **Preferences** > **Remote Devices**.
2. Via the **Device Editing** tab, select one of the MIDI control device slots, or choose the **MIDI Shortcuts for Menus** option from the pop-up menu at the top.
3. Select **Active** to activate the selected device.
4. From the **In-Port** and **Out-Port** pop-up menus, select a MIDI input port and output port.

Assigning a MIDI Controller to a Parameter

For Steinberg remote control devices, such as the CC121, the controls are already assigned to parameters. However, you can customize these default settings.

PREREQUISITE

You have set up your MIDI remote control device.

PROCEDURE

1. Select **File** > **Preferences** > **Remote Devices**.
2. From the pop-up menu at the top of the dialog, select your MIDI control device.
3. On the **Device Editing** tab, click the **Edit Map** button.
4. In the tree structure, click the parameter that you want to remote-control.
5. In the **Control Editor** section, enter a name into the **Control Name** field.
6. Select the type of control.

   Depending on the type of control on the MIDI remote control device, you need to select a control with relative values (knob), trigger values (button), or absolute values (fader).
7. Click in the **Message** field, and on your MIDI remote control device, actuate the control that you want to assign.

   The name of the controller is displayed in the **Message** field.
8. Click **Save** to the right of the **This Control is Modified** message.
9. Click **Save** to the right of the **Edit Map** button.

RESULT

The MIDI controller is now assigned to the parameter.

Assigning Custom Parameters to Plug-ins

You can assign custom parameters to many VST 3 plug-ins.

PREREQUISITE

Via the **Remote Devices** tab, assign the controls of your MIDI controller to the custom plug-in parameters. For the Steinberg CC121 controller, the parameters are assigned by default.

PROCEDURE

1. From the **Master Section** or the **Inspector** window, open the plug-in that you want to control with the MIDI remote control device.

2. `Ctrl/Cmd` -click the circle icon at the top of the plug-in window to access **Edit** mode.
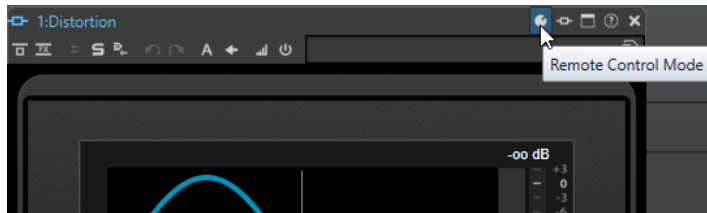
3. Click **OK**.

   The icon indicates that you are in MIDI learn mode.

4. Move the mouse over a plug-in parameter, and move the MIDI control that you want to assign.

   Repeat this for all the parameters and controls that you want to assign.

5. When finished, click the tool icon to exit **Edit** mode, and click **OK**.

RESULT

The assignment is saved. You can now control the assigned parameters with your MIDI remote control device. A plug-in can be controlled via the custom parameter if the **Remote Control Mode** is activated, and only one plug-in can be activated at a time.

When a plug-in is activated for remote control, it also has precedence over other application settings that are controlled by the same parameter.

To remove all remote control assignments from the plug-in, hold `Ctrl/Cmd` and `Shift`, and click the **Remote Control Mode** button.

RELATED LINKS

Importing and Exporting Remote Control Definition Files

Map definition files are XML files that contain control assignments for your remote devices. You can exchange them with other users or save a backup copy.

Via the **Remote Devices** tab, select the **Device Editing** tab.

● To import a map definition file, click **Import**, navigate to the location of the map definition file, and select the file.

● To export a map definition file, click **Export**, and navigate to the location where you want to save the file.

RELATED LINKS

Editing Changes in the Remote Control Devices Settings

You can save, reset, undo, and remove changes applied to the map in the **Control Editor** section of the **Remote Devices** tab.

● To save any changes, click **Save**.

- To restore the factory presets of a MIDI remote control device, click **Reset**. If the control device does not have factory presets, the map is cleared.

- To undo your last action, click **Undo**.

- To remove the control definition of the selected control, or to unassign the selected control, click **Clear**.

Using Modifiers to Remote-Control Parameters

You can use a single controller to control different parameters by using one or two modifiers. A modifier can be a MIDI control (for example, a foot switch) or a modifier key on your computer keyboard (for example, `Shift` and/or `Ctrl/Cmd`).

To specify one or two modifiers, open the **Remote Devices** tab and, when editing a parameter, select the modifiers from the **Conditions** section.

You can use the `Shift` and `Alt` modifiers to alter the edit steps of infinite knob controls as follows:

- Press `Shift` to edit values in small steps.

- Press `Alt` to edit values in bigger steps.

CC121 Advanced Integration Controller

You can use Steinberg's CC121 Advanced Integration Controller to control WaveLab Pro.

NOTE

The CC121 was originally designed for Cubase.

The information in this manual describes the WaveLab Pro factory presets for the CC121. The mapping combines the WaveLab Pro functionality with the CC121 controls. The controls that are not listed are not assigned to a parameter.

For detailed information on using the controller, refer to the manual that came with the CC121.

Channel Section

You can use all controls of the CC121 channel section, except the fader, to control the elements of the active track in a WaveLab Pro audio montage. You can use the fader for the **Master Section**.

Fader

Controls the **Master Section** fader.

PAN knob

Controls the gain of the active track.

Mute

Mutes/Unmutes the active track.

Solo

Activates/Deactivates solo for the active track.

CHANNEL SELECT

Selects the previous/next track in the audio montage.

To move the cursor to the previous/next clip edge in the audio montage, hold Alt . To move the cursor to the previous/next region edge, hold Shift . To move the cursor to the previous/next marker in the **Audio Editor**, hold Ctrl/Cmd .

EQ Section

With the EQ section, you can easily control the Steinberg Studio EQ plug-in.

If **EQ TYPE** is activated on the CC121, you can adjust the parameters of the focused Studio-EQ. All necessary EQ parameters, such as **Q/F/G** of each band, **EQ TYPE** selection, and **ALL BYPASS** on/off can be set. You can switch to WaveLab Pro navigation mode by deactivating **EQ TYPE**. In WaveLab Pro navigation mode, you can access alternative functions, such as scrolling, zooming, and switching between windows.

With **EQ TYPE** activated:

Bandwidth knobs (Q)

Adjusts the Q (bandwidth) of each EQ band.

Frequency knobs (F)

Adjusts the center frequency of each EQ band.

Gain knobs (G)

Adjusts the gain of each EQ band.

ON

Activates/Deactivates the EQ bands.

ALL BYPASS

Activates/Deactivates bypass for all plug-ins in the **Master Section**.

EQ TYPE deactivated:

LOW ON

Opens the **Audio Editor**.

LOW-MID ON

Opens the **Audio Montage** window.

HIGH-MID ON

Opens the **Batch Processor** window.

HIGH ON

Opens the preferences tab.

EQ-1 knob for the EQ Gain (G)

Scrolls left/right on the timeline.

EQ-2 knob for the EQ Gain (G)

Adjusts the horizontal zoom on the timeline.

EQ-3 knob for the EQ Gain (G)

Adjusts the vertical zoom on the timeline.

EQ-4 knob for the EQ Gain (G)

Scrolls tracks in the **Audio Montage** window or scrolls vertically in the **Audio Editor**.

EQ-1 knob for the EQ Frequency (F)

Scrolls left/right on the overview timeline of the **Audio Editor**.

EQ-2 knob for the EQ Frequency (F)

Horizontally zooms in/out on the overview timeline of the **Audio Editor**.

EQ-3 knob for the EQ Frequency (F)

Vertically zooms in/out on the overview timeline of the **Audio Editor**.

EQ-4 knob for the EQ Frequency (F)

Vertically scrolls on the overview timeline of the **Audio Editor**.

Transport Section

The Transport section allows you to control the transport functions of WaveLab Pro.

Previous button

Moves the cursor position to the left.

Rewind button

Moves the edit cursor position to the left.

Forward button

Moves the edit cursor position to the right.

Next button

Moves the cursor position to the right.

Cycle button

Activates/Deactivates Cycle mode.

Stop button

Stops playback. Press again to move the cursor to the previous start position. Press a third time to move the cursor to the beginning of the project.

Play button

Starts playback.

Record button

Press once to open the **Recording** dialog. Press again to start the recording. Press a third time to stop recording. The recorded file opens in the **Audio Editor**.

Function Section

The Function section allows you to adjust functions, such as fades and envelope level, by using the VALUE knob.

VALUE knob

Rotate this knob to adjust the assigned function. Press the knob to reset the parameter to its default value.

FUNCTION button 1

Adjusts the fade in settings of the active clip.

FUNCTION button 2

Adjusts the fade out settings of the active clip.

FUNCTION button 3

Adjusts the envelope level of the active clip.

FUNCTION button 4

> The element clicked last in the **Nudge** section of the **Edit** tab in the **Audio Montage** window is assigned to this button.

AI Knob Section

WaveLab Pro can be controlled with the AI knob of Steinberg's CC121, CI2+, and CMC-AI controllers. With the AI knob, you can control the parameter that the mouse points to.

NOTE

The AI knob only works on parameters that are automatable.

The AI Knob Section allows you to control parameters via the AI knob.

AI KNOB

> Controls the VST 3 plug-in parameters, emulates the mouse wheel, for example, for scrolling, and allows you to edit a focused numeric field. To control a parameter with the AI knob, move the mouse cursor over the parameter that you want to control, and move the AI knob. You can activate/deactivate the emulation of the mouse wheel and the editing of the focused numeric field in the **Options** tab.

LOCK

> When the mouse cursor points to a parameter, press LOCK to control this parameter, regardless of the position of the mouse cursor.

JOG

> Activates Jog mode. While Jog mode is activated, press LOCK to enter shuttle mode.

CUBASE READY Indicator

The CUBASE READY indicator has no function in WaveLab Pro.

Foot Switch Section

The foot switch has the same function as `Shift` . Press and hold the foot switch while turning the AI knob to fine-tune parameters.

WaveLab Pro Concepts

We recommend that you familiarize yourself with the general concepts of WaveLab Pro, to ensure the highest possible efficiency when using the application.

RELATED LINKS
General Editing Rules on page 51
Basic Window Handling on page 51

General Editing Rules

The common editing operations apply to any Steinberg product.

● To select and move interface items, and to select ranges, click and drag with the mouse.

● Use the keys of your computer keyboard to enter numeric values and text, to navigate lists and other selectable interface items, and to control the transport functions.

● Common operations like cutting, copying, pasting, or selecting multiple items can be performed using standard keyboard shortcuts.

NOTE

The behavior of your product is also governed by your preference settings.

RELATED LINKS
WaveLab Pro Concepts on page 51

Basic Window Handling

WaveLab Pro adheres to the basic conventions for the Windows/macOS interface, which means that standard Windows/macOS procedures apply.

RELATED LINKS
WaveLab Pro Concepts on page 51

Selecting Audio

Almost all types of editing and processing that you perform in WaveLab Pro take effect on an audio selection. There are numerous ways to make an audio selection.

● To select the entire audio file, double-click it.

● To select an audio file that contains markers, triple-click it.

RELATED LINKS
Selecting a Range by Dragging on page 52
Selecting Channels in Audio Files on page 57

Selecting a Range by Dragging

The standard way to select a range in the **Audio Editor** or in the **Audio Montage** window is to click and drag.

CHOICES

- To select a range, drag all the way to the left or right side of the **Audio Editor** or the **Audio Montage** window.

  The waveform scrolls automatically, allowing you to select larger sections than what can be shown in the wave window. The speed of the scrolling depends on how far from the window edge you are.

- To resize a selection range horizontally or vertically in the **Audio Editor**, click and drag the selection box.
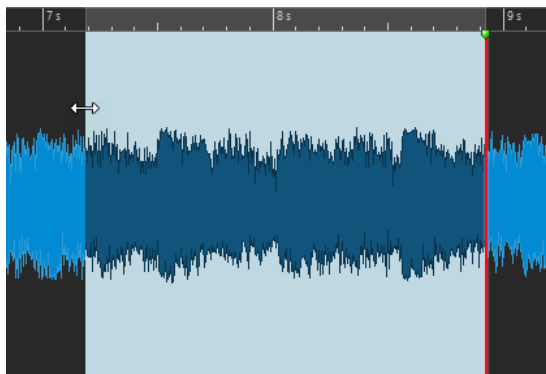
- To resize a selection range vertically in the **Audio Montage** window, click and drag the selection box.

RELATED LINKS
Selecting Audio on page 51
Audio Editor Window on page 176
Audio Montage Window on page 320

Audio Range Selection in an Audio File

You can edit, process, or play back selections of an audio file.

- To access the audio range selection options, in the **Audio Editor**, select the **Edit** tab.

The following selection options are available in the **Time Selection** section:

Range

If you click **Range**, the **Range Selection** dialog opens. In this dialog, you can define selection ranges very accurately.

If you click the arrow to the right of the **Range** button, the presets list opens. In the presets list, you can choose from the selection range factory presets and your custom presets.

All

Selects the entire waveform.

Toggle

Switches the selection range on/off.

Extend

Opens a menu that allows you to choose from the following options for creating or extending selection ranges:

- **Extend to Start of File** extends the selection to the start of the audio file. If there is no selection, a selection is created from the edit cursor position.

- **Extend to End of File** extends the selection to the end of the audio file. If there is no selection, a selection is created from the edit cursor position.

- **Extend to Previous Marker** extends the left edge of the selection to the nearest marker to the left or the start of the audio file. If there is no selection, a selection is extended to the previous marker position.

- **Extend to Next Marker** extends the right edge of the selection to the nearest marker to the right or the end of the audio file. If there is no selection, a selection is extended to the next marker position.

- **Extend to Cursor** extends the selection to the edit cursor position.

- **From Start of File Until Cursor** selects the range between the start of the audio file and the edit cursor position.

- **From Cursor to End of File** selects the range between the edit cursor position and the end of the audio file.

- **From Cursor to Previous Marker** selects the range between the edit cursor position and the previous marker or the start of the audio file.

- **From Cursor to Next Marker** selects the range between the edit cursor position and the next marker or the end of the audio file.

- **Shift Selection to the Left** moves the selection lengthwise to the left.

- **Shift Selection to the Right** moves the selection lengthwise to the right.

- **From Playback Position to End** creates a selection range from the playback position to the end of the selection, or to the end of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **From Start to Playback Position** creates a selection range from the playback position to the start of the selection, or to the start of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **Double Selection Length** doubles the length of the current selection range.

- **Halve Selection Length** reduces the length of the current selection range to 50% of the original length.

Channels

Opens a menu, where you can choose from the following options:

- **Extend to All Channels** extends the current selection range to all channels.

- **Left Channel Only** reduces the current selection range to the left channel.

- **Right Channel Only** reduces the current selection range to the right channel.

Regions

Opens a menu, where you can choose from the following options:

- **Title** selects the range between the two title markers that encompass the edit cursor.

- **Loop Region** selects the range between the two loop markers that encompass the edit cursor.

- **Exclusion Region** selects the range between the two exclusion markers that encompass the edit cursor.

- **Generic Region** selects the range between the two generic markers that encompass the edit cursor.

Audio Range Selection in an Audio Montage

You can edit, process, or play back selections of an audio montage.

- To access the audio range selection options, in the **Audio Montage** window, select the **Edit** tab.

The following selection options are available in the **Time Selection** section:

Range

If you click the **Range** button, the **Range Selection** dialog opens. In this dialog, you can define selection ranges very accurately.

If you click the arrow on the right of the **Range** button, the presets list opens. In the presets list, you can choose from selection range factory presets and your custom presets.

Extend

Opens a menu that allows you to choose from the following options for creating or extending selection ranges:

- **Extend to Start of File** extends the selection to the start of the audio file. If there is no selection, a selection is created from the edit cursor position.

- **Extend to End of File** extends the selection to the end of the audio file. If there is no selection, a selection is created from the edit cursor position.

- **Extend to Previous Marker** extends the left edge of the selection to the nearest marker to the left or the start of the audio file. If there is no selection, a selection is extended to the previous marker position.

- **Extend to Next Marker** extends the right edge of the selection to the nearest marker to the right or the end of the audio file. If there is no selection, a selection is extended to the next marker position.

- **Extend to Cursor** extends the selection to the edit cursor position.

- **From Start of File Until Cursor** selects the range between the start of the audio file and the edit cursor position.

- **From Cursor to End of File** selects the range between the edit cursor position and the end of the audio file.

- **From Cursor to Previous Marker** selects the range between the edit cursor position and the previous marker or the start of the audio file.

- **From Cursor to Next Marker** selects the range between the edit cursor position and the next marker or the end of the audio file.

- **Shift Selection to the Left** moves the selection lengthwise to the left.

- **Shift Selection to the Right** moves the selection lengthwise to the right.

- **From Playback Position to End** creates a selection range from the playback position to the end of the selection, or to the end of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **From Start to Playback Position** creates a selection range from the playback position to the start of the selection, or to the start of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **Double Selection Length** doubles the length of the current selection range.

- **Halve Selection Length** reduces the length of the current selection range to 50% of the original length.

Toggle

Switches the current selection range on/off.

RELATED LINKS

Range Selection Dialog

The **Range Selection** dialog allows you to specify an audio range for editing, processing, or playing back.

- In the **Audio Editor** or in the **Audio Montage** window, select the **Edit** tab, and click **Range**.
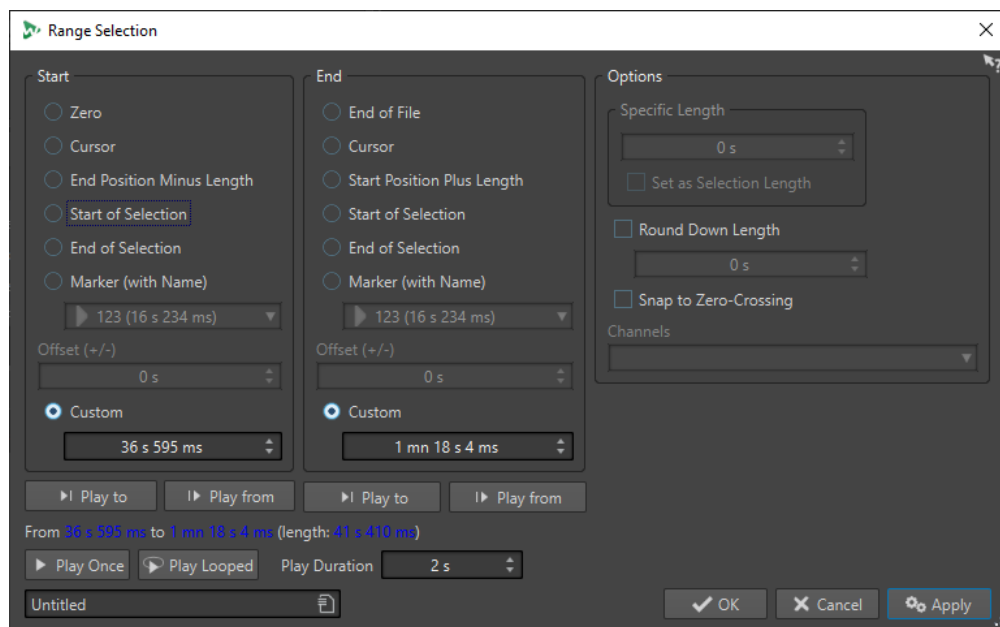
Start

Zero

The selection begins at the start of the file.

Cursor

The selection begins at the edit cursor.

End Position Minus Length

The selection begins at the specified end position minus the **Specific Length** value.

Start of Selection

The selection begins at the start of the current selection range.

End of Selection

The selection begins at the end of the current selection range.

Marker (with Name)

The selection begins at the marker that is selected from the pop-up menu below.

Offset (±)

Allows you to specify an offset for the selected start position.

Custom

Allows you to specify a start time for the selection. The time unit is the same as the time unit that is selected for the time ruler.

End

End of File

The selection ends at the end of the file.

Cursor

The selection ends at the edit cursor.

Start Position Plus Length

The selection ends at the specified start position plus the **Specific Length** value.

Start of Selection

The selection ends at the start of the current selection range.

End of Selection

The selection ends at the end of the current selection range.

Marker (with Name)

The selection ends at the marker that is selected from the pop-up menu below.

Offset (±)

Allows you to specify an offset for the selected end position.

Custom

Allows you to specify an end time for the selection. The time unit is the same as the time unit that is selected for the time ruler.

Options

Specific Length

Allows you to specify the selection length.

Set as Selection Length

Clicking this button causes the new selection to keep the length of the current selection. This allows you to move the selection to another position.

Round Down Length

If this option is activated, the selection length is rounded down to the length specified in the value field.

Snap to Zero-Crossing

If this option is activated, the start and the end of a selected range always snap to a zero-crossing point of the waveform.

Channels

Select whether the selection spans the left channel, the right channel, or both.

Play

With the play options, you can preview the specified audio range.

Play to

Plays the range before the specified position.

Play from

Plays the range after the specified position.

Play Once

Plays the selection once.

Play Looped

Plays the selection in a loop.

Play Duration

Sets the playback length. Note that this overrides the **From/To** parameters.

Memorizing the Selection Length and the Cursor Position

You can copy the length of a selection range and the edit cursor position to an internal memory, to be able to use these values in several places in WaveLab Pro.

● To save the length of the active selection range, in the **Audio Editor** or in the **Audio Montage** window, select the **Edit** tab, and right-click **Copy**. Select **Memorize Selection Length**.

● To save the position of the edit cursor, in the **Audio Editor** or in the **Audio Montage** window, select the **Edit** tab, and right-click **Copy**. Select **Memorize Cursor Position**.

● To apply the memorized information, right-click any time edit field, and select **Set Memorized Position** or **Set Memorized Duration**.
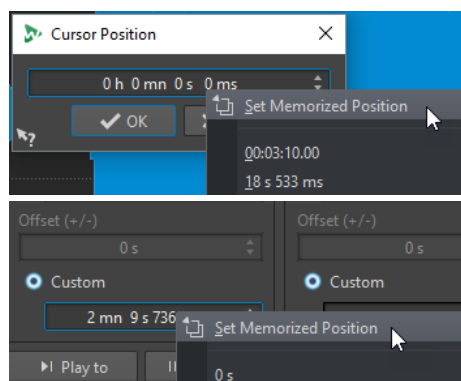
Selecting Channels in Audio Files

In the **Audio Editor**, you can select individual channels, both channels of a stereo file, or channel clusters of a multichannel audio file. This allows you to apply an operation to one channel only, to both channels of a stereo file, or to channel clusters of a multichannel file.

CHOICES

● Which channel is selected when you click in the **Waveform** window of the **Audio Editor** depends on where you click.

The edit cursor shows which channel is selected. The mouse pointer indicates which channel is affected.

● To select the left channel, click the upper half of the left channel.
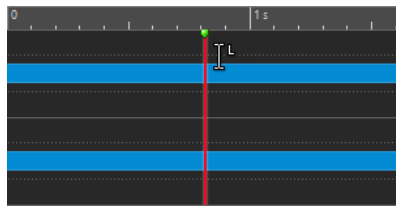
- To select both channels, click the middle area between the left and the right channel.
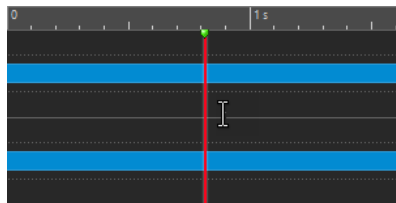
- To select the right channel, click the lower half of the right channel.
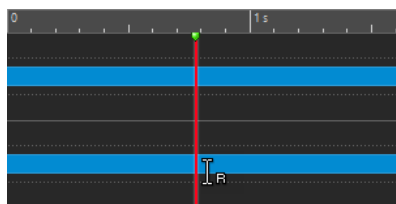
- To switch from selecting all channels to selecting individual channels, and vice versa, when you click in the **Audio Editor**, click **Toggle Channel Selection Mode** to the left of the timeline.
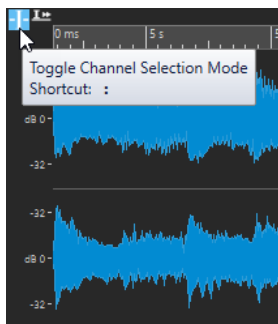
- To move the edit cursor to the next/previous channel, press **Alt**-**Page Down** or **Alt**-**Page Up**.

RELATED LINKS
Selecting Audio on page 51
Moving the Selection Range to Other Channels on page 59
Audio Editor Window on page 176
Playing Back Focused Audio Channels on page 166

Quantizing Audio Selections based on Time Ruler Marks

In the **Audio Editor**, you can make audio selections snap to time ruler marks and quantize the audio selection at the same time.

PREREQUISITE
You have set the time ruler to the desired unit; for example, to **Bars and Beats** or **Samples**.

PROCEDURE

1. Zoom in or out to display the audio to be quantized.

2. Hover the mouse over the time ruler.

3. Press **Alt/Opt**.

   The mouse pointer turns into the square brackets symbol [ ].

4. Click and drag to select an audio range.

   NOTE

   This feature is available anytime, and it is independent of the snapping options.

   We recommend activating the **Time Ruler Marks** option in the **Magnets** menu of the **Audio Editor**, so that snapping is enabled. You can access it via **Edit** > **Snapping** > **Magnets**.

RELATED LINKS
Magnets Menu on page 182
Edit Tab (Audio Editor) on page 190
Time Ruler and Level Ruler on page 84

Moving the Selection Range to Other Channels

You can move the selection range that you have made for a channel to all channels or to another channel.

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, select a range.

2. Do one of the following:

   - On the **Edit** tab, in the **Time Selection** section, click **Channels**, and select **Extend to All Channels**, **Left Channel Only**, or **Right Channel Only**.

   - In the channel control area, click the channel to which you want to move the selection range.
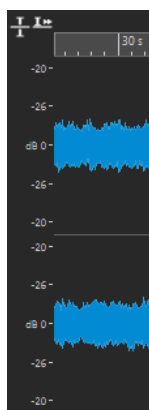
   - To extend the selection range from its original channel cluster vertically to other channel clusters, **Shift**-click the channel cluster to which you want to extend the selection range.

   - To move the selection range to the next/previous channel via key commands, press **Alt** - **Page Down** or **Alt** - **Page Up**.

- To move the selection range to another channel via the mouse, press **Ctrl/Cmd** - **Shift**, and drag the selection to another position.

RELATED LINKS
Selecting Channels in Audio Files on page 57
Channel Control Area on page 181
Audio Editor Window on page 176

Selecting in the Overview of the Audio Editor

The ranges that you select in the overview of the **Audio Editor** also apply to the main view.

PROCEDURE

- In the **Waveform** view of the **Audio Editor**, hold down **Ctrl/Cmd**, and click and drag in the overview.

RELATED LINKS
Audio Editor Window on page 176

Moving a Selection Range

If a selection range has the correct length but the wrong position, you can move it.

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, hold down **Ctrl/Cmd** - **Shift**.

2. Click in the middle of the selection, and drag to the left or to the right.

RELATED LINKS
Audio Editor Window on page 176

Extending and Reducing the Selection

You can resize a selection range in the **Audio Editor** or in the **Audio Montage** window.

To extend/reduce the selection, you have the following options:

Using the Mouse and Key Commands

- To extend the selection, select a range, **Shift**-click outside the selection range, and drag to the left/right. You can also click and drag the edges of the selection range to the left/right.

- To extend the selection to the previous/next boundary (marker or start/end of file), press **Shift**, and double-click the non-selected area between the boundaries.

Using Key Commands

- To move the start or end of a selection in the **Waveform** view of the **Audio Editor** to the left or right, hold down **Shift**, and press the **Left Arrow** / **Right Arrow**. To move it in bigger steps, hold down **Shift**, and press **Page Up** or **Page Down**.

- To extend a selection to the previous or next boundary in the **Waveform** view of the **Audio Editor** (marker or start/end of the audio file), hold down `Ctrl/Cmd`-`Shift`, and press the `Left Arrow` or `Right Arrow`.

Deleting Selections

There are several options for deleting a selected range.

Audio Editor

The following options can be found on the **Edit** tab in the **Cut Copy Paste** section.

Crop

Removes the data outside the selection.

Delete

Removes the selection. The audio to the right of the selection is moved to the left to fill the gap.

Audio Montage Window

The following options can be found on the **Edit** tab, in the **Removal** section.

Crop Clip

Removes the data outside the selection.

Erase Selected Range

Erases the clip parts inside the selection range on the active track, without filling the gap.

Erase Selected Range on All Tracks

To access this option, click the arrow icon to the right of the **Erase Selected Range** option. Erases the clip parts inside the selection range on all tracks, without filling the gap.

Delete Selected Clips/Delete Selected Range

If there is a selection range, the clip parts inside the selection range on the active track are deleted, and the right section of the clips is moved to the left, to fill the gap.

If there is no selection, the selected clips are deleted.

Delete Selected Range on All Tracks

To access this option, click the arrow icon to the right of the **Delete Selected Clip** option. Deletes the clip parts inside the selection range on all tracks and moves the right section of the clips to the left, to fill the gap.

Value Editing

In various areas of the application, you can edit numerical values by using a combination of text fields and dials.

Values are sometimes composed of several elements, for example, 12 mn 30 sec 120 ms. You can edit values by one of the following methods:

- To change a value, click in a value field, and type in a new value, or click the small arrows in the value field.
- To change the value by one unit at a time, press `Up Arrow` or `Down Arrow`.

- To change the value using the mouse wheel, position the mouse cursor over a value, and use the mouse wheel, or use the AI knob of your MIDI controller.

- To change the value with the mouse, click a value, and drag the mouse up or down.

- To jump to the maximum and minimum values, press the **Home** or **End** key, respectively.

- To move from one element of the value to another, press **Left Arrow** or **Right Arrow**.

Sliders

In various places in WaveLab Pro, you can change parameters and the respective values via slider controls.

To adjust a value via a slider, you have the following options:

- Position the mouse over the slider, and use the mouse wheel without clicking. Hold **Ctrl/Cmd** while using the mouse wheel to scroll faster. This modifier also applies to the zoom wheels.

- To move a slider, click and drag it.

- To move the slider handle to a specific position, click the slider at the position.

- To move the slider handle in smaller steps, right-click, or click below the handle. Keep the mouse button pressed to automatically step to the next value.

- To reset the slider to the default value, if available, **Ctrl/Cmd**-click the slider, or click using the middle mouse button, or double-click the handle.

RELATED LINKS
WaveLab Pro Concepts on page 51

Renaming Items in Tables

You can rename items in tables in the **Markers** window, the **Album** window, and the **Clips** window.

- To rename an item, double-click it, or select it. Press **Return**, and enter the new name.

- To rename the previous item, press the **Up Arrow**. This moves the focus to the previous item, while staying in edit mode.

- To rename the next item, press the **Down Arrow**. This moves the focus to the next item, while staying in edit mode.

RELATED LINKS
Markers Window on page 622
Album Window on page 524
Clips Window on page 406

Tab Groups

With tab groups, you can view the content of different files, tool windows, or meters at the same time, without having to navigate through different windows. Each tab group has its own content and tab bar.

In a **Control Window**, a tab group can contain tool windows and meters. You can have three file tab groups.

Empty File Tab Groups
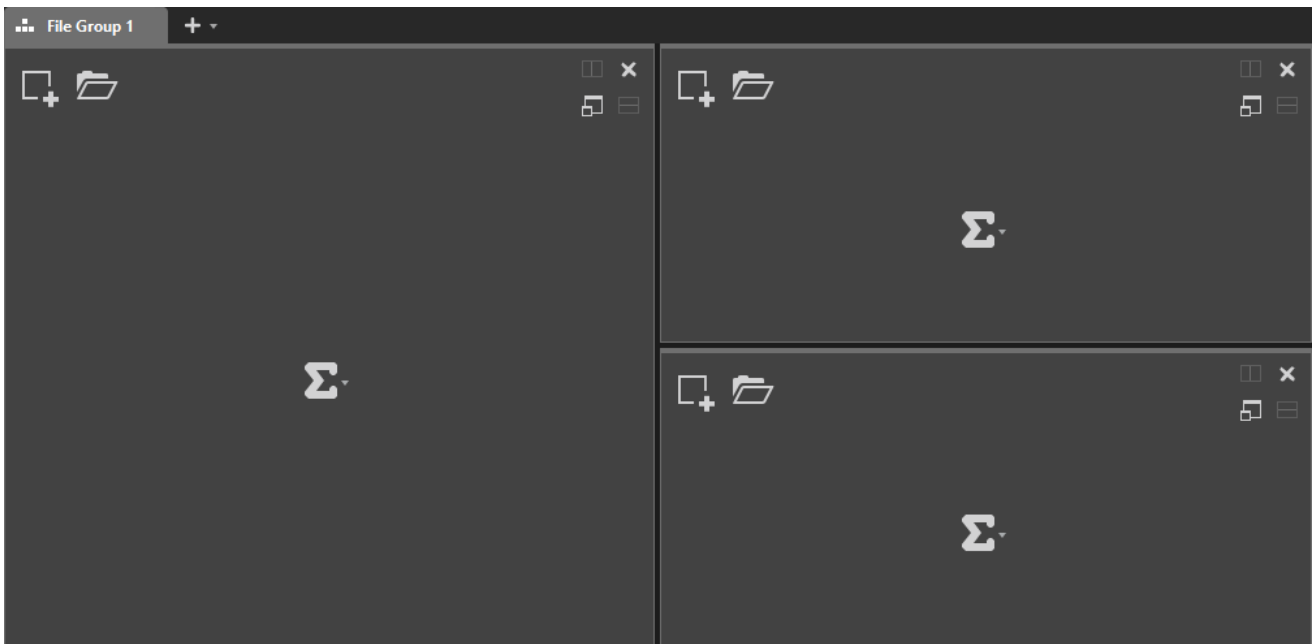
File Tab Groups with Audio Montages
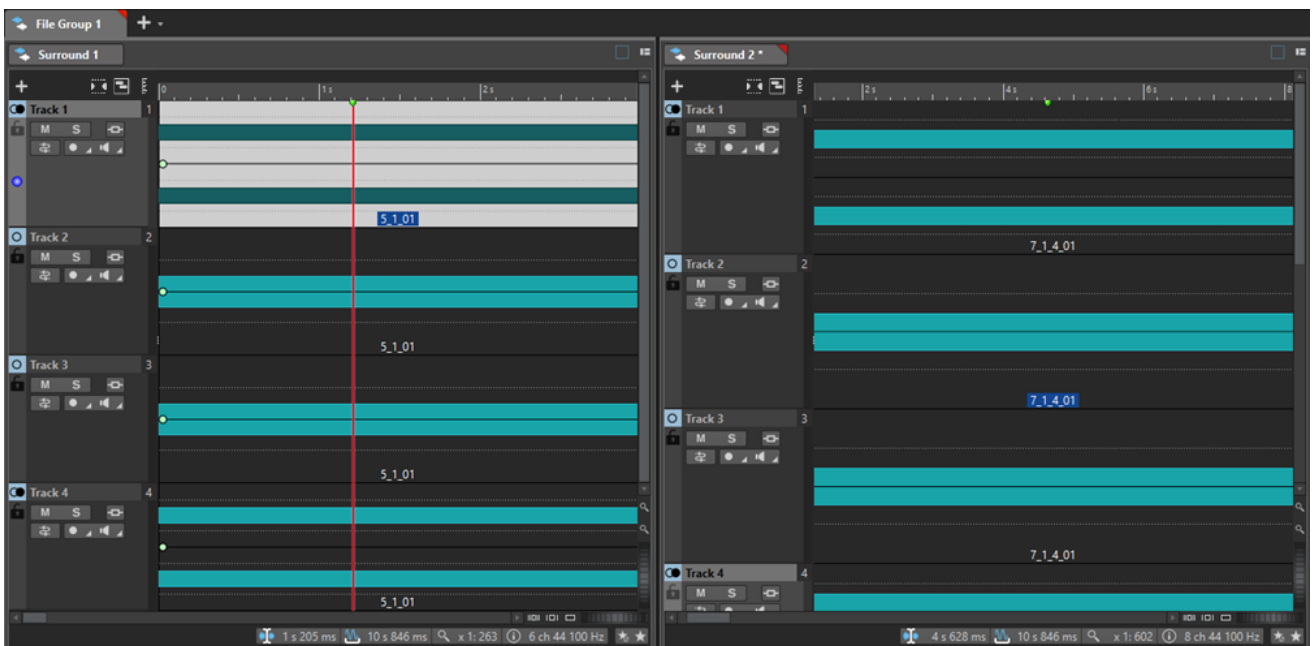
Tab Groups in a Control Window

RELATED LINKS
Creating File Tab Groups on page 64
Using Tab Groups on page 65
Control Window on page 72

Creating File Tab Groups

PROCEDURE

1. In the top right of a file tab window, open the **Tab Group** pop-up menu.
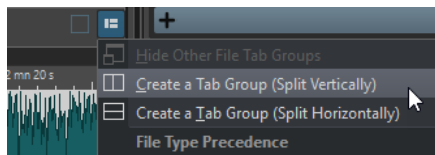
2. Select **Create a Tab Group (Split Vertically)** or **Create a Tab Group (Split Horizontally)**.

RELATED LINKS
Tab Groups on page 62
Using Tab Groups on page 65

Creating File Tab Groups in Empty Tab Groups

PROCEDURE

● In the top right of an empty file tab group, click **Create a Tab Group (Split Vertically)** or **Create a Tab Group (Split Horizontally)**.

RELATED LINKS
Tab Groups on page 62
Using Tab Groups on page 65

Using Tab Groups

The **Tab Group** button in the top right corner of each tab window allows you to maximize, move, and close tab groups. You can use tabs in different ways and for different purposes, depending on the type of window.

Tool Window Tab Groups

- To hide a tool window tab group, open the **Tool Window Tab Group Options** pop-up menu, and select **Hide All**.
- To reorder tabs in a tab group, drag the tab horizontally to a new position on the tab bar.
- To dock the tab group to another location, open the **Tool Window Tab Group Options** pop-up menu, and select **Dock Tab Group Elsewhere**. Now you can select where to dock the tab group.
- To dock the tab group to the **Control Window**, open the **Tool Window Tab Group Options** pop-up menu, and select **Dock Tab Group to Control Window**.

  Now you can select the **Control Window** to which you want to dock the tab group.

File Tab Groups

- To close a file tab group, click the **Tab Group** button, and select **Hide All**.
- To reorder tabs in a tab group, drag the tab horizontally to a new position on the tab bar.
- To move a tab to another project, drag the tab to another project.
- To paste the content of a tab into an audio file, drag the tab onto the waveform. The tab is inserted at the cursor position.
- To maximize the active file tab group, open the **File Tab Group Options** pop-up menu, and select **Hide Other File Tab Groups**.

  To show all file tab groups, open the **File Tab Group Options** pop-up menu, and select **Show Other File Tab Groups**.

  You can also double-click the file tab header of a tab group to show/hide other file tab groups.

RELATED LINKS

Peak Files

A peak file (extension `.gpk`) is automatically created by WaveLab Pro each time an audio file is modified or opened in WaveLab Pro for the first time. The peak file contains information about the waveform and determines how it is drawn in the **Audio Editor** or in the **Audio Montage** window.

Peak files reduce the time it takes to draw the corresponding waveform.

RELATED LINKS

Setting the Peak File Behavior

You can set the peak file behavior in the **Audio Files Preferences** via the **File** tab.

- To save peak files in another location, specify the file location in the **Location of Associated Files** section.

- To create peak files when writing audio files, activate **Create Peak Files When Writing Audio Files**.

- To delete peak files when closing audio files, activate **Delete Peak Files When Closing Audio Files**.

RELATED LINKS
Peak Files on page 65
File Tab (Audio Files Preferences) on page 875

Rebuilding or Updating Peak Displays

WaveLab Pro automatically updates peak files when the peak file is older than the audio file. If, for any reason, the audio file is not automatically updated, you can force a rebuild of the peak file in the **Audio Editor** or update the peak files manually in the **Audio Montage** window.

PROCEDURE

1. Select the **View** tab.

2. In the **Peaks** section, do one of the following:

   - In the **Audio Editor**, click **Rebuild Display**.

   - In the **Audio Montage** window, click **Update Peak Files**.

RELATED LINKS
Peak Files on page 65
View Tab (Audio Editor) on page 188

Ancillary Files

Ancillary files (extension `.vs`) contain view settings for audio files.

Ancillary files can enhance the speed and efficiency of your editing workflow, but they are not essential. Deleting them does not result in any data loss, as they are automatically regenerated when required.

Among others, the following view settings can be included in ancillary files:

- Window size and position

- Zoom level

- Scroll position

- Display mode (Waveform/Spectrum/Loudness)

- Snapshots

To specify where to save ancillary files, select **File** > **Preferences** > **Audio Files**, and choose an option in the **Location of Associated Files** section of the **File** tab.

Contextual Folders

You can set contextual folders, which are not tied to specific media locations and can therefore be reused across different projects, as the target location of your rendered audio.

When rendering your audio files, using fixed folder paths bears the disadvantage of not being able to reuse them for further projects. For this reason, WaveLab Pro offers the option of using contextual folders instead.

Contextual folders are saved in render presets, whereas absolute paths cannot be saved in this way. As a result, contextual folders are very versatile in terms of storage and reuse. They can act as placeholders for:

- the active **Project** folder
- the active **Audio Montage** folder or
- the active **Audio File** folder

To access the options for rendering, in the **Audio Editor** or in the **Audio Montage** window, select the **Render** tab. You can define a target location for rendering your audio in the **Location** field of the **Output** section.

Contextual folders are indicated by a colored tag in the **Location** entry field.
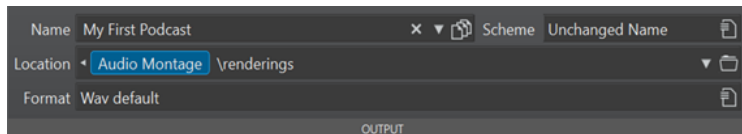
Example: Choosing **Audio Montage\renderings** causes the rendered files to be saved in a subfolder of the active audio montage folder called **renderings**, regardless of where the audio montage is located. If you copy the file to another system at a later point in time, you can render it relative to its new location, requiring no additional steps.

TIP

Consider using this WaveLab Pro feature in conjunction with the following ones, as they work well together and offer flexible and automated ways to define rendering locations:

- Activating **Keep Independent Folder for Each Source File** in the **Output** section saves the render path with an audio montage or audio file.
- **Scheme** presets in the **Output** section allow you to generate not only file names but also custom subfolders.
- **Presets** in the **Presets** section allow you to save predefined folders.

Rendering Audio to Contextual Folders

You can render active audio files or audio montages to contextual folders.

PREREQUISITE
There is an active audio file or audio montage that you want to render.

PROCEDURE

1. In the **Audio Editor** or in the **Audio Montage** window, select the **Render** tab.

2. In the **Output** section, click the arrow (**1**) on the left side of the **Location** entry field.
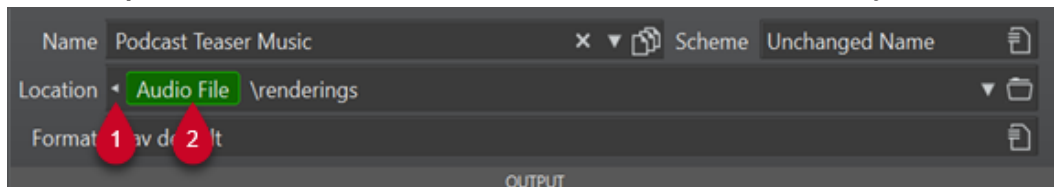
3. Select a predefined folder from the menu.

   NOTE

   - The **Audio File** option is available only when an audio file is active.
   - The **Audio Montage** option is available only when an audio montage is active.
   - The **Project** option is available only when a project is active.

   A colored tag (**2**) represents the contextual folder.

   NOTE

   To remove the contextual folder as the target location, do one of the following:

   - With the colored tag visible, click the arrow (**1**) again.
   - Click the colored tag (**2**) itself, and choose **Remove Contextual Folder** from the menu.

4. Optional: To the right of the contextual folder tag (**2**), enter **** (Windows) or **/** (macOS), and type in the name of a subfolder (or multiple subfolders, separated by **** (Windows) or **/** (macOS).

   If the subfolders do not exist, WaveLab Pro automatically creates them.

   NOTE

   To display the folder path of the contextual folder in a tooltip, based on the current context, hover over the colored tag.

RELATED LINKS
Render Tab (Audio Editor) on page 196
Render Tab (Audio Montage) on page 352
Contextual Folders on page 67

Processing Precision

WaveLab Pro can load audio samples in many formats. Internally, it processes them as 64-bit float samples.

Mixing inside WaveLab Pro is also done in 64-bit float. 32-bit PCM samples can be transferred to 64-bit float and back.

Plug-ins are processed in 64-bit float by default. You can also set the plug-in processing to 32-bit float.

You can set up the processing precision for plug-ins and for temporary files via the **Audio** tab of the **Global Preferences**.

NOTE

Processing in 64-bit float results in double precision but slightly longer processing times than 32-bit float.

Temporary files in 64-bit float are processed with double precision but take longer to read and write than 32-bit float, and their file size is twice as big.

RELATED LINKS

EBU Loudness Standard R-128

The EBU loudness recommendation R-128 establishes well-defined methods to measure loudness, dynamics, and peak values, and also defines reference values to achieve for these measurements. Though the reference values are intended for the broadcast world, the measurement methods are helpful in any application dealing with audio and loudness control.

WaveLab Pro supports these audio measurements for metering, audio analysis, and processing in many places.

Loudness Measurement

Loudness measurement takes the frequency sensitivity of the human ear to loudness levels into account. There are three types of measurements:

- Integrated loudness, also called program loudness, establishes the average loudness of an audio piece. This measurement uses a gating method to ignore long periods of silence.

- Short-term loudness measures the loudness once a second, on an audio block of three seconds. This provides you with information about the loudest audio passages.

- Momentary loudness measures a range of 400 ms of audio at intervals of 100 ms. This provides you with instantaneous feedback on the loudness.

Loudness Range

The loudness range measurement serves to establish the dynamics of the audio signal. It reports the ratio between the loudest and the quietest (but non-silent) sections. The audio is divided into small blocks. There is one audio block every second, and each block lasts three seconds. Analyzed blocks overlap.

The top 10% of the quiet blocks and the top 5% of the loud blocks are excluded from the final analysis. The calculated loudness range is the ratio between the loudest and the quietest

remaining audio blocks. This measurement helps you to decide if and how much compression or expansion to apply to the audio.

True Peaks

When a digital signal is converted to an analog signal, EBU R-128 recommends measuring an estimation of the real peaks, rather than relying on digital peaks, to avoid clipping and distortion. This is accomplished by over-sampling the signal four times, while retaining the peak values.

Naming and Units

EBU R-128 proposes the following naming and unit conventions:

- A relative measurement, such as a value relative to a reference level:

  "LU" as "Loudness Unit" (1 LU is 1 dB).

- An absolute measurement, "LUFS" as "Loudness Unit Full Scale". 1 LUFS corresponds to 1 dB in the AES-17 scaling.

When WaveLab Pro relates to the EBU R-128 loudness, it uses these units rather than dB.

RELATED LINKS
Loudness Normalizer on page 299
Audio Editor Only: Global Analysis on page 271
Pan Normalizer Dialog on page 301
Formats Tab (Global Preferences) on page 869

Resetting Default Answers

In WaveLab Pro, you can set some dialogs and warning messages to **Do not show again**. To show these dialogs and messages again, you must reset the default answers.

PROCEDURE

1. Select **File** > **Preferences** > **Global**.

2. Click **Options**.

3. Click **Reset Default Answers**.

RESULT

All message box options are reset to their default settings.

RELATED LINKS
Options Tab (Global Preferences) on page 871

Workspace Window

The **Workspace** window provides a range of editing and playback environments whose functions are tailored to the specific purposes of particular file types.

WaveLab Pro allows you to choose from different editors and windows, designed to accommodate different needs and serving different purposes:

- The **Audio Editor** for viewing and editing audio files.
- The **Audio Montage** window, a non-destructive editing environment for assembling and editing audio clips on tracks.
- The **Batch Processor** window for processing multiple audio files with offline effects, VST plug-ins, and **Master Section** presets in one go.
- The **Script Editor** for writing and executing scripts in WaveLab Pro.
- The **Control Window** for hosting and organizing tool windows, which is particularly useful with multi-monitor setups.

You can customize the **Workspace** window to suit your needs and your workflow.

Elements of the Workspace Window

The **Workspace** window contains the following elements:

- A menu bar
- A set of tool windows. Their availability depends on the file type you are working on. The tool windows can be activated/deactivated individually.
- Tab groups to host the files to edit. You can move the content of a tab to another tab, create a new empty tab, display the file path, and access other functions by right-clicking.

RELATED LINKS
Audio Editor on page 71
Audio Montage on page 72
Batch Processor on page 72
Script Editor on page 72
Control Window on page 72

Audio Editor

The **Audio Editor** provides tools and functions for sample-accurate audio editing, high-quality analysis, and processing.

Features include various metering tools, a signal generator, a compare function, and a tool for correcting errors.

RELATED LINKS
Audio Editor Window on page 176

Audio Montage

In the **Audio Montage** window, you can assemble audio clips to create a montage. You can arrange, edit, and play back clips on an unlimited number of stereo or mono tracks.

Features include track- and clip-based effects, volume and pan automation, and various fade and crossfade functions. You can use the **Audio Montage** window for creating music CDs, mastering, multimedia work, radio spot or podcast production, and much more. Depending on the channel configuration of the audio montage, you can route each track to up to six different surround channels or to up to eight non-surround channels.

You can place any number of clips on an audio track. A clip represents a reference to a source audio file on your hard disk, as well as to the start and end positions in the file. Editing clips in an audio montage is non-destructive; that is, the original audio files are unaffected by it.

The **Audio Montage** window provides you with a graphical representation of the clips on tracks. It enables you to view, play back, and edit the tracks and clips.

RELATED LINKS
Audio Montage on page 318

Batch Processor

The **Batch Processor** allows you to batch process any number of audio files or audio montage files using the plug-ins and presets of the **Master Section**, offline effects, and other plug-ins that are unique to batch processing.

You can save the processed file in a different file format, rename files, and run an external application when the batch is finished.

RELATED LINKS
Batch Processing on page 781

Script Editor

In the **Script Editor**, you can write and execute scripts.

RELATED LINKS
Scripting on page 859

Control Window

A **Control Window** allows you to assemble multiple tool windows and meter windows in one place, so that you can easily access them.

If you work with multiple monitors, you can position the **Control Window** on your secondary display and use it to manage the tool windows and meter windows that you use the most, for example.

You can create up to four different instances of the **Control Window**.
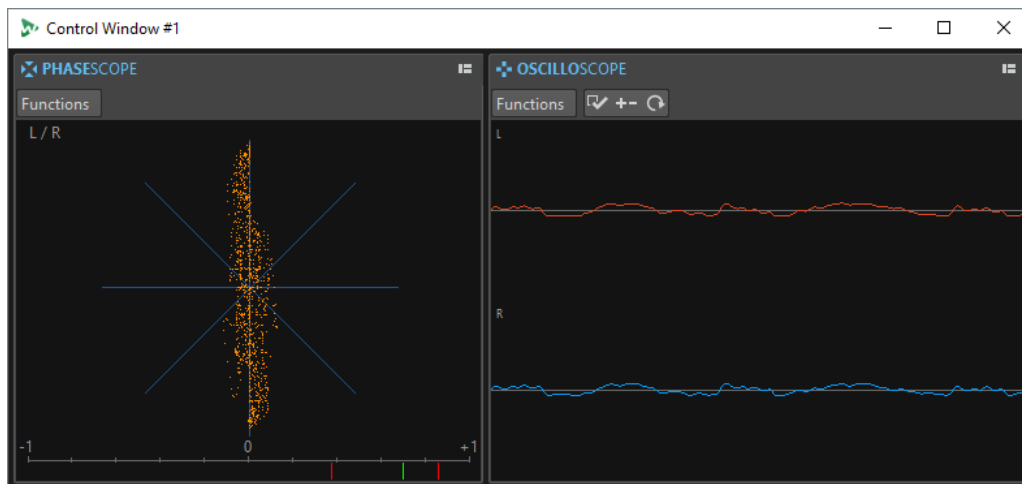
Docking Tool Windows and Meters in a Control Window

You can dock any tool window and meter window to a **Control Window**.

PROCEDURE

1. Right-click the tab of the tool window or meter that you want to dock to the **Control Window**.

2. Select **Dock to Control Window**, and select one of the **Control Windows** from the submenu.

Docking Tab Groups to a Control Window

You can dock tab groups to a **Control Window**.

PROCEDURE

1. Click the **Options** button to the right of the caption bar of a tab group.

2. Select **Dock Tab Group to Control Window**, and choose a **Control Window** from the submenu.

Tool Windows

WaveLab Pro offers various tool windows that allow you to view, analyze, and edit your audio.

Generally, the content of a tool window is synchronized with the active file, with the exception of the audio meters, which display the audio file being played back. Tool windows can be docked and undocked, and saved in your custom layouts. Some tool windows are only available for specific file types.

You can access the tool windows via the **Tool Windows** menu.

RELATED LINKS
Opening and Closing Tool Windows on page 74

Opening and Closing Tool Windows

You can close tool windows that are not relevant for your project, or you can open additional tool windows.

- To open a tool window, select **Tool Windows**, and choose a tool window.

- To close a docked tool window, right-click the tool window tab, and select **Hide**.

- To close an undocked tool window, click its **X** button.

RELATED LINKS
Tool Windows on page 73

Docking and Undocking Tool Windows and Meter Windows

Tool windows and meter windows can be used as docked windows, as floating windows, or as slide-out windows. You can freely drag around the windows and dock them to various locations.

- To undock a tool window or a meter window, drag the corresponding tab to another position.

  Now the tool window or meter window is a floating window, which you can freely move around.

- To dock a tool window or a meter window, click and hold the caption bar, or click the **Options** button to the right of the caption bar, and select **Dock Tab Group Elsewhere**.

  NOTE

  Yellow symbols indicate locations for docked windows.

  Pink symbols indicate locations for slide-out windows.

Drag the window to one of the locations.
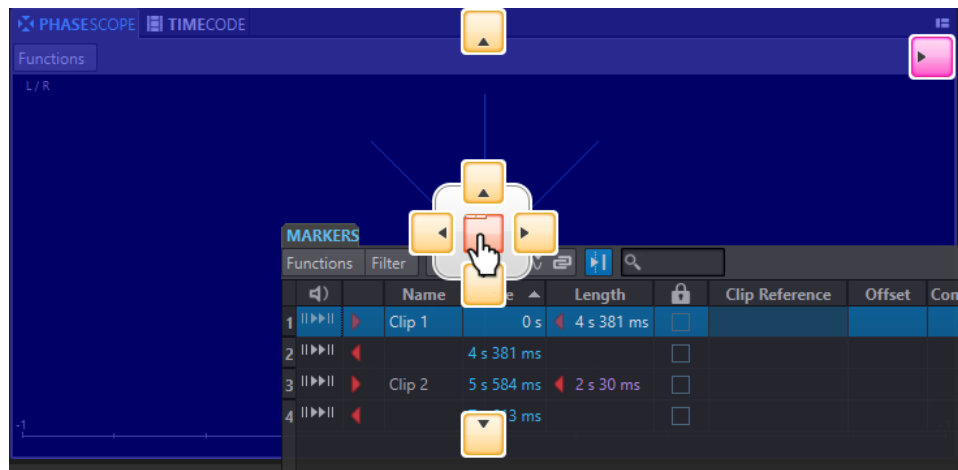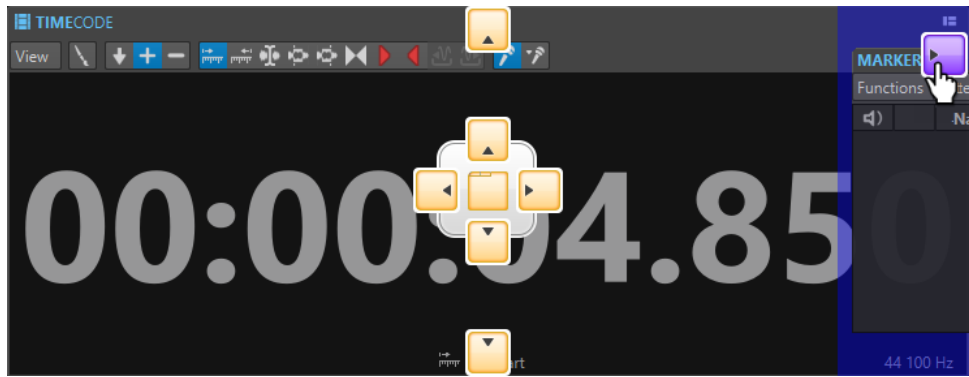
- To dock a floating tool window or a meter window to its last docked position, click the **Options** ⬛ button to the right of the caption bar, and select **Dock to Last Place Again**.
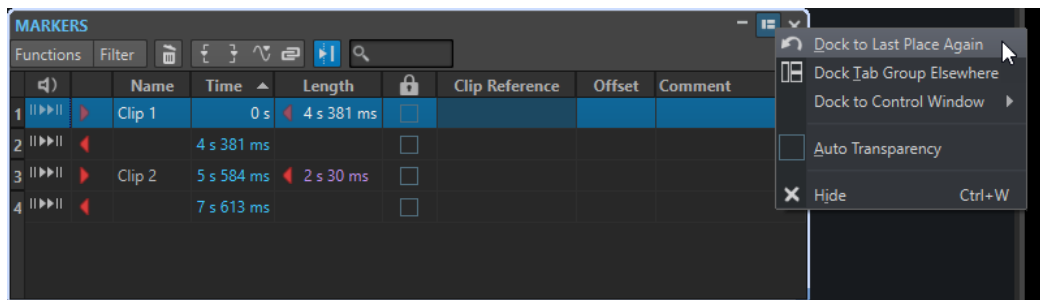
- To dock a tool window or a meter window to the **Control Window**, click the **Options** button to the right of the caption bar, and select **Dock to Control Window**. You can then select the **Control Window** to which you want to dock the tool window or meter window.

  You can also drag and drop a tool window or a meter window to the **Control Window**.

RELATED LINKS

Setting the Transparency for Floating Windows

You can set the tool windows and meter windows to transparent when they are not the active window.

You can specify the transparency value for floating windows in the global preferences, and you can activate the transparency for each individual window:

- To specify the transparency value, select **File** > **Preferences** > **Global**, and select the **Display** tab. In the **Tool Windows** section, specify the value in the **Window Transparency** field.

- To activate the transparency for a tool window or a meter window, click the **Tab Group** button at the top right of the window, and select **Auto Transparency**.

RELATED LINKS

Hiding the Caption Bar in Floating Meter Windows

To save screen space, you can automatically hide the caption bar of floating meter windows, when the window is not the active window. You can adjust the setting for each individual floating window.

PROCEDURE

1. In a floating meter window, click the **Options** button at the top right of the window.

2. Select **Auto Caption Bar**.
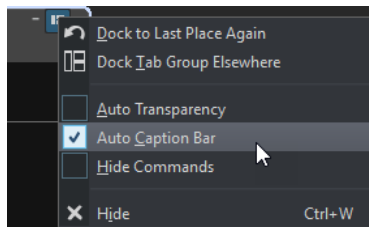
Slide-Out Windows

Slide-out windows are hidden in the frame of the **Workspace** window. When you hover the mouse pointer over the window name, the window slides out. It is hidden again when you click anywhere else.
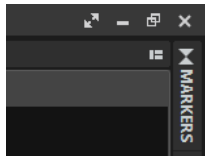
Slide-out window tab
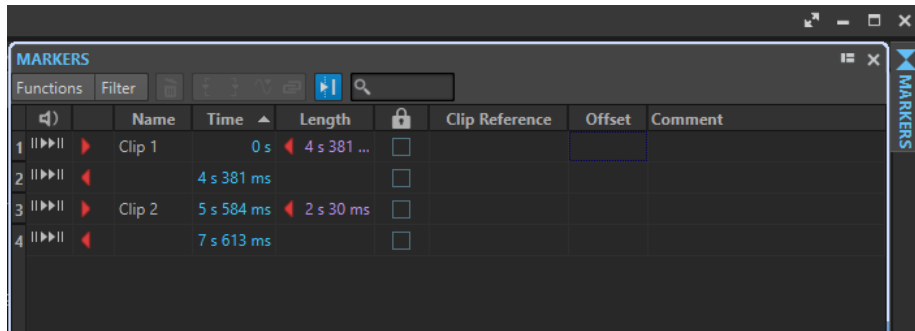
An open slide-out window

File Tab

The **File** tab is the control center of WaveLab Pro.

The **File** panel is where you save, open, render, back up, import, and export audio files or audio montages. It also gives you detailed information about your files and allows you to set up the WaveLab Pro preferences.
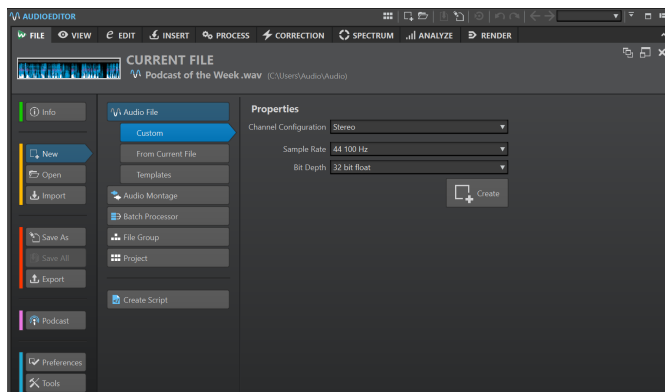
Info

Provides information about the active file and allows you to edit the audio properties of audio files and audio montages.

New

Allows you to create audio files, audio montages, batch processors, file groups, projects, or script files. You can create new files or use a template.

Open

Allows you to open audio files, audio montages, batch processors, projects, or script files, to open audio montages in **Safe Mode**, and to revert to saved files or backups.

You can also open files that you have previously copied to the clipboard in the File Explorer/macOS Finder.

Import

Allows you to open different file formats. The following formats are supported:

- **Audio File to Montage**
- **DDP**
- **CD Cue**
- **AES-31**
- **Basic Audio CD**
- **Unknown Audio**

    Allows you to specify how WaveLab Pro interprets the format of the audio file that you want to open.

- **File Groups**
- **Audio CD**

Save As

Allows you to save the active file or the project. You can specify the name, file format, and location. You can also save a copy of the active file.

Save All

Allows you to save all changed files of your project at the same time. The file list gives you an overview of all files that have been changed.

You can use the filter to show all changed files, audio files only, audio montages only, or all other files, for example, batch processor files.

Export

Allows you to render active files and selected data, to export file groups to text files, to create backups for audio montages and projects, and to export audio montages to AES-31.

Podcast

Allows you to publish podcasts.

Preferences

Allows you to view and change the preferences of WaveLab Pro. You can set up the preferences for the following parts of WaveLab Pro:

- **Global**
- **Audio Connections**
- **Shortcuts**
- **Plug-ins**
- **Remote Devices**
- **Folders**
- **Variables**
- **Audio Files**
- **Audio Montages**

Tools

Allows you to access the following tools:

- **DDP to CD**
- **Auto Split Audio Files**
- **Signal Generator**
- **DTMF Generator**
- **Batch Conversion**
- **Batch Renaming**

RELATED LINKS

Info Dialog

The **Info** dialog provides information about the active file and allows you to edit the audio properties of audio files and audio montages.

- To access the **Info** dialog, select the **File** tab, and click **Info**.
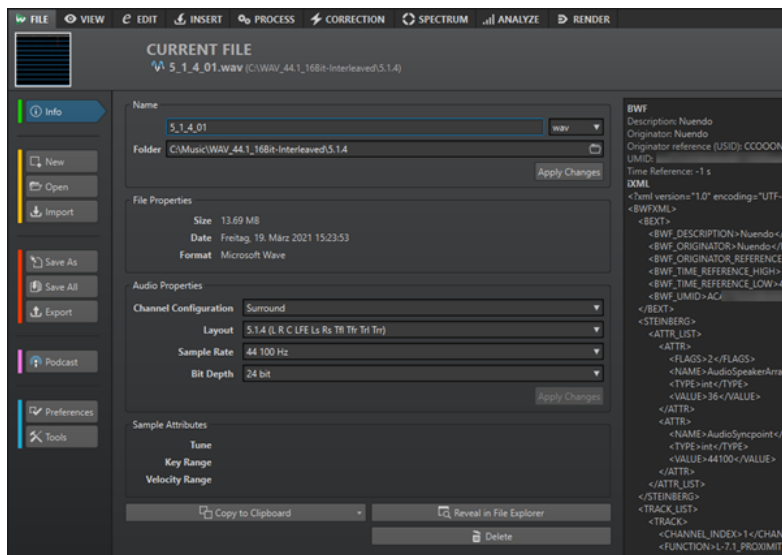
Depending on the selected file, different information and options are available.

Name

Displays the name, file extension, and file location of the active file. You can edit these attributes.

File Properties

Displays the size, date, and file format of the active file.

Audio Properties

For audio files, this displays the **Channel Configuration**, the **Sample Rate**, and the **Bit Depth** of the active file.

For audio montages, this displays the **Channel Configuration** and the **Sample Rate** of the active file.

You can edit these attributes.

Sample Attributes (audio files only)

Displays the musical attributes tune, key range, and velocity range.

Metadata

Displays the metadata of the active file or the file that you have selected in the **File Browser** window.

Copy to Clipboard

Opens a menu from which you can select which information about the active file you want to copy to the clipboard.

Reveal in File Explorer/macOS Finder

Opens the File Explorer/macOS Finder to show the location of the active file.

Delete

Deletes the active file.

RELATED LINKS

Command Bar

The command bar at the top of the editor windows allows you to create, open, and save files, and to undo/redo changes.

Open Startup Assistant

Opens the **Startup Assistant** window, which is also opened on starting the application.

Project Functions

Opens a menu that allows you to choose from various options related to creating and managing projects.

New

Allows you to create an audio file, audio montage, batch processor, or script file. You can create new files or use a template.

Open

Allows you to open an audio file, audio montage, batch processor, project, or script file.

Save

Saves the active file.

Save As

Allows you to save the active file. You can specify the name, file format, and location. You can also save a copy of the active file.

Trigger Cubase/Nuendo Update

Updates the Cubase/Nuendo project if the active file was opened via the **Edit in WaveLab** option.

Undo

Allows you to undo changes.

Redo

Allows you to redo changes that were undone.

Navigate Backwards/Navigate Forwards

In the **Audio Editor** and in the **Audio Montage** window, this allows you to navigate to the previous/next cursor position, zoom factor, or selection range without undoing/redoing the edit operation.

File Search and Keywords

The text field allows you to search for open files and apply keywords.

Keywords are custom words that are assigned to a function in the **Customize Commands** dialog or to a preset in the **Shortcut Definitions** dialog.

Customize Command Bar

Allows you to select the buttons to be displayed on the command bar.

Maximize Window

Maximizes the window. To restore the window size, click the button again.

Layout Options

Allow you to determine the position of the command bar, the transport bar, and the file group tabs.

Status Bar

The status bar at the bottom of the **Audio Editor** and the **Audio Montage** window shows information about the active window using the units specified for the rulers.

The information displayed on the status bar is continuously updated, based on the movement of the cursor and on your audio selections.
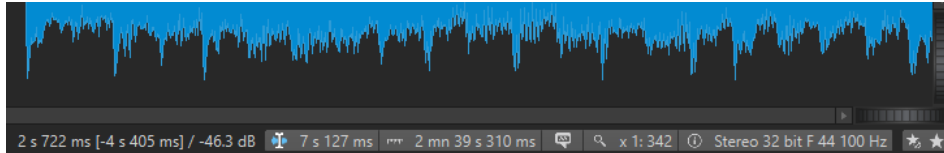
Time/Level (dB)

Displays the time of the audio file at the mouse cursor position. In the **Audio Editor**, it also displays the level.

The value in brackets shows the time from the edit cursor position to the mouse cursor position.

Synchronize Cursor

- Left-clicking this button (key command: **!**) synchronizes the playback cursor with the edit cursor; that is, while audio is being played back, the edit cursor is moved to the position of the playback cursor.

  If the specified position is currently not in view, WaveLab automatically scrolls to the position.

  In the **Audio Montage** window, this feature activates the clip that is located at this position, if any.

  As a result, if the clip plug-in chain window is open, the plug-ins of the activated clip are displayed and synchronized.

- Right-clicking this button allows you to edit the edit cursor position by adjusting the values in the corresponding dialog.

  NOTE

  The editing unit that is used in the dialog corresponds to the unit that is set for the time ruler.

Audio Selection Indicator (Audio Editor)/Audio Range Indicator (Audio Montage)

In the **Audio Editor**, this displays the length of the current selection, or the total length of the audio file if no selection has been made.

In the **Audio Montage** window, this displays the length of the audio selection if a clip is selected, or the size of the audio montage.

If you have zoomed in, you can right-click the indicator to display the selected audio range, the active clip, or the whole file. Left-click the indicator to open the **Range Selection** dialog, where you can define or refine a selection.

Sampler Key Indicator (Audio Editor only)

Indicates the key of the current audio file (if defined). Click the indicator to open the **Sample Attributes** window.

Zoom Indicator

Displays the current zoom factor.

- To open a pop-up menu that allows you to set additional parameters for zooming, click the indicator.

- To open the **Zoom Factor** dialog that allows you to edit the zoom factor, right-click the indicator.

Audio File Properties/Audio Montage Properties

In the **Audio Editor**, this displays the bit depth and the sample rate. It also indicates whether the audio file is mono or stereo. Click the indicator to open the **Audio Properties** dialog.

In the **Audio Montage** window, this displays the number of audio channels and the sample rate of the audio montage. Click the indicator to open the **Audio Montage Properties** dialog.

Bypass Master Section

If this option is activated, only the **Playback Processing** pane of the **Master Section** is active during playback. All other **Master Section** panes are bypassed. However, rendering still takes all plug-ins into account.

Master Section Presets

- **Save Master Section Preset** opens the **Save Master Section Preset** dialog, where you can save the active **Master Section** configuration inside the ancillary file or audio montage.

- **Load Master Section Preset** applies the **Master Section** with the configuration previously saved to the audio file or audio montage.

- If **Include Master Section Preset when Rendering as Super Clip** is activated, the **Master Section** preset that is saved with the audio montage is used when rendering super clips of audio montages (**Audio Montage** window only).

Background Information

The status bar shows the progress of some background operations, such as rendering an effect. The operation can be paused or canceled using the corresponding buttons.

RELATED LINKS
Time Ruler and Level Ruler on page 84

Context Menus

WaveLab Pro offers various context menus, which contain commands and/or options pertaining to the active window.

Context menus appear when you right-click in specific areas.

TIP

Most commands and options that you can find in context menus are also accessible via other control elements of the application, such as windows, dialogs, or main menus. Context menus are mainly intended to speed up your workflow by allowing you to access the corresponding features more quickly.

However, some options are exclusively available in context menus. When looking for a specific feature, right-click the active window to check if it provides a context menu.
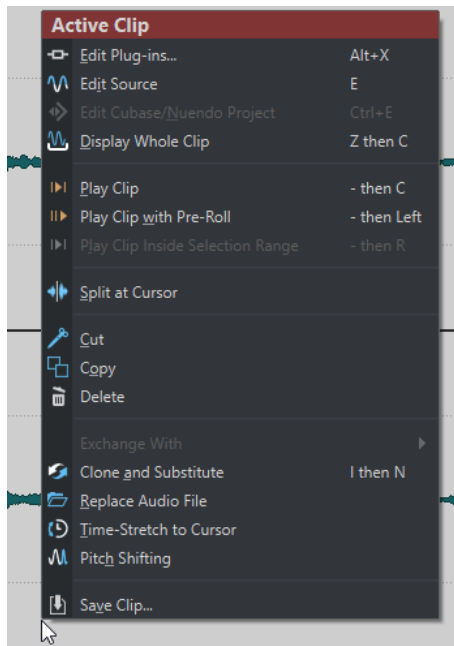
Context menu in the Audio Montage window

RELATED LINKS
Time Ruler and Level Ruler on page 84

Context Options Bar

When you perform actions with the mouse, in some contexts, the **Context Options** info bar displays key commands that are available to you at a particular stage in your workflow.

The **Context Options** bar saves you the time of having to interrupt your workflow to select options from the tab bar panels via mouse-click, which allows for smoother editing.
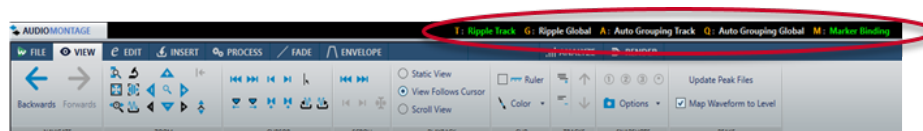
The **Context Options** bar is available for the following features:

- **Ripple**, **Auto Grouping**, and marker binding while moving or resizing clips in the **Audio Montage** window.

- Audio cue point detection.

The options on the **Context Options** info bar are displayed as "Key Command" + "Option".

They are color-coded:

Orange

Indicates the key command; that is, a single-key shortcut.

Green

Indicates that the corresponding option is currently activated.

White

Indicates that the corresponding option is currently deactivated.

Blue

Indicates that the corresponding option triggers an action.

To hide the **Context Options** info bar, select **File** > **Preferences** > **Global**. Select the **Display** tab, and deactivate **Show Options Bar for Mouse Actions**.

To show the **Context Options** bar, select **File** > **Preferences** > **Global**. Select the **Display** tab, and activate **Show Options Bar for Mouse Actions**.
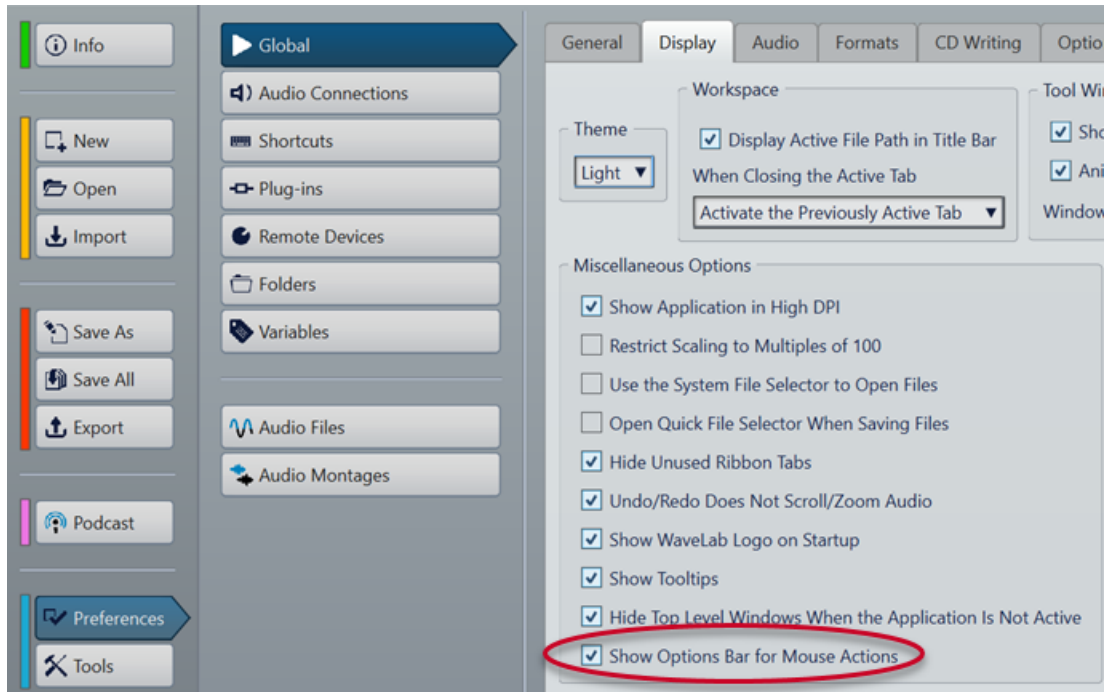
NOTE

When you hold down the mouse button to perform one of the actions, the **Context Options** bar may be displayed with a slight delay. This serves to prevent the **Context Options** bar from being prompted by simple clicks and double-clicks.

The key commands are only active for as long as the **Context Options** bar is displayed.

To trigger a command, press and release the corresponding key. Do not press and hold the key.

RELATED LINKS

Time Ruler and Level Ruler

Both in the **Audio Editor** and in the **Audio Montage** window, you can display a time ruler and a level ruler.

Time Ruler
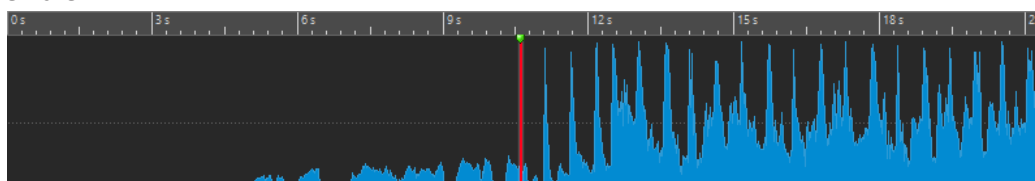
Level Ruler (Audio Editor only)
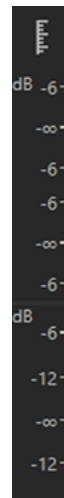
Level Ruler in the Audio Editor   Level Ruler in the Audio Montage Window

NOTE

In the **Audio Montage** window, you can choose to display or to hide the level ruler by clicking the level ruler icon ▮ at the top.

The level ruler is not available for video and picture tracks.

RELATED LINKS
Audio Montage Window on page 320
Time Ruler and Level Ruler Options on page 85
Time Format Dialog on page 89

Time Ruler and Level Ruler Options

In the **Audio Editor**, you can specify a time and level (amplitude) format for each individual ruler. In the **Audio Montage** window, you can define a format for the time ruler display.

RELATED LINKS
Time Ruler and Level Ruler on page 84
Time Ruler Menu on page 85
Level Ruler Menu (Audio Editor only) on page 87

Time Ruler Menu

The time ruler menu allows you to set up the time ruler display, such as the timecode and the time format.

● To open the time ruler menu, right-click the time ruler.
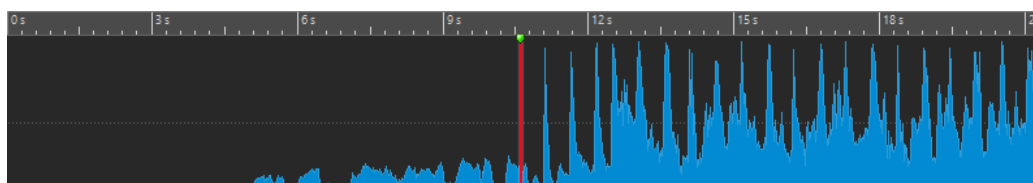
Timecode

Displays frames per second for various SMPTE timecode types and for CD resolution.

You can specify the timecode type in the **Time Format** dialog.

Clock

Displays time units. You can set additional parameters for the time units in the **Time Format** dialog.

Samples

Displays positions based on the number of samples. The number of samples per second depends on the sample rate of the audio file. For example, at 44.1 kHz, there are 44100 samples per second. You can set additional parameters for the samples in the **Time Format** dialog.

Sample Blocks

Divides the time ruler into sample blocks, either based on the number of samples or on the duration. You can specify the individual sample block size in the **Time Format** dialog.

Bars and Beats

Displays bars and beats. You can set additional parameters for bars and beats in the **Time Format** dialog.

File Size (Audio Editor only)

Displays positions in megabytes. Decimals represent kilobytes.

(Show) Grid

Displays a grid in the **Audio Editor** or in the **Audio Montage** window, aligned with time ruler marks; that is, the major ticks on the time ruler.

- In the **Audio Editor**, you can apply the setting for the main view and the overview individually.

- In the **Audio Montage** window, you have three further options:

  - **Hide**

  - **Show in the Background**
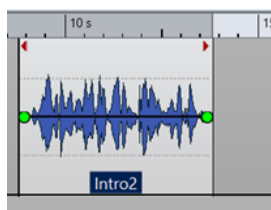
  - **Show Over Clips**
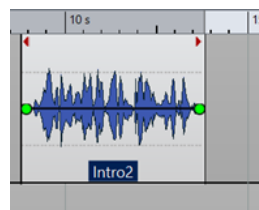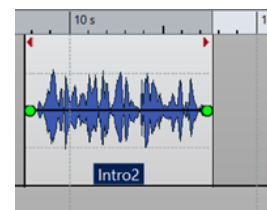
Hide   Show in the Background   Show Over Clips

NOTE

This option is independent of the **Time Ruler Marks** setting in the **Snapping** section, but the alignment is based on the same concept.

Time Format

Opens the **Time Format** dialog, which allows you to edit the appearance of the time ruler formats.

Save Current Settings as Default

> If this option is activated, the time ruler uses the current time format in all new **Audio Editor** or **Audio Montage** windows.

Set Ruler's Origin to Start of File

> If this option is activated, the ruler's zero position is set to the beginning of the first sample.

Set Ruler's Origin at Cursor

> If this option is activated, the ruler's zero position is set to the current edit cursor position.

Set Ruler's Origin to BWF Reference (Audio Editor only)

> If this option is activated, the first sample matches the BWF time reference, provided that the time reference is available.

Show Playback Range

> If this option is activated, the time ruler displays the audio range to be played via the **Play Audio Range** command.

Show Playback Anchor

> If this option is activated, a marker is displayed below the time ruler to indicate the audio anchor that corresponds to the **Play From** and **Play To** commands.

Show Pre-/Post-Roll

> If this option is activated, the pre-roll and post-roll times are displayed.

RELATED LINKS

Level Ruler Menu (Audio Editor only)

The level ruler menu allows you to set up the level format of the level ruler.

● To open the level ruler menu, right-click the level ruler in the **Audio Editor**.
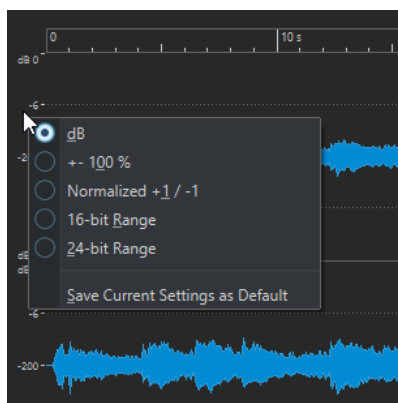
dB

> Sets the level format to decibels.

+-100%

> Sets the level format to percentage.

Normalized +1/-1

Sets the level format to a ruler gradation corresponding to 64-bit float audio.

16-bit Range

Sets the level format to a ruler gradation corresponding to 16-bit audio.

24-bit Range

Sets the level format to a ruler gradation corresponding to 24-bit audio.

Save Current Settings as Default

If this option is activated, the level ruler uses the current level format in all new **Audio Editor** windows.

RELATED LINKS
Time Ruler and Level Ruler on page 84
Time Ruler Menu on page 85

Working with a Meter-Based Display

If your working material is tempo-based, you can select the meter format (bars, beats, and ticks) for the ruler legend. This makes it easier to find musically related cutting points.

PROCEDURE

1. In the **Audio Editor** or in the **Audio Montage** window, right-click the time ruler, and select **Bars and Beats**.

2. Right-click the time ruler, and select **Time Format**.

3. On the **Bars and Beats** tab, set **Time Signature** and **Tempo** to values that match your audio file.

4. Set **Ticks per Quarter Note** to a number that you feel comfortable with.

   This can be the same value that is used by your MIDI sequencer, for example.

5. Click **OK**.

RELATED LINKS
Time Ruler and Level Ruler on page 84
Time Format Dialog on page 89

Setting the Edit Cursor Position

Many operations, such as playback and selection, depend on the current edit cursor position. For example, playback often starts at the edit cursor position. The current edit cursor position is indicated by a vertical flashing line.

There are various ways to move the edit cursor:

● Click anywhere in the **Audio Editor**, the **Audio Montage** window, or the time ruler. After making a selection, click the time ruler to prevent deselecting.

● Click and drag in the time ruler.

● Use the transport controls.

● In the **Audio Editor** or in the **Audio Montage** window, select the **View** tab, and use the options in the **Cursor** section.

● Use the cursor keys.

- Double-click a marker.

Setting the Ruler Start Position

By default, the audio file starts at ruler position 0. However, you can set the zero position to another position of the file.

PROCEDURE

1. In the **Audio Editor** or in the **Audio Montage** window, right-click the time ruler, and select **Time Format**.

2. Select the **Offset** tab.

3. Select one of the **Time Ruler Offset** options, and click **OK**.

Time Format Dialog

In the **Time Format** dialog, you can customize the time format of the ruler. The time format of the ruler is also used in various time fields, for example, the status bar and some dialogs.

- To open the **Time Format** dialog, right-click the ruler in the **Audio Editor** or in the **Audio Montage** window, and select **Time Format**.

  In the **Audio Editor**, you can set different time formats for the overview display and the main display.
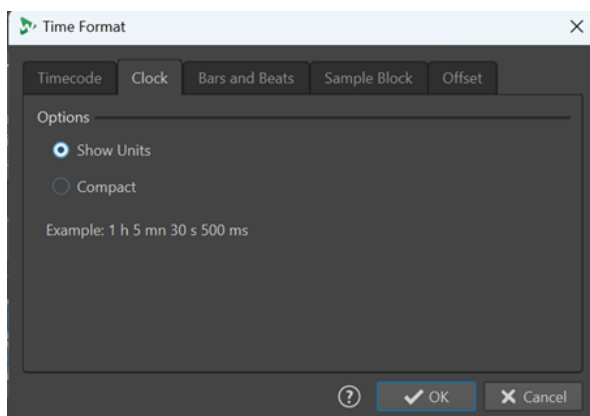
Timecode Tab

On this tab, you can configure the appearance of the **Timecode**.

Frames per Second

Lists standard frame rates. From the pop-up menu, select **Other** to enter a custom frame rate. You can also choose which frames or units to display.

Show Absolute Frames

Shows the time format as a number of frames, without other time elements.

Show Quarter Frames

Adds the quarter frame number to the time format.

Show Hundredth Frames

Adds the number of a hundredth of a frame to the time format.

Show Units

Adds time units to the time format of the ruler.

Clock Tab

On this tab, you can configure the appearance of the **Clock** ruler.

Show Units

Adds time units to the time format of the ruler.

Compact

Shows the time without unit indicators.

Bars and Beats Tab

On this tab, you can configure the appearance of the **Bars and Beats** ruler.

Time Signature

Allows you to edit the time signature used to display the time represented as a musical notation.

Tempo

Allows you to edit the tempo used to display the time represented as a musical notation.

Ticks per Quarter Note

Allows you to edit the number of ticks per quarter note. These are used to display times that are compatible with your sequencer.

Show Ticks

Allows you to show/hide ticks on the **Bars and Beats** ruler.

Sample Blocks

This tab allows you to change the settings for dividing the time ruler into sample blocks.

TIP

- We recommend activating **Show Grid** in the time ruler menu in conjunction with using **Sample Blocks** as a time ruler unit.
- Setting a different time ruler unit for the **Overview** of the **Audio Editor** allows you to synchronize the two views and to analyze your audio from two different angles.

Via the **Sample Block Size** menu, you can choose from the following options to specify the scope of the individual sample blocks:

- **Duration**: With values ranging from 5 ms to 1 sec, you can visualize your audio material divided into chunks of equal duration, which can give you insight into the sequencing of sound segments.

- **Number of Samples**: With values ranging from 64 samples to 65536 samples, you can determine the number of samples that a single sample block encompasses. The values available on the menu are based on the principle of the powers of two, representing standard audio segments. This option is useful for identifying errors in audio recordings caused by drivers or plug-ins, for example.
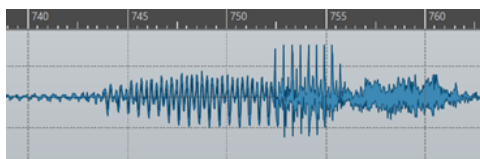
Example: Sample Block Size set to a duration of 5 ms

Offset Tab

On this tab, you can configure the **Time Ruler Offset**.

Zero (Default)

Deactivates the time offset in the ruler.

Set Zero-Point at Cursor Position

Sets the current cursor position to be the starting point of the ruler. The current cursor position is displayed in brackets.

Set Zero-Point at BWF Time Reference (Audio Editor only)

If the audio file contains BWF metadata, the corresponding time reference value is used as the offset.

Set Time of First Sample

Specifies the time that corresponds to the zero point of the ruler.

RELATED LINKS
Time Ruler and Level Ruler on page 84

Managing Tabs in the Audio Editor / Audio Montage Window

A tab that is situated in the **Audio Editor** or the **Audio Montage** window is a container for a file in WaveLab Pro. There are file group tabs and file tabs. You can open several tabs, but only one can be active at a time. The **Tabs** context menus of the file group tabs and file tabs offer tab-related options.

File Group Tabs

The following options are available when you right-click a file group tab:
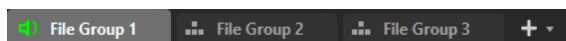
Save Modified Files

Allows you to specify which of the modified files of the file group you want to save.

Close All Files

Closes all file tabs.

Select Files to Close

Opens the **Files to Close** dialog, which allows you to specify the files to be closed.

Set Temporary Files to Permanent Files

Adds all files to the file group that are not a permanent part of the file group.

Close and Remove from Project

Closes the file group and removes it from the project.

Remove Other File Groups from Project

Removes all file groups but the active file group from the project.

Rename

Allows you to rename the file group.

Export File Names

Allows you to create a text file that lists all files that are used in the file group.

File Tabs

The following options are available when you right-click a file tab.
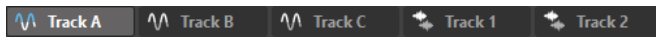
Check Tab/Uncheck Tab

Checks/Unchecks the tab. This allows you to render all file tabs at once via the **Render** tab or to create an audio montage from all audio files that have a checked tab.
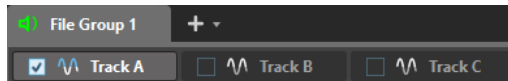
To check/uncheck all tabs at once, activate/deactivate the checkbox to the right of the file tabs.

You can also drag the selected tabs onto another file tab.

Create Audio Montage

Allows you to create an audio montage from different sources. The following options are available:

- **From Current Audio File** creates an audio montage with the current audio file as a clip.
- **From Checked Tabs** creates an audio montage from all audio files that have a checked tab.

  To check a tab, right-click a file tab, and select **Check Tab**. You can then activate all tabs from which you want to create an audio montage.

- **From All Audio File Tabs** creates an audio montage from all audio file tabs.

Add to

Allows you to add the active file to another editor.

Close

Closes the active tab.

Close All But This

Closes all files but the active file.

Close All Audio Files

Closes all audio files.

Keep in Project after Closing

If this option is activated, the file remains in the project after you close the file.

You can open the file again from the **Project Manager** window.

Info

Displays information about the active file.

Reveal in File Explorer/macOS Finder

Opens the File Explorer/macOS Finder to show the location of the file.

Copy to Clipboard

Opens a menu, from which you can select which information about the file you want to copy to the clipboard.

Recent Files

Allows you to open recently used files.

New (Based on Active File)

Allows you to open a new file tab with the same settings as the source tab. This option is available if you right-click the empty area next to the file tabs.

RELATED LINKS

Activating Full Screen Mode

You can use WaveLab Pro in full screen mode.

PROCEDURE

● Select **Workspace** > **Full Screen**.

Log Window

This window allows you to view log messages that have been issued by WaveLab Pro.

For example, when using the scripting language of WaveLab Pro, the **logWindow( )** function outputs messages to this window. Toggle buttons allow you to filter the types of messages that are displayed.

● To open the **Log** window, select **Tool Windows** > **Log**.
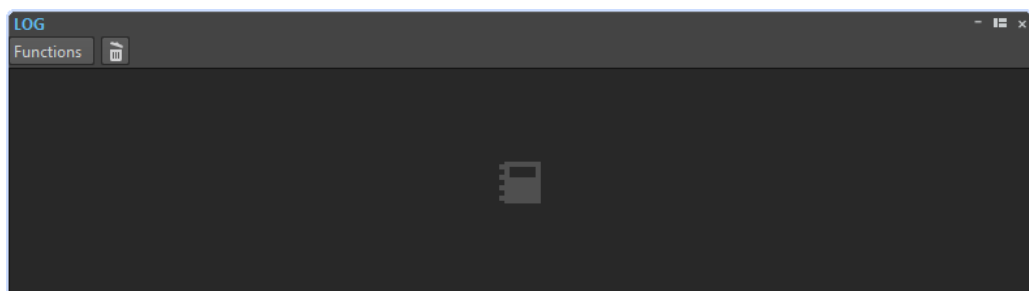
Clear

Removes all messages from the window.

Show Errors

Displays error messages.

Show Warnings

Displays warning messages.

Show Notes

Displays notes.

File Handling

In WaveLab Pro, you can handle files in various ways. For example, you can save file settings that you regularly use as templates, rename files using naming schemes, or create a list of favorite files.

RELATED LINKS

Opening Files

WaveLab offers multiple options for opening files, either before or after starting the application.

You can open one file or several files at a time

- via the **Startup Assistant**
- via the **File** tab
- via the File Explorer/macOS Finder
- from the clipboard
- via drag and drop

Opening Files via the Startup Assistant

You can open recently used files or navigate to files to be opened via the **Startup Assistant**.

PROCEDURE

1. Start WaveLab.

2. In the **Startup Assistant** window, do one of the following:

    - To open a recently used file, select **Recent**, select a file type; for example, **Audio File**. Choose a file from the **Recently Used Files** list below, and double-click to open it.

      TIP

      You can narrow down the list entries by entering a part of the file name into the **Filter** entry field.

    - To navigate to a file in your system, click **Browse**, select **Audio File** from the pop-up menu. Navigate to the file, and click **Open**.

Opening Files via the File Tab

You can open one file or several files at a time via the **File** tab.

PROCEDURE

1. Select **File** > **Open**.

2. Select a file type; for example, **Audio File**.

3. Choose from the following options:

   - Click **Browse**, navigate to the files that you want to open via the **File Browser**, and select them.

   - Click **Recent Files**, and select one or several files from the list.

4. Click **Open** in the lower right corner.

RESULT

If you selected a single file, it is opened.

If you selected more than one file, the selected files are opened in separate file tabs.

RELATED LINKS

Opening Files from the Clipboard

You can open files that you have previously copied to the clipboard in the File Explorer/macOS Finder.

PROCEDURE

1. In the File Explorer/macOS Finder, copy the files to the clipboard.

2. Select **File** > **Open**.

3. Click **Open Files from Clipboard**.

RESULT

The files are opened in new file tabs.

Starting WaveLab by Opening Files

Using drag and drop or the File Explorer/macOS Finder, you can select files that you want to open in WaveLab prior to starting the application.

Do one of the following:

- Select one or several files in your system. Right-click it/them, and choose **Open with**. Select WaveLab.

- Drag one or several files onto the WaveLab icon on your desktop.

NOTE

The **Display** tab in the **Global Preferences** offers an option that allows you to choose whether or not to open the most recently used files in conjunction with the new file/files when opening files in this manner.

RESULT

WaveLab is started, and the file is/the files are opened in the application.

Automatically Opening Files in a Dedicated Tab Group

You can specify a file type for each tab group. Files that open after rendering, audio files that you open from an audio montage, or files that you open via the File Explorer/macOS Finder are automatically opened in the corresponding tab group for this file type.

- To specify a precedented file type for a tab group, click **File Tab Group Options** at the header of a tab group, and select a file type.
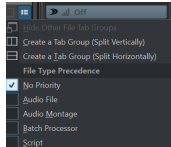
Closing Files

You can close a single file, multiple files, or all files but the selected one by closing the file tabs.

CHOICES

- To close a file group tab or a file tab, click the **X** button of the corresponding tab, or press `Ctrl/Cmd`-`W`, or right-click the file tab, and select **Close**.
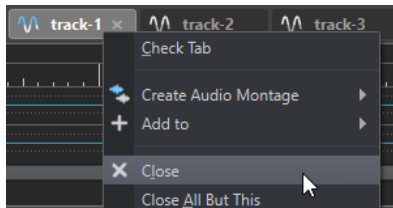
- To close a file tab without saving your changes, hold `Ctrl/Cmd`-`Shift`, and click the **X** button of the tab. This avoids having to confirm a warning message whenever you want to close an unsaved tab.
- To close all files of a file group at once, right-click a file group tab, and select **Close All Files**.
- To close all file tabs but the selected file tab, right-click a file tab, and select **Close All But This**.
- To individually select the file tabs that you want to close, right-click a file group tab, and select **Select Files to Close**. This opens the **Files to Close** dialog, where you can select the files to close.
- By default, files are removed from the project when you close them. To keep the files in the project after closing them, right-click a file tab, and activate **Keep in Project after Closing**.

Files to Close Dialog

The **Files to Close** dialog allows you to specify which files to close.

- To open the **Files to Close** dialog, right-click a file group tab, and select **Select Files to Close**.
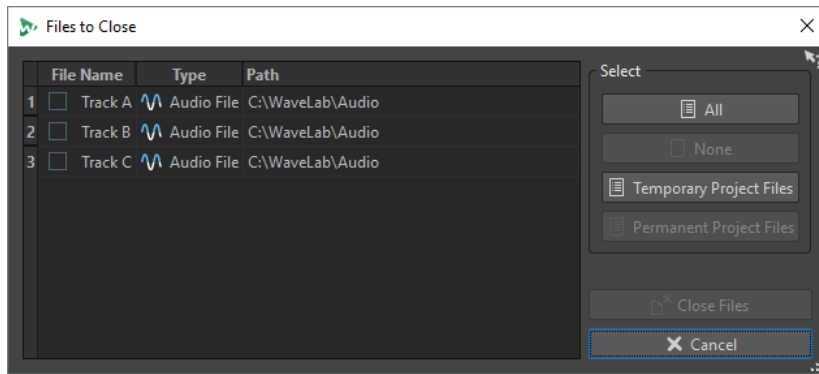
Files list

Displays all open files. You can set a checkmark for the files that you want to close. By default, only the active file remains open, and all other files are closed.

All

Allows you to select all files.

None

Allows you to deselect all files.

Temporary Project Files

Allows you to select all files that are opened in WaveLab Pro, but not set to **Permanently in Project** in the **Project Manager**.

Permanent Project Files

Allows you to select all files that are opened in WaveLab Pro and set to **Permanently in Project** in the **Project Manager**.

Close Files

Closes the selected files.

RELATED LINKS
Project Window on page 152

Saving Files

You can choose to save files under an existing name, in the same location, or to specify a new name, location, and file format when saving.

IMPORTANT

In the **Audio Editor**, all save operations except **Save Copy** clear the undo history, which means that after saving, you cannot undo or redo any operations.

CHOICES

● Once a file has been saved, select **File** > **Save**, or press **Ctrl/Cmd** - **S** to update the file and make the changes permanent.

● To specify a new name, location, and/or file format, select **File** > **Save As**.

RELATED LINKS
Tab Change Indicators on page 99
Saving Multiple Files at Once on page 99

Tab Change Indicators

File tabs are color-coded. The colors provide information on whether a file is saved or not, whether a tab is associated with a file, and whether the file has been rendered in Cubase.

Colors in the Top Right Corner of a Tab

White

The file is not modified.

Green (Audio Editor only)

The file uses a decoded file format and is saved.

Red

The file has been modified, but the changes have not been saved yet.

Yellow

The file has been rendered in Cubase.

Unsaved Changes Indicator

When you have made changes to a file, an asterisk is displayed next to the file name until you save the file.
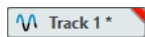
Tab Name Color

Purple

A purple tab name indicates that no audio file is associated with the tab (yet).

Saving Multiple Files at Once

You can save some or all open files in one go.

PROCEDURE

1. Open the **File** window, and click **Save All**.
2. Select the files that you want to save.
3. Click **Save**.

Saving Copies of Files

You can save copies of the files that you are working on.

PROCEDURE

1. Select **File** > **Save As**.
2. Specify a name and a location.
3. Activate the **Save Copy. Don't Change Current File** checkbox.
4. Click **Save**.

Reverting to Saved File

You can set a file back to its last saved state. This reverts all the changes made to the file since the last time it was saved.

PROCEDURE

1. Select **File** > **Open**.
2. Select a file type.
3. Click **Revert to Saved File**.
4. In the warning dialog, click **Yes** to revert to the last saved state.

RESULT

The most recently saved version of the file is loaded from disk.

Automatic Backups

You can automatically create backups of your files to prevent data loss.

For example, if you select **Save As** and specify a file name that is already used in the folder, you can choose to replace the existing file or to replace the existing file and to keep the old file. If you click **Replace and Keep Old**, the backup audio file assumes the original name, with . bak added at the end.

Saving Audio Montages

The saving procedures for audio montages are the same as for audio files. However, there are a few things to keep in mind when saving audio montages.

- Audio montage files only contain references to audio files. To rename audio files that are referenced by audio montages, rename the audio files in the **Info** window of the **Audio Editor**. All clip references are updated automatically.
- If the audio montage contains clips that refer to untitled audio files, you have to save these audio files before saving the audio montage.

RELATED LINKS
Renaming Files on page 101
Saving Files on page 98

Deleting Files

You can delete active files from within WaveLab Pro.

PREREQUISITE

The file that you want to delete has neither been copied to the clipboard nor pasted into another open file, and it is not open in another application.

PROCEDURE

1. Open the file that you want to delete.
2. Select the **File** tab.
3. Click **Info**.

4. Click **Delete**.

5. Click **OK**.

RESULT

The file, including its peak and marker files, is deleted.

File Renaming

You can rename a file and update all references automatically. For example, if you rename an audio file named **India** to **Sitar**, all open files that reference the file **India** are updated to reference the file as **Sitar**.

Audio files, peak files, and marker files are also renamed accordingly.

Audio montages use audio file references.

RELATED LINKS
Peak Files on page 65
Renaming Files on page 101

Renaming Files

You can rename files from within WaveLab Pro.

PREREQUISITE

To rename a file that is referenced by other files, you have opened the files that reference the file you are about to rename in WaveLab Pro.

PROCEDURE

1. Open the file that you want to rename.

2. Do one of the following:

   ● Select the **File** tab, click **Info**, specify a new **Name**, **Folder**, and/or file extension, and click **Apply Changes**.

   ● Press **F2**, specify a new **Name**, **Folder**, and/or file extension, and click **OK**.

RELATED LINKS
File Renaming on page 101
File Tab on page 76

File Browser

The **File Browser** window allows you to navigate to files from within WaveLab Pro.

The **File Browser** window provides you with all the standard browsing functions.

You can use the **File Browser** to open files, or you can insert files by dragging them to another location.

You can also choose to exclusively view specific file types.

The **Auto Play Mode** is useful for speeding up the process of auditioning sound files.

File Browser Window

In the **File Browser** window, you can look for files and open them in WaveLab Pro.

- To open the **File Browser** window, select **Tool Windows** > **File Browser**.
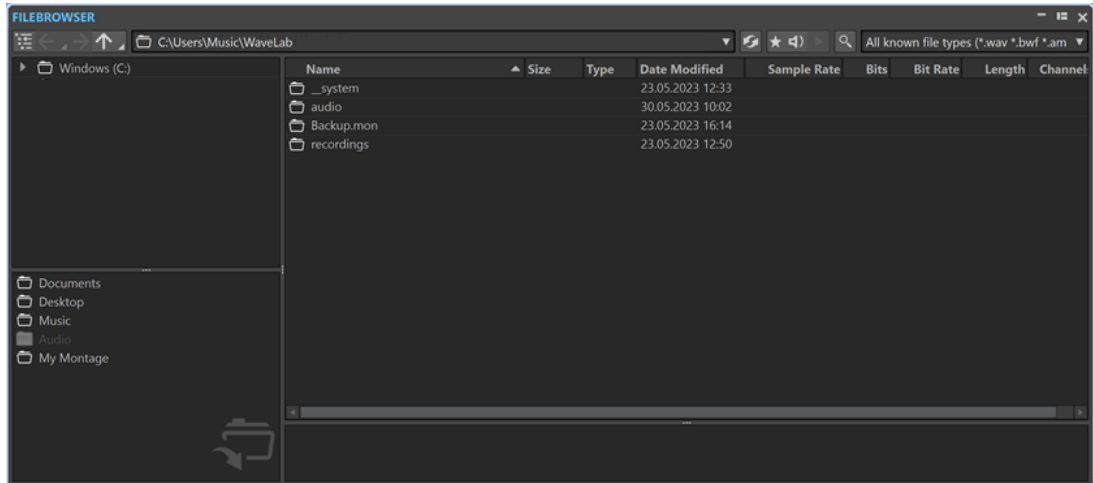
Show Current Folder in Folder Tree

Synchronizes the folder tree to the file list, so that the folder selected in the file list is also shown in the folder tree.

Back/Forward/Parent Directory

Allows you to navigate through the list and file hierarchy.

Location

Allows you to select a file location to navigate to and lists the recently used locations.

Refresh

Allows you to manually reload the content, to reflect any updates and changes.

NOTE

Alternatively, with the **File Browser** window in focus, you can also press **F5** to refresh.

Play through Master Section

When you start playback with this option activated, the audio file is played back through the **Master Section** plug-ins.

Auto Play Mode

With this button activated, playback starts automatically when you select a file.

File Browser

Play Selected Audio File

▶

Plays the selected audio file.

Search

🔍

With this button activated, you can enter text in the search field. If it is deactivated, you can search specific file formats.

File type list

Allows you to choose which file type and file format to display.

Folder tree

Shows the folders that are available on your computer.

Favorite folders

The favorite folders list allows you to quickly access folders. Each file type has its own favorite folder. You can add folders to the favorite folders list by dragging them from the folder tree to the favorite folders area, or by right-clicking a folder and selecting **Add to Favorite Folders List**.

File list

Shows the following information about each file:

- **Name** shows the name of the audio file.
- **Size** shows the size of the audio file.
- **Type** shows the file type of the audio file.
- **Date Modified** shows the date on which the audio file was last saved.
- **Sample Rate** shows the sample rate in Hz.
- **Bits** shows the bit depth in bits. "32F" means 32-bit float, and "64F" means 64-bit float.
- **Bit Rate** shows the bit rate in kbps.
- **Length** shows the length of the audio file.
- **Channels** shows the number of channels.

When you select an audio file in the **File Browser** window, the corresponding metadata is displayed in the **Metadata** window and the **Metadata** section of the **Info** tab. When you click elsewhere, the **Metadata** window displays the metadata of the selected audio file, audio montage, or batch process.

Reveal in File Explorer/Reveal in macOS Finder

If you right-click in the file list, you can select **Reveal in File Explorer/Reveal in macOS Finder** to open the selected file in the File Explorer/macOS Finder.

Create Folder

If you right-click in the file list, you can select **Create Folder** to add a new folder for structuring your files.

Audio Regions

If the selected file contains markers, the markers are displayed in the audio regions section.

If the audio regions section is hidden, select a file that contains markers, and click **Show Audio Regions**.

To hide the audio regions section, right-click it, and select **Hide**.

WaveLab Pro 12.0.20
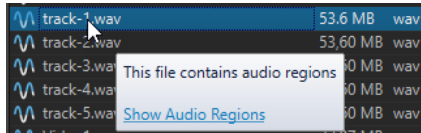
Preview

Allows you to listen to the selected audio file from any position by clicking the waveform. If the audio file contains markers, the markers are displayed in the waveform.

To start the preview from a marker position, click the marker icon in the **Audio Regions** section.

To change the size of the preview window, drag the corresponding bar up or down. If you drag it all the way down, the preview function is deactivated.

RELATED LINKS
File Browser Window on page 102
Folders Tab (Preferences) on page 138
Adding Folders to the Favorite Folders List on page 104
Metadata Window on page 236
Info Dialog on page 78

Adding Folders to the Favorite Folders List

The favorite folders list in the **File Browser** window allows you to quickly access folders. Each file type has its own favorite folder.

PROCEDURE

● In the **File Browser** window, do one of the following:

    ● Drag a folder from the folder tree to the favorite folders area.

    ● Right-click a folder, and select **Add to Favorite Folders List**.

    ● Right-click the favorite folders area, and select **Add Selected Folder to Favorite Folders List** to add the selected folder to the favorite folders list.

RELATED LINKS
File Browser Window on page 102

Switching Between Files

You can have multiple files open and switch between them.

CHOICES

● To move a file to the front, click the corresponding tab.

● To switch between the files, hold **Ctrl/Cmd**, and press **Tab** continuously.

● To switch back and forth between the last two active files, press **Ctrl/Cmd**-**Tab**. Be sure to release all keys after each step.

● To switch backwards, press **Ctrl/Cmd**-**Shift**-**Tab**.

● To switch from the active file to the most recently edited file, and vice versa, press **F5**.

Naming Schemes

When rendering audio files or audio montages, you can create multiple files and name them according to a naming scheme.

Naming Scheme Dialog

The **Naming Scheme** dialog allows you to define naming schemes for audio files or audio montages that you want to render. You can save naming schemes as presets.

- To open the **Naming Scheme** dialog, select the **Render** tab in the **Audio Editor** or in the **Audio Montage** window. Activate **Named File** in the **Result** section. Open the **Scheme** pop-up menu in the **Output** section, and select **Edit**.
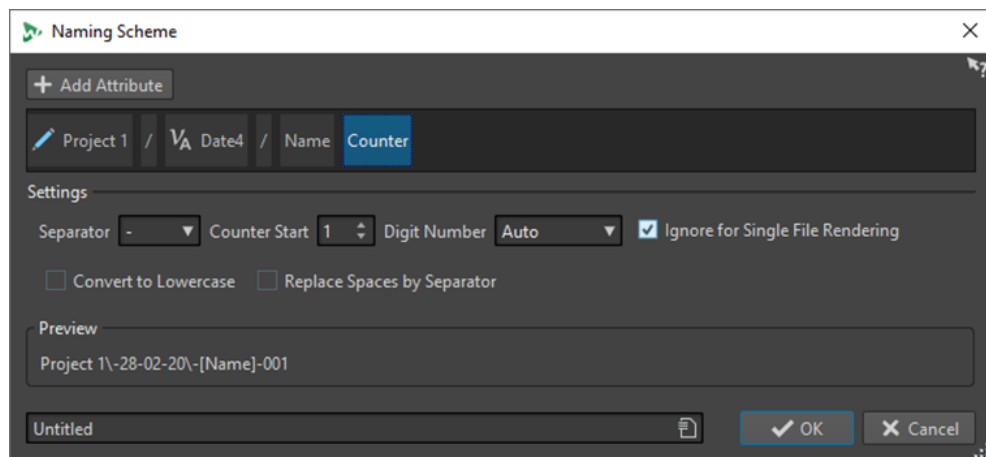
Add Attribute
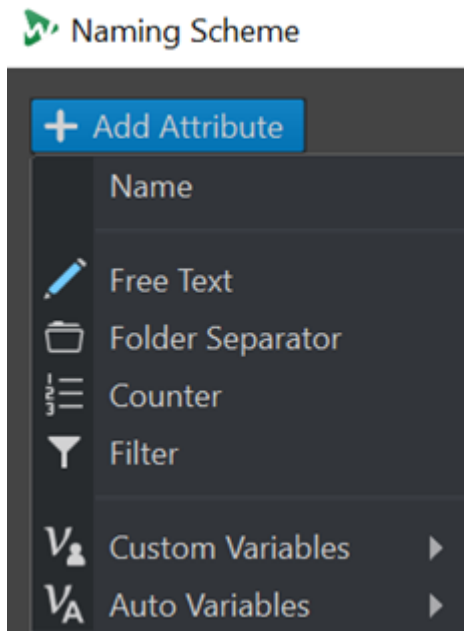
Allows you to add the following naming scheme attributes:

- **Free Text**

- **Folder Separator**

  Allows you to create a folder structure according to the specified naming scheme.

- **Counter**

- **Filter**

  Allows you to apply filters for transforming naming scheme elements.

  For example, if the element to transform is "piano_v1", you can use the filter to remove the suffix "_v1".
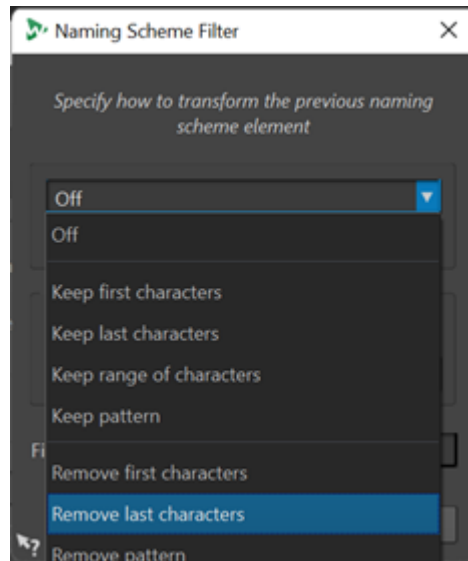
- **Custom Variables** allows you to customize the variables of the naming scheme.
- **Auto Variables** allows you to set variables for elements such as **Date**, **Time**, and **Title**.

  For example, among the variables for the **Title** element, you can choose whether to set the index to a zero-padded 2-digit number ("01") or to a number whose zero-padding is based on the title count ("1").
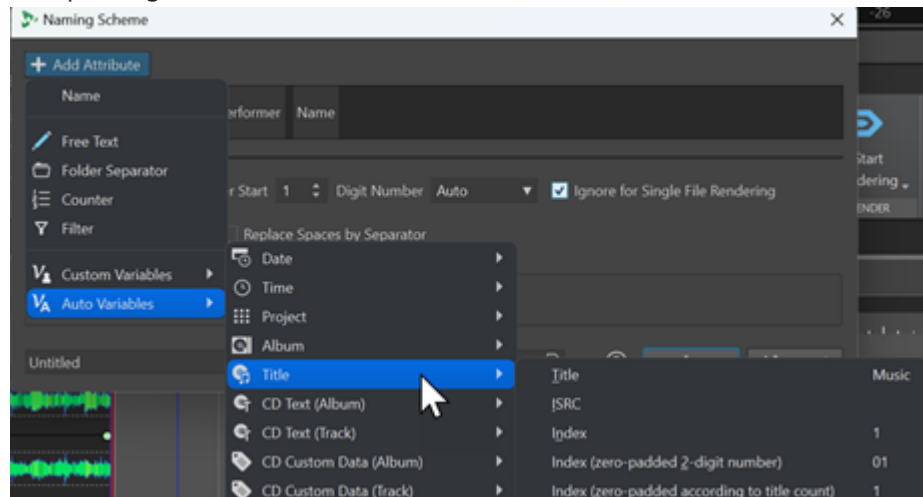
Used Attributes

Shows the naming scheme attributes. You can rearrange the attributes by dragging.

Separator

Allows you to select a separator, such as a space or a comma.

Counter Start

Allows you to select the counter start.

Digit Number

Allows you to select the style of the digit number.

Ignore for Single File Rendering

Applies the naming scheme only when rendering more than one file.

Convert to Lowercase

Converts all letters of the generated name to lowercase.

Replace Spaces by Separator

Substitutes all spaces with the selected separator.

Preview

Displays a preview of your current settings.

Presets

Allows you to save and apply naming scheme presets.

Defining Naming Schemes

You can define a naming scheme by combining name attributes that determine the structure of the file names for the rendered audio files or audio montages.

PROCEDURE

1. In the **Naming Scheme** dialog, click **Add Attribute**, and select the attributes that you want to add.

2. In the **Settings** section, make adjustments as required.

3. Click **OK**.

RELATED LINKS
Naming Scheme Dialog on page 105

File Groups

File groups are part of WaveLab Pro projects. Each project can contain multiple file groups.

A file group can contain different file types; for example, audio files, audio montages, and batch processor files. This allows you to organize all files in one file group. You can also organize each file type in a different file group for a better overview. In this case, the file group icon changes to the icon of the corresponding file type.

Each file group can contain multiple customizable tab groups. For each tab group, you can define a type precedence to instruct WaveLab Pro on the tab group that files of a given type are to be opened in by default.

You can export file groups as text files. File groups can also be imported in a project via a text file that contains file paths. These file groups open as a new file group tab.

The file group options are available via the context menu of the file group tabs.

The tab color of a file group shows whether a file group contains unsaved modified files and indicates which file groups particular files belong to.

RELATED LINKS
Creating File Groups on page 108
Tab Change Indicators on page 99

Creating File Groups

You can create empty file groups or file groups that are based on a template.

PROCEDURE

1. Select **File** > **New**.

2. Click **File Group**.

3. Do one of the following:

   - To create an empty file group, click **Custom**, select one of the options, and click **Create**.

   - To create a file group that is based on a template, click **Templates**, and select a template.

RESULT

A new file group is created. If you selected a template, the new file group is based on this template and includes the corresponding layout and settings.

RELATED LINKS
Project Window on page 152
Templates on page 133

Searching for Open Files

The **Tab Search and Keywords** field on the command bar allows you to search and to access all file tabs. With many files open, this enables you to quickly switch file tabs.

- To open a file tab, click in the **File Search and Keywords** field, or press **Ctrl/Cmd** - **F** , and start typing the name of the file that you want to access.

  As soon as you stop typing, or when you press **Return** , the first file tab that contains the search term is activated.

- To jump to the next file tab that contains the search term, press **Ctrl/Cmd** - **Tab** .

- To jump to the previous file tab that contains the search term, press **Ctrl/Cmd** - **Shift** - **Tab** .

- To switch back to the last file tab that was active before searching, delete the text in the search field.

RELATED LINKS
Command Bar on page 80

Recently Used Files

All files that you have recently used in WaveLab Pro are saved in a list. This gives you quick access to recent projects.

Opening Recently Used Files

You can open recently used files via the **File** menu or the **Recent Files** tab. The latter displays more files and offers additional options.

PROCEDURE

1. Select **File** > **Open**.

2. Select the file type that you want to open.

3. Click **Recent Files**.

4. Optional: Use the search field to enter the name of the file that you are looking for.

5. Select the file that you want to open.

6. Click **Open**.
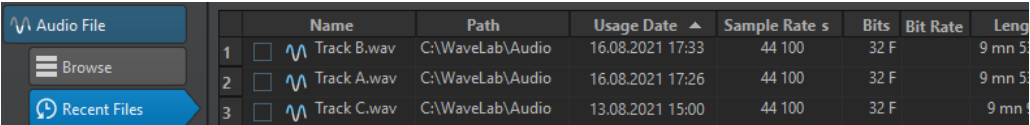
RELATED LINKS
Recent Files Tab on page 109

Recent Files Tab

This tab allows you to view and manage files that you have recently used in WaveLab Pro. You can search for files, open multiple files at once, and remove individual files or files that cannot be located.

● To open the **Recent Files** tab, select **File** > **Open**, select one of the file types, and click **Recent Files**.

Only Show Files Created by WaveLab Pro

Only shows the files that have not been opened since they were created by WaveLab Pro. For example, a file that is rendered has this status until it is opened.

Search field

Allows you to search for text in the **Name** or **Path** column, depending on which column is selected.

Remove Non-Existing Files

Removes files from the list that cannot be located on the medium.

Remove Selected Files

Removes all selected files from the list.

Open

Opens the selected files.

Filtering Recently Used Files by Name

The search field in the **Recent Files** tab allows you to filter the files list by name.

● To specify whether the **Name** or the **Path** column is used, click the **Name** or **Path** column header.

● To search for a file, enter text into the search field.

- To switch the focus from the search field to the list of recently used files, press `Down Arrow`.
- To switch the focus from the list of recently used files to the search field, press `Ctrl/Cmd`-`F`.

Setting the Number of Recently Used Files to Display

You can specify how many files to display in the list of recently used files.

PROCEDURE

1. Select **File** > **Preferences** > **Global**.
2. Select the **Display** tab.
3. In the **History** section, set the maximum number of items to be listed in the following areas:
    - **Maximum Number of Items in Recent File Menus**
    - **Maximum Number of Items in Recent Files Window**
    - **Maximum Number of Items in the Recent Folders Menus**

Temporary Files

WaveLab Pro creates temporary files to save intermediary results of the audio file processing, and for the undo/redo functions. You can specify where WaveLab Pro saves its temporary files, and you can set the processing precision of temporary files.

You can specify up to three different folders for saving temporary files. If you have access to more than one drive, saving your temporary files on a separate hard disk drive (not partitions) can speed up performance considerably.

For example, if your source files are located on the C: drive, you could specify `D:\temp` and `E:\temp` as temporary folders. This improves the performance and reduces disc fragmentation on hard disk drives.

By default, WaveLab Pro creates temporary files in 32-bit float. Use the **64 bit float** option to create 64-bit float audio files or 32-bit PCM files.

NOTE

Temporary files in 64-bit float result in double precision but take longer to read and write than 32-bit float, and their file size is twice as big.

You can change the processing precision of temporary files with the **Temporary Files** option. You can set this option in the **Global Preferences** on the **Audio** tab.

RELATED LINKS
Specifying Folders for Opening and Saving Files on page 138
Audio Tab (Global Preferences) on page 868

Favorite Files

You can add files that you regularly use to the list of favorite files.

- To open the list of favorite files, select **File** > **Open**, select the file type, and click **Favorites**.
- To add the open file to the list of favorite files, click **Add Current File**.
- To open a file from the list of favorite files, select a file from the file list, and click **Open**.

- To remove files from the list of favorite files, select the files that you want to remove, and click **Remove Selected Files**.

- To remove files from the list that are no longer present on the medium, click **Remove Non-Existing Files**.

RELATED LINKS
Favorites Tab on page 111

Favorites Tab

The **Favorites** tab allows you to display and edit the list of favorite files.

- To open the **Favorites** tab, select **File** > **Open**, select the file type, and click **Favorites**.
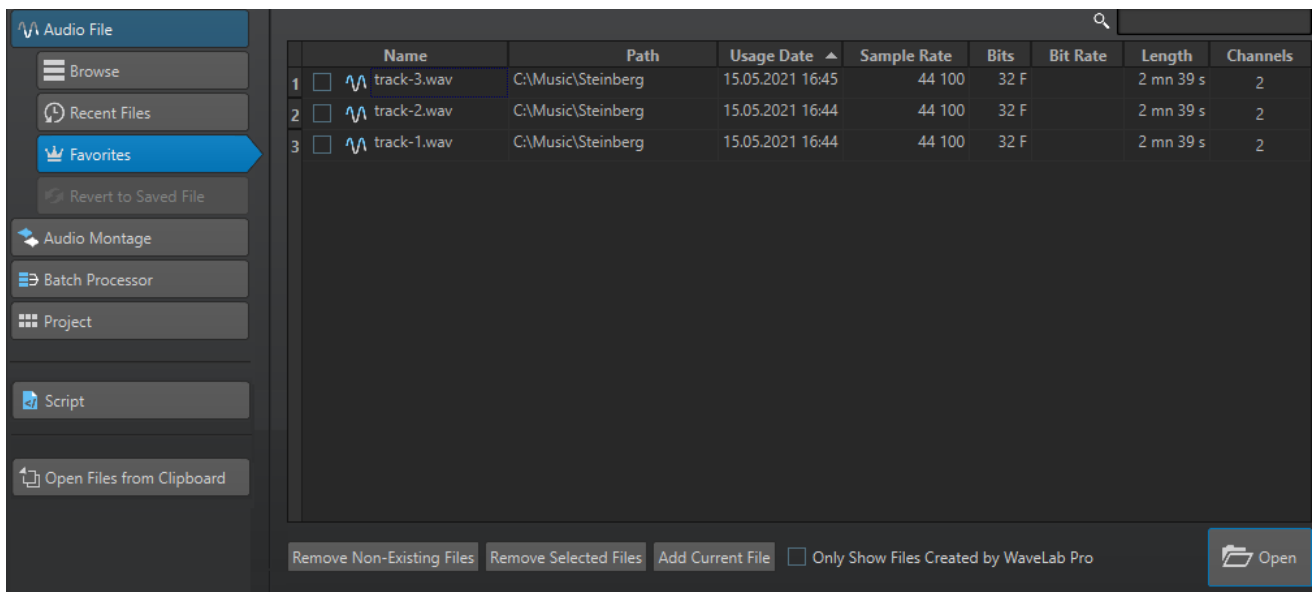
List of favorite files

Shows the favorite files.

Search

Allows you to filter the favorite files list by name.

Remove Non-Existing Files

Removes files from the list that cannot be located on the medium.

Remove Selected Files

Removes all selected files from the list.

Add Current File

Adds the open file to the favorites list.

Only Show Files Created by WaveLab Pro

Only shows the files that have not been opened since they were created by WaveLab Pro.

This allows you to quickly access files that were created in WaveLab Pro via the **Save As** or **Render** option, for example.

Open

Opens the selected files in WaveLab Pro.

Filtering Favorite Files

The search field on the **Favorites** tab allows you to filter the list of favorite files.

- Via the **Favorites** tab, enter a particular file name or part of a file name into the search field.
- To switch the focus from the search field to the list of favorite files, press **Down Arrow** .
- To switch the focus from the list of favorite files to the search field, press **Ctrl/Cmd** - **F** .

Undoing and Redoing Operations

You can undo and redo as many operations as you like, even after saving the file. The only limitation is the available hard disk space.

By default, when undoing or redoing any operation in the **Audio Editor** or the **Audio Montage** window, the zoom factor, cursor position, scroll position, clip selection status, and time range are restored to the state prior to the operation.

- To exclude the scroll and zoom settings when undoing/redoing, select **File** > **Preferences** > **Global**, select the **Display** tab, and deactivate **Undo/Redo Does Not Scroll/Zoom Audio**.

  This is useful when you perform an operation, zoom in on the changed area, and then undo the operation to see the change, for example. When you do this, you do not want snapshots to be restored and to change your scroll and zoom settings.
- To undo or redo an operation, click **Undo** or **Redo** in the command bar bar of the **Audio Editor** or **Audio Montage** window.

Version History

The version history allows you to view a history of all versions and to revert to a previous version. In the **History** window, you can see all versions of the audio montage or audio file that you are working on.

In the WaveLab Pro history, each version consists of an audio file or audio montage that can be restored. Each edit to the audio file or audio montage creates a new version.

The **Audio Montage** window and the **Audio Editor** have independent **History** windows.

You can undo and redo operations, and restore previous versions, even after saving the file. The initial version is at the top of the list, the most recent version is at the bottom of the list.

The name of the operation that created the version is shown in the **Version** row of the **History** window.

History Window in the Audio Editor on page 114

Reverting to Previous Versions

You can revert to previous versions of your audio file or audio montage.

PROCEDURE

1. In the **Audio Montage** window or in the **Audio Editor**, select **Tool Windows** > **History**.

2. In the **History** window, do one of the following:

   - Double-click the version to which you want to return.

   - Right-click the version to which you want to return, and select **Restore Selected Version**.

   - Right-click the version to which you want to return, and select **Open Selected Version in New Tab**.

RELATED LINKS
History Window for Audio Montages on page 113
History Window in the Audio Editor on page 114

Replacing Audio with Samples from Previous Versions

In the **Audio Editor**, you can replace the selected audio range with the same audio range of any previous version. This allows you to restore a previous audio version while keeping the edits you performed on the other parts of the audio.

PROCEDURE

1. In the **Audio Editor**, select the audio range that you want to replace with a previous version.

2. Select **Tool Windows** > **History**.

3. In the **History** window, right-click the version that you want to restore, and select **Replace Selected Audio with Samples from This Version**.

RESULT

Replacing audio with samples from previous versions creates a new version in the history. If necessary, the restored audio is automatically cross-faded with the existing audio before and after the replaced audio range.

The **Locate Edit in History** option allows you to quickly find the version of an edit in the **History** window.

RELATED LINKS
Locating Edits in the History on page 118

History Window for Audio Montages

The **History** window for audio montages shows all available versions of the active audio montage. You can undo and redo operations, and restore previous versions.

NOTE

The initial version is at the top of the list.

The most recent version is at the bottom of the list.

- To open the **History** window, select **Tool Windows** > **History**.

History List

In the history list, the following columns are available:

Version

Shows the type of operation that created the corresponding version.

Time

Shows the time of the operation.

Description

Allows you to add a descriptive text to a version.

Functions Menu

The following options are available via the **Functions** menu:

Undo/Redo

Undoes/Redoes the last operation. You can use undo/redo even after saving.

Restore Selected Version

Restores the selected version.

Open Selected Version in New Tab

Opens the selected version in a new tab.

Delete Selected Version

Deletes the selected version from the history.

Clear History

Clears the history. This frees up memory and hard disk space. If you clear the history, you cannot undo any previous operations.

Keep Undone Versions

By default, once you revert to a previous version, all versions created after this version are deleted. To keep all versions in the history, even after reverting to previous versions, activate **Keep Undone Versions**.

History Window in the Audio Editor

The **History** window in the **Audio Editor** shows all versions of the audio file that you are working on. You can undo and redo operations, and restore previous versions.
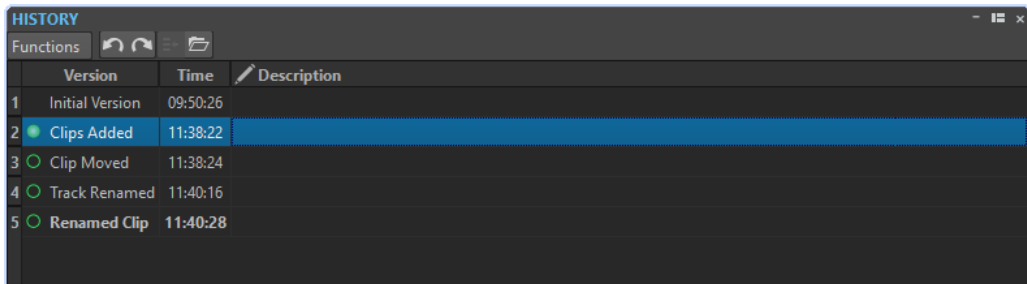
NOTE

The initial version is at the top of the list.

The most recent version is at the bottom of the list.

- To open the **History** window, select **Tool Windows** > **History**.

History List

In the history list, the following columns are available:

Version

Shows the type of operation that created the corresponding version.

Time

Shows the time of the operation.

Description

Allows you to add a descriptive text to a version.

Functions Menu

The following options are available via the **Functions** menu:

Undo/Redo

Undoes/Redoes the last operation. You can use undo/redo even after saving.

Restore Selected Version

Restores the selected version.

Open Selected Version in New Tab

Opens the selected version in a new tab.

Replace Selected Audio with Samples from This Version

Replaces the audio selection with the audio samples that are located at the same range inside this version of the history.

Delete Selected Version

Deletes the selected version from the history.

Clear History

Clears the history. This frees up memory, hard disk space, and any involved audio files. If you clear the history, you cannot undo any previous operations.

Keep Undone Versions

By default, if you revert to a previous version, all versions that were created after the selected version are deleted. To keep all versions, activate **Keep Undone Versions**.

Edit Indicators

Edit indicators, which are only available in the **Audio Editor**, allow you to see where audio parts have been edited, so you can recover previous versions of the edited parts without losing the changes you have made to the other parts of the audio.

Edit indicators are located at or around an edit position in the audio file. Each audio channel has its own edit indicators. The edit indicators are located at the bottom of each audio channel. You can show or hide edit indicators and make them snap to magnets with magnetic bounds. By default, edit indicators are only displayed in the main view of the **Audio Editor**. You can also activate edit indicators in the overview.

To show/hide edit indicators for individual views and audio files, click **Show/Hide Edit Indicators**.

NOTE

Edit indicators are generated automatically when you edit an audio file or use undo/redo. You cannot edit or name edit indicators. Edit indicators are temporary and are not saved with the audio file.

You can change the color of edit indicators via **File** > **Audio Files** > **Style**.

Types of Edit Indicators

Modified audio between two edit indicators

These edit indicators surround an audio section that has been modified, while the audio to the left and to the right of this audio section remains unchanged. This allows you to use the **Recover** function to replace the audio part with a previous version of that audio part. This does not affect the changes that you have made to the audio located to the left and the right of the edit indicator pair.
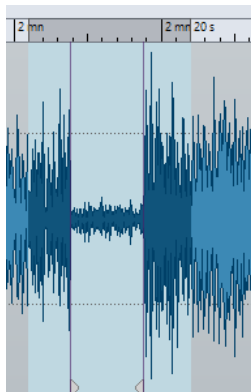
Cut at the end of an audio file

These edit indicators show that the end of the audio file has been cut off. You can use the **Recover** function when you place the edit cursor at the edge of the edit indicator.
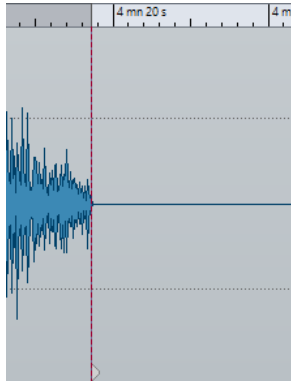
Cut at the start of an audio file

These edit indicators show that the beginning of the audio file has been cut off. You can use the **Recover** function when you place the edit cursor at the start of the audio file.
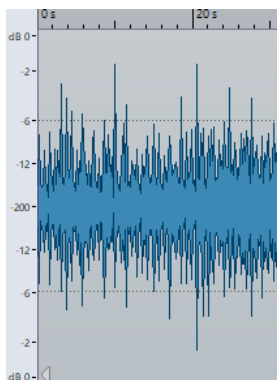
Cutoff audio

These edit indicators show that audio has been cut off. The audio to the left and to the right of the edit indicators belongs to the same audio file. You can use the **Recover** function when you select the audio range around the edit indicators.
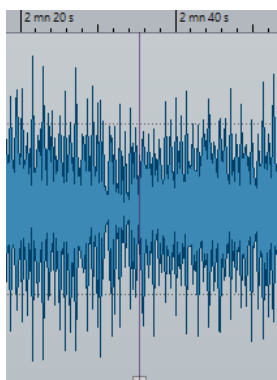
Spliced audio

These edit indicators show a spliced audio file where the audio to the left and to the right of the edit indicators belongs to different audio files. In this case, the **Recover** function has no effect. However, you can use **Replace Selected Audio with Samples from This Version** in the **History** window to replace the audio selection with audio samples that are located at the same range inside the selected version of the history.
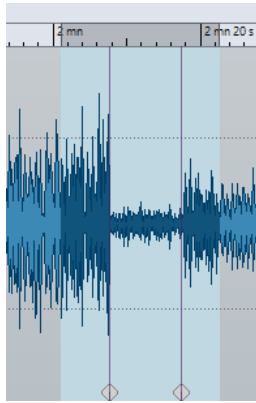
Locating Edits in the History

You can locate the position of edit indicators in the **History** window of the **Audio Editor**, so that you can see when a particular edit was performed, review the edit in context, and replace audio with samples from previous versions.

PROCEDURE

1. In the **Audio Editor**, place the edit cursor on an edit indicator or between a pair of edit indicators.

2. Select the **Edit** tab.

3. In the **History** section, right-click **Recover**, and click **Locate Edit in History**.

Recovering Original Audio Samples

You can replace a selection range with the original audio samples. This allows you to undo all edits of an audio section without undoing edits that you performed on other parts of the audio file.

Recovering original audio samples creates a new version in the **History** window.

NOTE

For the recover function to work, the audio to the left and to the right of an edited audio section must belong to the same audio file.

PROCEDURE

1. In the **Audio Editor**, place the edit cursor on an edit indicator or between a pair of edit indicators.

2. Select the **Edit** tab.

3. In the **History** section, click **Recover**.

RESULT

The editing is undone, and the corresponding edit indicator is removed.

RELATED LINKS
Edit Indicators on page 116

Drag Operations

WaveLab Pro requires you to use drag-and-drop techniques to perform various operations, some of which can only be performed in this manner.

● To drag an object, click and hold down the mouse button when positioned on the object, and drag it. Drop the object by releasing the button.

You can drag many types of objects across different source and destination locations; for example, files, text, clips, items in a list, and markers.

NOTE

It is also possible to drag and drop files from WaveLab Pro to Steinberg's Nuendo.

● To reorder a tab within its own tabbed group, drag horizontally.

● To move a tab to another window, drag vertically.

● To open a file, drag it from the **File Browser** window of WaveLab Pro, from the File Explorer/ macOS Finder, or from another application to the tab bar.

● To create a copy of a file, drag its tab vertically to another position of the tab bar, then press **Ctrl/Cmd** , and release the mouse button.

● You can dock and undock tool windows and meter windows via dragging.

RELATED LINKS
Docking and Undocking Tool Windows and Meter Windows on page 74

Dragging in the Audio Editor and in the Audio Montage Window

You can perform different operations, depending on where in the **Audio Editor** or in the **Audio Montage** window you drag.

● To insert an audio file into another audio file, drag the title bar of the file onto the waveform of another file. You can also drag an audio file from the **File Browser** window, the File Explorer/macOS Finder, or from another application into the **Audio Editor**.

● To move a marker, drag it to another position on the time ruler.

● To create a copy of a marker, press **Shift** , and drag it to another position on the time ruler.

● To delete a marker, drag it upwards outside the time ruler.

● To copy an audio selection, drag a selected region of audio onto the waveform area of the same file or another file.

● To change the extent of a selection range, position the edit cursor at the start/end of the selection range, and drag to the left or right.

● To move the edit cursor without losing the current selection, and to snap it to an anchor, press **Shift** , and move the mouse near the audio file/montage cursor. The mouse cursor shape changes, and you can drag the cursor left and right.

- To move the edit cursor without changing or losing the current selection, press **Shift** , click the edit cursor, and drag it to another position.

- To scroll the waveform horizontally, click the bar above the time ruler, and drag left or right. You can also click anywhere on the waveform using the middle mouse button, and drag left or right.

- To create a generic marker from a selected text, drop the text that you have selected in an external application onto the time ruler. The text becomes the marker name.

- To create a stereo copy of a mono file, or a mixed copy of a stereo file, drag a tab to another position of the tab bar, press **Ctrl** - **Alt** /- **Opt** , and release the mouse button.

RELATED LINKS
[Audio Editor Window](#) on page 176
[Audio Montage Window](#) on page 320
[File Browser Window](#) on page 102

Dragging in the Master Section

You can reorder effects in the **Master Section** via dragging.

- To change the order of processing in the **Master Section**, drag effects to different effects slots.

RELATED LINKS
[Master Section Window](#) on page 572

Dragging in the Batch Processor

- To change the order in which plug-ins are processed, drag the plug-ins within the audio plug-in chain window.

- To add a file to a batch process, drag its file tab to the batch conversion tool or into the **Batch Processor**.

RELATED LINKS
[Batch Processor Window](#) on page 782

Zooming

WaveLab offers you a wide range of options and tools for zooming in the **Audio Editor** and in the **Audio Montage** window.

To zoom in or out, you can choose from dedicated controls, tools, and buttons, and you can use the mouse or the computer keyboard, so that, regardless of what part of the workspace you are currently working in, you can easily access the zooming features best suited to your workflow and goals.
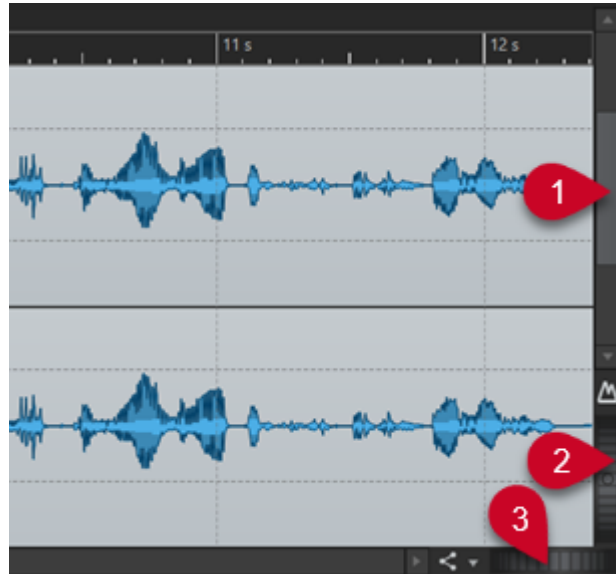
Zooming via the Scroll Wheels

In the **Audio Editor** or in the **Audio Montage** window, you can use the scroll wheels to zoom in or out.

PROCEDURE

- Do one of the following:

●

To zoom horizontally, click the **Horizontal Zoom** scroll wheel (**3**), and drag left or right, or use the mouse wheel.

To fully zoom out, double-click the **Horizontal Zoom** scroll wheel (**3**).

NOTE

- When you zoom out as far as possible, the entire file fits in the window.

- When you zoom in as far as possible, each sample occupies several pixels on the screen. This allows for sample-accurate editing of waveforms.

● To zoom vertically, click the **Vertical Zoom** scroll wheel (**2**), and drag up or down, or use the mouse wheel.

To switch between an optimized height and the default zoom, double-click the **Vertical Zoom** scroll wheel (**2**).

NOTE

As you progressively zoom in, only part of the total height of the waveform is displayed. The vertical scrollbar (**1**) allows you to precisely determine which area to display. You can check the ruler to see which detail of the waveform is currently displayed.

To optimize the vertical zoom of the waveform, press **Ctrl/Cmd** , then the time ruler. Keep the mouse button pressed, and drag the mouse up or down.

NOTE

- When the zooming level is very high, each sample is represented by a step (**4**) and a dot (**5**). The steps show the actual digitized state. The dots make it easier to identify the samples, especially with zeroed samples.
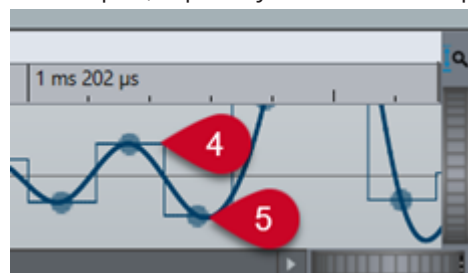
- The curve also represents an estimation of the analog reconstructed signal, to provide hints on true peaks.

RELATED LINKS
Zooming on page 120

Zooming with the Mouse

In the **Audio Editor** or in the **Audio Montage** window, you can click and drag or use the mouse wheel to zoom in or out.

PROCEDURE

- You have the following options:
  - To zoom horizontally, position the mouse pointer over the time ruler. Click, and drag up or down.

    TIP

    To maintain the mouse pointer position while doing so, press **Shift** before you drag. Alternatively, press **Ctrl/Cmd** - **Shift**, point at a waveform, and use the mouse wheel.

  - To zoom horizontally around the edit cursor position, press **Ctrl/Cmd** - **Shift**, point at a waveform, and use the mouse wheel.

    TIP

    To zoom around the mouse pointer position, press **Ctrl/Cmd** instead.

  - To zoom vertically, press **Shift**, point at a waveform, and use the mouse wheel.

RELATED LINKS
Zooming on page 120

Zooming while Selecting an Audio Range

In the **Audio Montage** window and in the **Audio Editor**, you can zoom in or out while selecting an audio range.

PROCEDURE

1. In the **Audio Montage** window or in the **Audio Editor**, click and drag to select an audio range.
2. Click into the selection and, with the mouse button pressed, press and hold down **Shift**.
3. Move the mouse up to zoom in or down to zoom out.
4. To adjust the selected audio range, with the mouse button still pressed, release **Shift**, and drag to the left or to the right.

RELATED LINKS
Zooming on page 120

Zooming with the Keyboard

A quick way to zoom in or out in the **Audio Editor** or in the **Audio Montage** window is to use the arrow keys on your computer keyboard.

PROCEDURE

- You have the following options:

  - To zoom horizontally, press the **Up Arrow** or the **Down Arrow**.
  - To zoom vertically, hold **Shift**, and press the **Up Arrow** or the **Down Arrow**.
  - To zoom vertically to fit the available height, press **Ctrl/Cmd** - **Shift** - **Up Arrow**.
  - To fully zoom out, press **Ctrl/Cmd** - **Down Arrow**.
  - To fully zoom in, press **Ctrl/Cmd** - **Up Arrow**.

    NOTE

    You can increase or decrease the zoom steps with the **Interval for Zoom Key Command** option. You can set this option via the **Options** in the **Global Preferences**.

RELATED LINKS
Global Preferences on page 863
Zooming on page 120

Zoom Options on the Tab Bar

Various zoom options are available via the tab bar, both in the **Audio Montage** window and in the **Audio Editor**.

The zoom options are available in the **Zoom** section of the **View** tab, in the **Audio Editor** and in the **Audio Montage** window.

RELATED LINKS
View Tab (Audio Editor) on page 188
View Tab (Audio Montage) on page 334
Edit Tab (Audio Montage) on page 337
Zooming on page 120

Automatic Maximum Vertical Zooming

The **Automatic Zoom to Peaks** option automatically scales the waveform so that it fills the entire vertical space of the window. This allows you to quickly identify the peaks in your audio material, which facilitates working on cross-fades, for example.

You can activate/deactivate automatic maximum vertical zooming of the waveform in the **Audio Montage** window or in the **Audio Editor** (both in the main view and the overview) by clicking the **Automatic Zoom to Peaks** button (**1**) or by pressing **Ctrl/Cmd** - **Shift** - **Up Arrow**.

A green LED (**2**) in the center of the scroll wheel indicates that automatic maximum vertical zooming is active.
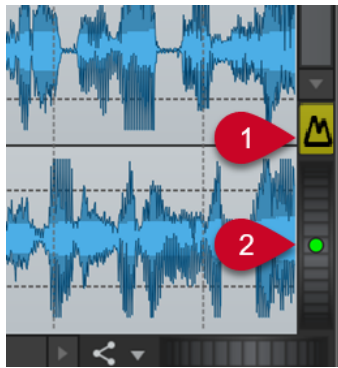
Automatic Zoom to Peaks button in the Audio Editor

Automatic Zoom to Peaks button in the Audio Montage window

With **Automatic Zoom to Peaks** activated, the waveform is automatically scaled vertically to use the maximum space available in this view and to zoom to the peaks of the visible part of the waveform.
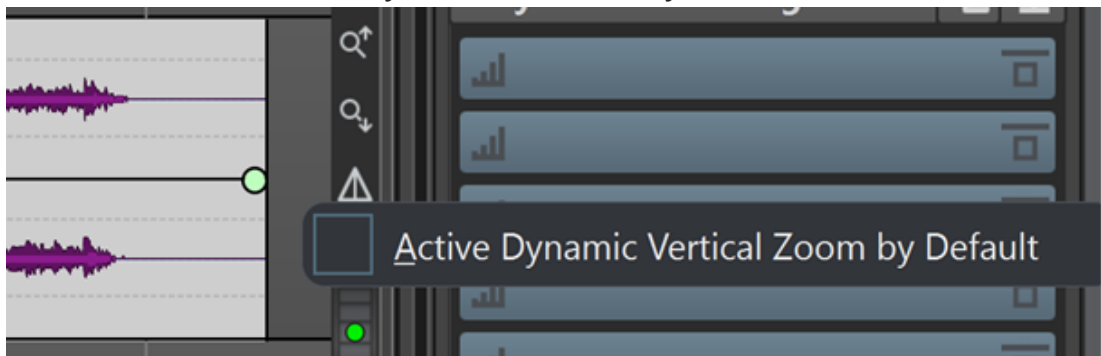
TIP

To permanently activate **Automatic Zoom to Peaks**, you can right-click the **Automatic Zoom to Peaks** button and select **Active Dynamic Vertical Zoom by Default**.

EXAMPLE

While you are scrolling/zooming into a quiet section of your audio material horizontally, the waveform keeps expanding to fill the entire vertical space.

NOTE

● The level ruler automatically adapts to the zoom level.

● **Automatic Zoom to Peaks** is automatically deactivated when you perform a manual vertical zooming action; for example, via the scroll wheels.

● The **Automatic Zoom to Peaks** function is globally applied to all tracks, and to all clips that are displayed in an **Audio Montage**.

● The **Automatic Zoom to Peaks** function only takes effect in the waveform view; it has no effect when you use it in the spectrogram view.

TIP

In the **Global** section of the **Preferences**, you can activate the **Display** tab to access the **Maximum Dynamic Vertical Zooming to View** option. It allows you to specify the maximum visual expansion of the waveform.
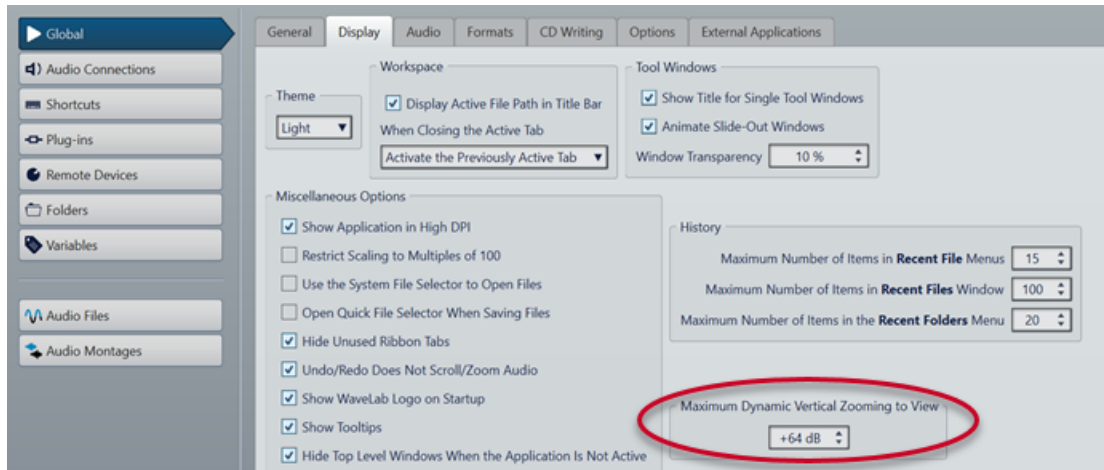
RELATED LINKS
Display Tab (Global Preferences) on page 865
Zooming via the Level Ruler on page 127
Zooming on page 120

Audio Editor-Specific Zoom Options

The **Audio Editor** offers a few zoom options that are exclusively available in this editor, such as an additional **Zoom** tool.

The **Audio Editor** allows for separate zoom level settings for the overview (**1**) and the main view (**2**).
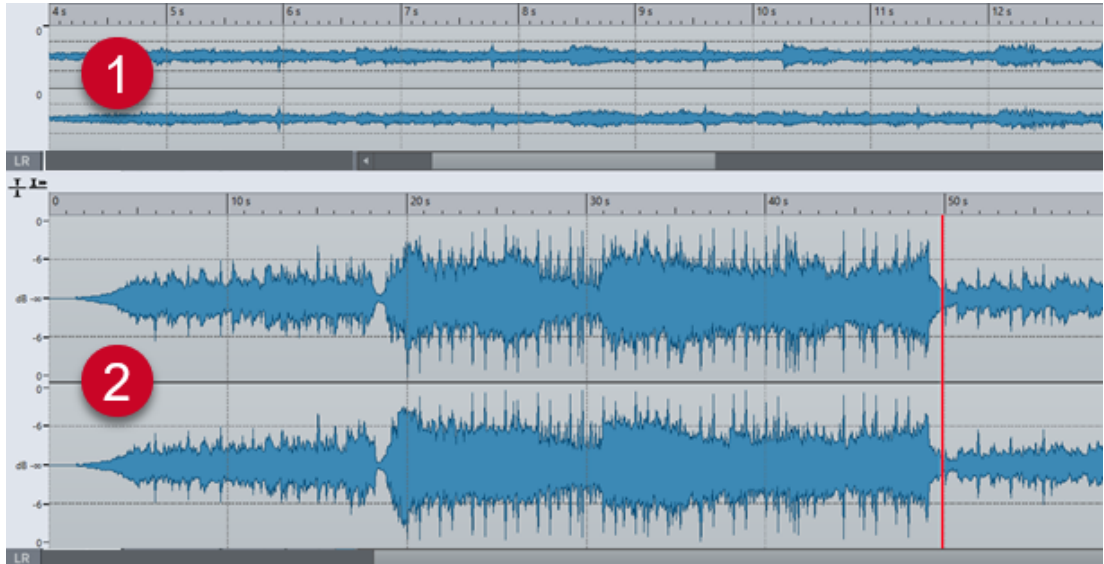
In the overview, a range indicator on the time ruler indicates which section of the file is displayed in the main view.

The range indicator is only shown if **Sync with Other View** is deactivated.

You can use the **Zoom** tool (**3**) in both the main view and the overview, to zoom in on a detail of the waveform so that it occupies the entire window.
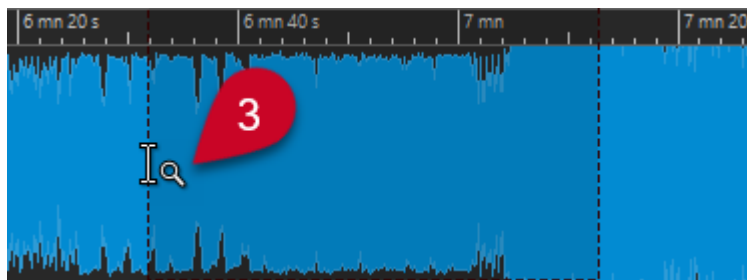
RELATED LINKS

Setting Zoom Levels in the Audio Editor

In the **Audio Editor**, you can set different zoom levels for the overview and the main view area.

PROCEDURE

- You have the following options:
  - To adjust the zoom level using the scrollbar, drag the edges of the scrollbar.
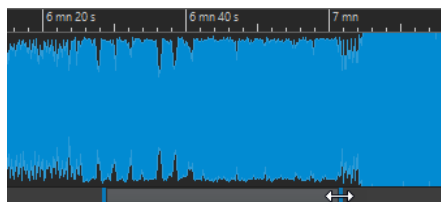
  - To scroll in the main view, drag the range indicator. The range indicator is located at the top of the overview display.
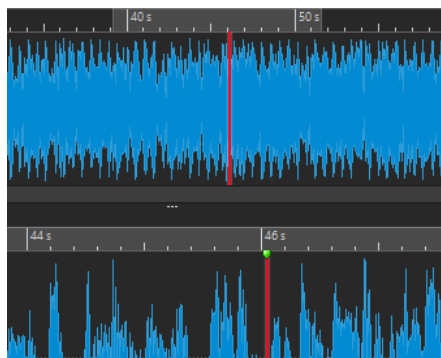
  - To adjust the zoom level, drag the edges of the range indicator.

RELATED LINKS

Zooming with the Zoom Tool

You can use the **Zoom** tool to enlarge a detail of the waveform and to display it in the main view.

PROCEDURE

1. In the **Audio Editor**, activate the **View** tab.

2. In the **Zoom** section, click **Zoom** ⊠. When you hover the mouse over the main view, the mouse pointer changes to a magnifying glass icon (**3**).
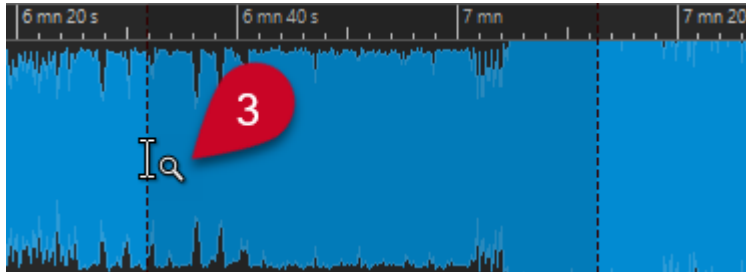
3. Click and drag left or right to make a selection.

4. Release the mouse button.

TIP

Alternatively, you can skip the first two steps and make a selection in the overview. Regardless of the status of the **Zoom** ⊠ button in the **Zoom** section, when you hover the mouse over the overview, the mouse pointer corresponds to the **Zoom** tool.

RESULT

The selection is magnified and fills up the entire main view.

RELATED LINKS

Audio Editor-Specific Zoom Options on page 125
Zooming on page 120

Zooming via the Level Ruler

With the waveform displayed in the **Audio Editor**, you can perform zoom options via the level ruler.

PROCEDURE

● You have the following options:

   ● To zoom vertically, position the mouse pointer over the level ruler (**1**). Click, and drag left or right.
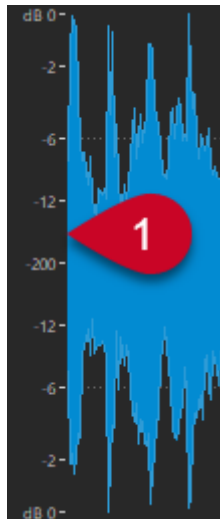
- To reset the vertical zoom to 0 dB, double-click the level ruler.
- To set the vertical zoom to the best level, that is, the currently displayed minimum and maximum samples, set the level ruler to 0 dB, and double-click the level ruler.

RELATED LINKS
Audio Editor-Specific Zoom Options on page 125
Zooming on page 120

Audio Montage-Specific Zoom Options

The **Audio Montage** window offers a few zoom options that are exclusively available in this editor.

You can use additional zoom buttons in the **Audio Montage** window, and there are track-related zoom options.

RELATED LINKS
Zooming with the Zoom Buttons on page 128
Zooming to Display More or Less Tracks on page 129

Zooming with the Zoom Buttons

The zoom buttons in the **Audio Montage** window allow you to apply zoom presets.

PROCEDURE

- You have the following options:
    - To fit the active clips into 25%, 50%, or 100% of the available space, click the corresponding buttons.
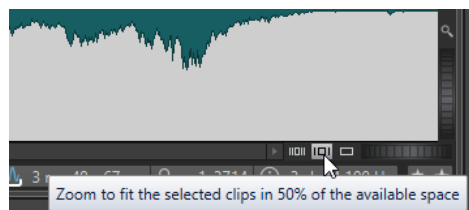
- To select a specific area, click **Ctrl/Cmd**, and drag the rectangle over the tracks and clips that you want to zoom in on.

Zooming to Display More or Less Tracks

You can zoom in and zoom out to display more or less tracks in the **Audio Montage** window.

PROCEDURE

- You have the following options:

  - To display more tracks, click the smaller magnifying glass icon.
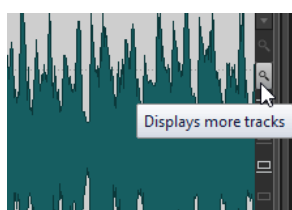
  - To display fewer tracks, click the larger magnifying glass icon.

  - To make a single track fit the entire **Audio Montage** window, click the down arrow at the bottom of the track control area. Select **Zoom In** from the **Track Settings** pop-up menu.

  - To zoom out again, click the down arrow at the bottom of the track control area, and select **Zoom Out**.
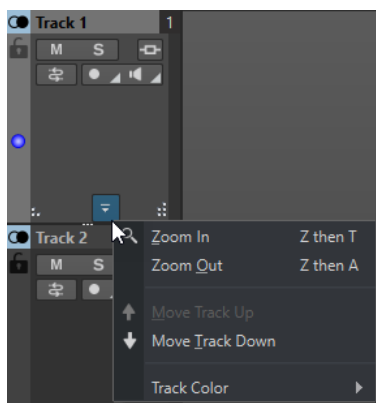
    You can also right-click the lower area of a track and select **Display Whole Clip** from the pop-up menu.

Presets

You can create presets to save your preferred settings.

WaveLab Pro includes a selection of factory presets that are available for most dialogs.

In addition to this, you can save customized presets, which are available after restarting the application.

Presets are saved as single files and can be organized in subfolders. The root folder of the preset is unique for each type of preset and cannot be changed.

RELATED LINKS
Saving Presets on page 130
Loading Presets on page 130
Saving Default Presets for VST Plug-ins on page 132

Saving Presets

You can save presets and load them at a later point in time.

PROCEDURE

1. Open the dialog that you want to use, and modify the parameters.

2. Open the **Presets** pop-up menu, and select **Save As**.

3. Optional: Click the folder icon, and enter a name for the subfolder that you want to use as the location for this preset.

4. Type in a name.

5. Click **Save**.

RELATED LINKS
Loading Presets on page 130

Loading Presets

To apply a saved preset or a factory preset to a dialog or to a plug-in, you must load the preset.

PROCEDURE

1. In the dialog, open the **Presets** pop-up menu.

2. Select the preset that you want to apply.

RELATED LINKS
Saving Presets on page 130

Modifying Presets

You can modify presets and save the changes.

PROCEDURE

1. Open the dialog that you want to use.

2. Load the preset that you want to modify.

3. Modify the parameters of the dialog.

4. Open the **Presets** pop-up menu, and select **Save**.

Deleting Presets

PROCEDURE

1. Open the dialog that you want to use.

2. Select the preset that you want to delete.

3. Open the **Presets** pop-up menu, and select **Organize Presets**.

4. In the File Explorer/macOS Finder, select the preset file that you want to delete, and press
Delete .

Temporary Presets

Some dialogs allow you to save and load up to five temporary presets, which is useful to quickly
test and compare different settings.

RELATED LINKS
Saving Presets Temporarily on page 131
Restoring Temporary Presets on page 131

Saving Presets Temporarily

PROCEDURE

1. Open the dialog that you want to use, and make adjustments as required.

2. Open the **Presets** pop-up menu.

3. From the **Store Temporarily** submenu, select a slot.

RELATED LINKS
Temporary Presets on page 131
Restoring Temporary Presets on page 131

Restoring Temporary Presets

PROCEDURE

1. Open the dialog in which you have saved a preset.

2. Open the **Presets** pop-up menu.

3. From the **Restore** submenu, select a preset.

RELATED LINKS
Temporary Presets on page 131
Saving Presets Temporarily on page 131

Saving Default Presets for VST Plug-ins

You can save your effect parameter settings for VST 3 and VST 2 plug-ins as the default effect preset, which allows you to load them automatically, every time you create a new instance of the effect.

PROCEDURE

1. Open the plug-in for which you want to customize the default preset.

2. At the top of the plug-in window, click the **Presets** button.
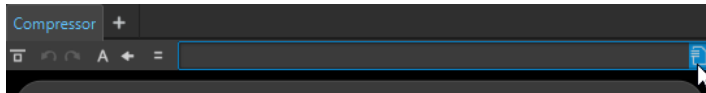
3. Do one of the following:

    *   For VST 3 plug-ins, select **Default Preset** > **Save as Default Preset**.

    *   For VST 2 plug-ins, select **Default Bank** > **Save as Default Bank**.

RESULT

The effect settings are saved as the default preset. Every time that you open a new instance of the effect, the default preset is loaded automatically.

RELATED LINKS
Loading Default Presets on page 132
Removing Default Presets on page 132

Loading Default Presets

You can load plug-in parameter settings that you have saved as the default preset.

PROCEDURE

1. Open the plug-in for which you want to load the default preset.

2. At the top of the plug-in window, click the **Presets** button.
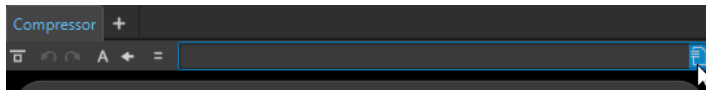
3. Do one of the following:

    *   For VST 3 plug-ins, select **Default Preset** > **Load Default Preset**.

    *   For VST 2 plug-ins, select **Default Bank** > **Load Default Bank**.

RELATED LINKS
Saving Default Presets for VST Plug-ins on page 132
Removing Default Presets on page 132

Removing Default Presets

You can remove the preset that you have saved as the default preset.

PROCEDURE

1. Open the plug-in for which you want to remove the default preset.

2. At the top of the plug-in window, click the **Presets** button.
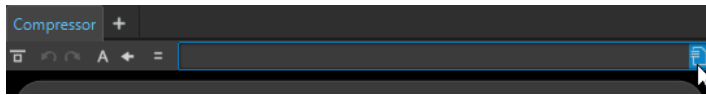
3. Do one of the following:

● For VST 3 plug-ins, select **Default Preset** > **Remove Default Preset**.

● For VST 2 plug-ins, select **Default Bank** > **Remove Default Bank**.

RESULT

The next time that you open a new instance of the selected plug-in, the factory default preset is applied.

RELATED LINKS
Saving Default Presets for VST Plug-ins on page 132
Loading Default Presets on page 132

Templates

You can save your preferred file settings as templates, which saves you time and effort when creating new audio files, audio montages, projects, or batch processors.

Templates Tab

The **Templates** tab displays all templates and allows you to create and open templates.

● To open the **Templates** tab, select **File** > **New**, select a file type, and click **Templates**.
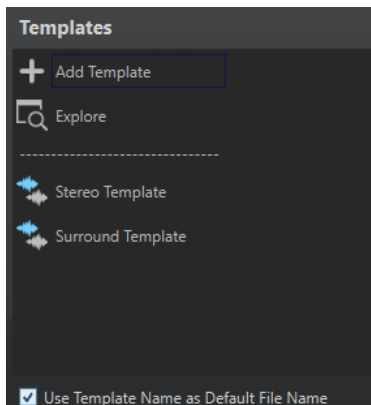
List of the available templates

Lists all saved templates.

Add Template

Allows you to add a new template or update an existing template.

Explore

Opens the folder where the template files are located and allows you to rename and delete templates.

Use Template Name as Default File Name

If this option is activated and you click **Add Template**, a new file is created and uses the name of the template. If this option is deactivated, the name of the new file is "untitled".

Creating Templates

You can create a template from an active audio montage, audio file, project, or batch processor file and use it as a basis for new files.

PROCEDURE

1. Select **File** > **New**.

2. Select the file type for which you want to create a template.

3. Click **Templates**.

4. In the **Templates** tab, do one of the following:

   - To create a new template, click **Add Template**, make adjustments as required, and click **Create**.

   - To update an existing template, click **Add Template**, enter the name of the template that you want to update, and click **Create**.

5. Optional: If you want to use the template name as the default file name, activate **Use Template Name as Default File Name**.

6. When saving or updating an audio file template or an audio montage template, you can set additional parameters.

   - When saving an audio file template, the **Audio File Template** dialog opens, allowing you to choose if you want WaveLab Pro to attach an audio file format.

   - When saving an audio montage template, the **Audio Montage Template** dialog opens, allowing you to select whether to include track plug-ins, clips, and/or markers. You can also choose if you want WaveLab Pro to attach an audio file format.

Audio File Template Dialog

The **Audio File Template** dialog displays the audio properties of the audio file template that you create. You can also specify whether to always associate a specific audio file configuration with optional metadata when creating an audio file template or not.

- To open the **Audio File Template** dialog, select **File** > **New**. Click **Audio File**, and click **Templates**. On the **Templates** tab, click **Add Template**.
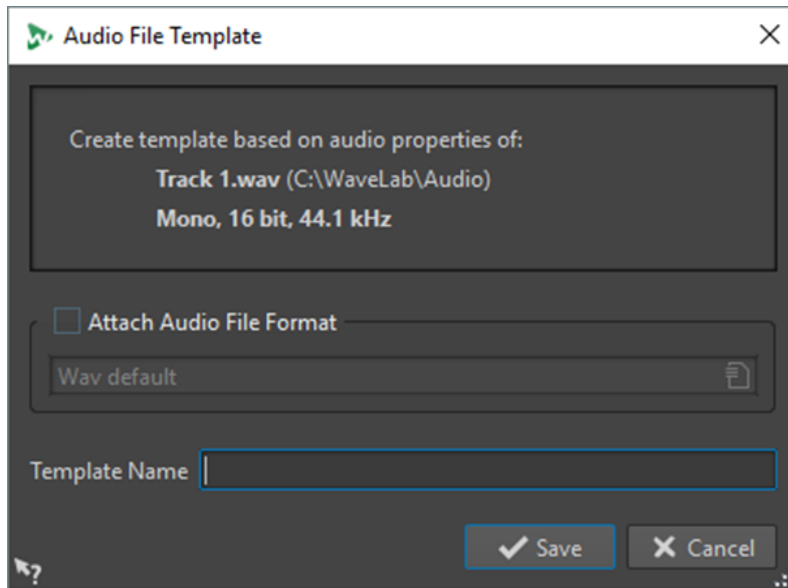
Attach Audio File Format

Proposes the audio file configuration specified below by default, whenever you open
the **Render** or **Save As** dialogs.

Template Name

Allows you to enter a name for the template.

Audio Montage Template Dialog

In the **Audio Montage Template** dialog, you can choose from various options when creating an
audio montage template.

● To open the **Audio Montage Template** dialog, select **File** > **New**. Click **Audio Montage**, and
click **Templates**. In the **Templates** tab, click **Add Template**.
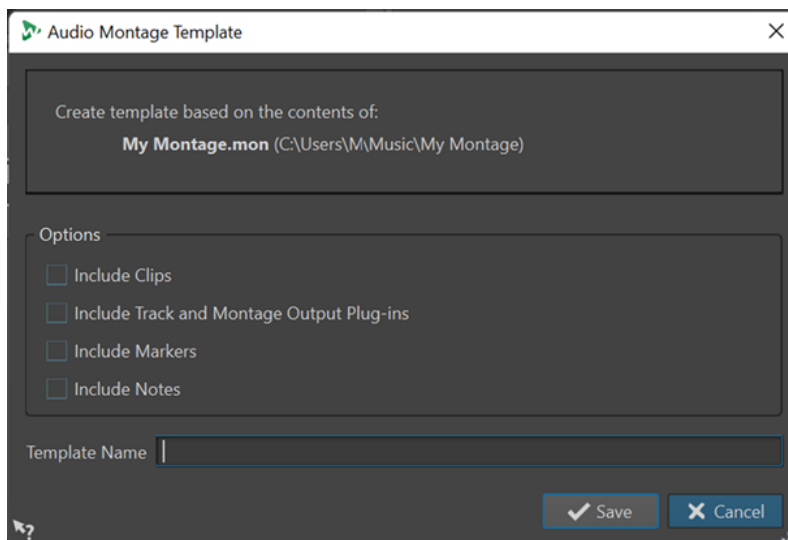
Include Clips

Saves clips in the template.

Include Track and Montage Plug-ins

Saves track plug-ins and montage plug-ins as part of the template.

Include Markers

Saves markers as part of the template.

Include Notes

Saves notes that you have written in the **Notes** window as part of the template.

Template Name

Allows you to enter a name for the template.

RELATED LINKS
Notes Window on page 546

File Group Template Dialog

The **File Group Template** dialog displays the file group name that the template you create is based on. You can also choose whether to include links to the files inside the file group in the template, and you can specify the template name.

● To open the **File Group Template** dialog, select **File** > **New**. Click **File Group**, and click **Templates**. On the **Templates** tab, click **Add Template**.
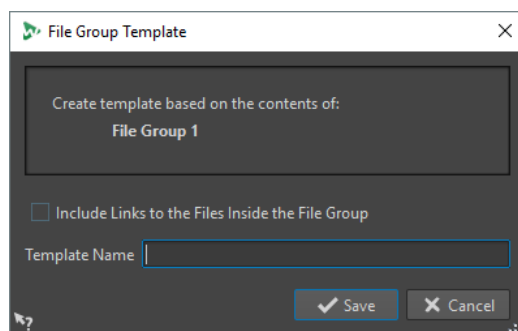
Include Links to the Files Inside the File Group

Includes the links to the files that are part of the file group in the template.

Template Name

Allows you to enter a name for the template.

Creating Files From Templates

You can create a file from a template to use its settings.

PROCEDURE

1. Select **File** > **New**.

2. Select the file type that you want to create.

3. Click **Templates**.

4. From the list of available templates, select a template as the basis for the new file.

Deleting Templates

PROCEDURE

1. Select **File** > **New**.

2. Select the file type for which you want to delete templates.

3. Click **Templates**.

4. Click **Explore**.

5. In the File Explorer/macOS Finder, delete the templates.

Renaming Templates

PROCEDURE

1. Select **File** > **New**.

2. Select the file type for which you want to rename templates.

3. Click **Templates**.

4. Click **Explore**.

5. In the File Explorer/macOS Finder, rename the templates.

Setting Templates as Default

You can set a template as the default template, so that it opens when you click **New** on the command bar.

PROCEDURE

1. Select **File** > **New**.

2. Select the file type that you want to open.

3. Select **Templates**.

4. Right-click a template, and select **Set as Default**.

RELATED LINKS
Command Bar on page 80

Defining Shortcuts for Templates

You can define key sequences and keywords for templates. This allows you to quickly open a template.

When you create templates from shortcuts, the option **Use Template Name as Default File Name** on the **Templates** tab is taken into account.

PROCEDURE

1. Select **File** > **New**.

2. Select the file type that you want to open.

3. Select **Templates**.

4. Right-click a template, and select **Define Shortcut**.

5. In the **Shortcut Definitions** dialog, edit the shortcut for the selected template.

6. Click **OK**.

Work Folders vs. Document Folders

WaveLab Pro distinguishes between two types of folders: work folders and document folders.

- **Work folders** are used for saving temporary files.
- **Document folders** contain WaveLab Pro-specific files, such as audio files and audio montages.

Specifying Folders for Opening and Saving Files

You can choose which document folder to open when you perform an open or save operation. You can also specify up to three work folders for temporary files.

PROCEDURE

1. Open the file for which you want to specify folders.
2. Select **File** > **Preferences** > **Folders**.
3. On the **Folders** tab, select the type of folder.
4. Specify a location in the **Folder** field.
5. Optional: Depending on the selected type of folder, you can set additional parameters.

Folders Tab (Preferences)

On the **Folders** tab, you can specify default document folders and work folders for each file type.

- To open the **Folders** tab, select **File** > **Preferences** > **Folders**.
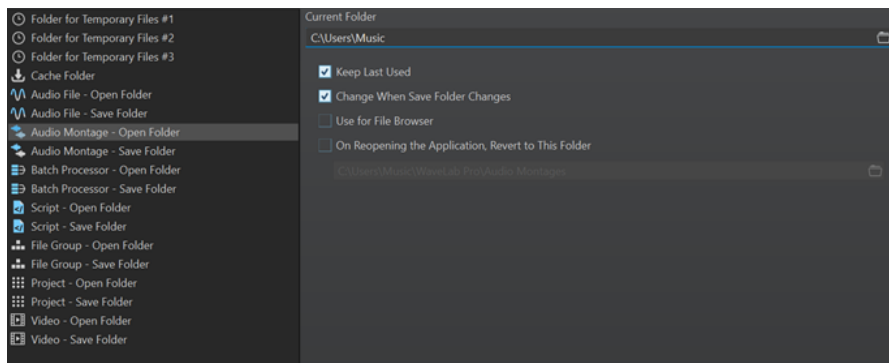
In the list on the left, you can specify the folder type that you want to make adjustments for.

Folder for Temporary Files #1/#2/#3

Allows you to specify three folders for saving temporary files. If your system comprises multiple hard disks, specifying one folder for temporary files on each of these hard disks can speed up file operations.

Cache Folder

You can activate **Use Cache Folder for Decoded Files** to specify a cache folder. The cache folder contains wave files that are created when you are working with files in compressed file formats, such as MP3 files. To prevent the cache folder from growing indefinitely, WaveLab Pro checks the date of each file in this folder and deletes files that were created before a specific number of days. You can specify the number of days with the **Delete Files Older Than** option.

If **Use Cache Folder for Decoded Files** is deactivated, the compressed files are decoded each time they are opened.

Audio File – Open Folder/Save Folder

The default Open and Save folders for audio files.

Audio Montage – Open Folder/Save Folder

The default Open and Save folders for audio montage files.

Batch Processor – Open Folder/Save Folder

The default Open and Save folders for Batch Processor files.

File Group – Open Folder/Save Folder

The default Open and Save folders for File Group files.

Project – Open Folder/Save Folder

The default Open and Save folders for project files.

Script (Audio File/Audio Montage) – Open Folder/Save Folder

The default Open and Save folders for script files.

Depending on the selected item, different settings are available on the right side of the dialog.

Current Folder

Displays the folder that is used as default. You can click the folder button to the right to navigate to a folder or to create a new folder.

Keep Last Used

Uses the last folder for saving or opening files of the selected type.

Change When Save Folder Changes/Change When Open Folder Changes

Updates the default Open folder when you change the default Save folder, and vice versa. You can activate this option for both the Save folder and the Open folder if you want a specific file type to use the same folder for saving and for opening this type of file.

Use for File Browser

In the **File Browser**, the folder does not change when you switch between file types by default.

If you activate **Use for File Browser** and deactivate **Keep Last Used**, the folder location that you have selected in the **Current Folder** field of each file type is displayed when you switch between file types in the **File Browser**.

If you activate **Use for File Browser** and **Keep Last Used**, the folder that you have selected in the **Current Folder** field of each file type is displayed when you select a file type for the first time. When you then browse to another folder in the **File Browser**, the **Keep Last Used** behavior is used. That is, the last used folder for this file type is displayed when you select the file type.

You can set these parameters for each file type independently.

On Reopening the Application, Revert to This Folder

Allows you to restore a specific folder, each time you open WaveLab Pro. As a result, any changes to Save/Open folders are only temporary and reset when you restart WaveLab Pro.

Copying Audio Information to the Clipboard

You can copy information about the name and location of the selected audio file, including any selection information and the cursor position. This information can be pasted into an external text application.

This is useful if you need accurate file path/selection information when writing a script, for example.

PROCEDURE

1. Click the **File** tab.

2. Click **Info**.

3. Click **Copy to Clipboard**, and select the information that you want to copy to the clipboard.

Setting the Focus on the Current File

When you are editing inside a floating window or a tool window and you want to switch the focus back to the **Audio Editor** or the **Audio Montage** window, you can use the **Set Focus on Current File** option.

PROCEDURE

● In any window, press `Ctrl/Cmd`-`F12` to set the focus on **Audio Editor** or the **Audio Montage** window.

Navigation Sync

Navigation Sync helps you to compare audio material by synchronizing different views of audio files and audio montages, so that any navigation actions you perform in one of them are automatically applied to the others in real time.

● Synchronization encompasses the scroll position, horizontal and vertical zooming, time selections, and the edit cursor position.

● The option to synchronize navigation is available in both the **Audio Editor** and the **Audio Montage** window. Comparison is not restricted to files in the same editor; that is, you can also synchronize an **Audio Editor** view with an **Audio Montage** view.

● It is possible to compare files with different sample rates and of different lengths.

NOTE

In the **Audio Editor**, **Navigation Sync** is exclusively available for the main view.

If **Automatic Zoom to Peaks** is activated in the **Audio Montage** window, vertical zooming is not synchronized for this view.

Synchronizing Navigation Actions for Selected Views

To automatically propagate navigation actions that you perform in one view of the **Audio Editor** or the **Audio Montage** window to other views in real time, you can activate **Navigation Sync** for each of them. This allows you to compare different versions of your audio material and to continuously keep an eye on the relevant areas in all views.

PROCEDURE

- To select a view for **Navigation Sync** in the **Audio Editor** or the **Audio Montage** window, activate the feature via the **Navigation Sync** ⦓ button at the bottom of the view.

  NOTE

  - You can activate as many views as you like. The number of views that can be synchronized simultaneously is not limited.

  - The respective views do not have to be fully visible for the synchronization to take effect.

  TIP

  To switch between the last two active tabs, press **F5**.

  If your computer screen is large enough, we recommend that you create a workspace layout that displays two views, one above the other.

RESULT

Once you perform any of the following navigation actions in one of the views, they are automatically applied in all other views whose **Navigation Sync** button is activated:

- Scrolling
- Zooming
- Making time selections
- Moving the edit cursor

RELATED LINKS

Navigation Sync Menu

You can set parameters for the **Navigation Sync** feature via the **Navigation Sync** menu.

To open the **Navigation Sync** menu, click the down arrow to the right of the **Navigation Sync** ⦓ button.
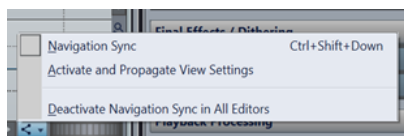
Navigation Sync

Activates **Navigation Sync** for this view. As a result, the view automatically inherits the settings of any other view whose **Navigation Sync** button is activated. In other words, the active view acts as the receiver, in the way that the navigation settings of any other

view with **Navigation Sync** activated, which you can think of as the sender, are copied
to it.

NOTE

Selecting this option corresponds to clicking the **Navigation Sync** ⬸ button.

Activate and Propagate View Settings

Activates **Navigation Sync** and automatically propagates the navigation settings of
this view to all other views whose **Navigation Sync** button is activated. In other words,
the active view acts as the sender, in the way that its navigation settings are copied to
other views with **Navigation Sync** activated, which act as the receivers.

TIP

Alternatively, to apply this option, you can also press **Ctrl/Cmd** while clicking the
Navigation Sync ⬸ button.

Deactivate Navigation Sync in All Editors

Deactivates **Navigation Sync** for all views.

TIP

Alternatively, to apply this option, you can also press **Alt/Opt** while clicking the
Navigation Sync ⬸ button.

Projects

In WaveLab Pro, projects serve as containers for references to all files that are associated with a particular WaveLab Pro session, allowing you to manage and recall entire sessions.

Project files (extension `*.wpr`) contain references to media data pertaining to an individual WaveLab Pro session, such as audio files, audio montage files, batch processor files, presets, and project settings.

To transfer entire WaveLab Pro sessions to another computer, you can archive projects as ZIP files or create consolidated folders that contain all project data.

Only one project can be open at a time. When you open a previously saved project or create a new project, the currently opened project is closed.

Each project can contain multiple file groups. Each file group has its own tab.
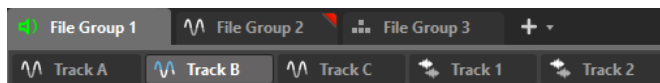
You can save your complete production as a project and open it on any WaveLab Pro workstation. For this, the source files must be available on the target workstation at the same relative or absolute path.

Creating a project is not mandatory for using WaveLab Pro's editing features, but it can enhance the organization of your work.

NOTE

If you choose not to use projects, you can still reopen all edited files from previous WaveLab Pro sessions.

Creating Projects

You can create empty projects or projects that are based on a template.

PROCEDURE

1. Do one of the following:
   - Select **File** > **New**, and select **Project**.
   - Click the **Project Functions** button on the command bar.

2. Do one of the following, depending on what you did in Step 1:
   - Select **New Empty Project**.
   - Click **Create Empty**, or click **Templates**, and choose from the available options.

Creating Default Projects

You can define a default project to be used whenever you create an empty project in the future.

PROCEDURE

1. Select **File** > **New**.

2. Select **Project** > **Templates**.

3. Click **Add Template**.

4. In the **Project Template** dialog, enter a project name.

5. Click **Save**.

   The new project template is listed in the **Templates** section.

6. Right-click its name, and activate **Set as Default**.

   NOTE

   To change the default project template and set another existing project template as the
   default template, right-click the corresponding template in the **Templates** section, and select
   Set as Default.

RESULT

The default project is created. From now on, you can select it via **File** > **New** > **Project** >
Templates or from the list of projects in the **Startup Assistant** window.

Project Template Dialog

In the **Project Template** dialog, you can set various parameters for creating a project template.

● To open the **Project Template** dialog, select **File** > **New**, click **Project**, and click **Templates**.
  In the **Templates** section, click **Add Template**.
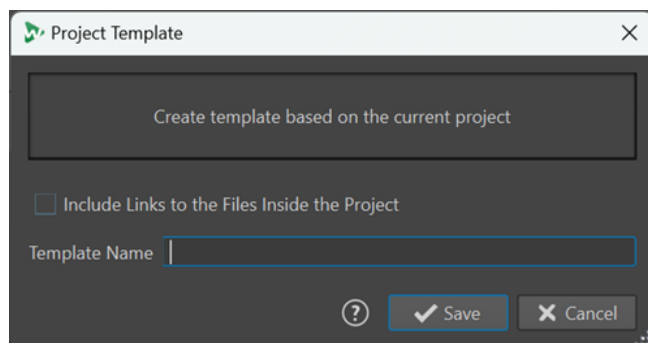
Include Links to the Files Inside the Project
Includes the links to the files that are part of the project in the template.

Template Name

Allows you to enter a name for the template.

Presets in Projects

When saving projects, you can save presets either globally or locally.

In WaveLab Pro, presets are used in multiple contexts.

You can choose to save presets globally, which means that you can use them independently of any project and that they are available at all times. Alternatively, you can save presets locally, so that they are only available for the current project and not accessible any more after closing the project, but restored when reopening it.

Example: Presets in the **Master Section**

1   Click **Presets** at the top of the **Master Section**, and select **Save As**.

2   In the **Save Master Section Preset** dialog, select **Global** or **Project**.
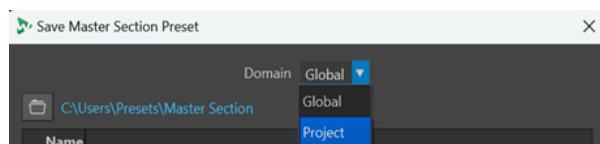
Saving Active Projects

Saving an active project includes saving any references to project media and the project settings.

PROCEDURE

1.   Do one of the following to access the **Project** menu:

 ●   Click **File** at the top of the workspace, and select **Project**.

 ●   Click the **Project Functions** ▦ button on the command bar.

2.   Select **Save**.

Saving Sessions as Projects

You can save an entire WaveLab Pro session as a project.

PREREQUISITE

 ●   You have opened the files that you want to include in your new project.

 ●   No project is currently active.

PROCEDURE

1. Do one of the following to access the **Project** menu:

    - Click **File** at the top of the workspace, and select **Project**.

    - Click the **Project Functions** ⊞ button on the command bar.

2. Select **Save Current Session as New Project**.

3. Enter a name for the new project, and indicate the file path to your project folder in the **Project Location** dialog.

Opening Existing Projects

PROCEDURE

1. Do one of the following to access the **Project** menu:

    - Click **File** at the top of the workspace, and select **Project**.

    - On the command bar, click the **Project Functions** ⊞ button.

2. Choose **Open** or **Open Project from ZIP Archive**, depending on how the project was previously saved, or select a recent project from the menu.

RESULT

The **Project Functions** ⊞ button on the command bar turns green, to indicate that a project is active.

Project Menu

The **Project** menu offers a range of options for handling projects.

To access the **Project** menu, do one of the following:

- Click **File** at the top of the workspace, and select **Project**.

- On the command bar, click the **Project Functions** ⊞ button.

Open

Allows you to select and open existing project files.

The currently active project, if any, is automatically closed.

Open Project from ZIP Archive

Allows you to select and open projects files that were previously archived as ZIP files in WaveLab Pro.

Save

Saves the project, including any project-related settings.

NOTE

This option is only available when a project is active.

Save Current Session As new Project

Saves the current WaveLab Pro session as a new project, which includes all currently opened file groups, as well as any **Master Section** presets, and further settings.

NOTE

This option is only available when no project is active.

Save Other Version

Allows you to save the current project, with a new name assigned to it and an incremental number attached to the name.

Close

Closes the active project, including all associated files and file groups.

New Empty Project

Creates a new project with no open files in it, using the default project template, if available.

NOTE

If no default project template is available, the **Templates** tab in the **Project** section of the **File** tab is opened, allowing you to choose a project template (**Standard**, **Split Views**, or **Grouped by Type**), and to configure your new project via the **Project Location** dialog.

Consolidate

Copies any media files that are associated with the project into the project folder, if they are not already saved there.

TIP

Consolidating your project files in this manner results in an autonomous project, which you can transfer to other computers or share with other WaveLab Pro users.

Back up

Copies any media files and settings that are associated with the project into a new independent project folder or saves them as a single ZIP file.

Reveal in File Explorer

Shows the project folder in the File Explorer.

RELATED LINKS

Project Consolidation

The **Consolidate** function helps you to keep track of the files associated with a project, and to manage them.

In WaveLab Pro, you can choose to save all files associated with a project in a dedicated project folder. However, you can also insert files into the project from elsewhere and keep them in their original location, so that they are not included in the project folder. In this context, the **Consolidate** function can be useful.

Typical use cases for the **Consolidate** option:

- You intend to work on your project on another computer or to share it with other users, so that they can continue working on it.

The **Consolidate** option allows you to create copies of all referenced files that are located outside the project folder and to include them in the folder of the active project. This ensures that no assets are missing when the project is transferred to another machine or user.

- Files that you imported into the project but removed from it again later on are still included in the project folder and take up unnecessary memory space.

The **Consolidate** option allows you to identify and delete files that are currently not referenced by the active project.

Consolidating Projects

The **Consolidate** option allows you to review, edit, and optimize the content of a project folder.

PROCEDURE

1. Do one of the following to access the **Project** menu:
   - Click **File** at the top of the workspace, and select **Project**.
   - Click the **Project Functions** ⊞ button on the command bar.

2. Select **Consolidate**.

3. Make the desired adjustments in the **Consolidate Project** dialog, and click **Consolidate**.

4. Optional: To view the project in the File Explorer, select **Reveal Project in File Explorer**.

RELATED LINKS
Consolidate Project Dialog on page 148
Project Consolidation on page 147

Consolidate Project Dialog

The **Consolidate Project** dialog allows you to set up the project folder, and to view and edit the files in it.

You can open the **Consolidate Project** dialog by selecting **Consolidate** from the **Project** menu.
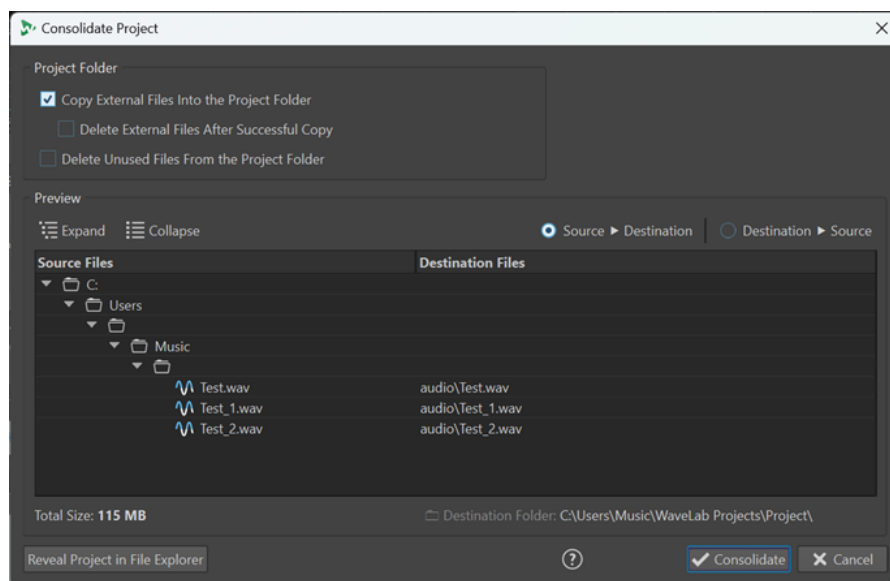
Project Folder

Copy External Files Into The Project Folder

Copies all files that are referenced by the active project but not yet included in its folder to the project folder.

TIP

We recommend that you choose this function if you intend to continue working on your project on another computer or to share it with other WaveLab users. It ensures that there are no assets missing.

To prevent unnecessary duplicates in your system, you can delete the original external files by activating **Delete External Files After Successful Copy**.

NOTE

Before doing so, verify that the files to be deleted are not referenced by other WaveLab Pro projects.

Delete Unused Files From the Project Folder

Removes any files in the project folder that are currently not associated with the project from the folder and deletes them.

NOTE

Be sure to only delete files that you do not need any more.

As for any currently "unused" but relevant files in the project folder, such as files to be possibly added to the project in the future or required for reference purposes: Either keep them in the folder or copy them to another location before activating this option.

Preview

●   The **Preview** display reflects any changes you make to the settings in the **Project Folder** section of the dialog.

●   In addition to displaying the files that are currently referenced in the project, the **Preview** section lists any files saved in the project folder that are not associated with the active project.

Options in the **Preview** section:

Expand

Unfolds the folder tree, so that all list entries are visible.

Collapse

Hides all levels of the folder tree.

Source to Destination

Displays the source files; that is, the files to be copied, in the left column.

The file paths of the copies are shown in the right column.

Destination to Source

Displays the source files; that is, the files to be copied, in the right column.

The file paths of the copies are shown in the left column.

Project Backups

You can create backup copies of your WaveLab Pro projects.

You can either copy the entire project to a new independent project folder or save it as a ZIP file. The backup copy includes all files that are referenced by the project, any **Master Section** presets and further optional presets, and any settings concerning the layout of the editing area.

Creating a copy of your project in this manner results in an autonomous project, which you can transfer to other computers or share with other WaveLab Pro users.

Creating a Backup Copy of Your Project

You can save a backup copy of your entire project data by saving it in a single folder or as a ZIP file.

This facilitates working on a project on multiple computers or sharing and exchanging your work with other WaveLab Pro users.

PROCEDURE

1. Do one of the following to access the **Project** menu:
   - Click **File** at the top of the workspace, and select **Project**.
   - Click the **Project Functions** ▦ button on the command bar.
2. Select **Back Up**.
3. Make the desired adjustments in the **Project Backup** dialog, and click **Start**.

RESULT

A backup copy of the project is saved in a dedicated folder or as a ZIP file. It includes any files that are associated with the project.

Project Backup Dialog

In the **Project Backup** dialog, you can make adjustments for saving a backup copy of your project data.

You can open the **Project Backup** dialog by selecting **Back up** from the **Project** menu.
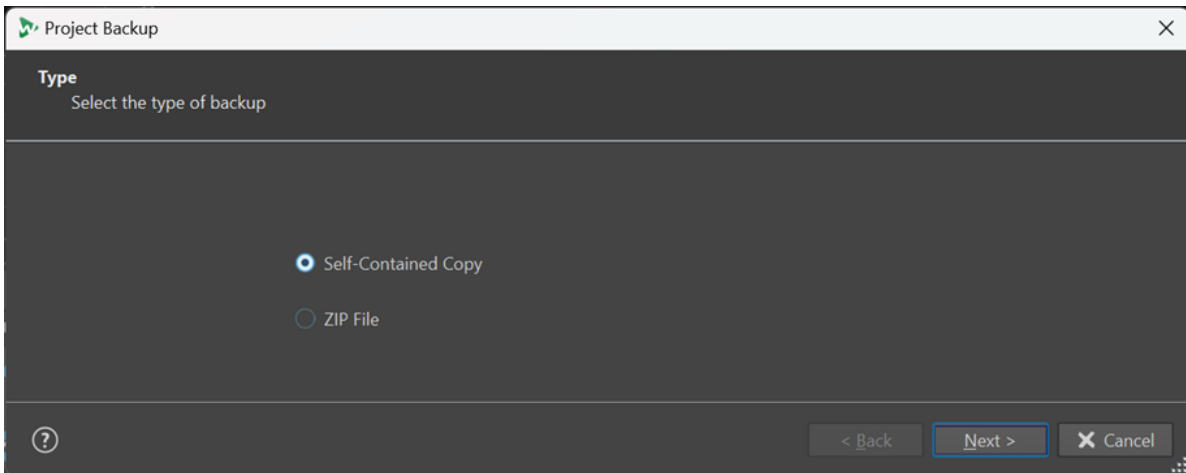
Type

- **Self-Contained Copy**

  Creates an exact, independent copy of all the files, presets, and editing area settings associated with the active project, and saves them in a single folder.

- **ZIP File**

  Saves the backup copy as a single archive file.

  You can choose from the following compression methods:

  - **None, Just Store (very fast)**

  - **Fast Compression**

  - **Medium Compression**

  - **Best Compression (slow)**

    NOTE

    Many media files cannot be significantly reduced when converting them into a ZIP file, even with **Best Compression (slow)** selected. This is why **None, Just Store (very fast)** is the default setting, which also takes considerably less time to process than the other options.

- **Password**

  Allows you to set a password to protect the backup copy against unauthorized use.

  NOTE

  - Activating this option slows down the backup process.

  - The password is required to open the files in the ZIP folder, so be sure to remember it and to pass it on to any other users that need to access the files.

- **Test Archived Files**

  Verifies that the content of the folder and the original project data are identical.

  NOTE

  This constitutes an additional check to ensure that the backup copy is complete; for example, prior to sharing the project with other users.

Destination

Allows you to assign a name to the backup folder or ZIP file and to select the destination folder.

> NOTE
>
> If you do not enter a new name into the **ZIP File Name/Project Backup Name** field, the name of the original project is used, with a version number (such as "_#2") added to the end of the name as required, to distinguish it from any existing backup copies of the same name.

Options and Preview

Allows you to select the files to include and to preview the result.

- **Copy Unused Files**

    Allows you to choose whether or not to include files that are in the original project folder but are currently not referenced by the project or any of its audio montages and hence "unused", in the backup copy.

    > TIP
    >
    > We recommend that you activate this option if the original project folder contains files that you added on purpose, such as alternate versions of files or notes, which may be of use for the project again in the future.

- **Preview**

    Gives you an overview of the files that are included in the backup process.

Project Window

The **Project** window gives you access to all project files in WaveLab Pro and allows you to edit them.

- To open the **Project** window, select **Tool Windows** > **Project**.
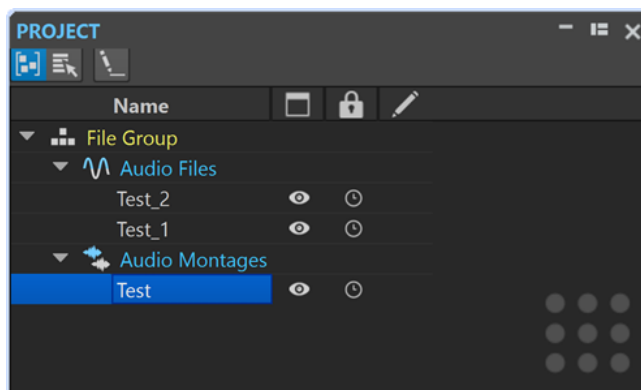
You can click on a file or file group to bring it in focus. If the file or file group is not already open in WaveLab Pro, it is opened.

The toolbar contains the following options:

Sort Files by Type

Groups files in subfolders, according to their file type.

> **NOTE**
>
> Otherwise, files are sorted based on file tabs.

Select Multiple Files (for Drag and Drop)

Allows you to select multiple files in the projects list. You can then drag the files to an audio montage, for example.

Rename Selected File Group

Allows you to rename the selected group.

The projects list contains the following options:

Open Status

▣

This column indicates whether a file is open in WaveLab Pro or not. Files marked with an eye 👁 icon are open. To close a file, click its eye 👁 icon.

If a file is set to **Persistent in Project**, the corresponding file tab is closed, but the file remains available in the **Project** window. You can click the file name to reopen the file. If the file is set to **Session File**, the corresponding file tab is closed, and the file is removed from the **Project** window.

Persistent in Project vs. Session File

Allows you to choose whether to set individual files in the project as **Persistent Files**, which remain in the project, even when you close the file, or as **Session Files**, which are removed from the project, once you close the file tab.

Modification Status

✎

In this column, you can see if a file in the project has been modified. Modifications to a file are indicated by a check mark.

Persistent Files and Session Files in Projects

Files can be a permanent part of a project in WaveLab Pro, or they can be temporarily included in it.

In the **Project** window, you can choose to define a file as persistent or as a session file.

- Persistent files remain in the project on a permanent basis, even when you close the file.
- Session files are temporarily included in the project; that is, they are removed from the project, once you close the file tab.

Use case example: You have created a project with hundreds of files. The option to mark files as **Persistent in Project** allows you to have hundreds of files in the project while having only two or three tabs open. As a result, you can benefit from a large pool of file assets and a clutter-free editing workspace at the same time.
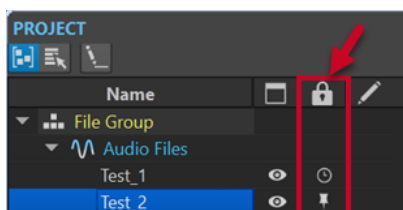
In the **File Persistence in Project** column 🔒 of the **Project** window, the pin icon 📌 indicates that the corresponding file is a persistent file; that is, a permanent part of the project. The clock icon 🕐 indicates that the corresponding file is a session file; that is, a temporary part of the project. You can change the file status by clicking the icon.

If you drag files from the File Explorer/macOS Finder onto the file list in the **Project** window, the files are added permanently to the project. This allows you to quickly add multiple files to a project, without adding any new tabs.

Changing the Status of Files in Projects

To change the file status, do one of the following:

- Right-click a file tab of a session file, and select **Keep in Project after Closing**.

- In the **Project** window, click the corresponding button (📌 or 🕐) in the **File Persistence in Project** column to change its status.

- In the **Project** window, right-click **File Group**, and select **Mark Session Files as Persistent**.

RELATED LINKS
Project Window on page 152

Playback and Transport

WaveLab offers you a wide range of options for playback and transport.

RELATED LINKS

Transport Bar

The **Transport Bar** allows you to control the playback of an audio file or an audio montage, to navigate to various positions in your audio, and to open the **Recording** dialog.

The entire range of features of the transport bar is available in the **Audio Editor** and in the **Audio Montage** window.

By default, the extended transport bar options are hidden.

- To activate the extended transport bar, click **Extend Transport Bar** » .

Presets

Allows you to save and apply presets.

Jog and Shuttle

Activates the **Jog and Shuttle** mode, which allows you to play back audio forwards or backwards, at any speed.

Playback Speed

Opens a menu where you can specify the playback speed.

Skip Range

If this button is activated, playback skips the selected range and any region within exclusion markers.

Perform Pre-Roll/Perform Post-Roll

Activates pre-roll or post-roll for the commands **Play from Anchor**, **Play until Anchor**, and **Play Audio Range**.

> NOTE
>
> Pre-roll allows you to start playback slightly before a specific position.
>
> Post-roll stops playback slightly after a specific position.

Right-click the button to select the pre-roll or post-roll length and to specify which commands you want to apply pre-roll/post-roll to. To edit the pre-roll/post-roll times, select **Edit Pre-Roll and Post-Roll Times**.

Play Audio Range

Plays the selected audio range. Post-roll and pre-roll settings are taken into account. Right-click the button to open a menu with related options and auto selection modes.

- If **Auto Select Range** is activated, the range is automatically selected according to the editing actions.

- If **Play from Start of New Time Selection** is activated when you select a range by dragging the mouse from left to right and starting playback, playback starts from the beginning of the selection. If you stop and start playback again or move the edit cursor, playback starts from the edit cursor position. If this option is deactivated, playback always starts from the edit cursor position.

  If **Play from Start of New Time Selection** and **Loop** are activated, playback restarts automatically when you select a new range.

- If **Solo Track When Editing** is activated and you keep the mouse button pressed when editing ranges in the **Audio Montage** window, the track is soloed when you start playback using the shortcuts for **Play Audio Range**, **Play from Anchor**, or **Play until Anchor**. This option is only available in the **Audio Montage** window.

You can choose from different audio ranges for playback:

- **Time Selection**
- **Region between Marker Pairs**

Additional options that are exclusively available in the **Audio Montage** window:

- **Clip**
- **Crossfade**
- **Fade In**
- **Fade Out**

Play until Anchor/Play from Anchor

Plays until or from the anchor. Pre-roll and post-roll settings are taken into account. Right-click the button to open a menu with related options and auto selection modes.

- If **Auto Select Anchor** is activated, the anchor is automatically selected according to the editing actions.

- If **Space Bar Triggers Play from Anchor** is activated and you press `Space` to start playback, the selected **Play from Anchor** setting is taken into account. If the selected anchor is not available, playback starts from the default playback position.

- If **Solo Track When Editing** is activated and you keep the mouse button pressed when editing anchors in the **Audio Montage** window, the track is soloed when you start playback using the shortcuts for **Play Audio Range**, **Play from Anchor**, or **Play until Anchor**. This option is only available in the **Audio Montage** window.

You can select which anchor to use as a reference for the commands **Play from Anchor** and **Play until Anchor**. In case there are multiple possibilities, such as multiple markers, the last selected item is used as a reference anchor or, if no item was selected, the closest item near the edit cursor position is used.

You can select one of the following anchors:

- **Edit Cursor**
- **Start of File**
- **Start of Selected Time Range**
- **End of Selected Time Range**
- **Any Marker**
- **Region Start Marker**
- **Region End Marker**

Additional options that are exclusively available in the **Audio Montage** window:

- **Clip Start**
- **Clip End**
- **Selected Envelope Point in Active Clip**

When an anchor is detected, for example, a region marker pair, this is indicated by a green anchor marker.
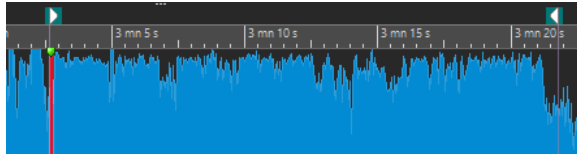
Move Cursor to Start of File/Move Cursor to End of File

Moves the edit cursor to the start/end of the file.

Move Playback Position Backwards/Move Playback Position Forwards

Moves the edit cursor position to the left/right. If you click during playback, playback jumps to the new edit cursor position.

To move the edit cursor to the start/end of the file, press **Ctrl/Cmd**, and click the **Move Playback Position Backwards/Move Playback Position Forwards** buttons.

Navigation anchors allow you to move the edit cursor to specific positions in the audio file or audio montage. Right-click the **Move Playback Position Backwards/Move Playback Position Forwards** buttons to open the **Navigation Anchors** pop-up menu. Here, you can set the type of navigation anchor. If you click during playback, playback continues from the anchor position.

Loop

Activates loop mode. Right-click the loop button to select whether to loop continuously or only a few times.

Stop Playback

Stops playback. If playback is already stopped, the edit cursor is moved to the previous start position. Right-click the button to open the **Move Cursor Back to Start Position** pop-up menu.

- If **After Standard Playback** is activated, the edit cursor jumps back to the start position when regular playback stops.
- If **After Automated Playback** is activated, the edit cursor jumps back to the start position when playback stops after **Play from Anchor**, **Play until Anchor**, or **Play Audio Range**.

Start Playback from Edit Cursor

Starts playing back the active audio file or audio montage from the edit cursor position. This option can also be used to play back other sources, for example, the active clip in the **Clips** window.

If the audio being played back is not the active audio file, the **Play** button has a different color. This happens if you switch to another file window during playback, for example.

The playback button when playing back in the active window (left) and when playing in another window (right)

You can also start playback from the last stop position. Right-click the button to open the **Lead Sequence** pop-up menu.

- If you select **Start**, playback starts from the cursor position.
- If you select **Resume from Last Interruption**, playback starts from the last stop position.

Record

Opens the **Recording** dialog.

Time Display

Displays the edit cursor or playback position. Click to select another time unit.

RELATED LINKS
Pre-Roll and Post-Roll on page 162

Play Button

Clicking the **Play** ▶ (**Start Playback from Edit Cursor**) button on the transport bar starts playing back the active audio file, an audio montage, or the active clip from the edit cursor position. It can also be used to play back other sources, for example, the active clip in the **Clips** window.

You can also use `Space` or the `Enter` key on your keyboard to start playback. Pressing `Space` during playback stops playback. Pressing `Enter` during playback makes playback restart from the last start position.

If the **Loop** button is activated, the audio selection is looped, if available. Otherwise, the region defined by loop markers is looped. If there are no selection ranges or loop markers, the entire file is looped.

The standard play command is not influenced by the **Play Audio Range**, **Play from Anchor**, and **Play until Anchor** options.

Stop Playback Button

The result of clicking the **Stop Playback** button ■ on the transport bar or `0` on your numeric keypad depends on the context.

- If you trigger **Stop Playback** in stop mode, the edit cursor moves either to the previous playback start marker or to the selection start (whichever is closer), until the start of the file is reached.
- If there is no selection or if the edit cursor is positioned to the left of the selection, it is moved to the beginning of the file instead.

Playing Back Audio Ranges

You can play back audio ranges using the **Play Audio Range** options on the transport bar.

PROCEDURE

1. On the transport bar, right-click **Play Audio Range**, and select the range type that you want to play back.
2. Optional: Activate **Perform Pre-Roll** and/or **Perform Post-Roll**.
3. Position the edit cursor inside the range that you want to play back, or make a selection range.

   The selected range and, if activated, the pre-roll and post-roll times, are displayed on the time ruler.
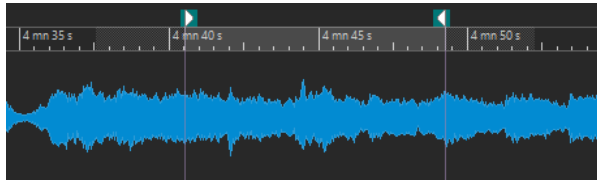
4. To play back the selected range, click **Play Audio Range** on the transport bar, or press `F6`.

RESULT

The selected range is played back. Any pre-roll and post-roll settings are taken into account. If the **Loop** mode is active, pre-roll is used before the first loop only, and post-roll is only used after the last loop.

Playing Back from an Anchor or up to an Anchor

You can play back audio from an anchor or up to a specific anchor using the **Play from Anchor** or **Play until Anchor** options on the transport bar.

PROCEDURE

1. On the transport bar, right-click **Play from Anchor** or **Play until Anchor**, and select an anchor type.

2. Depending on the selected anchor type, in the **Audio Editor** and in the **Audio Montage** window, position the edit cursor within the range that you want to play back.

   Example: Select **Region Start Marker**, and click in the area of the region marker pair that you want to play back from/to. As a result, the green anchor marker jumps to the selected anchor.
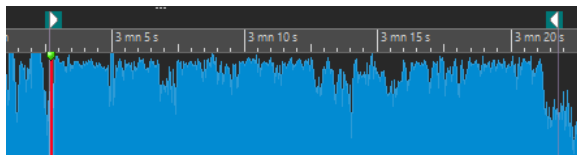
3. Optional: Activate **Perform Pre-Roll** and/or **Perform Post-Roll**.

4. To play back from the anchor marker, click the **Play from Anchor** button on the transport bar, or press `F7`. To play back to the anchor marker, click the **Play until Anchor** button on the transport bar, or press `F8`.

RESULT

Playback starts from the anchor or stops at the anchor. Pre-roll and post-roll settings are taken into account.

"Play from Anchor" and "Play until Anchor"

The behavior of the **Play from Anchor** or **Play until Anchor** functions on the transport bar depends on the pre-roll and post-roll settings.

Play from Anchor

- If post-roll is activated, playback starts at the anchor position and stops after the post-roll time. If no post-roll is selected, playback continues until the end of the audio file or audio montage.

- If pre-roll is activated, playback starts from the selected anchor, minus the pre-roll time.

- If pre-roll and post-roll are activated, playback starts from the selected anchor, minus the pre-roll time, and stops after the anchor point plus the post-roll time.

- With the loop mode activated, the pre-roll and post-roll settings are taken into account. This enables you to play a loop around the edit cursor position, without further adjustments.

Play until Anchor

- Playback starts from the cursor and stops at the selected anchor. If the cursor is beyond the selected anchor, playback starts at the selected anchor. If pre-roll is activated, it is taken into account.

- If pre-roll is activated, playback starts from the selected anchor, minus the pre-roll time, up to the selected anchor.

- If no anchor is selected, **Play until Anchor** is deactivated.

- The loop settings have no effect.

Using the Auto Selection Mode

Using the auto selection mode, in combination with the playback shortcuts, for playing back audio ranges or anchors makes it easy to monitor your editing operations.

PROCEDURE

1. On the transport bar, right-click the **Play from Anchor** or **Play until Anchor** button, and activate **Auto Select Anchor**.

2. Right-click the **Play Audio Range** button, and activate **Auto Select Range**.

3. In the **Audio Editor** or in the **Audio Montage** window, do one of the following:

   - Make a selection range.

   - Click inside the area of a marker pair.

   - Click a fade in, fade out, or crossfade.

   - Click anywhere in the **Audio Editor** or in the **Audio Montage** window.

   - Drag a marker.

   Depending on your action, the most appropriate range, or anchor, is selected. For example, if you click inside a marker pair, this region is selected as the playback range.

   The time ruler shows the selected range or anchor.

   > NOTE
   >
   > In **Auto Select Anchor** and **Auto Select Range** mode, you can still change some range and anchor options on the transport bar to play a different range/anchor. However, the range/anchor is reselected when you start editing again with the mouse.

4. Use the playback shortcuts to start playback.

   - To play back the selected audio range, press **F6** .

   - To play back from an anchor, press **F7** .

   - To play back up to an anchor, press **F8** .

RESULT

The selection range is played back, or playback starts from the anchor or stops at the anchor. Pre-roll and post-roll settings are taken into account.
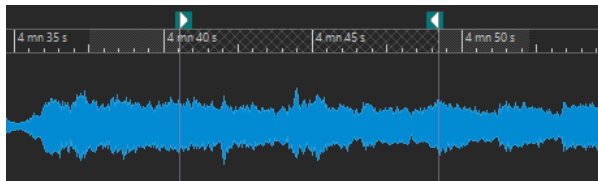
Skipping Sections During Playback

You can automatically skip a selected audio range during playback, which allows you to exclude specific sections from auditioning.

PROCEDURE

1. On the transport bar, activate **Skip Range**.

2. Activate **Perform Pre-Roll** and **Perform Post-Roll**.

3. To be able to use the **Play Audio Range** function, activate one of the **Ranges** modes.

4. Depending on the **Ranges** mode, do one of the following:

   ● If you have activated **Time Selection**, make an audio selection in the waveform window.

   ● If you have activated **Region Between Marker Pairs**, click between a marker pair.

   The audio range to be skipped is displayed on the time ruler, along with the pre-roll and post-roll times.

5. Select **Play Audio Range**, or press `F6`.

RESULT

The selected range is skipped during playback.

TIP

You can also use the factory preset for skipping selections during playback. Activate **Skip Range**, make an audio selection, and press `Shift`-`F6`.

NOTE

With a time selection or exclusion start and end markers set, this mode also works with the **Play** ▶ (**Start Playback from Edit Cursor**) button. In this case, the pre-roll and post-roll times are ignored.

Loop Playback

You can loop an audio selection, if available.

Loop points are continuously updated during playback. If you change the loop start or end during playback, the loop changes. This allows you to audition selection points for rhythmic material.

If there is no selection range, the entire file is looped.

If you loop a section in an audio montage, playback loops within the boundaries of the current selection range. You can define a selection range on any track, even on an empty one. The vertical position of the selection range is of no relevance for loop playback. Only the left and right selection boundaries are taken into account.
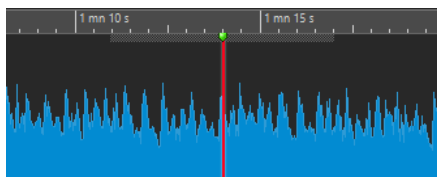
RELATED LINKS
Loops on page 730

Pre-Roll and Post-Roll

You can start playback slightly before a specific position (pre-roll) and stop it slightly after another position (post-roll).

The position to be defined can be an anchor or the start or end of a range. The pre-roll and post-roll times are displayed on the time ruler.

To activate pre-roll and/or post-roll, activate **Perform Post-Roll** and/or **Perform Pre-Roll** on the transport bar.

When right-clicking the pre-roll or post-roll button on the transport bar, you can select a pre-roll/post-roll time. You can also select a play option and open the **Pre-Roll and Post-Roll Times** dialog.
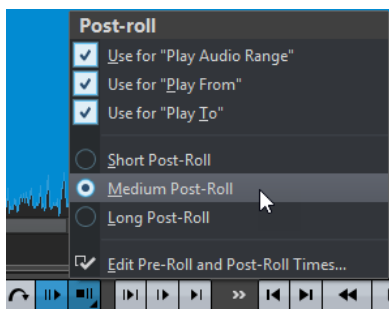
Pre-Roll and Post-Roll Times Dialog

The **Pre-Roll and Post-Roll Times** dialog allows you to specify exact pre-roll and post-roll times.

● To open the **Pre-Roll and Post-Roll Times** dialog, right-click the pre-roll or post-roll button on the transport bar, and select **Edit Pre-Roll and Post-Roll Times**.
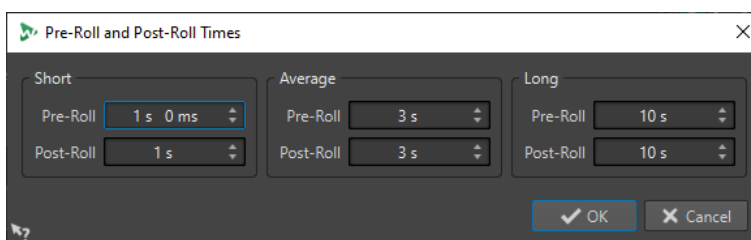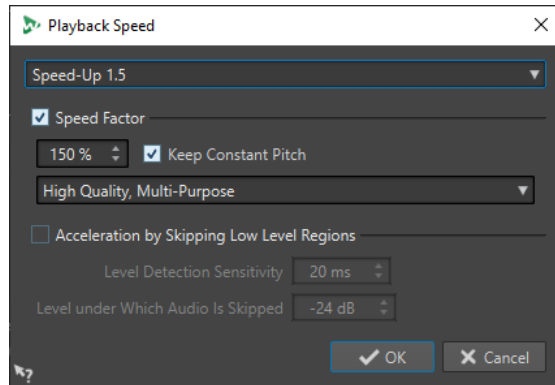

NOTE

The parameters you set in this dialog are globally applied throughout WaveLab Pro.

Playback Speed Dialog

The **Playback Speed** dialog allows you to specify a playback speed for an active audio file and all clips of an active audio montage.

- To open the **Playback Speed** dialog, right-click **Playback Speed** on the transport bar, and select **Edit Playback Speed**.

Presets

Allows you to enter a name and save the settings as a preset. You can select the preset from the **Playback Speed** pop-up menu at a later point in time.

Speed Factor

Allows you to set the playback speed as a percentage of the normal speed.

Keep Constant Pitch

Prevents the pitch of the audio from being affected by any changes in playback speed.

Quality pop-up menu

Allows you to choose from three options:

High Quality (Multi- Purpose) is suited for most audio files but takes time to be processed.

Fast Preview is processed quickly and allows you to preview a setting.

Speech is particularly suited for voice material.

Acceleration by Skipping Low Level Regions

Skips the playback of audio regions that are below the threshold level.

Level Detection Sensitivity

Determines the sensitivity of the level detection analysis.

Level under Which Audio Is Skipped

Determines the threshold level for a region to be skipped during playback.

NOTE

Changing the playback speed does not change the original audio in WaveLab Pro.

Playback Shortcuts

In addition to the buttons on the transport bar, you can use shortcuts to control the playback.

Space

Starts or stops playback. This shortcut can even be used when the **Audio Editor** or the **Audio Montage** window is not the active window.

0 on numeric keypad

Stops playback. If the playback is stopped and you press this shortcut, the edit cursor moves either to the previous playback start marker or to the selection start (whichever is closer), until the start of the file is reached. This is identical to clicking **Stop Playback** on the transport bar. The shortcut is available even when the **Audio Editor** or the **Audio Montage** window is not the active window.

Enter

Starts playback. If pressed during playback, playback restarts from the previous start position. This is the same as clicking **Start Playback from Edit Cursor** on the transport bar.

Alt-Space

Starts playback from the mouse cursor position.

F6

Starts playback of the selected range, depending on the selected option in the **Ranges** section of the transport bar.

F7

Starts playback from the selected anchor, depending on the selected option in the **Anchors** section of the transport bar.

F8

Starts playback and stops it at the selected anchor, depending on the selected option in the **Anchors** section of the transport bar.

Save Transport Bar Preset Dialog

The **Save Transport Bar Preset** dialog allows you to save your preferred transport bar setup as a preset.

● To open the **Save Transport Bar Preset** dialog, click the **Presets** field on the transport bar, and select **Save As**.
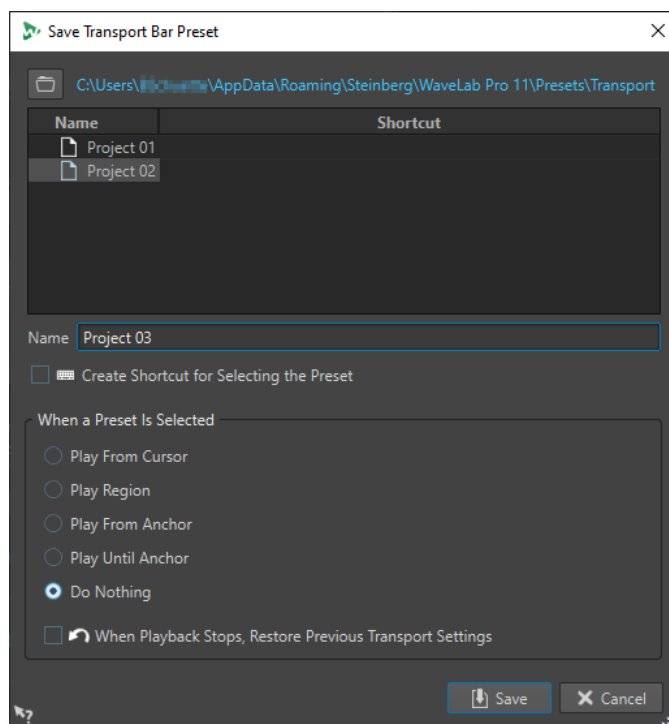
Path

Opens the root folder of the preset in the File Explorer/macOS Finder and allows you to create subfolders for your presets.

Presets list

Lists all existing presets.

Name

Allows you to specify a name for your preset.

Create Shortcut for Selecting the Preset

If this option is activated and you click **Save**, the **Shortcut Definitions** dialog opens, where you can define a shortcut for this preset.

If a preset already has an assigned shortcut, this option is grayed out. To change the existing shortcut, double-click the preset name in the presets list.

When a Preset Is Selected

Allows you to assign a customized playback command to a shortcut. For example, you can set a shortcut to play a range with a short pre-roll/post-roll, and another shortcut to play a range without a pre-roll/post-roll.

When Playback Stops, Restore Previous Transport Settings

Restores the settings to the state prior to starting the playback. This allows you to trigger a special play task and to automatically switch back to the standard settings as soon as playback is finished.

Changing the Position of the Transport Bar

You can position the transport bar at the top, in the middle, or at the bottom of an editor window.

PROCEDURE

1. On the command bar of the **Audio Editor** or **Audio Montage** window, click **Layout Options**.

2. In the **Transport Bar** section, select whether to position the transport bar at the **Top**, in the **Middle**, or at the **Bottom**.

Hiding the Transport Bar

You can hide the **Transport Bar** to save screen space.

PROCEDURE

1. On the title bar of the **Audio Editor** or the **Audio Montage** window, click **Layout Options**.

2. In the **Transport Bar** section, select **Hidden**.

Audio-Processing Load

The **Audio-Processing Load** display on the **Transport Bar** shows the average audio-processing load of plug-ins during playback. This allows you to monitor the number of plug-ins you can use.

The green bar displays the average audio-processing load of all active plug-ins. With a load of 100%, dropouts are likely to happen. The red bar displays the load of the most recently processed audio.

- To activate/deactivate the **Audio-Processing Load** function, right-click the **Transport Bar**, and click **Audio-Processing Load**.

Starting Playback From the Time Ruler

You can use the time ruler to jump to a position and start playback from there.

- Double-clicking the time ruler starts playback from that position. Playback continues until you click **Stop Playback** or until the end of the audio file or audio montage.
- To set the playback position to a specific location, click the time ruler during playback. This also applies for clicking the time rulers of another audio file or audio montage, which allows you to quickly switch playback between audio files or audio montages.
- To start playback from a marker position, press **Ctrl/Cmd**, and double-click the marker.
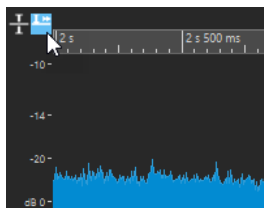
RELATED LINKS
Time Ruler and Level Ruler on page 84

Playing Back Focused Audio Channels

During playback, you can alternate between playing back the left/right, mid/side, channel clusters of multichannel audio files, or both audio channels.

PROCEDURE

1. In the **Audio Editor**, activate **Play Back Focused Audio Channels**.

   NOTE

   If you are using the **Play Back Focused Audio Channels** option for multichannel audio files, the **Mute** and **Solo** buttons are not available.
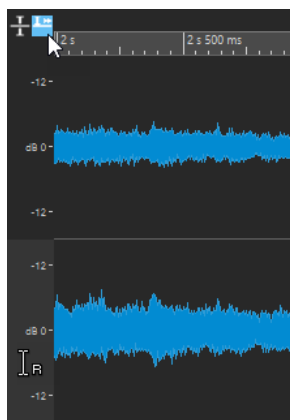
2. Start playback.
3. To switch playback between the different audio channels, do one of the following:

   - To play back the left or mid audio channel, click the upper area of the level ruler.
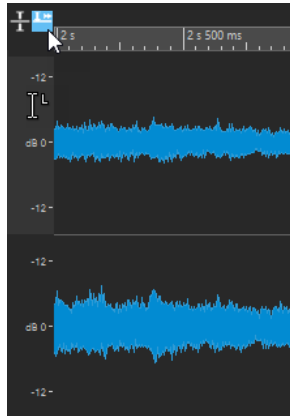
Cursor position for playing back the left audio channel

- To play back the right or side audio channel, click the lower area of the level ruler.

Cursor position for playing back the right audio channel

- To play back both audio channels, click the middle area of the level ruler.
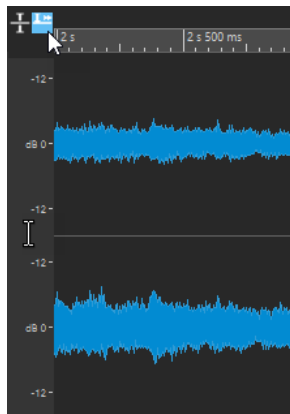
Cursor position for playing back the left and right audio channels

- To play back a channel cluster of a multichannel audio file, click the channel control area of the channel cluster.

- To switch through the audio channels via key commands, press **Alt** - **Page Down** or **Alt** - **Page Up** .

RELATED LINKS
Time Ruler and Level Ruler on page 84
Multichannel Audio Files on page 199

Playing Back Multichannel Files

You can play back multichannel files according to your audio device setup.

PREREQUISITE

Via the **Audio Connections** tab, you have specified the input and output buses and the device to be used for audio playback.

NOTE

If, with your setup, you cannot play back all audio channels, you can play back the multichannel file in stereo.

PROCEDURE

1. Open a multichannel audio file in the **Audio Editor** or in the **Audio Montage** window.

2. Start playback.

    If your audio device setup is correct, the multichannel file is played back. If your audio device setup does not allow playing back all channels of the multichannel file, the **Incomplete Audio Device Connections** dialog opens.

3. In the **Incomplete Audio Device Connections** dialog, do one of the following:

    - To stop playback, click **Stop (No Playback)**.

    - To open the **Audio Connections** tab and make changes to your audio device setup, click **Open Audio Connections**.

    - To start playback but mute all channels that cannot be played back, click **Continue (Some Audio Channels Will Be Muted)**.

    - To play back the multichannel audio file in stereo, click **Activate the Master Section "Mix to Stereo" Option for Playback**.

      NOTE

      We recommend using the **MixConvert V6** plug-in in the **Master Section** to mix the multichannel file to stereo.

RELATED LINKS
Audio Connections Tab on page 33
Opening Files via the File Tab on page 95
Master Section on page 572

Playback Scrubbing

Playback scrubbing helps you to find a specific position in an audio file by restarting playback repeatedly while you click and drag on the time ruler during playback or using the **Play** tool.

RELATED LINKS
Scrubbing Using the Play Tool on page 169
Scrubbing Using the Time Ruler on page 169

Scrubbing Using the Play Tool

The **Play** tool allows you to play back from any position, on one or both stereo channels.

PROCEDURE

1. In the **Audio Editor**, select the **Edit** tab.

2. In the **Tools** section, select the **Play** tool, or press and hold Alt .

3. Click in the waveform window.

4. In the waveform window, click at the position where you want playback to start.

   The cursor shape indicates whether the left (L) or the right (R) channel is played back. If mid/side mode is activated, the cursor shape indicates whether the mid (M) or the side (S) channel is played back. Using the **Play** tool in the middle of the channels plays back both channels.

RESULT

Playback continues for as long as you keep the mouse button pressed, or until the audio file ends. After playback has stopped, the cursor moves back to the playback start position.

RELATED LINKS
Playback Scrubbing on page 168
Mid and Side Editing on page 231
Playback Scrubbing Preferences on page 169

Scrubbing Using the Time Ruler

During playback, you can click the time ruler to play back from the selected position.

PROCEDURE

1. Start playback.

2. Click the time ruler, hold the mouse button pressed, and drag left or right.

3. When you are done scrubbing, release the mouse button.

   The audio is played back from the edit cursor position, and a small section is looped once.

RELATED LINKS
Playback Scrubbing on page 168

Playback Scrubbing Preferences

You can define the behavior of the **Play** tool in the **Audio Files Preferences**.

Select **File** > **Preferences** > **Audio Files**. The following options are available in the **Playback Scrubbing** section of the **Editing** tab:

- If **Restrict to Play Tool** is activated, scrubbing is not available when you click and drag on the time ruler during playback.

- The **Sensitivity** setting determines the length of the audio loop that is played once, when you click and drag on the time ruler with the **Play** tool.

RELATED LINKS

Timecode Window

The **Timecode** window can display the recorded time, the time offset in relation to various positions, and dynamic colors, based on the context.

NOTE

During playback, the song position is displayed. If nothing is played back, the edit cursor position is displayed.

- To open a **Timecode** window, select **Meters** > **Timecode #1**.
- To open a second **Timecode** window, select **Meters** > **Timecode #2**.

TIP

Opening two **Timecode** windows allows you to view the time from two different reference points. For example, you can display the edit cursor position from the start of the audio montage and from the start of the active clip at the same time.
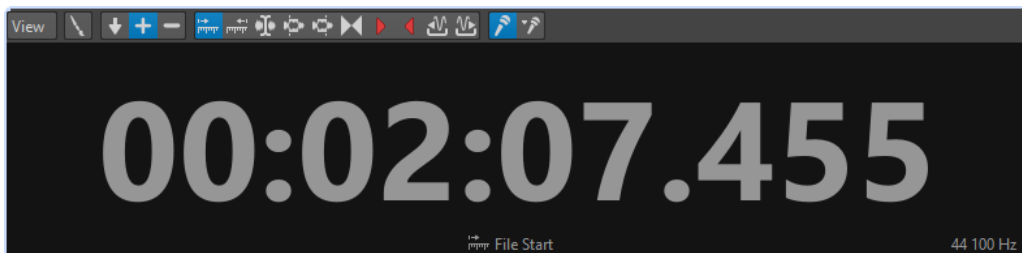
View Menu

Edit Colors

Opens the **Timecode Colors** dialog, where you can edit the colors of the **Timecode** window.
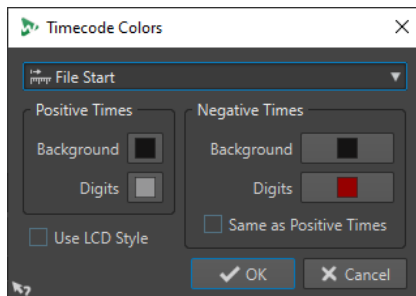
Reduced Precision

Causes the timecode display to show fewer digits.

Positive Times

Displays positive values. With **Negative Times** activated as well, the closest offset, negative or positive, is displayed.

Negative Times

Displays negative values. With **Positive Times** activated as well, the closest offset, negative or positive, is displayed.

File Start

Displays the position in relation to the start of the time ruler. The time format display is based on the ruler.

File End

Displays the position in relation to the end of the time ruler. The time format display is based on the ruler.

Offset Display

Allows you to select the position from which to display the offset. The following positions are available: **Edit Cursor**, **Selection Start**, **Selection End**, **Marker**, **Title Start**, **Title End**, **Clip Start**, **Clip End**.

Recorded Time

Causes the **Timecode** window to display the recorded time when you start recording.

Recorded Time (from Last Marker)

Causes the **Timecode** window to display the recorded time from the last dropped marker when you start recording.

Jog and Shuttle Functions

The **Jog and Shuttle** functions allow you to play back audio forwards or backwards, at any speed, which can help you to find exact spots in the audio file and audio montage.

TIP

The **Jog and Shuttle** functions are CPU-intensive. If you experience playback problems, try reducing the window size.

Using the Jog Function

The Jog function corresponds to dragging audio past a playback point, which is comparable to dragging a reel-to-reel tape past the playback head.

PROCEDURE

1. Zoom in on the **Audio Editor** or the **Audio Montage** window, for a detailed view.

2. On the transport bar, activate **Jog and Shuttle**.

   A vertical line is shown in the middle of the **Audio Editor** or in the **Audio Montage** window. This is the playback point.

3. Click in the area above the time ruler, and drag to the left or to the right, to play back the audio.

   Dragging to the left of the line plays the audio forwards, dragging to the right plays the audio backwards.

Using the Shuttle Function

The Shuttle function enables you to play back audio with continuous control over the tape speed and direction.

PROCEDURE

1. Zoom in on the **Audio Editor** or the **Audio Montage** window, for a detailed view.

2. On the transport bar, activate **Jog and Shuttle**.

   A vertical line is shown in the middle of the **Audio Editor** or the **Audio Montage** window. This is the playback point.

3. Click in the **Audio Editor** or the **Audio Montage** window, and drag to the left or right of the vertical line.

   Clicking to the left of the line plays the audio backwards, clicking to the right plays the audio forwards.

   The playback speed is determined by the distance from the line to the pointer. The further away from the line you move the pointer, the faster the playback.

4. Release the mouse button to stop playback.

5. Deactivate **Jog and Shuttle** on the transport bar.

Scrolling During Playback

You can determine how to scroll the view in **Play** mode.

● To set the scroll mode, open the **Audio Editor** or the **Audio Montage** window. Select the **View** tab, and activate one of the options in the **Playback** section.

Static View

Disables scrolling.

View Follows Cursor

Automatically scrolls the view to keep the playback cursor visible.

Scroll View

Scrolls the view to keep the playback cursor centered.

TIP

If you get dropouts during playback, activate **Static View**.

Playback in the Audio Montage Window

Controlling playback in the **Audio Montage** window basically works just like in the **Audio Editor**, aside from a few features that are exclusively available for audio montages.

Mute and Solo

You can mute or solo tracks in an audio montage via the corresponding buttons in the track control area.

CHOICES

● In the track control area of a track, do one of the following:

- To mute a track, click **Mute**.

  When a track is muted, the mute button is yellow.

- To solo a track, click **Solo**.

  When a track is soloed, the solo button is red.

- To solo multiple tracks, `Ctrl/Cmd`-click **Solo** for all tracks that you want to solo.

- To activate solo defeat for a track, press `Ctrl/Cmd`-`Alt/Opt`, and click **Solo**.

  In this mode, the track is not muted when you solo another track. To deactivate solo defeat, click **Solo** again.

RELATED LINKS
Track Control Area on page 321

Muting Individual Clips

Instead of muting tracks, you can also mute individual clips.

PROCEDURE

1. Select **Tool Windows** > **Clips**.

2. Select the clips that you want to mute, and select **Functions** > **Mute/Unmute Selected Clips**, or check the box in the **Mute** column.

Playing Back Individual Clips

You can play back an individual clip on a track.

PROCEDURE

1. In the **Audio Montage** window, right-click the lower part of the clip that you want to play back.

2. On the menu, select one of the following play options:

   - To play back the clip, select **Play Clip**.

   - To play back the clip with pre-roll, select **Play Clip with Pre-Roll**.

   Overlapping clips or clips on other tracks are muted.

Playing Back a Selection Range of a Track

You can select a section of a clip and play it back.

PROCEDURE

1. In the **Audio Montage** window, make a selection range, either in a clip or in an empty section of a track.

2. Right-click the selection range, and select **Play Clip Inside Selection Range**.

   Overlapping clips or clips on other tracks are muted.

Speaker Configuration

You can configure up to eight speaker setups and switch between them without latency. In addition to this, you can link individual speaker configurations to specific playback plug-in chains.

Switching between different speakers and playback plug-in chains is useful for the following purposes:

Simulating Various Listener Contexts to Optimize Your Mix

Your audience uses a variety of different devices to listen to your audio, ranging from studio monitors and car speakers to earbuds and mobile phone speakers, etc. The ability to simulate these contexts is of vital importance, as it gives you a better understanding of how your mix sounds on different types of speakers and headphones and enables you to optimize it accordingly.

If a mix sounds good, no matter what device or system it is played on, it is generally considered well-balanced.

In connection with this, simulating various listening conditions by switching speaker configurations helps you to identify and resolve a wide range of issues, as different speakers and playback plug-ins can reveal different issues in your mix. For example, listening on high-end studio monitors, you may detect problems that are not audible on inexpensive headphones, and vice versa.

Preventing Ear Fatigue

Listening to your mix on the same speakers for an extended period of time can cause ear fatigue, which compromises your ability to listen critically. Switching between speakers allows you to listen to the mix "from a fresh angle" and prevents ear fatigue.

After setting up the speaker configurations via the **Audio Connections** tab, you can select the configurations (**2**) from the **Speaker Configuration** pane in the **Master Section**.

You can set individual gains for each configuration via the dial (**1**).

NOTE

- The speaker gain is not taken into account by the meters. This means that the signal can clip, even if the meters do not indicate any clipping.

- The speaker gain has no effect on file rendering or CD writing.

- As the gain affects the samples, any dithering settings are reset when changing the gain. This has an impact on monitoring quiet music passages.

The gain settings are saved with the active configuration. In the **Audio Connections** dialog, you can save the speaker configurations as a preset. You can access the **Audio Connections** dialog via **File** > **Preferences** or by clicking the respective button (**4**) on the **Speaker Configuration** pane in the **Master Section**.

The **Plug-in Association** option (**3**) on the **Speaker Configuration** pane allows you to link playback plug-in chains to speaker configurations, so that the plug-ins are automatically loaded when you select the corresponding speaker configuration.
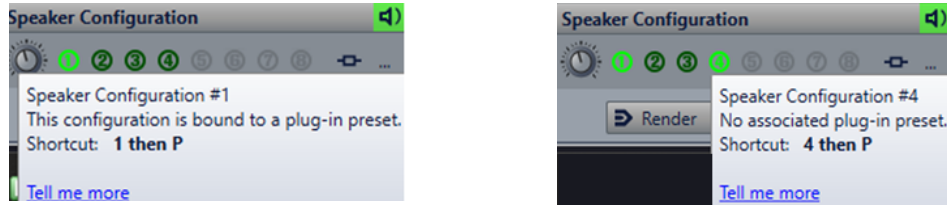
NOTE

Linking a playback plug-in chain to a speaker configuration can lead to a delay when switching between speaker configurations, as some plug-ins require time for activation.

TIP

To find out whether a playback plug-in chain preset is linked to a speaker configuration, move the mouse over the button to display the corresponding tooltip:

RELATED LINKS
Speaker Configuration Pane on page 597
Audio Connections Tab on page 33

Setting Up the Speaker Configuration

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. On the **Audio Connections** tab, select an **Audio Device**.

3. On the **Playback** tab, select the speaker configuration that you want to edit.

4. Select and name the audio ports used for playback.

5. On the **Recording** tab, select the speaker configuration that you want to edit.

6. Select and name the audio ports used for recording and input monitoring.

   NOTE

   The input selection is not affected by the speaker configuration.

Audio File Editing

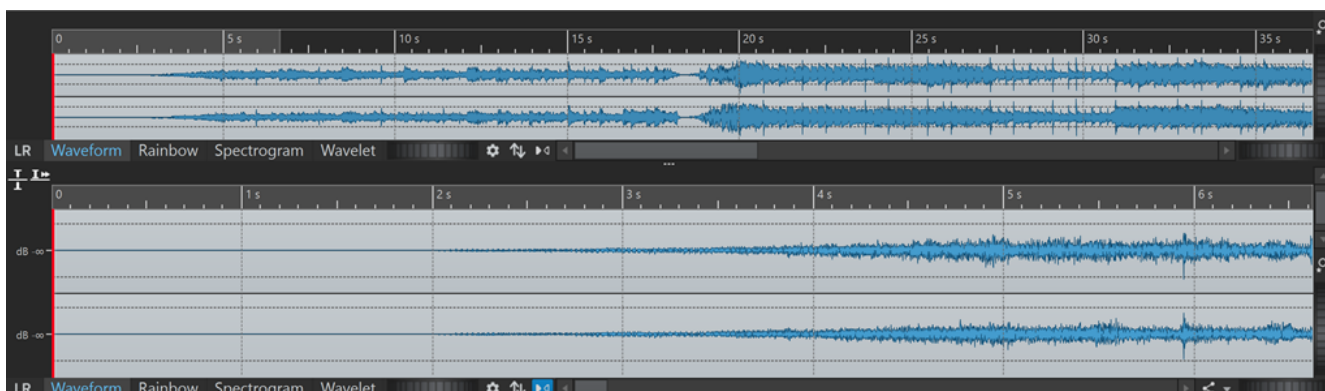Audio file editing encompasses opening, modifying, and saving audio files.
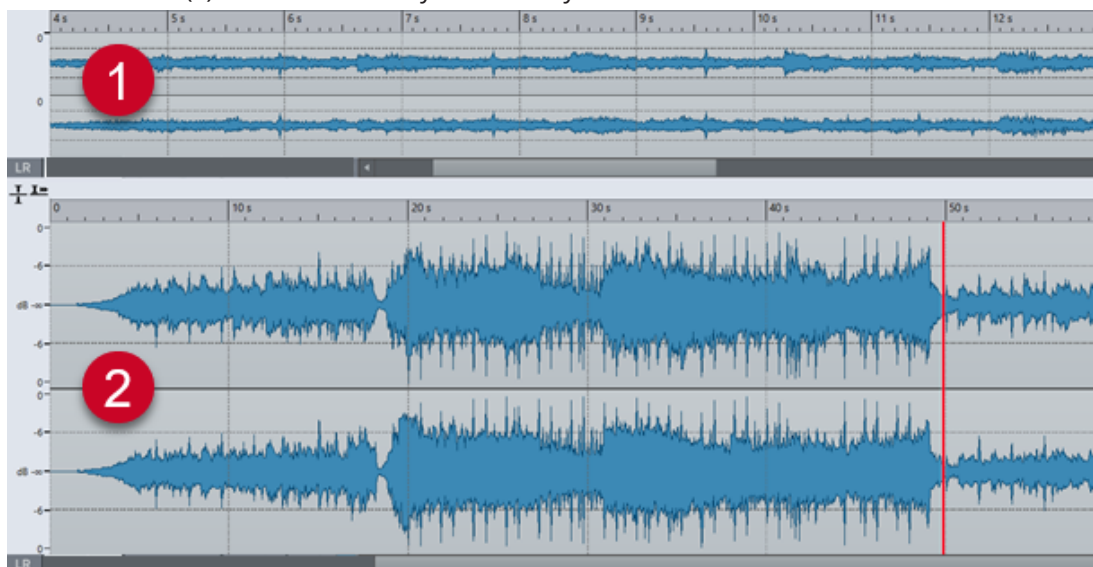
RELATED LINKS

Audio Editor Window

The **Audio Editor** window displays audio files graphically. It allows you to view, play back, and edit individual audio files.

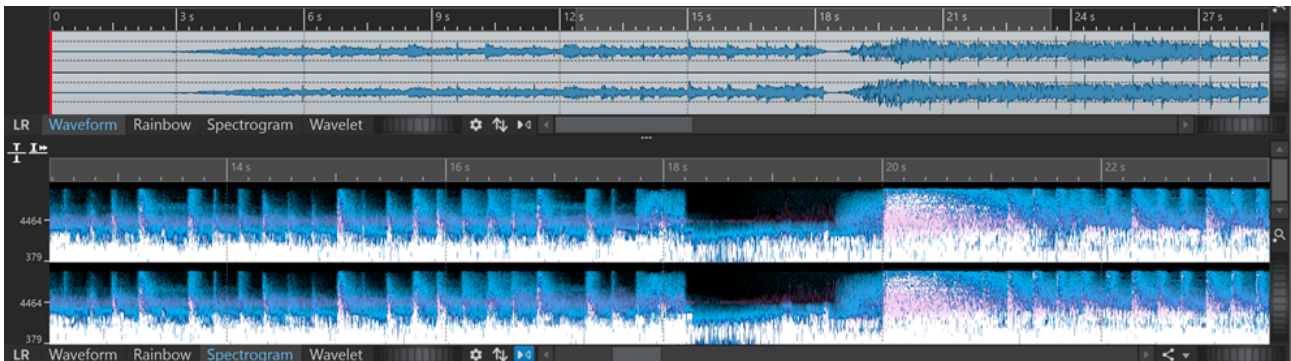The **Audio Editor** displays your audio in two views:

The **Overview** (**1**) serves to navigate in the project.

The **Main View** (**2**) is the area where you can edit your audio files.

You can select different display modes for the two views. For example, one of them can show the waveform, while the other one displays the spectrogram.

Clicking **Sync with Other View** 🔃 at the bottom synchronizes the two **Audio Editor** views, so that they display the same part of the audio file.

Display Modes

You can choose a display mode for the **Audio Editor**. It is possible to set different modes for the **Overview** and the **Main View**.

● The **Waveform** tab displays the waveform of the audio file.

● The **Rainbow** tab displays the spectral properties as a multi-colored waveform.

● The **Spectrogram** tab displays the audio as a spectrogram.

● The **Wavelet** tab displays the audio as musical tones in frequencies.
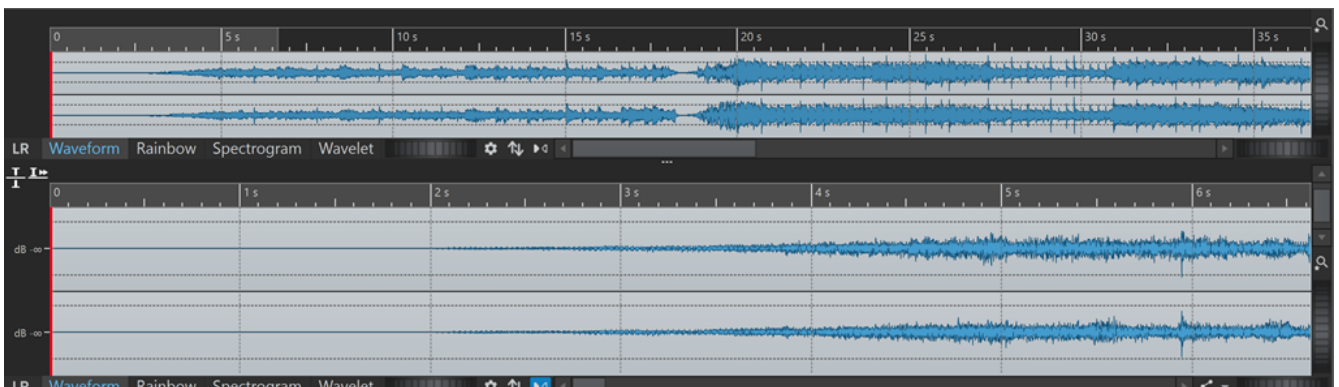
RELATED LINKS
Waveform Display on page 177
Rainbow Display on page 178
Spectrogram Display on page 178
Wavelet Display on page 179

Waveform Display

The **Waveform** display visualizes the waveform of the audio file. The horizontal axis shows the time. The vertical axis represents the amplitude.

To open the **Waveform** display, click **Waveform** at the bottom of the **Audio Editor** window.
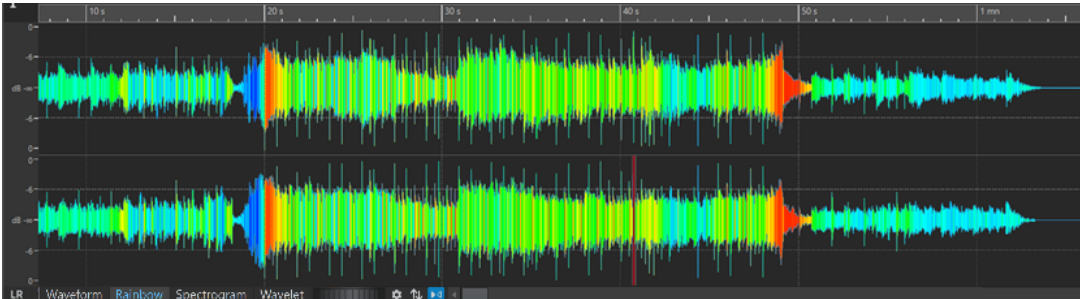

RELATED LINKS
Audio Editor Window on page 176
Display Modes on page 177
Audio Files Preferences on page 872

Rainbow Display

With the **Audio Editor** set to the **Rainbow** display, the spectral properties of an audio file are indicated by colors in the waveform.

To open the **Rainbow** display, click **Rainbow** at the bottom of the **Audio Editor** window.

Representing the spectral properties of audio material by multiple colors in the waveform in this way enables you to perform a quick visual analysis of the audio file. Hence, the **Rainbow** display can serve purposes such as the following:

- In music production and mastering, it allows you to identify patterns, such as the presence of specific timbres, and to locate problematic areas in the audio material; for example, too much bass or too many high frequencies.

- In forensics, it facilitates the identification and subsequent extraction of significant signals, even in extremely noisy recordings.

- In educational contexts, it constitutes a visual aid for explaining and learning about sound structure.

- In linguistics and speech analysis, it provides insight into how different spectral features correlate with phonemes, intonation, and other elements of speech.

Spectrogram Display

The **Spectrogram** allows you to view the level intensity of each area in the frequency spectrum.

You can use the WaveLab Pro spectrum editing tools to edit the spectrogram.

To open the **Spectrogram** display, click **Spectrogram** at the bottom of the **Audio Editor** window.
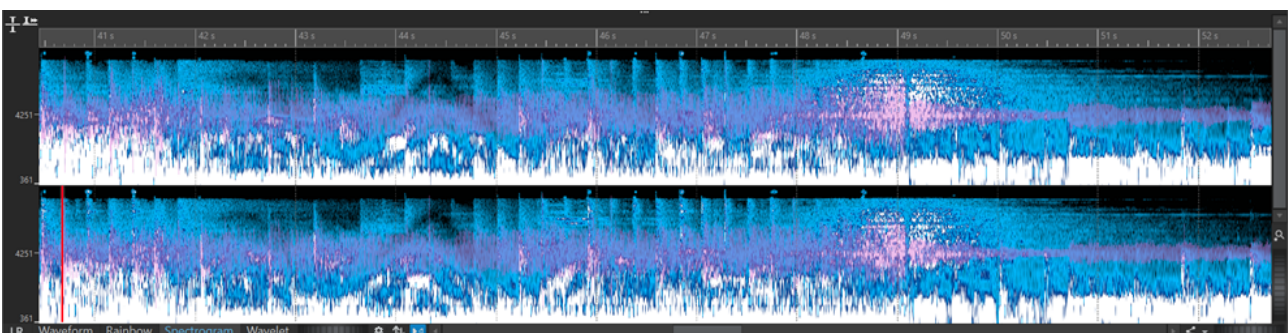
The **Spectrum** tab, in conjunction with the **Spectrogram**, is a unique editing and restoration tool.
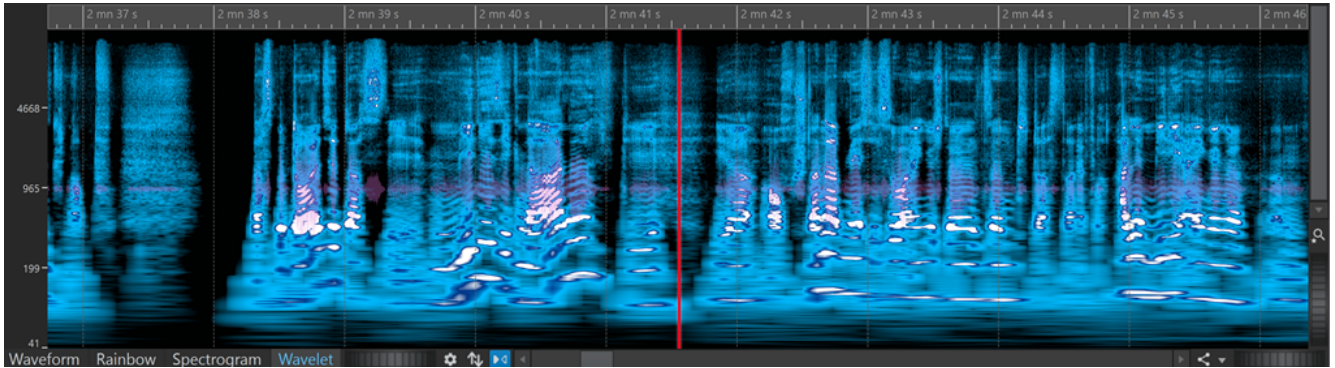
RELATED LINKS
Spectral Editing on page 687
Spectrum Tab on page 694
Audio Editor Window on page 176

Wavelet Display

The **Wavelet** display shows a higher time resolution in high frequencies and a higher frequency resolution in lower frequencies. You can use the WaveLab Pro spectrum editing tools to edit the wavelet spectrogram.

To open the **Wavelet** display, click **Wavelet** at the bottom of the **Audio Editor** window.

The **Wavelet** tab, in conjunction with the **Spectrogram**, is a unique editing and restoration tool.

RELATED LINKS
Audio Editor Window on page 176
Display Modes on page 177
Spectral Editing on page 687

Loudness Overlay

You can overlay the **Waveform** or the **Rainbow** view of the **Audio Editor** with an **RMS Loudness** view and adjust the transparency of the overlay.

The **RMS Loudness** overlay allows you to keep a constant eye on both peaks and loudness, so that you can easily identify audio sections with varying dynamics.

To overlay the **Waveform** or the **Rainbow** view with the **RMS Loudness** view, use the scroll wheel (**1**) at the bottom. The farther you turn the scroll wheel to the right, the higher the opacity of the **RMS Loudness** overlay (**2**); that is, the more prominent it becomes. The farther you turn the scroll wheel to the left, the more transparent the **RMS Loudness** overlay. Turning the scroll wheel all the way to the left sets the transparency to 100%, so that the **RMS Loudness** overlay is not visible.
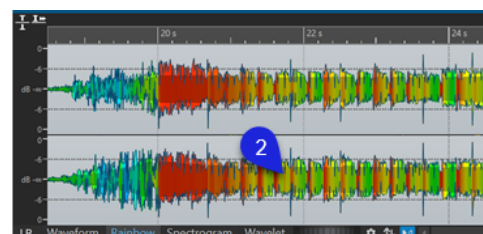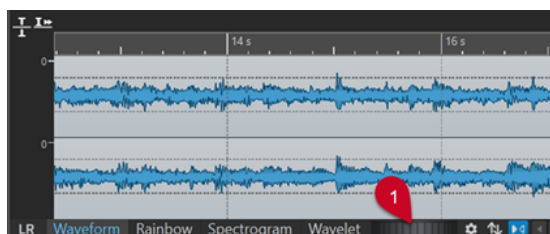
Loudness Overlay scroll wheel in the Waveform view   Loudness Overlay in the Rainbow view

To activate/deactivate the **RMS Loudness** overlay display (**2**), double-click on the scroll wheel (**1**).

> **NOTE**
>
> This feature is also available in the **Waveform** and the **Rainbow** view of the **Audio Montage** window.

> **NOTE**
>
> ● The transparency settings for the **Waveform** and the **Rainbow** view are independent of each other, because of their different graphics rendering.
>
> ● The transparency settings for the **Audio Editor** and the **Audio Montage** window are independent of each other as well.
>
> To access further settings, select **File** > **Preferences** > **Audio Files** > **Editing**, and set the desired parameters in the **Loudness Waveform Overlay** section.

RELATED LINKS
Editing Tab (Audio Files Preferences) on page 873

Waveform Overlay

You can overlay the **Spectrogram** or the **Wavelet** view of the **Audio Editor** with the **Waveform** view and adjust the transparency of the **Waveform** overlay.

To overlay the **Spectrogram** or the **Wavelet** view with the **Waveform** view, use the scroll wheel (**1**) to the right of the **Wavelet** tab. The farther you turn the scroll wheel to the right, the higher the opacity of the waveform overlay; that is, the more prominent it becomes. The farther you turn the scroll wheel to the left, the more transparent the waveform overlay. Turning the scroll wheel all the way to the left sets the transparency to 100%, so that the waveform overlay is not visible.
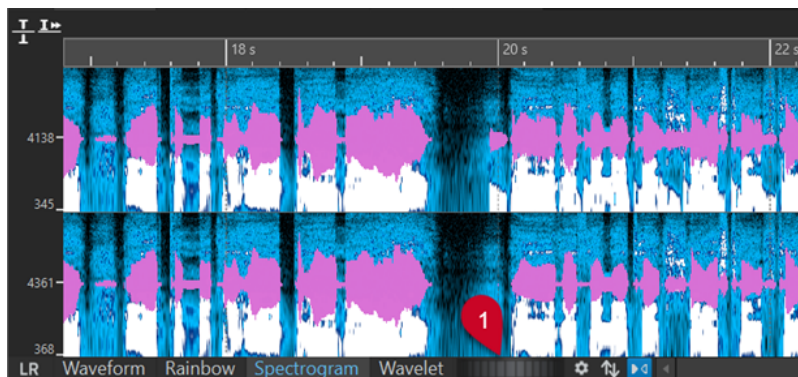
In the **Spectrogram** or the **Wavelet** view, you can make further adjustments, such as specifying the color of the waveform overlay, via the **Spectrogram Options** dialog.

To open the **Spectrogram Options** dialog, click **Edit Settings** ⚙.

To activate/deactivate the waveform overlay display, double-click on the scroll wheel (**1**).
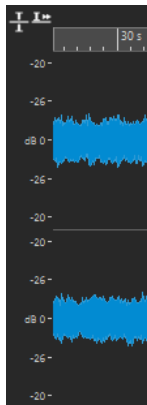
RELATED LINKS
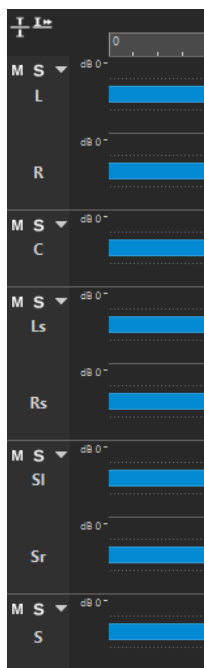Spectrogram Options Dialog on page 693
Spectrogram on page 690
Wavelet Display on page 691

Channel Control Area

The channel control area to the left of the waveform in the **Audio Editor** allows you to select channels, and to mute and solo single channels of multichannel audio files.

Channel control area of a stereo audio file

Channel control area for channel clusters of a multichannel audio file

Mute

Mutes the channel cluster. This only affects playback, not rendering.

Solo

Solos the channel cluster. This only affects playback, not rendering.

Fold/Unfold Channel Cluster

Switches from expanding to reducing the space for individual channel clusters, and vice versa.
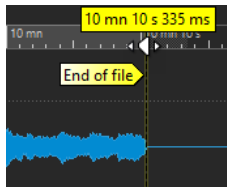
RELATED LINKS
Audio Editor Window on page 176
Multichannel Audio Files on page 199

Magnetic Bounds in Audio Files

Some positions, such as markers or selection edges, can be defined as magnetic. Dragged elements can snap to these positions. This makes it easier to position items accurately.

For example, if you move a marker and it gets close to one of the magnetic bounds, the marker snaps to this position. A label is displayed, indicating the snap position.

You can place the cursor at a magnetic position by clicking the timeline and keeping the mouse button pressed. When you now move the cursor, it jumps to the next magnetic bound.

RELATED LINKS
Magnets Menu on page 182

Magnets Menu

The **Magnets** pop-up menu allows you to define positions as magnetic. With **Snap to Magnets** activated, items that you move snap to magnetic positions.

● To open the **Magnets** pop-up menu, select the **Edit** tab in the **Audio Editor**, and click **Magnets** in the **Snapping** section.

You can make items snap to the following positions:

Start of File

Elements snap to the start of the file when you move them close to it.

End of File

Elements snap to the end of the file when you move them close to it.

Time Ruler Marks

Elements snap to the time ruler grid when you move them close to the time ruler.

Markers

Elements snap to marker positions when you move them close to markers.

Edit Indicators

Elements snap to the selection edges of edit indicators when you move them close to them.

Selection Edges

Elements snap to the selection edges when you move them close to them.

Cursor

Elements snap to the edit cursor when you move them close to the cursor.

RELATED LINKS
Quantizing Audio Selections based on Time Ruler Marks on page 58

Zero Crossing

A zero crossing is a point where the waveform crosses the zero level axis. To perform editing operations such as cutting, pasting, or dragging, we recommend inserting the audio material at a zero crossing.

If you do not perform these operations at zero crossings, this can result in discontinuities in the wave, which are perceived as clicks or pops in the sound.
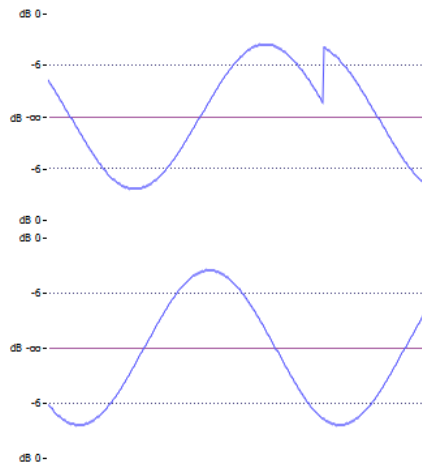
Activate **Zero-Crossing** on the **Edit** tab of the **Audio Editor** to ensure that any selections you make start and end at the nearest zero crossing.

Setting Up the Zero Crossing Detection

You can set selection edges so that they automatically snap to the nearest zero crossing point. In the **Audio Files Preferences** dialog, you can choose whether or not to enable snapping at high zoom factors, and you can define the scan range for zero crossing detection.

PROCEDURE

1. In the **Audio Editor**, select the **Edit** tab.

2. In the **Snapping** section, activate **Zero-Crossing**.

3. Select **File** > **Preferences** > **Audio Files**.

4. In the **Audio Files Preferences** tab, select the **Editing** tab.

5. Set the required parameters in the **Snap Selection to Zero-Crossing** section.

RELATED LINKS
Audio Files Preferences on page 872

Moving the Cursor Position to the Closest Zero Crossing

You can automatically move the cursor position to the closest zero crossing.

PROCEDURE

1. In the **Audio Editor**, select the **View** tab.

2. In the **Cursor** section, click **Snap to Zero-Crossing**.

Snapping to Zero Crossing When Creating Markers

With **Zero-Crossing** activated, during playback, you can make markers snap to the nearest zero-crossing point of the waveform when you create them via key commands.

This works for the following marker types:

- Generic markers
- Region markers
- Loop markers
- Exclusion markers

PROCEDURE

1. In the **Audio Editor**, select the **View** tab.
2. In the **Cursor** section, click **Snap to Zero-Crossing**.
3. Create markers.

RELATED LINKS
Creating Markers on page 627

Audio Cue Point Detection

Both in the **Audio Editor** and in the **Audio Montage** window, when you select audio by dragging, WaveLab Pro assists you by automatically identifying suitable start and end points for audio segments, which are referred to as **Audio Cue Points**.

Audio Cue Points are markers that indicate the beginning and the end of audio signals. The start points (**1**) are also knows as "transients", and the end points (**2**) as "releases".
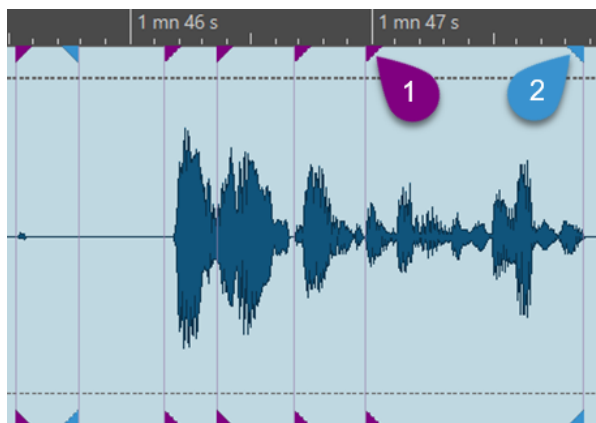
NOTE

In the **Audio Editor**, the **Audio Cue Points** are displayed in the **Waveform** view only.

The audio cue point detection generally identifies and displays more transients than release points. The reason for this is that, due to the nature of sound, the detection of transients is more reliable than the detection of releases. For example, for sounds that fade away more slowly than they increase in volume at the beginning, identifying the end point is a rather subjective matter. In addition to this, an end point often coincides with the next transient.

Generating Audio Cue Points

You can generate **Audio Cue Points** in the **Audio Editor** and in the **Audio Montage** window.

PREREQUISITE

- You have opened an audio montage in the **Audio Montage** window or set the **Audio Editor** to the **Waveform** view.

- You have activated **Snap to Magnets** in the **Snapping** section of the **Edit** tab.

PROCEDURE

1. In the **Snapping** section of the **Edit** tab, click **Magnets**. In the pop-up menu, activate **Audio Starts (Transients)** to generate and display transients or **Audio Ends (Releases)** to generate and display releases, or both.

2. Do one of the following:

   - Select a time range with the mouse.

   - Drag the edit cursor on the bottom part of the time ruler.

   - Drag the edit cursor in the audio area, and press **Shift** .

RESULT

A real-time audio analysis is performed by WaveLab Pro, and **Audio Cue Points** are continuously generated and displayed.

NOTE

Audio Cue Points are volatile; that is, they are not saved with the file, and they are only displayed in the section of an audio file or a clip that you specify by dragging the mouse or the edit cursor within a range of five seconds to the left and the right side.

Settings for Audio Cue Point Detection

You can choose from various options for audio cue point detection, to suit your preferences and workflows.

View Tab

View > **Cursor**

Previous Transient

Shifts the edit cursor to the preceding transient within a 15-second time range.

TIP

"Tab to Transient" functionality:

You can also press **Shift** - **Tab** to move the edit cursor to the previous transient.

Next Transient

Shifts the edit cursor to the subsequent transient within a 15-second time range.

TIP

"Tab to Transient" functionality:

You can also press `Tab` to move the edit cursor to the next transient.

NOTE

The two **View** tab options **Previous Transient** and **Next Transient** are independent of any snapping options and even work with **Snap to Magnets** deactivated.

Edit Tab

Edit > **Snapping** > **Magnets**

The pop-up menu allows you to choose from the following options:

Audio Starts (Transients)
Generates and displays transients.

Audio Ends (Releases)
Generates and displays releases.

In addition to this, clicking **Additional Options** next to **Snapping** opens the **Audio Cue Points** dialog, where you can choose from the following options:

Clear
Removes any audio cue points from the current view.

Sticky
Causes the audio cue points to remain visible after you release the mouse.

TIP

Sticky enables you to do the following:

- You can double-click between two audio cue points to select the audio in the corresponding range. If you keep pressing the mouse button after double-clicking, you can extend or reduce the selection by dragging left and right.

- You can snap other audio elements, such as markers or clip edges, to the audio cue points.

Options...
Opens the **Audio** tab in the general **Preferences**, where you can further customize how to generate and display audio cue points.

Global Preferences

File > **Preferences** > **Global** > **Audio**

In the **Audio Cue Point Detection** section, you can choose from the following options:

Maximum number of audio cue points around cursor
Allows you to choose a number from 1 to 10. The higher the number, the more audio cue points are displayed.

WaveLab Pro analyzes the audio within a range of five seconds before to five seconds after the current mouse position. The number you specify here determines the audio cue point density displayed within this range.

TIP

We recommend using a high number in conjunction with the **Sticky** option, which you can access via **Edit** > **Snapping** > **Magnets** > **Additional Options**.

If preventing your workspace from looking cluttered is important to you, we recommend that you keep this number low.

When to Activate

Allows you to select the actions that are required for audio cue points to be generated and displayed:

- **Time Selection with the Mouse**
- **Dragging the Edit Cursor on the Time Ruler**
- **Dragging the Edit Cursor with the Mouse (+ Shift)**

TIP

If you do not want WaveLab Pro to display any audio cue points at all, you can deactivate all three options.

TIP

While performing one of the actions to generate and display audio cue points, you do not have to interrupt your workflow to click on the related **View** or **Edit** tab options. For your convenience, the corresponding key commands are displayed on the **Context Options** info bar above the tab bar:

- **Sticky**: **Y**
- **Select Left**: **Left Arrow**
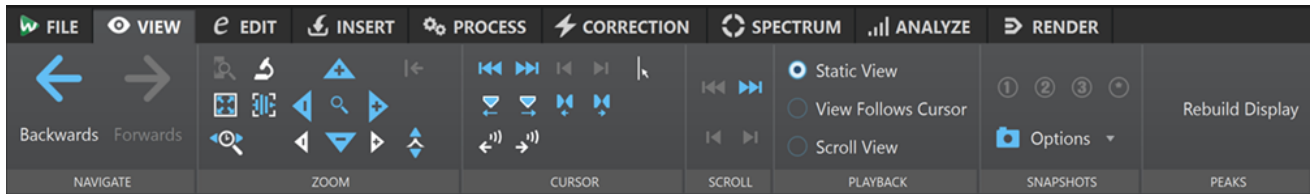- **Select Right**: **Right Arrow**
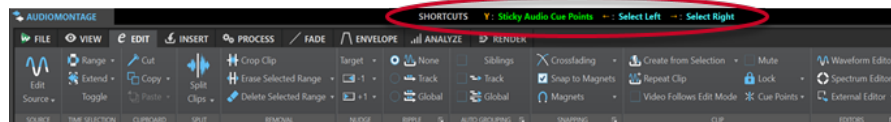
Audio Editor Tabs

The tabs in the **Audio Editor** give you access to the tools and options you need to edit audio files.

View Tab (Audio Editor)

- In the **Audio Editor**, click **View**.

Navigate

Backwards/Forwards

Navigates to the previous/next cursor position, zoom factor, and selection range.

Zoom

Time

Opens a pop-up menu that allows you to adjust the zoom to display the selected time range. **Zoom in 1:1** zooms in so that one pixel on the screen represents one sample.

You can edit the zoom factor by clicking **Edit Zoom Factor**. This opens the **Zoom Factor** dialog, where you can choose from the following options:

- **Set Time Range** allows you to define the time range to be displayed.
- **Samples per Screen Point** allows you to specify the number of audio samples encompassed by each screen point.
- **Screen Points per Sample** allows you to specify the number of screen points that represent a single audio sample.

Zoom

Activates the **Zoom** tool, which allows you to define a time range that is zoomed in.

Zoom Selection

Zooms the window so that the current selection occupies the entire montage window.

Microscope

Zooms in as far as possible.

Zoom in Audio (10x)/Zoom out Audio (10x)

Zooms in/out in big steps.

View All

Zooms out as far as possible.

Zoom in Audio/Zoom out Audio

Zooms in/out in small steps.

Level

Adjusts the zoom to only display samples below the selected dB value.

Reset Zoom to 0 dB

Adjusts the zoom to display audio levels up to 0 dB.

Zoom in Vertically/Zoom out Vertically

Zooms in/out to show waveforms at a lower/higher level.

Cursor

Move Cursor to Start of File/Move Cursor to End of File

Moves the cursor to the start/end of the file.

Previous Marker/Next Marker

Moves the cursor to the previous/next marker.

Start of Selection/End of Selection

Moves the cursor to the start/end of the selected time range.

Previous Region Edge/Next Region Edge

Moves the cursor to the previous/next region edge.

Snap to Zero-Crossing

Moves the cursor to the nearest zero-crossing point.

Edit Cursor Position

Opens the **Cursor Position** dialog, where you can edit the cursor position.

Scroll

Start/End

Displays the start/end of the audio without moving the cursor.

Start of Selection/End of Selection

Displays the start/end of the audio selection without moving the cursor.

Playback

Static View

Deactivates scrolling.

View Follows Cursor

Automatically scrolls the view to keep the playback cursor visible.

Scroll View

Automatically scrolls the view to keep the playback cursor centered.

Snapshots

Allows you to take, recall, and edit snapshots.

Presets

The buttons **1**, **2**, and **3** allow you to save a snapshot of the scroll position, the zoom factor, the cursor position, and the audio selection. The rightmost preset button is a global preset.

Options

Allows you to select which settings to restore when applying a snapshot preset. The following options are available:

●   **Scroll Position and Zoom**

●   **Cursor Position**

●   **Audio Selection**

Peaks

Rebuild Peak Display

Generally, peak files are automatically updated if the peak file is older than the audio file. However, in case the date indicated for the audio file is incorrect and the file is thus not automatically updated, this option allows you to force a rebuild of the peak file.

Edit Tab (Audio Editor)

● In the **Audio Editor**, click **Edit**.
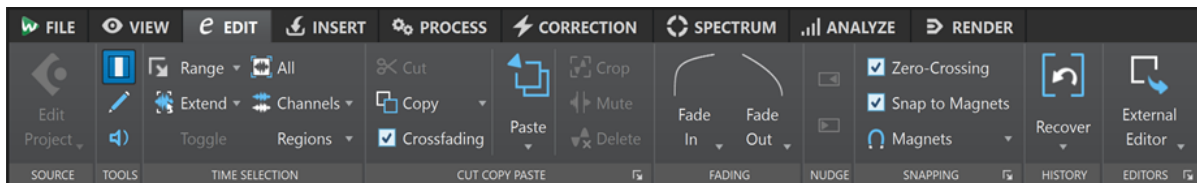
Source

Edit Project

While working on an audio file or clip in WaveLab Pro, you can open the project of the audio file in Cubase/Nuendo. This allows you to fix issues identified during the mixing phase in Cubase/Nuendo.

Edit Project opens the corresponding sequencer project of the audio file.

Tools

Time Selection

Allows you to select a time range.

Pen

Allows you to redraw the waveform in the **Audio Editor**. This helps you to quickly repair waveform errors.

Play

Allows you to play back the audio file at the position where you click.

Time Selection

Range

Opens the **Range Selection** dialog, where you can define selection ranges very accurately.

Extend

Opens a menu that allows you to choose from the following options for creating or extending selection ranges:

● **Extend to Start of File** extends the selection to the start of the audio file. If there is no selection, a selection is created from the edit cursor position.

● **Extend to End of File** extends the selection to the end of the audio file. If there is no selection, a selection is created from the edit cursor position.

● **Extend to Previous Marker** extends the left edge of the selection to the nearest marker to the left or the start of the audio file. If there is no selection, a selection is extended to the previous marker position.

- **Extend to Next Marker** extends the right edge of the selection to the nearest marker to the right or the end of the audio file. If there is no selection, a selection is extended to the next marker position.

- **Extend to Cursor** extends the selection to the edit cursor position.

- **From Start of File Until Cursor** selects the range between the start of the audio file and the edit cursor position.

- **From Cursor to End of File** selects the range between the edit cursor position and the end of the audio file.

- **From Cursor to Previous Marker** selects the range between the edit cursor position and the previous marker or the start of the audio file.

- **From Cursor to Next Marker** selects the range between the edit cursor position and the next marker or the end of the audio file.

- **Shift Selection to the Left** moves the selection lengthwise to the left.

- **Shift Selection to the Right** moves the selection lengthwise to the right.

- **From Playback Position to End** creates a selection range from the playback position to the end of the selection, or to the end of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **From Start to Playback Position** creates a selection range from the playback position to the start of the selection, or to the start of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **Double Selection Length** doubles the length of the current selection range.

- **Halve Selection Length** reduces the length of the current selection range to 50% of the original length.

Toggle

Activates/deactivates the current audio selection.

All

Selects the entire waveform.

Channels

Allows you to change the channel selection.

- **Extend to All Channels** extends the current selection range to all channels.

- **Left Channel Only** restricts the current selection range to the left channel.

- **Right Channel Only** restricts the current selection range to the right channel.

Regions

Allows you to select a range between two markers.

- **Title** selects the range between the two title markers that encompass the edit cursor.

- **Loop Region** selects the range between the two loop markers that encompass the edit cursor.

- **Exclusion Region** selects the range between the two exclusion markers that encompass the edit cursor.

- **Generic Region** selects the range between the two generic markers that encompass the edit cursor.

Cut Copy Paste

Cut

Cuts the selected audio range and saves it to the clipboard.

Copy

Copies the active clip or the selected audio range to the clipboard.

Right-clicking **Copy** opens a pop-up menu with additional options:

- **Memorize Cursor Position** copies the position of the edit cursor to the clipboard.
- **Memorize Selection Length** copies the length of the active selection range to the clipboard.

Crossfading

With this option activated, WaveLab automatically applies crossfades to the right and left boundaries of an audio selection when you perform one of the following editing operations on it:

- **Cut**
- **Paste**
- **Crop**
- **Mute**
- **Delete**
- **Prepend**, **Append**, **Overwrite**, or **Multiple Copies** from the **Paste** menu

  In addition to this, the option automatically generates a crossfade at the designated insertion point when you insert audio by dragging or when you choose an option from the **Audio File** panel of the **Insert** tab.

NOTE

We recommend that you keep this option activated, as it avoids common editing issues, such as abrupt volume shifts or audible clicks. It ensures smooth, natural transitions between audio segments by seamlessly conjoining a fade out and a fade in.

However, to prevent WaveLab from automatically generating crossfades for particular editing tasks; for example, to perform a sharp cut or to insert audio segments that are not linked to the audio before or after it in any way, you can deactivate the option at any time.

Paste

Pastes the clipboard content.

Right-clicking **Paste** opens a pop-up menu that allows you to select a paste type.

- **Prepend** inserts the audio prior to the beginning of the file.
- **Append** inserts the audio after the end of the file.
- **Crossfade Over Selected End** pastes the clipboard content to a position after the end of the selected audio file and creates a crossfade. Once you have defined the length of the crossfade by making a selection at the end of the audio file, moving the mouse over **Crossfade Over Selected End** opens a pop-up menu. This menu allows you to select a crossfade type, which is applied to smoothen the transition between the audio file and the pasted audio content that follows it:

  - **Linear (Equal Gain)** changes the level linearly.

- **Sinus (Equal Power)** changes the level according to a sine curve, while the power of the mix remains constant.
    - **Square-Root (Equal Power)** changes the level according to a square-root curve, while the power of the mix remains constant.
- **Overwrite** replaces the audio from the edit cursor position.
- **Multiple Copies** opens a dialog which allows you to enter the number of copies that you want to create.
- **Mix** blends two files into each other, starting at the selection or, if there is no selection, at the cursor position.

    If you select **Mix**, a dialog opens, allowing you to specify the gain and phase for the audio on the clipboard and at the destination. The clipboard data is mixed in, regardless of the length of the selection.

Crop
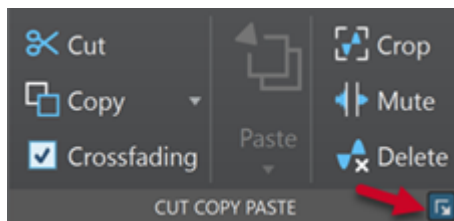
Deletes any data outside the selection.

Mute

Replaces the audio selection with silence.

Delete

Deletes the selection. The audio to the right of the selection is moved to the left, to fill the gap.

NOTE

To view and edit the global settings for fades and crossfades, you can click the button in the lower right corner of the **Cut Copy Paste** panel.

Fading

Fade In/Fade Out

Allows you to apply a fade in or fade out. Right-click the button to open the **Curve** pop-up menu.

Curve

Allows you to select preset fade curves.

- **Linear** changes the level linearly.
- **Sinus (*)** changes the level according to a sine curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.
- **Square-Root (*)** changes the level according to a square-root curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.
- **Sinusoid** changes the level according to a sine curve.
- **Logarithmic** changes the level according to a logarithmic curve.
- **Exponential** changes the level according to an exponential curve.

- **Exponential+** changes the level according to a more pronounced exponential curve.

Nudge

Nudge Left

Nudges the audio selection to the left.

Nudge Right

Nudges the audio selection to the right.

Snapping

Zero-Crossing

If this option is activated, the start and the end of a selected range snap to a zero-crossing point of the waveform.

If **Zero-Crossing** is activated and you add markers during playback via key commands, the markers snap to the nearest zero-crossing point of the waveform.

This works for the following markers types:

- Generic markers
- Region markers
- Loop markers
- Exclusion markers

Snap to Magnets

If this option is activated, any elements that you have activated in the **Magnets** pop-up menu, such as clip starts, time selection edges, or markers, snap to magnets.

Magnets

Allows you to set the behavior of particular elements to magnetic.

History

Recover

Replaces the selection range with the original audio samples. This allows you to undo all edits of an audio section without undoing edits that you made to other parts of the audio file.

Locate Edit in History

Allows you to highlight the version of the edit cursor position in the **History** window.

Editors

External Editor

Allows you to open the audio selection in an external editor, such as SpectraLayers. Clicking **Edit Editor List** in the lower right corner of the **Editors** section opens the **External Applications** tab in the **Global Preferences**, where you can specify the paths to your external editors.

RELATED LINKS

Insert Tab (Audio Editor)

The **Insert** tab allows you to add markers, audio files, and signals to your audio file.

● In the **Audio Editor**, click **Insert**.

Markers

Marker Name

Allows you to enter the name of the start marker. Otherwise, a generic name is used.

To edit the default names, open the **Markers** window, and select **Functions** > **Default Marker Names**.
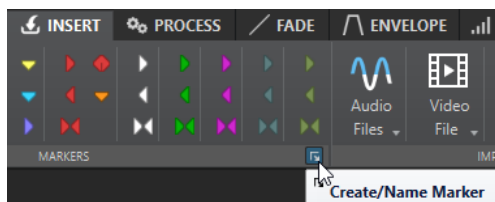
Different Name for End Marker

Allows you to enter a different name for the end marker in the **End Marker Name** field.

If this option is deactivated, the name of the start marker is also used for the end marker.

Create/Name Marker

The **Create/Name Marker** button in the lower right corner of the **Markers** section opens the **Create Marker** dialog, which allows you to create different types of markers and marker pairs at the edit cursor position or at the selection range.

Audio File

At Start

Allows you to insert an audio file at the start of the active audio file.

At End

Allows you to insert an audio file at the end of the active audio file.

At Cursor

Allows you to insert an audio file at the cursor position.

Signal

Mute Selection

Replaces the audio selection with silence.

195

Silence Generator

Opens the **Silence Generator** dialog, which allows you to add silence or ambience sounds to an audio file.

Bleep Censor

Opens the **Bleep Censor** dialog, which allows you to replace a part in an audio file with a beeping sound; for example, to cover up a swear word.

RELATED LINKS
Silence Generator Dialog on page 241
Bleep Censor Dialog on page 244

Process Tab (Audio Editor)

The **Process** tab gives you access to the offline processing tools.

RELATED LINKS
Offline Processing on page 295

Correction Tab (Audio Editor)

The **Correction** tab gives you access to the error detection and correction tools.

RELATED LINKS
Error Correction on page 287

Spectrum Tab (Audio Editor)

The **Spectrum** tab allows you to use high-quality linear-phase filters to process a spectrum range selection for audio restoration and processing.

RELATED LINKS
Spectral Editing on page 687

Analyze Tab (Audio Editor)

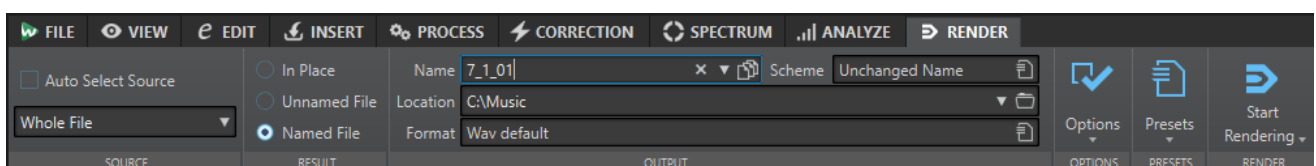The **Analyze** tab provides you with tools for analyzing your audio and helps you to detect errors.

RELATED LINKS
Audio Analysis on page 246

Render Tab (Audio Editor)

The **Render** tab allows you to mix down audio files.

● In the **Audio Editor**, click **Render**.

Source

Auto Select Source

Automatically selects the source, based on your selection in the audio file. If there is no selection, the whole audio file is processed.

The **Source** pop-up menu allows you to select which part of the audio file to process. The following options are available:

Whole File

Processes and renders the whole audio range.

Selected Audio Range

Processes and renders an audio selection that can encompass multiple tracks and/or lanes.

Specific Marked Region

Processes and renders a specific audio range to an independent file.

You can specify the region to process via the pop-up menu.

All Marked Regions

Processes and renders each marked audio range to an independent file. By defining multiple isolated regions in an audio file, you can process them in a single operation.

You can specify the types of regions to be processed via the pop-up menu.

Result

In Place

Replaces the source audio range with the rendered audio range.

Unnamed File

Renders a temporary untitled file.

Named File

Allows you to specify a name for the rendered file.

Output

Name

Allows you to enter a name for the rendered file. Clicking the arrow icon opens a pop-up menu that offers you several naming options.

Scheme

Allows you to specify a naming scheme for the file name.

Location

Allows you to select a destination folder for the rendered files.

You can choose from the following options:

- Enter a fixed folder path into the **Location** field.
- Click on the folder icon to select a folder.
- Select a contextual folder from the menu that opens on clicking the arrow to the left of the **Location** field.

> **NOTE**
>
> To maintain independent render paths for audio slices and to ensure that, when switching audio files, the render path changes accordingly, you can activate **Keep Independent Folder for Each Source File**.

Format

Opens a pop-up menu, where you can select a single file format or multiple file formats.

Options

Depending on the selected source, different options are available.

Bypass Master Section

Bypasses the plug-ins and the gain of the **Master Section** when rendering.

Auto Save Master Section Preset

Automatically saves the **Master Section** preset in the ancillary file of the audio file when you render the file. You can load the **Master Section** preset via the **Load Master Section Preset** option in the lower right corner of the **Audio Editor**.

Fade In/Out at Boundaries

Applies a fade to the audio range boundaries when a new file is created, or a crossfade with the adjacent audio, if the audio range is processed in place.

Crossfades allow for smooth transitions between processed and non-processed parts. You can set the crossfade time and shape via the **Preferences**. If the fade time is longer than half the length of the processed file, the fade is not applied.

Add Reverb Tail

Includes the audio tail that is produced by effects such as reverb in the rendered file.

Some plug-ins do not transfer information on the tail duration to WaveLab Pro. In this case, this option has no effect. For such plug-ins, you can add the **Silence** plug-in to add extra samples to the end of the file.

Copy Markers

Copies the markers that are included in the range to process to the rendered file.

Skip Exclusion Regions

Skips muted audio ranges instead of including them in the result.

Open Resulting Audio File

Opens every rendered file in a new window.

Open Files in New File Group

Imports the rendered audio file into a new file group.

Bypass Master Section on Resulting Audio File

Causes playback of the resulting audio file to bypass the entire **Master Section** except the **Playback Processing** section. You can turn this setting on and off by clicking the button at the bottom right of the **Audio Editor** or the **Audio Montage** window.

> **NOTE**
>
> We recommend that you activate this option, as this prevents monitoring new files through effects that have already been applied to them.

Presets

Presets

This pop-up menu allows you to save and restore render presets. All settings are saved and restored, except the file name and the file location.

Render

Start Rendering

Starts the rendering process. This is the same as clicking **Start** via the **Render** tab for the **Master Section**.

Start Rendering (Real Time)

Starts the rendering process in real time. This allows you to listen to the audio while it is being rendered.

RELATED LINKS

File Handling in the Audio Editor

Before you start editing files in the **Audio Editor**, we recommend that you familiarize yourself with some basic file handling procedures, as editing in the **Audio Editor** is not non-destructive, unlike editing clips in the **Audio Montage** window, which leaves the source files untouched.

RELATED LINKS

Mono/Stereo Handling

WaveLab Pro is very flexible with regard to handling mono and stereo files. As for stereo files, you can perform all editing operations either on one channel or on both channels.

Multichannel Audio Files

A multichannel audio file is a set of audio channels. The channels are organized in channel clusters. A channel cluster is a logical group of channels, consisting of a single channel or a channel pair.

EXAMPLE

- Front left/right is a stereo channel cluster.

- Back left/right is a stereo channel cluster.

- Center is a mono channel cluster.

- LFE is a mono channel cluster.

You can edit multichannel audio files and their channel clusters in the same manner as you edit stereo and mono audio files in WaveLab Pro.

Supported Multichannel File Formats

WaveLab Pro supports Wave multichannel files up to a 22.2 channel layout.

WaveLab Pro can open Ambisonics files up to the 7th order (64 channels). Ambisonics files are opened as a set of mono channels.

Available Multichannel Layouts

The following multichannel layouts from three channels up to 24 channels are available:

```
3 channels
    LR+LFE (L R LFE)
    LRC (L R C)
    LRS (L R S)
4 channels
    LRC+LFE (L R C LFE)
    LRS+LFE (L R LFE S)
    LRCS (L R C S)
    Quadro (L R Ls Rs)
5 channels
    LRCS+LFE (L R C LFE S)
    Quadro+LFE (L R LFE Ls Rs)
    5.0 (L R C Ls Rs)
6 channels
    5.1 (L R C LFE Ls Rs)
    6.0 Cine (L R C Ls Rs Cs)
    6.0 Music (L R Ls Rs Sl Sr)
7 channels
    6.1 Cine (L R C LFE Ls Rs Cs)
    6.1 Music (L R LFE Ls Rs Sl Sr)
    7.0 Cine (SDDS) (L R C Ls Rs Lc Rc)
    7.0 Music (Dolby) (L R C Ls Rs Sl Sr)
8 channels
    7.1 Cine (SDDS) (L R C LFE Ls Rs Lc Rc)
    7.1 Cine Full Rear (L R C LFE Ls Rs Lcs Rcs)
    7.1 Music (Dolby) (L R C LFE Ls Rs Sl Sr)
    7.1 Proximity (L R C LFE Ls Rs Pl Pr)
    8.0 Cine (L R C Ls Rs Lc Rc Cs)
    8.0 Music (L R C Ls Rs Cs Sl Sr)
    8.0 Cube (L R Ls Rs Tfl Tfr Trl Trr)
    7.1 Cine Top Center (L R C LFE Ls Rs Cs Tc)
    7.1 Cine Center High (L R C LFE Ls Rs Cs Tfc)
    7.1 Cine Front High (L R C LFE Ls Rs Tfl Tfl)
    7.1 Cine Side High (L R C LFE Ls Rs Tsl Tsl)
9 channels
    8.1 Music (L R C LFE Ls Rs Cs Sl Sr)
    8.1 Cine (L R C LFE Ls Rs Lc Rc Cs)
    5.0.4 (L R C Ls Rs Tfl Tfr Trl Trr)
    7.0.2 (L R C Ls Rs Sl Sr Tsl Tsr)
10 channels
    5.1.4 (L R C LFE Ls Rs Tfl Tfr Trl Trr)
    7.1.2 (L R C LFE Ls Rs Sl Sr Tsl Tsr)
    10.0 Auro-3D (L R C Ls Rs Tc Tfl Tfr Trl Trr)
11 channels
    7.0.4 (L R C Ls Rs Sl Sr Tfl Tfr Trl Trr)
    11.0 Auro-3D (L R C Ls Rs Tc Tfl Tfc Tfr Trl Trr)
    10.1 Auro-3D (L R C LFE Ls Rs Tc Tfl Tfr Trl Trr)
12 channels
    10.2 Experimental (L R C LFE Ls Rs Tfl Tfc Tfr Trl Trr LFE2)
    7.1.4 (L R C LFE Ls Rs Sl Sr Tfl Tfr Trl Trr)
    11.1 Auro-3D (L R C LFE Ls Rs Tc Tfl Tfc Tfr Trl Trr)
13 channels
    7.0.6 (L R C Ls Rs Sl Sr Tfl Tfr Trl Trr Tsl Tsr)
    13.0 Auro-3D (L R C Ls Rs Sl Sr Tc Tfl Tfc Tfr Trl Trr)
14 channels
    7.1.6 (L R C LFE Ls Rs Sl Sr Tfl Tfr Trl Trr Tsl Tsr)
    12.2 (L R C LFE Ls Rs Lc Rc Tfl Tfc Tfr Trl Trr LFE2)
    13.1 Auro-3D (L R C LFE Ls Rs Sl Sr Tc Tfl Tfc Tfr Trl Trr)
    14.0 (L R Ls Rs Sl Sr Tfl Tfr Trl Trr Bfl Bfr Brl Brr)
24 channels
    22.2 (L R C LFE Ls Rs Lc Rc Cs Sl Sr Tc Tfl Tfc Tfr Trl Trc Trr LFE2 Tsl Tsr Bfl Bfc Bfr)
```

Multichannel Audio Editor

Multichannel audio files are displayed in the **Audio Editor** as channel clusters. Each channel cluster has a channel control area that allows you to mute, solo, and fold/unfold a channel cluster.
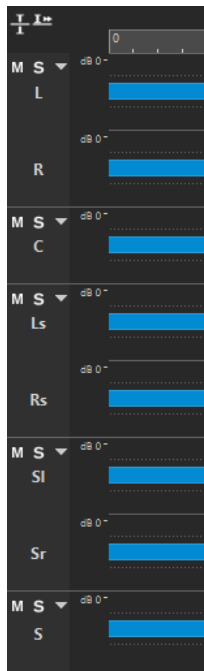
Channel control area

RELATED LINKS
Editing Multichannel Audio Files on page 201
Supported File Formats on page 204
Channel Control Area on page 181

Editing Multichannel Audio Files

You can use the WaveLab Pro tools to edit multichannel audio files.

You can make selections on one or multiple channels of a multichannel audio file, and copy and paste the selections.

You can edit one or multiple channels of a multichannel audio file with external editors. For example, you can select four channels and edit them in SpectraLayers.

The offline processing tools of WaveLab Pro are compatible with multichannel audio files.

RELATED LINKS
Supported File Formats on page 204
Selecting Channels in Audio Files on page 57
Duplicating Audio by Copying and Pasting on page 230
External Editors on page 887
Master Section Tools on page 574
Offline Processing on page 295

Processing Individual Channel Clusters via the Master Section

You can select individual channel clusters of multichannel audio files to play them back or render them through the **Master Section**.

PROCEDURE

1. To select a channel cluster, do one of the following.

- In the **Master Section**, click **Channel Selector**, and select a single channel cluster or **All Channels**.
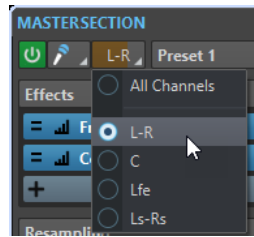
- In the channel control area, double-click a channel cluster. To select all channel clusters, double-click the channel control area again.
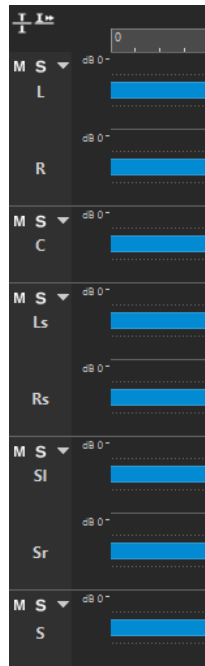
The selected channel cluster is displayed in the **Channel Selector** menu of the **Master Section**.

2. In the **Master Section**, make the required adjustments, and do one of the following:

   - To play back the channel cluster via the front left/right audio ports or the mono audio port, start playback.

     You can set up the audio ports in the **Audio Connections** tab.

   - To render the selected channel cluster, right-click **Render**, and select **Render in Place**.

RELATED LINKS
Selecting Channels in Audio Files on page 57
Master Section Tools on page 574
Offline Processing on page 295
Audio Connections Tab on page 33

Muting and Soloing Channel Clusters

You can mute and solo each channel cluster of a multichannel audio file individually.

CHOICES

- In the channel control area, do one of the following:

- To mute a channel cluster, click **Mute**.
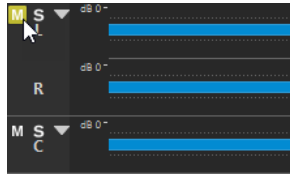
- To solo a channel cluster, click **Solo**.
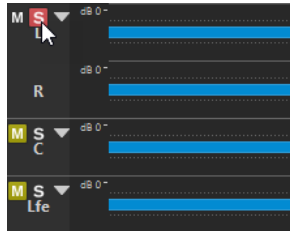
- To solo multiple channel clusters, `Ctrl/Cmd`-click **Solo** for all channel clusters that you want to solo.

- To activate solo defeat for a channel cluster, press `Ctrl/Cmd`-`Alt/Opt`, and click **Solo**.

> NOTE
>
> In this mode, the channel cluster is not muted when you solo another cluster. To deactivate solo defeat, click **Solo** again.

RELATED LINKS
Multichannel Audio Files on page 199
Channel Control Area on page 181

Folding and Unfolding Channel Clusters

You can fold and unfold each channel cluster of a multichannel audio file individually.

CHOICES

- In the channel control area, do one of the following:

  - To fold a channel cluster, click **Fold/Unfold Channel Cluster**.

  - To unfold a channel cluster, click **Fold/Unfold Channel Cluster**.

  - To fold all channel clusters except one, `Ctrl/Cmd`-click **Fold/Unfold Channel Cluster** for the channel cluster that you want to keep unfolded.

  - To unfold all channel clusters, `Shift`-click **Fold/Unfold Channel Cluster** for any channel cluster.

RELATED LINKS
Multichannel Audio Files on page 199
Channel Control Area on page 181

Supported File Formats

WaveLab Pro can open and save audio files in a number of file formats.

AAC/MPEG-4 (.m4a, mp4)

Advanced Audio Coding (AAC) is a codec that allows for lossy compression of digital audio.

IMPORTANT

The OEM version of WaveLab Pro does not support AAC.

ADPCM – Microsoft/Dialogic (.vox)

This is a format commonly used for games and telephony applications. It offers a lower bit rate than linear PCM and therefore requires less storage space/bandwidth.

AIFF (.aif, .aiff, .snd)

Audio Interchange File Format, a standard defined by Apple Computers Inc. The following bit depths are supported: 8 bit, 16 bit, 20 bit, 24 bit, and 32 bit float.

A-LAW (.alaw, .vox)

An audio encoding and compression technique for telephony, using 8-bit precision. The EU telephone system uses A-law encoding for digitization.

Ambisonics (.amb/.ambix)

WaveLab Pro can open and write Ambisonics files (7th order, 64 channels).

FLAC (.flac)

Free Lossless Audio Codec (FLAC) is a codec which allows digital audio to be losslessly compressed.

MPEG-1 Layer 2 (.mp2, .mpa, .mpg, .mus)

MP2 (sometimes referred to as "Musicam files") is a common file format in the broadcast industry.

MPEG-1 Layer 3 (.mp3)

The most common audio compression format. The major advantage of MPEG compression is that the file size is significantly reduced, while there is little degradation of the sound quality.

NOTE

When you open an MPEG compressed file in WaveLab Pro, the file is converted to a temporary wave file. On saving, the temporary wave file is converted back to MP3.

Ogg Vorbis (.ogg)

Ogg Vorbis is a compressed file format that is open, patent-free, and creates very small audio files while maintaining a comparatively high audio quality.

Opus (.opus)

Opus is a lossy file format that is particularly suited for streaming. It can be regarded as the successor of Ogg Vorbis and represents a good alternative to other lossy formats in that, similarly to its predecessor, it offers a comparatively high audio quality.

Raw PCM files (.raw, .bin, .pcm, .$$$)

This format includes no information about the bit depth or the sample rate. If you open a file in this format, WaveLab Pro asks you to specify the bit depth and the sample rate. If this is not done correctly, the file does not play back as intended.

> **NOTE**
>
> The "$$$" file type is a temporary file format of WaveLab Pro. If you experience a computer crash, you may restore some of your work by opening "$$$" files on your hard disk.

Sound Designer II (.sd2)

This audio file format is used by Digidesign applications (such as Pro Tools). The following bit depths are supported: 8 bit, 16 bit, and 24 bit.

Sun/Java (.snd, .au)

This is an audio file format used on Sun and NeXT computers. The following bit depths are supported: 8 bit, 16 bit, and 24 bit.

Text/Excel (.atxt)

This is a text representation of a waveform. By saving an audio file as a text file and then opening it in a spreadsheet application such as Excel, you can view it in textual, decimal form, and edit the sample values. When you open a text file representing a waveform in WaveLab Pro, it is decoded and opened as an audio file. These files are not compressed in any way, so they can become very large. When using 64-bit float files, the .atxt format is not 100% lossless. This is because it is not possible to express a binary floating point value in textual decimal form without some precision loss.

U-LAW (.ulaw, .vox)

This is an audio encoding and compression technique supported by Windows and Web phones, using 8 bit precision. The U.S. telephone system uses U-law encoding for digitization.

Wave (.wav)

The following bit depths are supported: 8 bit, 16 bit, 20 bit, 24 bit, 32 bit, 32 bit float, and 64 bit float.

WaveLab Pro supports Wave multichannel files up to a 22.2 channel layout.

Wave 64 (.w64)

This file format is very similar to the Wave format, but with one important difference: it allows you to record and/or edit files of virtually any length. Standard Wave files are limited to 2 GB (stereo files) in WaveLab Pro.

> **NOTE**
>
> Wave 64 does not support metadata. If you need large files and metadata, use Wave files, and activate the RF64 option.

WavPack (.wv/.wvc)

This file format allows digital audio to be losslessly compressed, including 32 bit float audio files.

Windows Media Audio (.wma, .asf)

Microsoft's own compressed format. WaveLab Pro allows you to import/export audio in this format (Windows only). To import/export audio in WMA surround format, Windows Media Player 9 or later must be installed on your system.

RF64

In the **Audio Files Preferences**, on the **File** tab, you can activate the RF64 file format support. If this is activated, the standard Wave file format switches automatically to the RF64 file format, as soon as the file size exceeds 2 GB, without any performance loss

or interruption. This is useful when recording very long sessions. A RF64 file has the extension .wav, but it can only be opened with an application that supports the RF64 standard if the file exceeds 2 GB.

Original Sound Quality (.osq, read-only)

This is the proprietary lossless compressed audio format of WaveLab.

RELATED LINKS
Windows Media Audio Encoding Dialog on page 219
Ogg Vorbis Dialog on page 217
FLAC Encoding Dialog on page 216
MP3 Encoding Dialog on page 213
MPEG-1 Layer 2 Encoding Dialog on page 215
20-bit, 24-bit, and 32-bit Float Files on page 206

20-bit, 24-bit, and 32-bit Float Files

You do not need a 20-bit or 24-bit audio card to take advantage of the fact that WaveLab Pro can handle 20-bit and 24-bit audio files. Any processing or editing of the files is performed with full precision (64-bit float), even if your card does not support this degree of precision.

For playback, WaveLab Pro automatically adapts to the card that you have installed.

Creating New Audio Files

You can create an empty audio file, which allows you to assemble material from other audio files, for example.

PROCEDURE

1. Select **File** > **New**.

2. Select **Audio File** > **Custom**.

3. Specify the audio properties, and click **Create**.
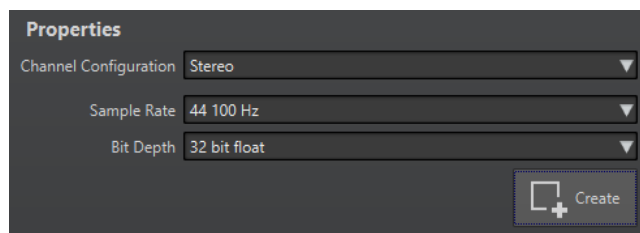
RELATED LINKS
Audio Properties Dialog on page 206

Audio Properties Dialog

You can define the channel configuration, the sample rate, and the bit depth of the audio file.

You can set these properties when you create a new audio file.

● To change the properties for the selected audio file, select the **File** tab, and click **Info**, or click the **Audio Properties** button at the bottom right of the **Audio Editor**.
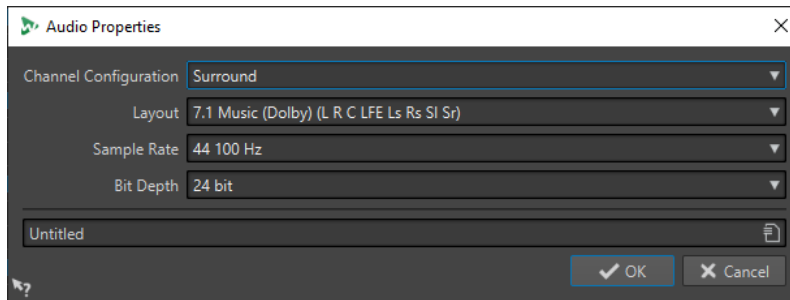
Channel Configuration

Allows you to select the number of audio channels.

Sample Rate

Allows you to select the number of audio samples per second.

Bit Depth

Allows you to select the accuracy of samples in the audio stream.

RELATED LINKS
Info Dialog on page 78

Saving an Audio File

PROCEDURE

1. Do one of the following:
   - To save an audio file for the first time, select **File** > **Save As**.
   - To save an audio file that has been saved before, click the **Save** button, or select **File** > **Save**.

2. In the **Save As** window, specify a file name and a location.

3. Click **Save**.

RESULT

You can use undo/redo even after saving.

Saving in Another Format

You can change the file format, the sampling frequency, the bit depth, and the stereo/mono status when saving.

PROCEDURE

1. Select **File** > **Save As**.

2. In the **Save As** window, specify a file name and a location.

3. Click in the **Format** field, and select **Edit**.

4. In the **Audio File Format** dialog, set the file format, and specify the properties.

5. Click **OK**.

6. Click **Save**.

RESULT

A new file is created. The original file is not affected by the operation.

Audio File Format Dialog

The **Audio File Format** dialog allows you to change various file settings when saving.

- To open the **Audio File Format** dialog, select **File** > **Export**, and **Render** > **Single** or **Render** > **Multi**. Activate **Named File**, click in the **Format** field, and select **Edit**.

This dialog can also be opened from various other locations in WaveLab Pro.
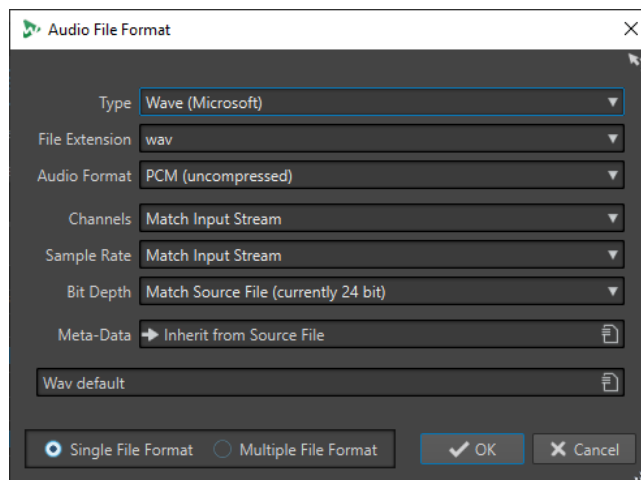
Type

Allows you to select an audio file type. This affects which options are available on the **Audio Format** pop-up menu.

File Extension

Allows you to select a file extension that is compatible with the current file type.

Audio Format

Allows you to select an audio format that is compatible with the current file type.

Channels

Allows you to specify the number of audio channels for the files to be created. For multichannel audio montages, you can create multiple files.

The following channels are available:

- **Match Input Stream**

- **Mono**

- **Stereo**

- **Multi Mono**

- **Multi Stereo**

    Allows you to record multiple stereo files at the same time. For example, if you record a bus that has six channels, this option creates three stereo files.

- **Multi Stereo/Mono**

Allows you to record multiple stereo and mono files at the same time. For example, if you record a bus that has six channels, this option creates two stereo files and two mono files to match the 5.1 surround setup.

- **Multi Channel**

Sample Rate

Allows you to select a sample rate for the audio file. If you change this setting, a sample rate conversion takes place.

IMPORTANT

We recommend that you use this for simple conversions only. For professional results, using the **Resample** plug-in and adding limiting and dithering is a better option.

Bit Depth

Allows you to select a bit depth for the audio file. This option is only available for specific file types.

IMPORTANT

We recommend that you reduce the bit depth for simple conversions only. For professional results, adding dithering in the **Master Section** is a better option.

Metadata

Allows you to apply metadata settings that are saved with the file. This option is not available for all file types.
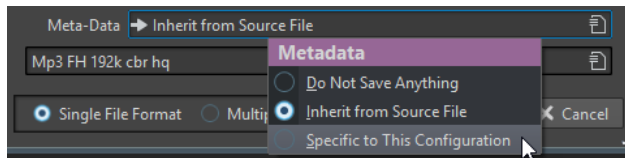
- If **Do Not Save Anything** is selected, no metadata is saved with the file.
- If **Inherit from Source File** is selected, the metadata of the source file is used. If the source metadata is empty, the default metadata is used, if available. For example, this can be used to create Wave files with a Unique Material Identifier (BWF standard).
- If **Specific to This Configuration** is selected, you can edit the metadata or replace it with a metadata preset. To edit the metadata, open the metadata pop-up menu again, and select **Edit**.

Single File Format/Multiple File Format

Switches between the **Audio File Format** dialog and the **Multi Audio File Format** dialog.

RELATED LINKS
Saving in Another Format on page 207

Format Changes

When you change the sample rate, the bit depth, and the number of channels of an audio file, several operations are performed.

Sample Rate

After specifying a new sample rate, a sample rate conversion is performed.

Bit Depth

After specifying a new bit depth, the file is either truncated down to 8 bits or padded up to 64 bits. For converting to a lower bit depth, we recommend adding dithering.

Mono/Stereo

If the file is converted from mono to stereo, the same material is used in both channels. For a conversion from stereo to mono, a mix of the two channels is created.

NOTE

- If you only want to change the bit depth, you can do this in the **Audio Properties** section of the **Info** window instead, and then save the audio file.

- For high quality mastering purposes, we recommend not to change the sample rate and the number of channels using the **Audio Properties** section, but to use plug-ins and features of the **Master Section** instead.

Rendering a Selection as an Audio File

You can render a selection in an open audio file as a new audio file.

PROCEDURE

1. In the **Audio Editor**, select an audio range.

2. Select the **Render** tab.

3. In the **Source** section, open the pop-up menu, and select **Selected Audio Range**.

4. In the **Output** section, specify a file name, a location, and a file format.

5. In the **Render** section, click **Start Rendering**.

RELATED LINKS
Audio Editor Window on page 176
Edit Tab (Audio Editor) on page 190
Audio File Format Dialog on page 208

Rendering the Left/Right Channel as an Audio File

You can save each individual channel as a separate file. This option is useful for editing dual mono files, for example.

PROCEDURE

1. In the **Audio Editor**, select the **Render** tab.

2. In the **Output** section, specify a file name and a location.

3. Open the **Format** pop-up menu, and select **Edit Single Format**.

4. In the **Audio File Format** dialog, open the **Channels** pop-up menu, and select **Left Channel** or **Right Channel**.

5. Set additional parameters for the output, and click **OK**.

6. In the **Render** section, click **Start**.

RELATED LINKS
Render Tab (Audio Editor) on page 196
Audio File Format Dialog on page 208

Creating Single Audio File Format Presets

PROCEDURE

1. In the **Audio File Format** dialog, specify the audio file format.

2. Open the **Presets** pop-up menu, and select **Save As**.

3. Enter a name for the preset, and click **Save**.

RELATED LINKS
Audio File Format Dialog on page 208
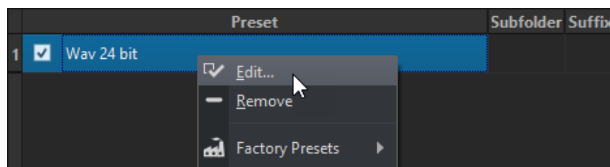
Creating Multiple Audio File Format Presets

PREREQUISITE

You have created a preset for each audio file format that you want to add to the multi format preset.

PROCEDURE

1. In the **Audio File Format** dialog, click **Multiple File Format**.

2. Click **Add**, and select the preset that you want to use.

3. Add as many audio file format presets as you need.

4. Optional: To make changes to an existing preset, right-click it, and select **Edit**.

5. Open the **Presets** pop-up menu, and select **Save As** to save the multiple format as a preset.

RELATED LINKS
Audio File Format Dialog on page 208
Multi Audio File Format Dialog on page 211

Multi Audio File Format Dialog

The **Multi Audio File Format** dialog allows you to select audio file format presets. These allow you to render an audio file or an audio montage to multiple file formats.

●   To open the **Multi Audio File Format** dialog, select **File** > **Export** and **Render** > **Single** or **Render** > **Multi**. Click in the **Format** field, and select **Edit Multi Format**.

You can also open the **Multi Audio File Format** dialog via the **Format** tab in the **Batch Processor** window.
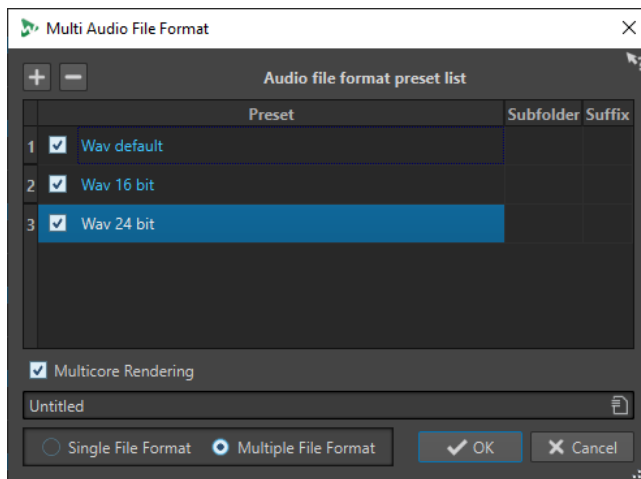
Add

Opens a menu from which you can select a file format preset to add it to the preset list.

Remove

Removes the selected preset from the list.

Preset list

Shows the selected audio file format presets, an optional subfolder that the files are rendered to, and an optional suffix for the rendered files. The **Subfolder** column allows you to sort the output files to different subfolders. The **Suffix** column helps to avoid naming conflicts.

Multicore Rendering

With this option activated, all audio files are generated at the same time, each with a different CPU core, if possible. This increases the rendering speed.

NOTE

When running a batch processor that uses multiple CPU cores, we recommend that you deactivate the **Multicore Rendering** option.

Single File Format/Multiple File Format

Switches the view between the **Audio File Format** dialog and the **Multi Audio File Format** dialog.

Encoding Audio Files

You can save audio in different formats. The process of converting audio to another format is called encoding. When saving audio files, many file formats allow you to choose from a variety of encoding parameters.

RELATED LINKS

MP3 Encoding Dialog

On saving an MP3 audio file, you can adjust the encoding settings.

You can open the **MP3 Encoding** dialog from most places where you can select an output file format.
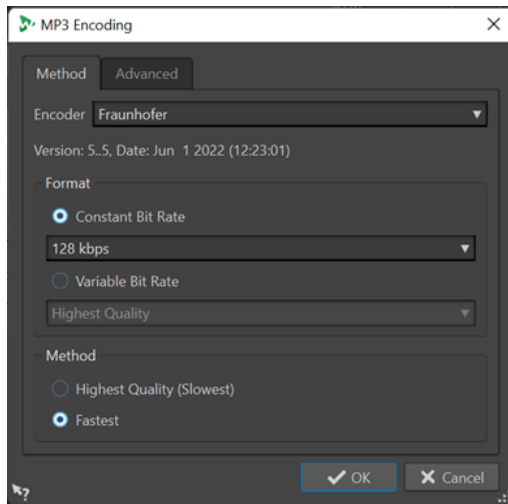
EXAMPLE

Open an audio file. Select **File** > **Save As**. Click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, set **MPEG Layer-3** as the type. Click in the **Encoding** field, and select **Edit**.

Method tab

Encoder

Allows you to select the encoder (**Fraunhofer** or **Lame**).

Constant Bit Rate/Variable Bit Rate

The bit rate is related to the quantity of data used to encode the audio signal. The higher the value, the better the quality, but the larger the output file. If you choose **Variable Bit Rate**, the rate changes according to the complexity of the audio material.

Highest Quality (Slowest)/Fastest

Allows you to select the quality to achieve. The higher the quality, the more resources and time are required to analyze and compress the audio signal.

NOTE

Highest Quality (Slowest) can require a specific sample rate for the audio file. If this is the case and the sample rate is different from the input sample rate, a warning message is displayed.

Advanced tab

Add File Length and Playback Position Information to VBR Header

Adds additional data to the VBR (variable bit rate) header that allows the playback device to estimate the length of the MP3 file and to jump to any time position in the MP3 file.

NOTE

This option is exclusively available for the Fraunhofer encoder.

Embed Ancillary Data for Time and Delay Compensation

Embeds ancillary data so that the duration of the resulting decoded file exactly matches the duration of the original file.

NOTE

This option is exclusively available for the Fraunhofer encoder.

The following options are exclusively available for the **Lame** encoder:

Allow Intensity Stereo Coding

Decreases the bit rate by reorganizing the intensity information between the channels.

Specify as Original Recording

Marks the encoded file as the original recording.

Write Private Bit

A custom flag.

Write Copyright Flag

Marks the encoded file as copyright-protected.

Write Check-Sum

Allows other applications to check the integrity of the file.

Create Long Frames

Saves space by writing fewer headers in the file (not compatible with all decoders).

RELATED LINKS
Encoding Audio Files on page 212

AAC Encoding Dialog

On saving an AAC audio file, you can adjust the encoding settings.

NOTE

The availability of options for AAC encoding depends on your operating system.

You can access the **AAC Encoding** dialog in most parts of WaveLab Pro where you can select an output file format.

EXAMPLE

Open an audio file. Select **File** > **Save As**. Click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, select **AAC (Advanced Audio Coding)** as the type. Click in the **Encoding** field, and select **Edit**.
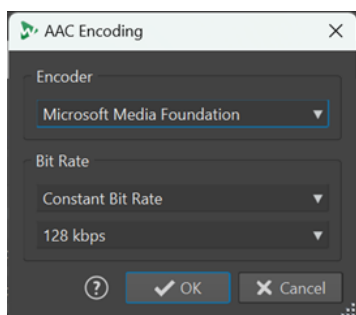
AAC Encoding dialog on Windows

AAC Encoding dialog on macOS

Encoder

Allows you to select an encoder.

- **Microsoft Media Foundation** is the default encoder on Windows.
- **Apple Audio Toolbox** is the default encoder on macOS.

Bit Rate

The bit rate is related to the quantity of data that is used to encode the audio signal. The higher the value, the better the quality, but the larger the output file.

On Windows, you can only select **Constant Bit Rate**, whereas macOS allows you to choose from various bit rate modes.

RELATED LINKS
Encoding Audio Files on page 212

MPEG-1 Layer 2 Encoding Dialog

On saving an MPEG-1 Layer 2 (MP2) audio file, you can adjust the encoding settings.

You can open the **MPEG-1 Layer 2 Encoding** dialog from most places where you can select an output file format.
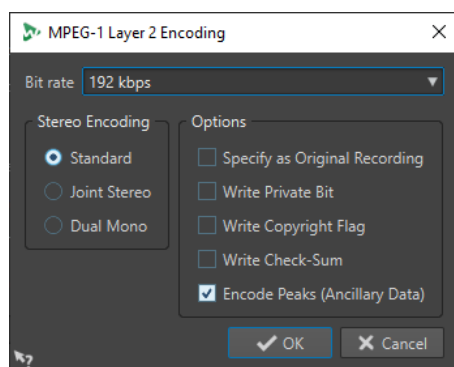
EXAMPLE

Open an audio file. Select **File** > **Save As**. Click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, set **MPEG Layer-2** as the type. Click in the **Encoding** field, and select **Edit**.

Bit Rate

Determines the bit rate. The bit rate is related to the quantity of data that is used to encode the audio signal. The higher the value, the better the quality, but the larger the output file.

Stereo Encoding

In **Standard** mode, the encoder does not use the correlation between channels. However, the encoder can take space from a channel that is easy to encode and use it for a complicated channel.

In **Joint Stereo** mode, the encoder uses the existing correlations between the two channels to increase the ratio quality/space.

In **Dual Mono** mode, both channels are independently encoded. We recommend using this mode for signals with independent channels.

Specify as Original Recording

Marks the encoded file as the original recording.

Write Private Bit

A custom flag.

Write Copyright Flag

Marks the encoded file as copyright-protected.

Write Check-Sum

Allows other applications to check the integrity of the file.

Encode Peaks (Ancillary Data)

Must be activated for compatibility with specific systems, such as DIGAS.

RELATED LINKS

FLAC Encoding Dialog

On saving a FLAC audio file, you can adjust the encoding settings.

You can open the **FLAC Encoding** dialog from most places where you can select an output file format.
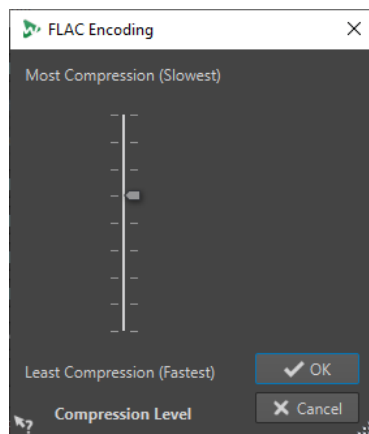
EXAMPLE
Open an audio file. Select **File** > **Save As**. Click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, set **FLAC** as the type. Click in the **Encoding** field, and select **Edit**.

Compression Level

Allows you to specify the compression level. The more compression, the slower the encoding.

Ogg Vorbis Dialog

On saving an Ogg Vorbis audio file, you can adjust the encoding settings.

You can open the **Ogg Vorbis** dialog from most places where you can select an output file format.
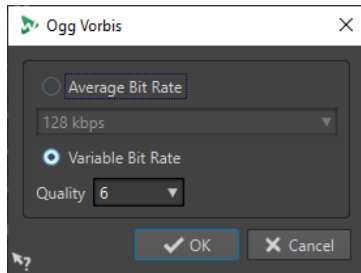
EXAMPLE

Open an audio file. Select **File** > **Save As**. Click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, set **Ogg Vorbis** as the type. Click in the **Encoding** field, and select **Edit**.

Average Bit Rate

If this option is activated, the average bit rate in the file remains constant during encoding. As the file size is proportional to the time, this makes the localization of a given point easier, but it can result in a lower quality, compared to the **Variable Bit Rate** option.

Variable Bit Rate

If this option is activated, the bit rate in the file varies during encoding, depending on the complexity of the material. This can produce a better quality/size ratio in the resulting file.

In the **Quality** field, select the quality. Lower quality settings result in smaller files.

Opus Audio File Encoding Dialog

On saving an audio file in the Opus file format, you can adjust the encoding settings.

You can open the **Opus Audio File Encoding** dialog from most places where you can select an output file format.
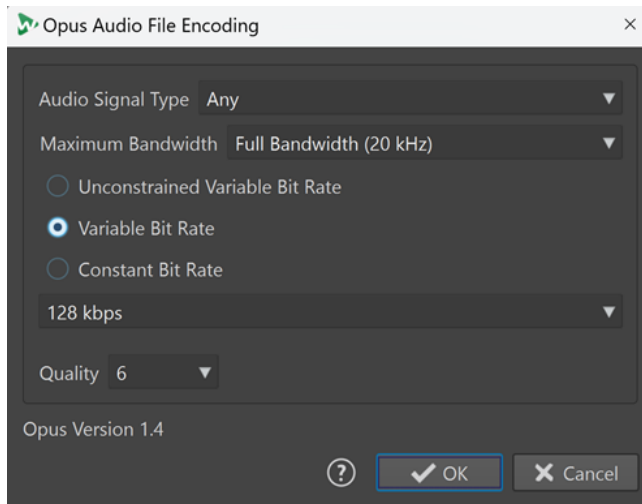
EXAMPLE

Open an audio file. Select **File** > **Save As**. Click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, set **Opus** as the type. Click in the **Encoding** field, and select **Edit**.

Audio Signal Type

Allows you to indicate the content type of your audio material (**Music**, **Voice**, or **Any**). For **Music** or **Voice**, this can enhance the resulting audio quality, as the encoding process is automatically adapted to the audio signal type.

Maximum Bandwidth

Ensures that the bandwidth of your audio file does not exceed a specific maximum value. As a result, the encoder discards any frequencies above this threshold.

Unconstrained Variable Bit Rate

With this option activated, the bit rate in the file is dynamically adjusted and varies while encoding, without any restrictions, based on the complexity of the material. This can enhance the quality/size ratio of the resulting file, compared to the **Constant Bit Rate** setting.

Variable Bit Rate

With this option activated, during the encoding process, the bit rate in the file is dynamically adjusted, based on the complexity of the material, and continuously approximated to the specified bit rate value. This can enhance the quality/size ratio of the resulting file, compared to the **Constant Bit Rate** setting.

Constant Bit Rate

With this option activated, the bit rate in the file remains constant during the encoding process, regardless of the complexity of the audio material.

NOTE

This can reduce the quality/size ratio of the resulting file, compared to a variable bit rate setting.

NOTE

The bit rate is related to the quantity of data that is used to encode the audio signal. The higher the value, the better the quality, but the larger the output file.

Quality

Allows you to choose the quality, with the scale ranging from **0** (very low) to **10** (very high).

NOTE

Lower quality settings result in smaller files. The higher the settings, the better the quality,but the longer it takes for the encoder to process the audio file.

RELATED LINKS
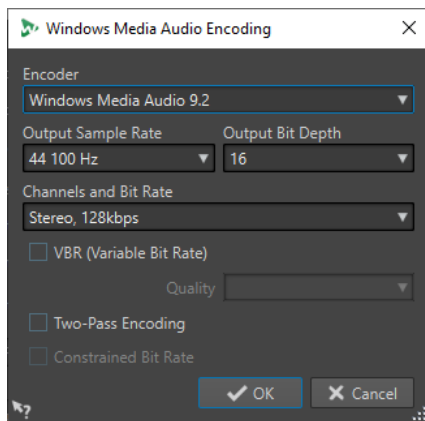Encoding Audio Files on page 212

Windows Media Audio Encoding Dialog

On saving a Windows Media Audio (WMA) file, you can adjust the encoding settings.

NOTE

This dialog is only available for Windows.

You can open the **Windows Media Audio Encoding** dialog from most places where you can select an output file format.

EXAMPLE

Open an audio file. Select **File** > **Save As**. Click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, set **Windows Media Audio (WMA)** as the type. Click in the **Encoding** field, and select **Edit**.

Encoder

Sets the encoder.

Output Sample Rate

Sets the output sample rate of the encoded file. The higher the sample rate, the higher the quality, but the larger the output file.

Output Bit Depth

Sets the output bit depth of the encoded file.

NOTE

This parameter is not available for all encoders.

Channels and Bit Rate

The available items depend on the selected encoding method and the output sample rate.

VBR (Variable Bit Rate)

If this option is activated, the bit rate in the file varies during encoding, depending on the complexity of the material. This can produce a better quality/size ratio in the output file.

In the **Quality** field, select the quality. Lower quality settings result in smaller files.

Two-Pass Encoding

If this option is activated, the encoding quality increases, but the process takes twice as long.

Constrained Bit Rate

Only available with **VBR** and **Two-Pass Encoding** activated, you can use this option to avoid peaks by limiting the bit rate. We recommend using it for media, such as CDs or DVDs.

RELATED LINKS
Encoding Audio Files on page 212

Inserting Audio Files into Another Audio File

You can assemble an audio file from several audio files.

PROCEDURE

1. In the **Audio Editor**, open the audio file into which you want to insert another audio file.

   To insert an audio file at the edit cursor position, make sure that **Snap to Magnets** is activated, and that **Cursor** is activated on the **Magnet** pop-up menu. This causes the edit cursor to snap to the nearest zero crossing, which avoids glitches.

2. Select the **Insert** tab.

3. In the **Audio File** section, select one of the following insert options:

   - **At Start**
   - **At End**
   - **At Cursor**

   If you select **At Cursor**, the audio file is split at the insert position. The part after the split is moved to the right.

4. Select the audio file that you want to insert from the pop-up menu.

RELATED LINKS
Magnetic Bounds in Audio Files on page 182

Turning Selections Into New Files

You can turn selections into new files via drag and drop, via the context menu in the **Audio Editor**, or by using the **Render** tab in the **Audio Editor**.

RELATED LINKS
Render Tab (Audio Editor) on page 196

Turning Selections Into New Files By Dragging

PROCEDURE

1. Make a selection in **Waveform** window of the **Audio Editor**.

2. Drag the selection to the tab bar above the **Waveform** window, and release the mouse button.

RESULT

The selection is opened in a new stereo window.

RELATED LINKS
Audio Editor Window on page 176

Turning Selections Into New Files via the Menu

PROCEDURE

1. Make a selection in the **Waveform** window of the **Audio Editor**.

2. Right-click the selection, and select **Copy Selection to New Window**.

3. From the submenu, select one of the following options:

    *   **Duplicate**

    *   **Stereo Version**

    *   **Mono Mixdown**

    *   **Mono Mixdown (Subtract Right Channel from Left Channel)**

RESULT

The selection is opened in a new stereo or mono window.

RELATED LINKS
Audio Editor Window on page 176

Special File Format Dialog

When opening files via the **Unknown Audio** option, you can specify how to interpret the format of the audio file.

*   To open the **Special File Format** dialog, select **File** > **Import**. Click **Unknown Audio**, and select the file that you want to open.
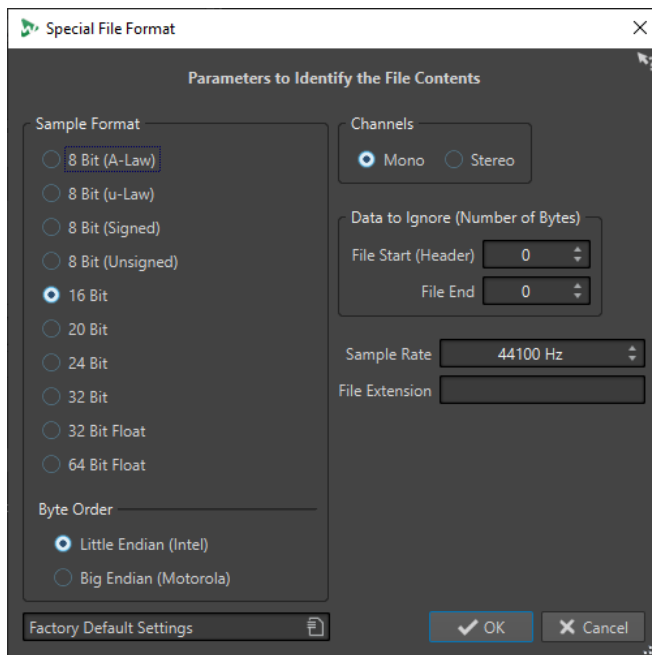
Sample Format

Specifies the binary representation of the samples in the file.

Byte Order

Specifies the order in which to interpret bytes. This only applies for 16 bit or more.

Channels

Specifies the number of audio channels in the audio file.

Data to Ignore (Number of Bytes)

Specifies how many bytes at the start and at the end of the audio file to ignore.

Sample Rate

Specifies the sample rate of the audio file.

File Extension

Specifies the default file name extension for the audio file. When the file selector opens after closing this dialog, only the file with this extension is displayed.

Dual Mono Files

Dual mono files are two mono files that represent the left and right channels of a stereo recording. You can open several dual mono files at the same time and have them grouped automatically, provided that the file names include channel tags.

Just like stereo files, you can open dual mono files in the **Audio Editor**, the **Audio Montage** window, and the **Batch Processor** window.

In the **Audio Files Preferences**, on the **File** tab, you can set the channel ID for the left and right channel, and the channel ID to be added to dual mono files when saving the files. You can define up to seven name descriptors, each of which can be of the type **Suffix** or **Advanced**.

In **Advanced** mode, the channel ID can be located anywhere in a file name. For this purpose, you have to define a name pattern. This name pattern must have a (capture) section.

Name matching is not case-sensitive, and the file extension is ignored.

By default, WaveLab Pro recognizes the file name endings ".L/.R", "-L/-R", or "_L/_R" as the left and right channels.

Opening Dual Mono Files in the Audio Editor

PREREQUISITE

You have selected **File** > **Preferences** > **Audio Files** and activated **Allow Opening of Dual Mono Files** on the **File** tab.

NOTE

To avoid accidentally opening two separate mono files as a dual mono file, we recommend that you only activate **Allow Opening of Dual Mono Files** when you are about to open dual mono files.

You have saved all the dual mono files to be opened in the same folder.

PROCEDURE
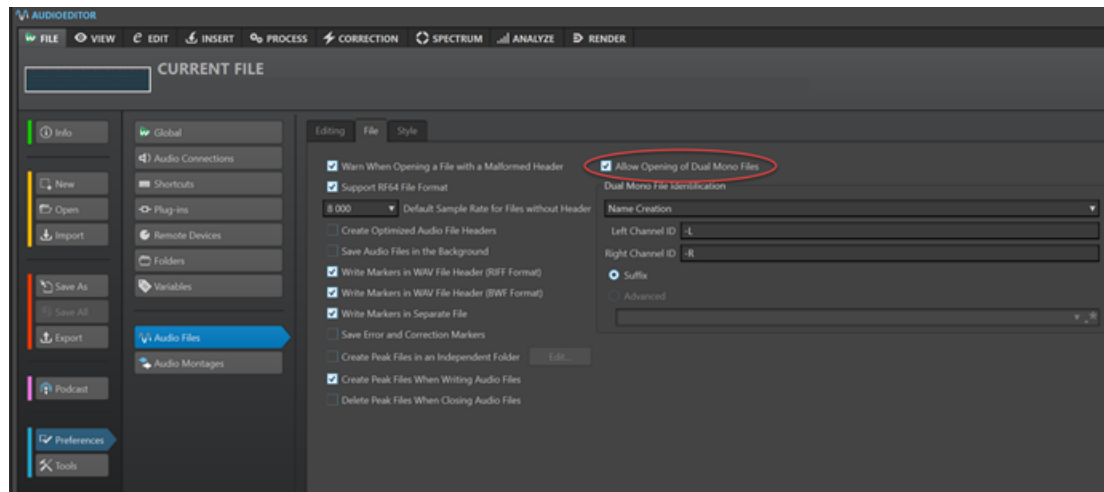
1. Open the audio file in which you want to open the dual mono files.

2. Select **File** > **Open**.

3. Select **Audio File** > **Browse**.

4. Navigate to the file location.

5. Select the dual mono files, and click **Open**.

   NOTE

   For this purpose, double-clicking the files instead of selecting them and clicking **Open** does not work.

Opening Dual Mono Files in the Audio Montage Window

PREREQUISITE

You have selected **File** > **Preferences** > **Audio Files** and activated **Allow Opening of Dual Mono Files** on the **File** tab.

NOTE

To avoid accidentally opening two separate mono files as a dual mono file, we recommend that you only activate **Allow Opening of Dual Mono Files** when you are about to open dual mono files.

You have saved all the dual mono files to be opened in the same folder.

PROCEDURE

1. Open the audio montage in which you want to open the dual mono files.

2. Select **File** > **Open**.

3. Select **Audio File** > **Browse**.

4. Navigate to the file location.

5. Select the dual mono files, and click **Open**.

   NOTE

   For this purpose, double-clicking the files instead of selecting them and clicking **Open** does not work.

6. In the **Insert Audio Files** dialog, make the required adjustments.

7. Click **OK**.

RELATED LINKS
File Tab (Audio Files Preferences) on page 875
Insert Audio Files Dialog on page 398

Opening Dual Mono Files in the Batch Processor

PREREQUISITE
You have selected **File** > **Preferences** > **Audio Files** and activated **Allow Opening of Dual Mono Files** on the **File** tab.
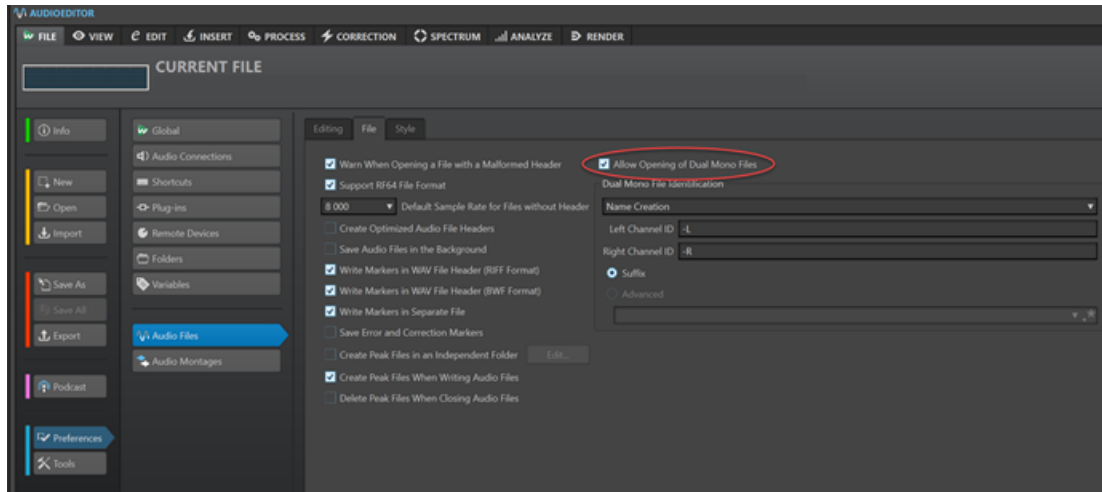
NOTE

To avoid accidentally opening two separate mono files as a dual mono file, we recommend to only activate **Allow Opening of Dual Mono Files** when you are about to open dual mono files.

You have saved all the dual mono files to be opened in the same folder.

PROCEDURE

● In the **Batch Processor** window, drag the dual mono files from the **File Browser** window to the **Files to Process** list, or use the **Insert** options on the **Edit** tab.
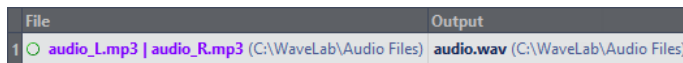
In the list, dual mono files are highlighted in purple.

Converting From Stereo to Mono/From Mono to Stereo

You can convert audio files from mono to stereo and from stereo to mono.

Converting a mono file into a stereo file produces an audio file that contains the same material in both channels; for example, for further processing into real stereo. Converting a stereo file into a mono file mixes the stereo channels to a mono channel.

RELATED LINKS

Converting a Selection From Stereo to Mono

PROCEDURE

1. Make a stereo selection in the **Audio Editor**.

2. Select **File** > **New**.

3. Select **Audio File** > **From Current File**.

4. Select one of the following options:

- To mix the left and right stereo channels when converting to mono, click **Mono Mixdown**.

- To mix the left channel with the inverse of the right channel when converting to mono, click **Mono Mixdown (Subtract Right Channel from Left Channel)**.

  The resulting mono waveform contains the difference between the channels. This enables you to check if a wave file is a genuine stereo file or a mono file converted to stereo, for example.

RESULT

The selection is opened in a new mono window.

RELATED LINKS
Audio Editor Window on page 176

Converting From Stereo to Mono While Saving

PROCEDURE

1. Make a stereo selection in the **Audio Editor**.

2. Select **File** > **Save As**.

3. In the **Save As** window, specify a file name and a location.

4. Click in the **Format** field, and select **Edit**.

5. In the **Audio File Format** dialog, open the **Channels** pop-up menu, and select one of the mono settings.

   For example, when selecting **Mono (Mix -3 dB)**, the resulting audio file is attenuated by 3 dB.

6. Click **OK**.

7. Click **Save**.

RELATED LINKS
Audio Editor Window on page 176
Audio File Format Dialog on page 208

Converting a Selection From Mono to Stereo

PROCEDURE

1. Make a mono selection in the **Audio Editor**.

2. Select **File** > **New**.

3. Select **Audio File** > **From Current File**.

4. Click **Stereo Version**.

5. Click **Create**.

RESULT

The selection is opened in a new stereo window.

RELATED LINKS
Audio Editor Window on page 176

Swapping Channels in a Stereo File

You can swap the two channels in an audio file; that is, you can move the audio in the left channel to the right channel, and the audio in the right channel to the left channel.

● To swap the channels of the whole audio file in the **Audio Editor**, select the **Process** tab. In the **Other** section, click **Swap Stereo Channels**.

● To swap the channels of a selected range of the audio file, make a selection range in the **Audio Editor**, and select the **Process** tab. In the **Other** section, click **Swap Stereo Channels**.

RELATED LINKS
[Process Tab (Audio Editor)](#) on page 196

Special Paste Options

The **Paste** pop-up menu in the **Audio Editor** offers additional paste options.

● To access the special paste options, open the **Audio Editor**, and select the **Edit** tab. In the **Cut Copy Paste** section, right-click **Paste**.

Overwrite

Overwrites data in the destination file, rather than moving data to make room for the inserted audio. How much is overwritten depends on the selection in the destination file:

● If there is no selection in the destination file, a section of the same length as the pasted selection is overwritten.

● If there is a selection in the destination file, the pasted selection replaces the selection.

Append

Adds the pasted audio after the end of the file.

Prepend

Adds the pasted audio before the beginning of the file.

Multiple Copies

Opens a dialog, in which you can enter the number of copies that you want to create.

Mix

Opens the **Mix** dialog, which allows you to blend two files into each other, starting at the selection or, if there is no selection, at the cursor position. You can specify the gain for the audio on the clipboard and at the destination.

All the data on the clipboard is mixed in, regardless of the length of the selection.

Moving Audio

You can rearrange the order of the audio in a file by dragging, and by cutting and pasting.

Moving Audio by Dragging

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, make a selection.

2. Drag the selection to a position outside the selection in the same file, or to another waveform window.

RESULT

The selection is removed from its original position and inserted where you drop it.

NOTE

To undo a transfer to another file, you must first undo the paste operation in the destination window and then undo the cut operation in the source window.

RELATED LINKS
Audio Editor Window on page 176

Moving Audio by Cutting and Pasting

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, make a selection.

2. Cut the audio in one of the following ways:

   ● Select the **Edit** tab, and click **Cut**.

   ● Press **Ctrl/Cmd**-**X**.

3. Select how to insert the selection:

   ● To insert the audio, click the position in the same file or in another file.

   ● To replace a section of the audio, select it.

4. To paste the selection, do one of the following:

   ● Select the **Edit** tab, and click **Paste**.

   ● Press **Ctrl/Cmd**-**V**.

RESULT

The selection is removed from its original position and inserted where you drop it.

NOTE

To undo a transfer to another file, you must first undo the paste in the destination window and then undo the cut operation in the source window.

RELATED LINKS
Audio Editor Window on page 176
Edit Tab (Audio Editor) on page 190

Moving Audio by Nudging

You can use the nudge tools to gradually move a selection within an audio file to the left or to the right.

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, make a selection.

2. Select the **Edit** tab.

3. In the **Nudge** section, click **Nudge Left** or **Nudge Right**.

RESULT

The audio is moved by one pixel. The exact distance depends on how far you have zoomed in.

EXAMPLE

If the status bar displays **x1:256**, the selection is moved by 256 samples. The moved section overwrites the audio at that position.

RELATED LINKS
Audio Editor Window on page 176
Edit Tab (Audio Editor) on page 190

Copying Audio

You can copy sections of audio within the same file or from one audio file to another.

Stereo/Mono Handling when Copying or Dragging

When you drag or copy stereo or mono files to other locations, the target location determines how the files are inserted.

When you drag across files, stereo/mono is handled as follows:

Dragged section	Drop wave	Action
Stereo	Stereo	The dragged audio is always inserted into both channels.
Stereo	Mono	Only the left channel is inserted.
Mono	Stereo	What happens depends on the vertical drop position. This is indicated by the cursor shape. The selection can be inserted into only one of the channels, or the same material can be inserted into both channels.

When you copy and paste files, stereo/mono is handled as follows:

Copied section	Paste wave	Action
Stereo	Stereo	If the cursor extends across both channels of the destination file, the material is inserted into both channels.
Mono	Mono	If the cursor is only in one channel, the audio is only pasted in that channel. Material from the left channel is pasted in the left channel and material from the right channel is pasted in the right channel.
Stereo	Mono	Only the left channel is pasted.

Copied section	Paste wave	Action
Mono	Stereo	What happens depends on whether the cursor is in one channel or both. The audio is either pasted in one of the channels, or the same material is inserted into both channels.

Sample Rate Conflicts

If you copy or move audio from one window to another and the sample rates of the two files are not the same, the copied/moved sound plays back at the wrong pitch (speed). WaveLab Pro warns you if this is about to happen.

While mixing sample rates can be used as an effect, more often than not, it is not intended. You have two options to prevent sample rate conflicts:

● You can convert the sample rate of the source file to the same sample rate as the destination file before editing.

● You can convert the sample rate of the destination file to the same sample rate as the source file before adding the audio.

Duplicating Audio by Copying and Pasting

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, make a selection.

2. Use one of the following copying methods:
   ● Select the **Edit** tab, and click **Copy**.
   ● Press **Ctrl/Cmd**-**C**.

3. Select how to insert the selection:
   ● To insert the audio, click at the desired position, either in the same file or in another file.
   ● To replace a section of an audio file, select it.

4. To paste the selection, do one of the following:
   ● Select the **Edit** tab, and click **Paste**.
   ● Press **Ctrl/Cmd**-**V**.

RELATED LINKS
Audio Editor Window on page 176
Edit Tab (Audio Editor) on page 190

Copying Audio by Dragging

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, make a selection.

2. Click the middle of the selection, and drag it to a position outside the selection in the same file, or to another waveform window.

RESULT

The selection is inserted at the indicated point. The audio that previously started at that point is moved to the right.

RELATED LINKS
Audio Editor Window on page 176

Mid and Side Editing

You can edit, process, and monitor audio material in the left/right and in the mid/side domain. In addition to the **Waveform** view, you can use mid/side editing for spectral editing, where it allows you to limit editing to the mid or the side channel, for example.
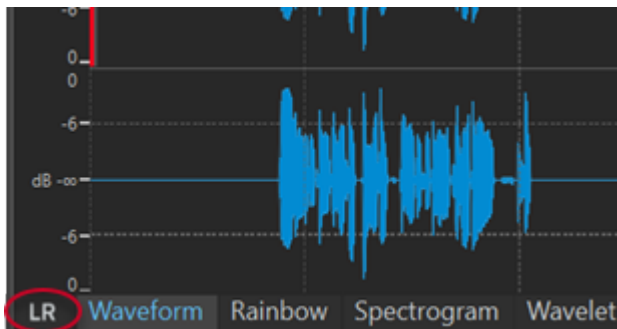
You can use the **LR/MS** toggle button at the bottom left of the overview and the main view to switch between left/right and mid/side mode. The upper track displays the mid signal, and the lower track displays the side signal. The overview and the main view have independent LR/MS controls. This allows you to display the left/right channels in the overview and the mid/side channels in the main view, for example.

NOTE

Even though the audio samples are visualized in mid/side mode in the **Audio Editor**, they are transmitted to the **Master Section** in their original left/right encoding. This process applies to both playback and rendering scenarios. To perform M/S processing in the **Master Section**, consider utilizing the M/S encode/decoder plug-ins that are included in WaveLab Pro. For detailed information about the available plug-ins, see the separate document **Plug-in Reference**.

- The waveform display and the cursor shape indicate whether L/R or M/S mode is activated.
- You can apply offline processes like **Gain** and **Level** independently on the mid and on the side channel.
- With the playback tool, you can play back the mid or side channel individually.

Mixing Down and Rendering

You can render regions of audio files or whole audio files to a single audio file format or to multiple audio file formats at the same time.

RELATED LINKS
Rendering in the Master Section on page 599
Rendering Audio Files on page 232
Rendering Audio Files in Real Time on page 232

Rendering Audio Files

PREREQUISITE

You have set up your audio files. If you want to render to multiple file formats, you have created file format presets.

PROCEDURE

1. In the **Audio Editor**, select the **Render** tab.

2. In the **Source** section, specify which part of the audio file you want to render.

3. In the **Result** section, activate **Named File**.

4. In the **Output** section, indicate where to save your rendered file via the **Location** field.

5. In the **Output** section, click the **Format** field, and do one of the following:

    - To render to one audio format, select **Edit Single Format**.

    - To render to multiple file formats, select **Edit Multi Format**.

6. Set the required parameters in the **Audio File Format** dialog.

    - To add multiple file formats in the **Multi Audio File Format** dialog, click **Plus**, and select the file format presets that you want to render to.

7. Click **OK**.

8. Optional: Make additional adjustments via the **Render** tab.

9. In the **Render** section, click **Start Rendering**.

RESULT

The audio file is rendered.

RELATED LINKS

Render Tab (Audio Editor) on page 196
Audio File Format Dialog on page 208
Multi Audio File Format Dialog on page 211
Creating Multiple Audio File Format Presets on page 211

Rendering Audio Files in Real Time

When you render audio files in real time, you can listen to the audio file while it is being rendered. Real-time rendering is available for single file formats and multiple file formats.

PREREQUISITE

You have set up your audio file. If you want to render to multiple file formats, you have created file format presets.

PROCEDURE

1. Select the **Render** tab.

2. In the **Source** section, specify which part of the audio file you want to render.

3. In the **Result** section, activate **Named File**.

4. In the **Output** section, click the **Format** field. Do one of the following:

    - To render to a single audio format, select **Edit Single Format**.

    - To render to multiple file formats, select **Edit Multi Format**.

5. Set the desired parameters in the **Audio File Format** dialog.

   - To add multiple file formats in the **Multi Audio File Format** dialog, click the **+** button, and select the file format presets that you want to render to.

6. Click **OK**.

7. Optional: Make additional adjustments via the **Render** tab.

8. In the **Render** section, right-click **Start Rendering**, and select **Start Rendering (Real Time)**.

9. In the **Real-Time Rendering** dialog, click **Start**.

RESULT

The audio file is rendered.

RELATED LINKS
Render Tab (Audio Editor) on page 196
Multi Audio File Format Dialog on page 211
Creating Multiple Audio File Format Presets on page 211
Real-Time Rendering Dialog on page 233

Real-Time Rendering Dialog

The **Real-Time Rendering** dialog allows you to listen to an audio file while it is being rendered in real time.

- To open the **Real-Time Rendering** dialog, in the **Audio Editor**, select the **Render** tab. Right-click **Start Rendering**, and click **Start Rendering (Real Time)**.
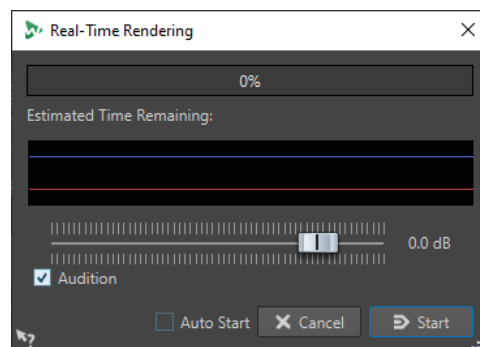
Gain

Allows you to specify the gain of the monitored audio signal.

Audition

Sends the rendered audio signal to the audio device output.

Auto Start

Starts the rendering process automatically when the **Real-time Rendering** dialog opens.

RELATED LINKS
Rendering Audio Files in Real Time on page 232

Changing the Audio Properties

You can change the sample rate and the bit depth of audio files.

Changing values for audio properties does not process the audio file in any way (in contrast to using **Save As**). However, the following rules apply:

- If you change the sample rate, the file plays back at a new pitch.
- If you change the bit depth, the file is converted to the new precision the next time you save it.

NOTE

There is no undo for this. If you save a file with a lower bit depth, the file is converted permanently.

PROCEDURE

1. In the **Audio Editor**, open an audio file.
2. Select the **File** tab.
3. Click **Info**.
4. In the **Audio Properties** section, select a new **Sample Rate** and/or **Bit Depth**.
5. Click **Apply Changes**.

RELATED LINKS

Metadata

Metadata consists of attributes that describe the audio contents; for example, the titles of an album, the author, or the recording date of a title. The availability of the data varies, depending on the file format of the selected audio file.

When opening an audio file, audio montage, or batch process, the metadata found in the file is loaded. You can create different metadata presets for audio files, audio montages, and batch processes. When creating a new file from a template, this file can inherit the metadata of the preset, if available.

A preview of the metadata is displayed in the **Metadata** window. To view the complete metadata of a file and to be able to edit the metadata, open the **Metadata** dialog.

Not all file formats can save metadata. Depending on the output file format, all metadata or only part of the metadata is saved in an audio file. The following file formats can contain metadata:

- .wav
- .mp3
- .ogg
- .wma
- .flac
- .m4a
- .mp4

For MP3, the following metadata types are available:

- ID3v1 and ID3v2, including picture support, and ReplayGain standard.

  You can add TCMP (Part of a compilation) to the ID3v2 metadata.

  NOTE

  - MP4 is not ID3v2-compatible. However, in WaveLab Pro, it uses the same editor.
  - The metadata codes that are followed by an "(i)" indicate the iTunes-compatible fields. Lyrics and pictures are also iTunes-compatible.

For WAV, the following metadata types are available:

- RIFF

  You can add ITRK (track number), TRCK (track number), and IFRM (total number of tracks) to the RIFF metadata. For compatibility reasons, we recommend adding the track number to both the ITRK and the TRCK fields.

- BWF markers
- BWF version 2 (EBU R-128 loudness support)
- BWF support for USID and UMID standards (Unique Source Identifier and Unique Material Identifier)
- iXML (with EBU R-128 loudness support)
- aXML (BWF standard to attach XML data)
- CART (AES standard, dedicated to broadcast needs)
- MD5 (**Extra** tab)
- ID3, including picture support

When saving or recording an audio file in the **Audio File Format** dialog, you can choose not to use any metadata, to inherit the metadata from the source file, or to edit the metadata of the file.
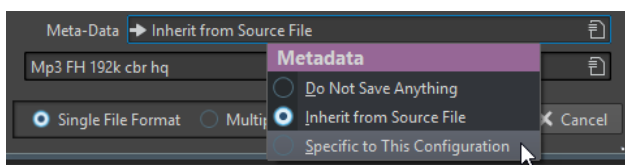
Metadata can be entered manually or generated automatically.

The following options can be generated automatically:

- Unique Source Identifier (USID)

  You can activate **USID** on the **Basics** tab of the **BWF** tab.

- UMID (**BWF**, **Unique Material Identifier (UMID)** tab)
- Loudness and true peak values* (**BWF**, **Loudness** tab)
- Insert BWF data (**iXML** tab)
- Time markers (**CART** tab)
- MD5 checksum* (**Extra** tab)
- ReplayGain information* (**ID3**, **ID3v2** tab)

(*) These options initiate a file analysis while the file is written, which means that the file writing process can take longer.

WaveLab Pro includes several metadata presets. They are used as examples and can be customized to your needs. You can load metadata presets from the **Metadata Presets** pop-up menu in the **Audio File Format** dialog or from the **Metadata** dialog.

Metadata Window

In the **Metadata** window, you can see and edit metadata of the file in the **Audio Editor**, the **Audio Montage** window, or the **Batch Processor** window.

● To open the **Metadata** window, open the **Audio Editor**, the **Audio Montage** window, or the **Batch Processor** window, and select **Tool Windows** > **Metadata**.
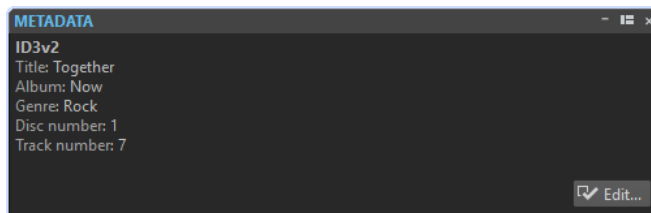
When you select an audio file in the **File Browser** window, the corresponding metadata is displayed in the **Metadata** window and the metadata section of the **Info** tab. When you click elsewhere, the **Metadata** window displays the metadata of the selected audio file, audio montage, or batch process.

Preview

Displays the metadata of the selected audio file, audio montage, or batch process.

Edit

Opens the **Metadata** dialog, where you can view and edit the entire metadata of the selected file.

Metadata Dialog

The **Metadata** dialog allows you to define the metadata to be embedded in your audio file.

● To open the **Metadata** dialog, open the **Metadata** window, and click **Edit**.

Further processing of the metadata may vary, depending on the particular file type.
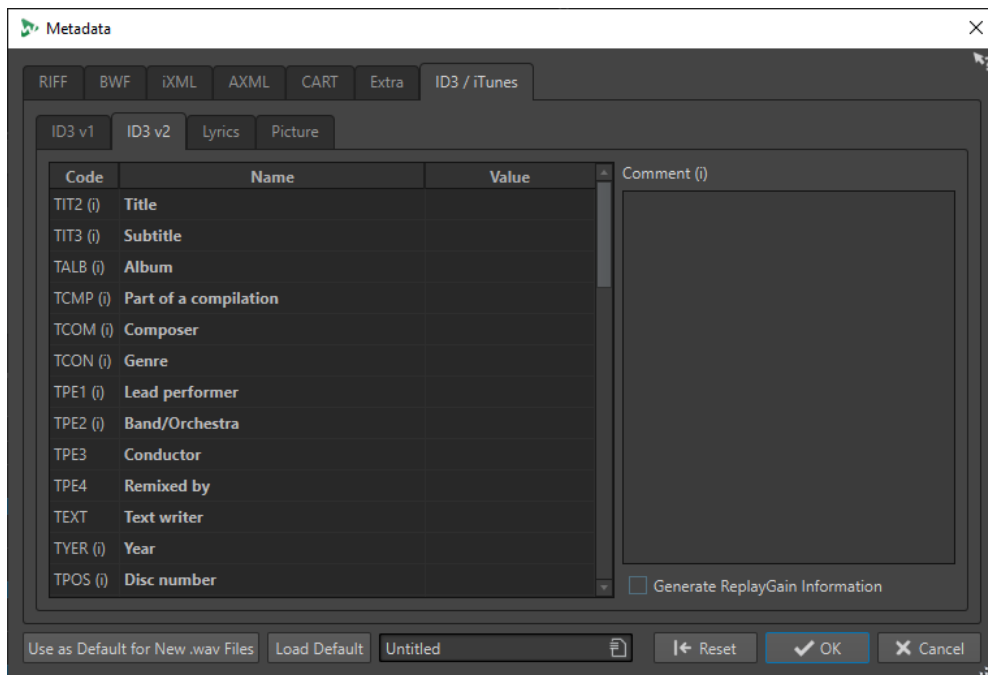
Metadata dialog for WAV files

When opening the **Metadata** dialog for files in the **Audio Editor**, you can edit the metadata that is saved with the audio file. This metadata is saved to disk at a later point in time.

When opening the **Metadata** dialog for files in the **Audio Montage** window or the **Batch Processor** window, you can edit the metadata for the WAV, MP3, MP4, and M4A audio files that are created when rendering the audio montage or processing through the batch processor. If you render to WAV, MP3, MP4, or M4A formats, the metadata is associated to these files.

NOTE

The metadata codes that are followed by an "(i)" indicate the iTunes-compatible fields. Lyrics and pictures are also iTunes-compatible.

RELATED LINKS
Metadata on page 234
Metadata Window on page 236
Editing Metadata on page 237

Editing Metadata

You can edit metadata for audio files, audio montages, and batch processes.

PREREQUISITE
You have opened an audio file, audio montage, or batch process.

PROCEDURE

1.   In the **Metadata** window, click **Edit**.

2.   In the **Metadata** dialog, make the required adjustments.

3.   Click **OK**.

Metadata Presets

In the **Metadata** dialog, you can save metadata presets and apply these presets to WAV, MP3, MP4, and M4A files.
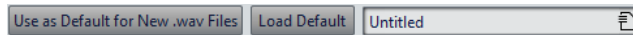
The **Use as Default for New .wav Files** option allows you to define a set of metadata as default.

When you create a new file and do not add any metadata, this default metadata is applied to the file when saving or rendering it. For example, you can save or record WAV files with BWF metadata and automatically add a Unique Material Identifier.

To edit the default metadata preset, select **Load Default**, and edit the preset.

CART and Markers

WaveLab Pro reads the CART markers, if available, and merges them with the existing markers of the file.

The CART standard can contain up to eight markers. WaveLab Pro saves them if their names conform to the CART standard.

If **Generate Time Markers** is activated on the **CART** tab of the **Metadata** dialog, the markers are generated, provided that at least one CART text field contains content.

To be able to merge the CART markers with the markers of a file when rendering a file, the option **Copy Markers** must be activated via the **Render** function in the **Master Section**.

Metadata and Variables

With variables, you can handle metadata more efficiently. You can use the available variable options to quickly add metadata to a file, without having to enter the same information multiple times.

You can also quickly add available information, such as dates or file names.

The idea behind this is to set up the metadata and variables once, and then be able to output various file versions of the project.

Metadata in the Batch Processor

You can batch-process metadata after setting up the **Metadata** dialog for batch processes and applying the metadata to the files of the batch process.

In the **Batch Processor** window, on the **Format** tab, the following options are available in the **Batch Metadata** pop-up menu:

- **Ignore** prevents the batch metadata from changing the metadata of the files in the batch.

- **Merge** merges the metadata of the batch with the metadata of the source files.

  > NOTE
  >
  > The **Merge** option exclusively works for WAV files.

- **Replace** replaces the metadata of the source files with the metadata of the batch.
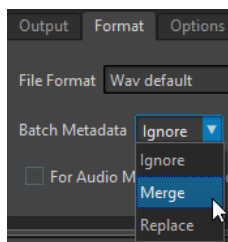
EXAMPLE
Merging Metadata

Let us assume that you have 1000 files, each with a mistake in the copyright information field of its metadata. With the batch option, you can preserve the metadata of the files and exclusively edit the copyright information field.

However, you can also use the **Merge** option for complex batch metadata. You can process an audio file and specify which metadata to use from the source audio file and which metadata from the batch. In order to do so, use the **Merge Codes** options in the **Metadata** dialog for batch processes.
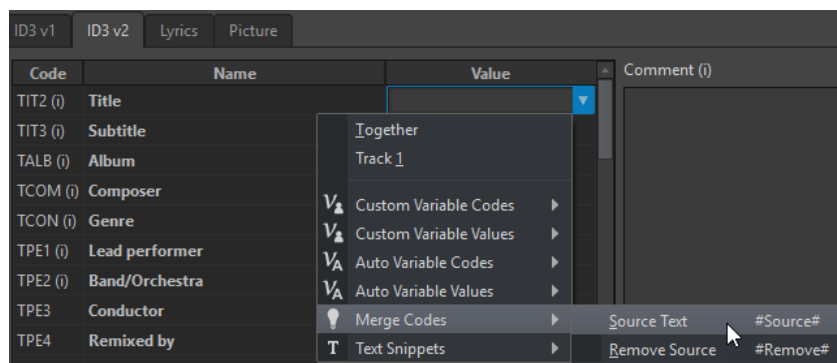
If you enter **#Source#** in a value field, the value of the metadata of the source audio file is used when batch-processing. If you enter **#Remove#** in a value field, the corresponding value of the metadata of the source audio file is removed when batch-processing. To initiate the merging process, you must set up these codes in the value field that you want to merge.

An example on how to merge metadata while using the **#Source#** and **#Remove#** options:

- The batch process contains an audio file that already has metadata.
- The batch metadata is set up.

When starting the batch process, the metadata is merged in the following way:

- If value field "A" in the audio file metadata contains the text "Jazz", while value field "A" is empty in the batch metadata, the resulting output file has the text "Jazz" in value field "A".

- If value field "B" in the batch metadata contains the text "Modern", while value field "B" in the audio file metadata is empty, the resulting output file has the text "Modern" in value field "B".

- If value field "C" contains text both in the source audio file and in the batch metadata, further editing in the **Metadata** dialog for batch processes is necessary to specify which metadata to use.

Examples for using the **#Source#** and **#Remove#** codes:

- No code is used, the source audio file has the text "Piano", and the batch metadata has the text "Trumpet". Result: "Piano" is retained, because the source audio file metadata has precedence over the batch metadata.

- The source audio file has the text "Piano", and the batch metadata has the text "Electric #Source#". Result: The resulting output file has the text "Electric Piano".

- The source audio file has the text "Piano", and the batch metadata has the text "#Remove#". Result: "Piano" is removed from the value field.

- The source audio file has the text "Piano", and the batch metadata has the text "#Remove#Trumpet". Result: "Piano" is removed, and "Trumpet" is added.

RELATED LINKS
Metadata on page 234
Metadata Dialog on page 236
Batch Processor Window on page 782

Snapshots

You can save snapshots of your audio files, to capture the current view settings.

You can recall and update a snapshot at any time.

Selecting a saved snapshot restores all of its view settings. You can also choose to recall only specific view properties by activating the corresponding options for a snapshot.

RELATED LINKS
View Tab (Audio Editor) on page 188

Capturing the Current View

Capturing the current view saves the current zoom factor, cursor position, scroll position, and time range.

PROCEDURE

1. Set up the view in the **Audio Editor** or in the **Audio Montage** window.

2. Select the **View** tab.

3. In the **Snapshots** section, click **Take Snapshot**.
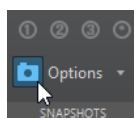
4. Click one of the preset buttons to save the snapshot.

RESULT

The snapshot is saved and can be recalled by clicking the corresponding preset button.

RELATED LINKS
Audio Editor Window on page 176
View Tab (Audio Editor) on page 188
Recalling a Snapshot on page 241
Updating Snapshots on page 241

Recalling a Snapshot

PROCEDURE

1. In the **Audio Editor** or in the **Audio Montage** window, select the **View** tab.

2. In the **Snapshots** section, open the **Options** pop-up menu.

3. Activate the view settings that you want to recall.

4. Click a **Preset** button.

RELATED LINKS
View Tab (Audio Editor) on page 188

Updating Snapshots

You can update a previously captured snapshot with the current view.

PROCEDURE

1. Set up the desired view in the **Audio Editor** or in the **Audio Montage** window.

2. Select the **View** tab.

3. In the **Snapshots** section, click **Take Snapshot**.
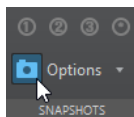
4. Click the button corresponding to the preset that you want to update.

RESULT

The new snapshot replaces the selected snapshot.

RELATED LINKS
Audio Editor Window on page 176
View Tab (Audio Editor) on page 188

Silence Generator Dialog

The **Silence Generator** dialog allows you to add silence or ambience sounds to an audio file.

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● To open the **Silence Generator** dialog, select the **Insert** tab in the **Audio Editor**, and click **Silence Generator**.
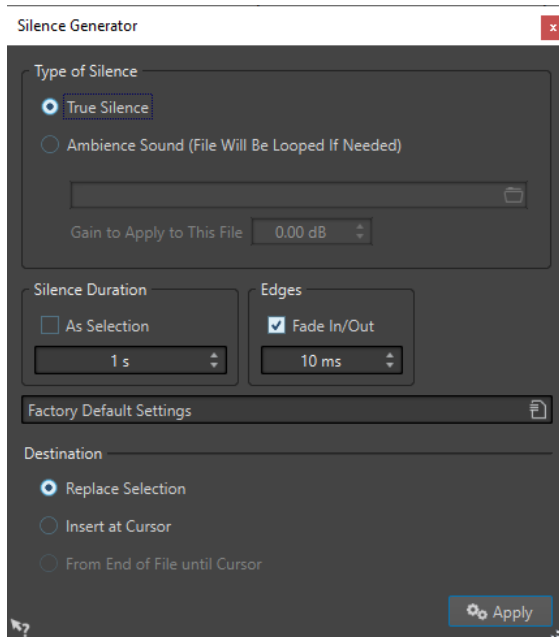
Type of Silence

● **True Silence** allows you to insert digital silence.

● **Ambience Sound File (Looped If Not Long Enough)** allows you to select an audio file containing ambience sound.

Gain to Apply to This File lowers or raises the gain of the ambience sound.

Silence Duration

As Selection uses the duration of the active audio selection as the duration of the silent section. You can specify the duration of the silent section in the value field below.

Edges

Fade In/Fade Out performs a crossfade at the start and at the end of the silent section, for smoother transitions. You can specify the fade time in the value field below.

Destination

● **Replace Selection** replaces the current audio selection with the silent section.

● **Insert at Cursor** inserts the silent section at the cursor position.

● **From End of File Until Cursor** extends the audio file with silence up to the cursor position. Activating this option also defines the silence duration and ignores the **Silence Duration** setting.

RELATED LINKS

True Silence vs. Ambience Sound

Recordings can sound unnatural when you insert true silence. This is particularly true for voice recordings and field recordings, where a natural background noise is often present. To produce more natural results, you can insert a file containing ambience sound.

The properties of the ambience sound file, such as stereo/mono and the sample rate, must be identical to the properties of the file in which you want to insert the silence.

The file can be of any length. If the silence region is longer than the file, the file is looped.

Inserting Silence and Replacing Audio with Silence

You can insert a specified length of true silence or an ambience sound at any position of the audio file, and you can replace an existing section of an audio file with true silence or ambience sounds.

PROCEDURE

1. Do one of the following:
   - To insert silence, in the **Audio Editor**, set the cursor where you want the silence to begin.
   - To replace an existing audio section with silence, make a selection in the **Audio Editor**.
2. Select the **Insert** tab.
3. In the **Signal** section, click **Silence Generator**.
4. In the **Silence Generator** dialog, select the type of silence:
   - **True Silence**
   - **Ambience Sound**

     For this option, you need to select a file containing the ambience sound.
5. Do one of the following:
   - To insert silence, deactivate **As Selection**, and specify the length. Set the destination to **Insert at Cursor**.
   - To replace an existing audio section with silence, set the silence duration to **As Selection** and the destination to **Replace Selection**.
6. Click **Apply**.

RELATED LINKS

Muting a Selection

The **Mute Selection** function replaces the selection with true silence.

PROCEDURE

1. In the **Waveform** view of the **Audio Editor**, make a selection.
2. Select the **Insert** tab.
3. In the **Signal** section, click **Mute Selection**.

Replacing Audio with a Beep Sound

You can replace a part of an audio file with a beep sound, to cover up a swear word, for example.

PROCEDURE

1. In the **Audio Editor**, make a selection.

2. Select the **Insert** tab.

3. In the **Signal** section, click **Bleep Censor**.

4. In the **Bleep Censor** dialog, specify the frequency and the level of the bleep censor tone.

5. Optional: Activate **Crossfading**, and specify the crossfade time.

   This creates a crossfade at the start and the end of the bleep censor region.

6. Click **Apply**.

Bleep Censor Dialog

The **Bleep Censor** dialog allows you to specify the bleep censor tone.

● To open the **Bleep Censor** dialog, select the **Insert** tab in the **Audio Editor**, and click **Bleep Censor** in the **Signal** section.
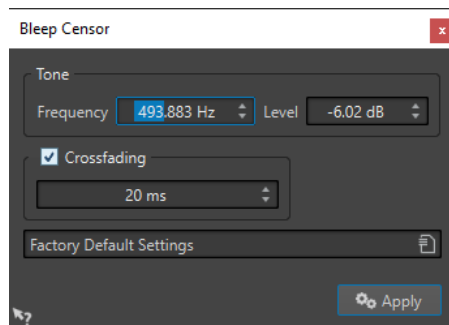
Frequency

Allows you to specify the frequency of the bleep censor tone.

Level

Allows you to specify the level of the bleep censor tone.

Crossfading

If this option is activated, WaveLab Pro creates a crossfade at the start and the end of the bleep censor region for a smoother transition. You can specify the crossfade time.

Presets

Allows you to save and restore bleep censor presets.

Waveform Restoration with the Pen Tool

The **Pen** tool allows you to redraw the waveform in the **Waveform** view, which enables you to quickly repair waveform errors.

The **Pen** tool can be used if the zoom resolution is set to 1:8 (one pixel on the screen equals 8 samples) or higher.
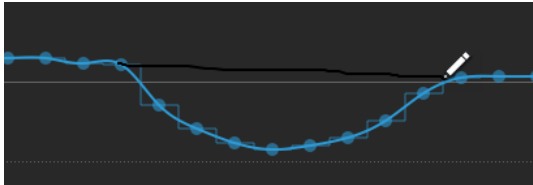
- To redraw the waveform, select the **Pen** tool on the **Edit** tab of the **Audio Editor**, click in the waveform, and draw the new waveform.
- To redraw the waveform of both channels at once, press Shift during the drawing process.

RELATED LINKS
Edit Tab (Audio Editor) on page 190

Audio Analysis

WaveLab Pro includes a comprehensive set of tools for analyzing your audio and for detecting errors.

You can compare your audio to reference material or standards and choose from several types of analysis, focusing on specific aspects of your audio.

For example, you can use the suite of audio meters or the **3D Frequency Analysis**. There are also several tools that help you examine any sample of your audio for errors or anomalies.

RELATED LINKS

Analyze Tab

The **Analyze** tab allows you to analyze your audio. While some of the analysis features can be accessed both in the **Audio Editor** and in the **Audio Montage** window, a few tools are exclusively available in one of them.

- In the **Audio Editor** or in the **Audio Montage** window, click **Analyze**.
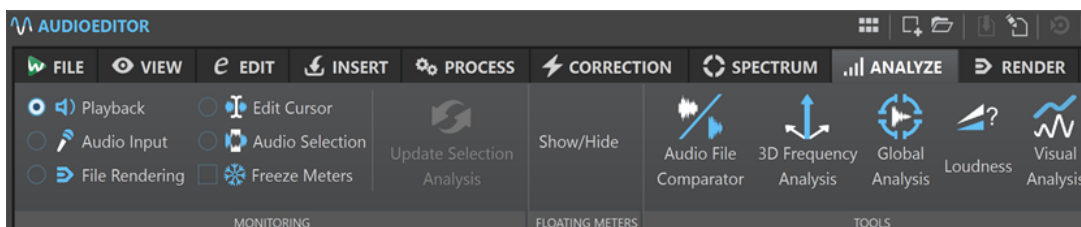
Analyze Tab in the Audio Editor
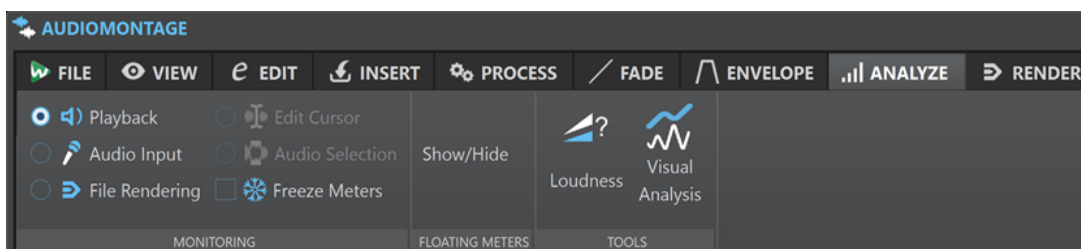
Analyze Tab in the Audio Montage Window

Tools

Audio Editor only: Global Analysis

Opens the **Global Analysis** dialog, where you can analyze peaks, loudness, pitch, DC offset, and errors in the audio file.

Audio Editor only: Audio File Comparator

Opens the **Audio File Comparator** dialog, where you can compare two audio files.

Audio Editor only: 3D Frequency Analysis

Opens the **3D Frequency Analysis** dialog, where you can define which frequency range to analyze, and modify the appearance of the graph for the 3D frequency analysis.

Loudness

Opens the **Loudness Analysis** dialog, which allows you to make adjustments for analyzing the loudness of your audio material, and for comparing it with reference material or a standard.

Visual Analysis

Opens the **Analysis** dialog, which allows you create a **Loudness Profile** or a **Spectral Profile** for your audio material.

Monitoring

Playback

This is the standard metering mode, in which the meters reflect the audio that is played back. Metering occurs after the **Master Section**, which means that effects, dithering, and master faders are taken into account. You can monitor playback in audio files, audio montages, lists of titles of an album, etc.

Audio Input

In this mode, the meters reflect the audio input. Typically, this is the mode to use when recording. The **Master Section** settings are not taken into account. This option is only available when the **Recording** dialog is open.

File Rendering

In this mode, you can monitor what is being written to disk during file rendering or recording. Average and min/max peak values are calculated. After rendering, the meters freeze until you refresh or change the monitor mode.

Edit Cursor

In this mode, the meters are static, showing the levels and other values for the audio at the position of the edit cursor in stop mode. This allows you to analyze a specific position in an audio file in real time. The **Master Section** settings are not taken into account.

Audio Selection

In this mode, the meters display the average values calculated for a selected range. The **Master Section** settings are not taken into account.

When you change the selection, you have to update the meter displays by clicking **Update Selection Analysis**.

Freeze Meters

This mode freezes the values for all open meters. The meters remain frozen until you select another monitor mode or deactivate **Freeze Meters**.

Floating Meters

Show/Hide

Shows/Hides floating meters.

Loudness Analysis

The **Loudness Analysis** tool allows you to analyze your audio and to compare it with reference material, or to check it against an audio standard. The feature is available for audio files and audio montages, in the **Audio Editor** or in the **Audio Montage** window, with slightly different options for each editor.

NOTE

To perform a similar analysis on audio files in the **Batch Processor**, you can use the **Audio Analyzer** plug-in.

RELATED LINKS

Analyzing the Loudness of Your Audio Material

You can perform a loudness analysis in the **Audio Editor** or in the **Audio Montage** window.

While the procedure is basically identical for both editors, the adjustments that you can make differ for the **Audio Editor** and the **Audio Montage** window.

PREREQUISITE

If you want to analyze titles in the **Audio Montage** window, you have set title markers to define audio regions.

NOTE

Setting markers is not required for analyzing selected clips.

PROCEDURE

1.   With the **Analyze** tab selected, click **Loudness** on the **Tools** panel.

     The **Loudness Analysis** dialog opens.
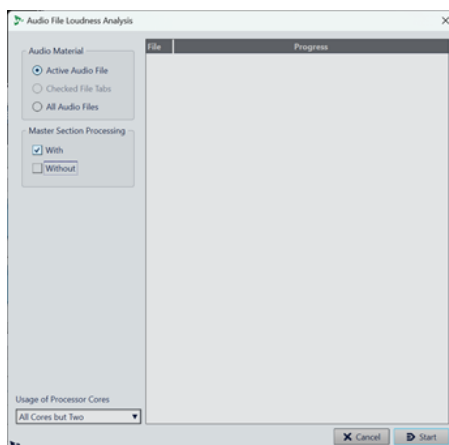
Loudness Analysis Dialog in the Audio Editor
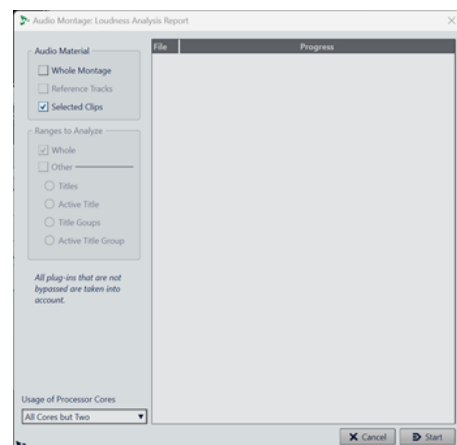
Loudness Analysis Dialog in the Audio Montage Window

2. In the **Audio Material** section, choose what to analyze:

- **Audio Editor**:

  Active Audio File, **Checked File Tabs**, or **All Audio Files**.

- **Audio Montage**:

  Whole Montage, **Reference Tracks**, or **Selected Clips**.

3. In the section below, choose from the following options:

- **Audio Editor**:

  You can perform the analysis **With** or **Without** applying **Master Section Processing**, or you can select both for comparing them.

- **Audio Montage**:

  With **Whole Montage** and/or **Reference Tracks** selected in the **Audio Material** area, you can choose **Ranges to Analyze**; that is, **Whole** and/or one of the options listed under **Other**: **Titles**, **Active Title**, **Title Groups**, or **Active Title Group**.

4. Optional: At the bottom of the dialog, you can specify the usage of processor cores.

5. Click **Start** to initiate the analysis. The loudness and the peaks are analyzed.

> NOTE
>
> All plug-ins in the audio path, ranging from clip plug-ins to **Master Section** plug-ins, are included in the analysis. Thus, the resulting values basically correspond to those of an analysis of the files after rendering.

RESULT

The results of the analysis are displayed in a report window.

> TIP
>
> After obtaining the results, you can leave the report window open and initiate a new analysis by clicking **Loudness** on the **Tools** panel again. This allows you to view several report windows side by side, for comparison.

RELATED LINKS

Comparing Your Audio Material with a Reference or an Audio Standard

The **Loudness Analysis** dialog allows you to define which values to display for comparing your audio with reference material, or for checking it against an audio standard.

PREREQUISITE

You have performed an initial analysis of your audio material. The results are displayed in the lower section of the **Loudness Analysis** report window.

PROCEDURE

1. Click the **Options** button at the top of the **Loudness Analysis** report window.

2. Make the desired adjustments in the **Options** section to display the values that are relevant to you.

RESULT

The display in the lower section of the report window is continuously updated as you adjust the settings in the **Options** section.

AFTER COMPLETING THIS TASK

The **Export** button at the top right of the **Loudness Analysis** dialog allows you to export the resulting values to one of the following formats: **HTML**, **Adobe PDF**, **Spreadsheet (csv)**, **Markdown**, **Plain Text (txt)**, or **XML**.

You can set further parameters for displaying the contents and for saving the output in the sections below.

RELATED LINKS

Options Section of the Loudness Analysis Report Window

The **Options** section of the **Loudness Analysis** report window allows you to make adjustments for displaying the results of the analysis.

To access the **Options** section, after performing an initial loudness analysis in the **Audio Editor** or in the **Audio Montage** window via the **Loudness Analysis** dialog, click the **Options** button at the top of the report window, above the table displaying the results of the analysis.

NOTE

The options you can choose from differ for the **Audio Editor** and the **Audio Montage** window. They also depend on the parameters you set prior to initiating the analysis. Hence, the range of options in some parts of the report window, such as the **Analysis** and the **Range** section, may differ from the one displayed and described here.
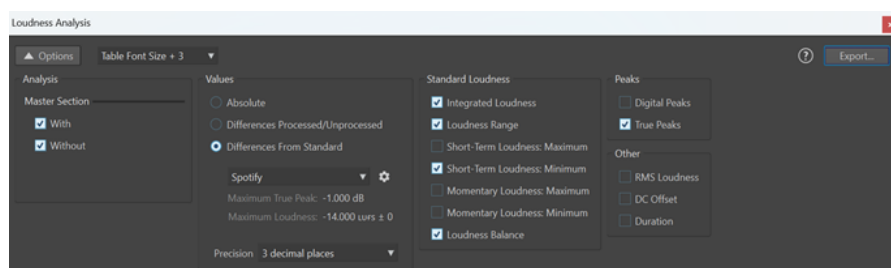
Example: Options Section of the Loudness Analysis Report Window in the Audio Editor
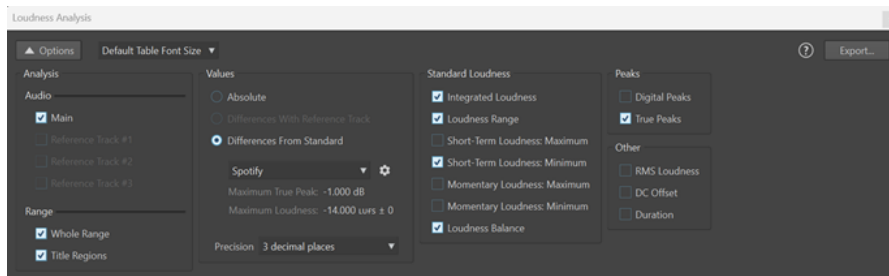
Example: Options Section of the Loudness Analysis Report Window in the Audio Montage Window

Options button

> Switches between hiding and showing the **Options** section of the **Loudness Analysis** report window.

Table Font Size

> If the **Default Table Font Size** looks too small on your screen, the menu allows you to choose from three additional font sizes for displaying the analysis results.

Analysis

- **Audio Editor**:

  Allows you to choose whether to include any **Master Section** processing applied to your audio in the display of the analysis results (**With**), to ignore it (**Without**), or to view a comparison of the loudness of your audio with and without **Master Section** processing by selecting both **With** and **Without**.

- **Audio Montage**:

  Allows you to choose which values resulting from the analysis to display: Your **Main** audio montage, or a comparison of the loudness of your audio with up to three reference tracks. Depending on what choices you made when initiating the analysis, the **Range** section allows you to choose to view values for the **Whole Range** or for **Title Regions**.

Values

> Allows you to choose which values resulting from the analysis to view:

- You can choose to display **Absolute** values.

- **Audio Editor** only: You can choose to compare the unprocessed state of your audio with the processed state (**Differences Processed/Unprocessed**).

  Audio Montage only: You can focus on values resulting from comparing your audio with a reference track (**Differences with Reference Track**).

  > NOTE
  >
  > - Values highlighted in yellow display the difference between your audio material and the reference.

- You can check if your audio matches an audio standard (**Differences From Standard**). The following default standards are available for comparison: **Spotify**, **SpotifyLoud**, **YouTube**, **Apple Music**, **Deezer**, **SoundCloud**, **EBU R128**, **AES Internet Streaming**, **Netflix**, and **Amazon Music**. The corresponding reference values for **Maximum True Peak** and **Maximum Loudness** are displayed below the drop-down menu.

  > NOTE

  The values for loudness and true peaks are highlighted in different colors:

- Green indicates that the value of the audio material matches the corresponding value of the reference. For standards, this means that your material meets the requirements of the respective standard.

- Red indicates that the loudness of the source material is too high to match the reference.

- Orange indicates that the loudness of the source material is too low to match the reference.

NOTE

In addition to the default standards, you can define up to five custom references. To do so, click the cogwheel icon ⚙ to the right, and set the parameters in the **Custom Audio Reference Editor** dialog.

At the bottom of the column, you can set the **Precision** for the values to be displayed (**Whole numbers** or up to three decimal places).

Standard Loudness

Allows you to select one or several of the following values to be displayed: **Integrated Loudness**, **Loudness Range**, **Short-Term Loudness: Maximum**, **Short-Term Loudness: Minimum**, **Momentary Loudness: Maximum**, **Momentary Loudness: Minimum**, **Loudness Balance**.

Peaks

Allows you to select **Digital Peaks**, **True Peaks**, or both.

Other

Allows you to display the following additional parameters:

RMS Loudness, **DC Offset**, and **Duration**.

Export button

Allows you to export the displayed values.

TIP

The table displaying the results of the analysis offers some additional functions, which help you to assess the outcome:

- Clicking the header of a column enables you to toggle between displaying the values in ascending and descending order. You can restore the original order of the values of all columns by clicking the top left corner of the table.

- In the **Audio Montage** window, clicking the header of a row automatically zooms the view to the corresponding part of the audio, and the values of the row are highlighted in bold. Clicking the header again fully zooms out and sets the font back to regular.

  In the **Audio Editor**, clicking the header of a row automatically activates the corresponding audio file, and the values of the row are highlighted in bold. Clicking the header again sets the font back to regular.

RELATED LINKS

Visual Analysis: Loudness Profile

The **Analysis** window allows you to create and visualize a detailed loudness profile of your audio.

This feature remedies a shortcoming of real-time meters: With real-time metering, it is generally not feasible to monitor all parameters throughout the entire duration of your audio, so that it bears the risk of overlooking brief sound events, for example. The **Loudness Profile**, however, provides you with an overview and allows you to track loudness variations over the entire duration of your audio material.

You can use the loudness analysis as an orientation guide, prior to and during mastering, or for quality assurance purposes following a mastering session.

TIP

If you are a beginner, experimenting with the settings in the **Analysis** window can support your learning process by providing you with insight into audio characteristics and the effects of audio processing.

The feature is available both for audio files in the **Audio Editor** and for clips in the **Audio Montage** window.

RELATED LINKS
Loudness Profile Tab on page 256
Creating a Loudness Profile: Version A on page 253
Creating a Loudness Profile: Version B on page 254
Comparing Loudness Profiles on page 255

Creating a Loudness Profile: Version A

You can create a loudness profile for active audio files in the **Audio Editor** or for selected clips in the **Audio Montage** window.

PROCEDURE

1. Open a file in the **Audio Editor**, or select clips in the **Audio Montage** window.

2. Do one of the following:

   - Select **Tool Windows** > **Visual Analysis**.

   - Click the **Analyze** tab at the top of the **Audio Editor** or the **Audio Montage** window, and select **Visual Analysis**.

3. Select the **Loudness Profile** tab.

4. Choose from the available options, and set the corresponding parameters.

5. Click **Analyze**.

RESULT

The results of the analysis are saved and labeled as **Version A**. They are visually represented in the **Waveform** view of the **Audio Editor** or in the selected clips of the **Audio Montage**.

Color-coded markers indicate hotspots for the respective metering values. You can hover over them to see their value and type.

NOTE

Hotspots, which are represented by a pair of triangles (one facing up, one facing down), point to values that are considered as particularly relevant for monitoring, because they stand out from the rest of the audio material. Some hotspots apply to all channels or to each stereo channel cluster, while others, such as the values for **True Peaks** and **RMS**, refer to a specific audio channel.

In addition to this, you can choose to display the values as a continuous curve. You can hover over any position on a curve to see the value for the corresponding point on the timeline.

EXAMPLE
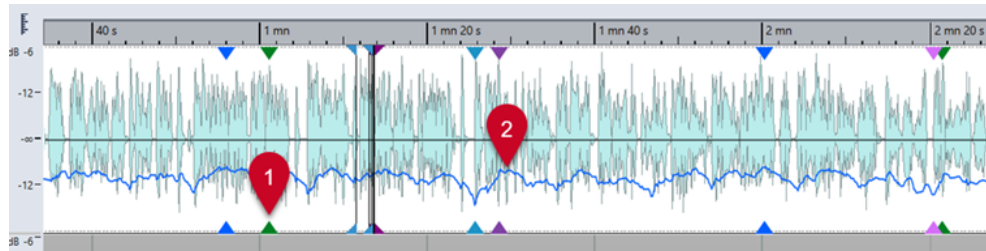
Loudness Profile of a Clip in an Audio Montage

1   **RMS Loudness** hotspot

2   **Short-Term Loudness** curve

AFTER COMPLETING THIS TASK

Additionally, you can create a loudness profile for the files in their rendered state, without the need to actually render them as a separate audio file. The resulting loudness profile, labeled as **Version B**, allows you to compare the loudness attributes of the unprocessed state with the processed state.

RELATED LINKS

Creating a Loudness Profile: Version B

To obtain detailed information on the loudness attributes of audio files or clips in their final processed state, without actually rendering them as a separate audio file, you can generate a loudness profile labeled as **Version B**.

PREREQUISITE

You have generated a **Version A** loudness profile for the unrendered audio files or clips.

PROCEDURE

1.   Open a file in the **Audio Editor**, or select clips in the **Audio Montage** window.

2.   Do one of the following:

- Select **Tool Windows** > **Visual Analysis**.
- Click the **Analyze** tab at the top of the **Audio Editor** or the **Audio Montage** window, and select **Visual Analysis**.

3.   Select the **Loudness Profile** tab.

4. Choose from the available options, and set the corresponding parameters.

5. Click the **Analyze Rendering** button.

6. In the **Audio Rendering** window, press **Start**.

RESULT

The results of the analysis are saved and labeled as **Version B**.

AFTER COMPLETING THIS TASK

To see a visual representation of the results in the **Waveform** view of the **Audio Editor** or in the selected clips of the **Audio Montage**, activate **Version B** at the bottom of the **Analysis** window.

RELATED LINKS

Comparing Loudness Profiles

You can either compare the loudness profile of an audio file or clip in its unrendered state to its rendered state, or the loudness profiles of clips from different audio montages or of two audio files.

PREREQUISITE

● To compare the unprocessed state of an audio file or clip with its processed/rendered state, you have generated **Version A** and **Version B** of the audio file or clip via the **Analysis** window.

● To compare clips from different audio montages or two audio files, you have created a **Version A** loudness profile for each of them.

> IMPORTANT
>
> For the comparison to be effective, the length, the number of channels, and the sample rate of both audio files or clips must be identical. In addition to this, verify that you have used the same loudness profile settings for both files or clips in the **Analysis** window.

CHOICES

● Choose from the following options:

  ● To display the results for **Version A** or **Version B**, activate the corresponding button.

  > TIP
  >
  > To quickly switch between **Version A** and **Version B**, click on either of the buttons while pressing **Ctrl/Cmd** .

  ● To display both the unprocessed and the processed version of a clip or audio file in one view and compare them, activate **Version A** and **Version B**.

  ● To display the difference between the two versions, activate **Difference**.

  ● To visually compare curves in different audio files, use the **Navigation Sync** feature. Exclusively selecting **Version A** enables you to switch between the files by pressing **F5** .

  ● To compare the loudness profiles of two different audio files, select **Version A** of the first audio file. Click the arrow to the right of the **Version A** button. Select **Copy to Clipboard**

from the pop-up menu. Select **Version B** of the second audio file. Click the arrow to the right of the **Version B** button. Select **Paste from Clipboard** from the pop-up menu.
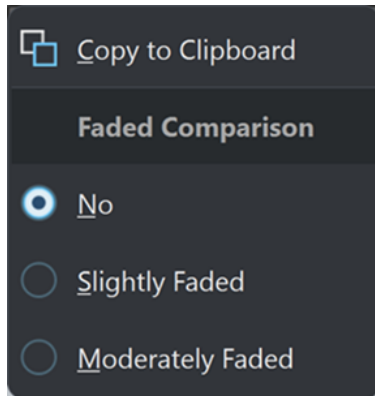
File 1, Version A: Copy to Clipboard
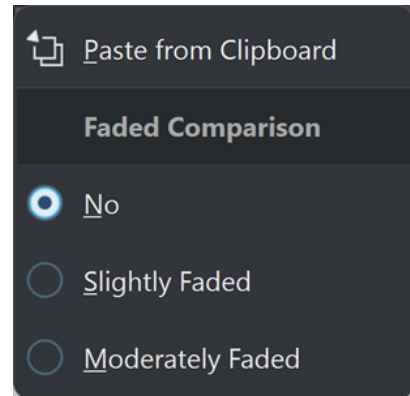
File 2, Version B: Paste from Clipboard

RELATED LINKS

Loudness Profile Tab

The **Loudness Profile** tab allows you to set the parameters for the loudness-related **Visual Analysis** and to specify how to display the results.

- To access the **Loudness Profile** tab, do one of the following:

  - Select **Tool Windows** > **Visual Analysis**.
  - Click the **Analyze** tab at the top of the **Audio Editor** or the **Audio Montage** window, and select **Visual Analysis**.
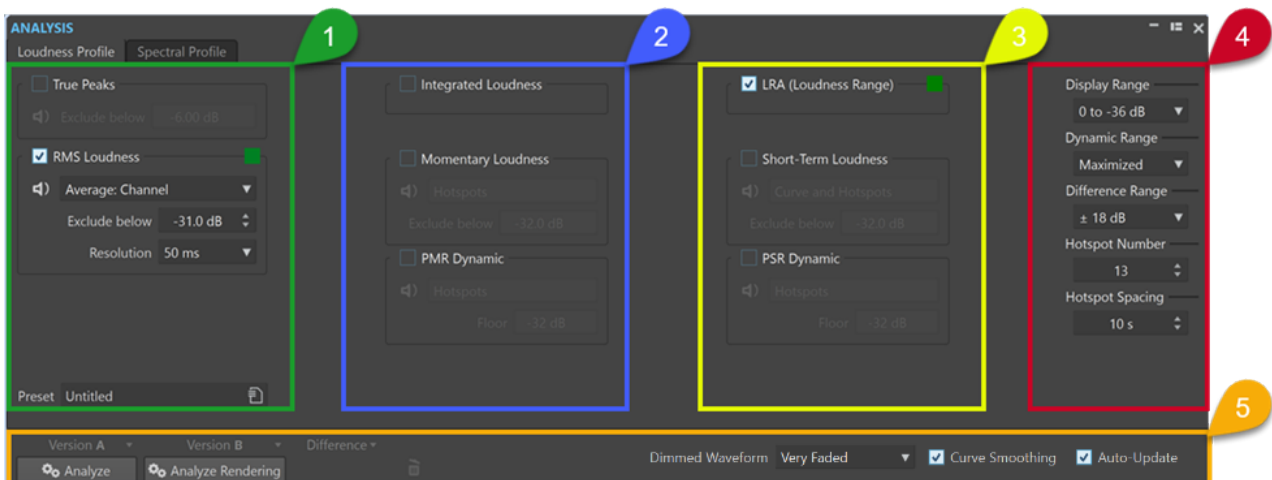
To establish a loudness profile, you can choose up to eight types of measurement for analyzing your audio and set parameters for them.

The following features are available for most or all of them:

- The **Play** button 🔊 (not available for **Integrated Loudness** and **Loudness Range**) exclusively plays all hotspots pertaining to the selected measurement type in a linear sequence. To enable you to clearly distinguish the hotspots from each other, one second of silence is automatically inserted prior to each of them. Furthermore, any preroll and postroll settings, as specified on the transport bar, are applied.

  NOTE

  In the **Audio Montage** window, hotspot playback is limited to the active clip.

- The **Color** button allows you to set a unique color for each measurement type, so that you can clearly identify it.

  NOTE

  The **Color** button is only displayed when the corresponding measurement type is activated.

Column 1

1

True Peaks

Detects and displays the true peaks per channel.

- **Exclude below** allows you to define a threshold value, so that any true peak value below it is dismissed as a hotspot candidate.

RMS Loudness

Measures the average power of an audio signal for each audio channel.

- The **Display** menu to the right of the **Play** button allows you to choose from the following options:

  - **Hotspots** suppresses the display of curves and shows hotspots only.

  - **Curve and Hotspots** displays both curves and hotspots.

  - **Balance Curve** displays a curve that represents the balance between the two channels in a stereo file. For multichannel files, one curve per stereo cluster is generated.

  - **Average: Channel** displays a curve that represents the average loudness of each audio channel.

  - **Average: Balance** displays a curve that represents the average loudness balance between the channels.

- **Exclude below** allows you to define a threshold value, so that any RMS value below it is dismissed as a hotspot candidate.

- **Resolution** specifies the duration of the audio slices to be averaged.

  Decreasing the value allows you to inspect your audio in more detail, as it reduces the size of the audio slices to be analyzed.

  A high value allows you to evaluate the sound more broadly, as the size of the audio slices to be measured increases, according to your setting.

Preset

Allows you to save and organize presets.

Column 2

Integrated Loudness

- **Average** displays a horizontal line that represents the average loudness of the entire audio file or clip.

  With multiple clips selected in the **Audio Montage** window, this option provides visual feedback on the volume differences between the clips.

  In the **Audio Editor**, it enables you to see the difference between the rendered state and the original state of an audio file.

- **Curve** displays a curve that represents how the integrated loudness progresses over time, culminating in the average value.

- **Average and Curve** displays both a horizontal line that represents the average loudness of the entire audio file or clip and a curve that represents how the integrated loudness progresses over time, culminating in the average value.

Momentary Loudness

Measures the loudness with a resolution of 400 milliseconds, as specified in the EBU R128 standard. The rolling average value resulting from this is continuously updated every 100 milliseconds.

- The **Display** menu to the right of the **Play** button allows you to choose from the following options:

  - **Hotspots** suppresses the display of curves and shows hotspots only.

  - **Curve and Hotspots** displays both curves and hotspots.

- **Exclude below** allows you to define a threshold value, so that any momentary loudness value below it is dismissed as a hotspot candidate.

PMR Dynamic (Peak to Momentary Loudness Ratio)

Captures and displays the difference between the peak level and the momentary loudness level; similar to **PSR Dynamic**, but for denser audio parts.

- The **Display** menu to the right of the **Play** button allows you to choose from the following options:

  - **Hotspots** suppresses the display of curves and shows hotspots only.

  - **Curve and Hotspots** displays both curves and hotspots.

- **Floor** allows you to define a threshold value, so that any momentary loudness value below it is dismissed as a hotspot candidate.

Column 3

LRA (Loudness Range)

- **Average** displays two horizontal lines, the top one representing the loudest part and the lower one the softest part within the loudness range.

- **Curve** displays a curve that represents how the softest and the loudest parts in the audio material progress over time, culminating in their average values.

- **Average and Curve** displays both two horizontal lines, the top one representing the loudest part and the lower one the softest part within the loudness range, and

a curve that represents how the softest and the loudest parts in the audio material progress over time, culminating in their average values.

Displays two horizontal lines, the top one representing the loudest part and the lower one the softest part within the loudness range, in accordance with the R128 standard.

With multiple clips selected in the **Audio Montage** window, it provides a visual representation of the loudness range differences between the clips.

In the **Audio Editor**, it enables you to see the difference between the rendered state and the original state of an audio file at a glance.

Short-Term Loudness

Measures the loudness with a resolution of three seconds, as specified in the EBU R128 standard. The rolling average value resulting from this is continuously updated every 100 milliseconds. The measurement takes all channels into account.

- The **Display** menu to the right of the **Play** button allows you to choose from the following options:

  - **Hotspots** suppresses the display of curves and shows hotspots only.

  - **Curve and Hotspots** displays both curves and hotspots.

- **Exclude below** allows you to define a threshold value, so that any short-term loudness value below it is dismissed as a hotspot candidate.

PSR Dynamic (Peak to Short-Term Loudness Ratio)

Captures and displays the difference between the true peak level and the short-term loudness level.

PSR values allow you to evaluate the degree of compression of your audio material and to assess how much leeway you have left to apply further compression.

The PSR value is proportional to the dynamic range of your audio material. The lower the PSR value, the more compressed the audio material.

- The **Display** menu to the right of the **Play** button allows you to choose from the following options:

  - **Hotspots** suppresses the display of curves and shows hotspots only.

  - **Curve and Hotspots** displays both curves and hotspots.

- **Floor** allows you to define a threshold value, so that any short-term loudness value below it is dismissed as a hotspot candidate.

  TIP

  We recommend that you set **Floor** to a high value to prevent the detection of PSR hotspots from minor peaks during quiet periods in your audio. This enables you to focus on the loudest parts of your audio material.

NOTE

There are two types of curves:

- **Time-varying curves** continuously trace the audio content, along the timeline.

  They allow you to focus on specific parts of your audio with particular characteristics.

- **Horizontal lines** represent average values, derived from the audio file or the selected clips as a whole.

  Each of them represents an average value, derived from the audio file or the selected clips as a whole.

They are useful for comparing different loudness profiles of one audio file or clip (that is, **Version A** to **Version B**) or of different clips or audio files with each other.

> TIP
>
> This is useful for identifying inconsistencies between titles/clips of an album.

Column 4

4

Display Range

Serves as a vertical zooming tool for the curve types **RMS Loudness**, **Short-term Loudness**, and **Momentary Loudness**, and determines the decibel range of the vertical space.

> TIP
>
> If you are primarily interested in the most significant variations, we recommend choosing a low value.
>
> To view the entire range of loudness variations, select a higher value.

Dynamic Range

Serves as a vertical zooming tool for the curve types **PSR** and **PMR**, and determines the relation between the range of the display and decibel values.

> TIP
>
> To view the entire dynamic range of your audio material, we recommend choosing **Maximized**.
>
> To establish fixed reference points for comparing different audio files or clips, select a specific value range.

Difference Range

Serves as a vertical zooming tool for **RMS Balance** and any other **Differential Curve**.

It indicates the relation between the range of the display and the decibels below and above the axis. The lower the value, the more the display zooms in on the disparities.

Hotspot Number

Limits the number of hotspots to be displayed and selects the highest ones only.

For example, setting the value to **1** results in exclusively displaying the loudest section. Setting the value to **2** displays the two loudest sections, and so on.

Hotspot Spacing

Controls the distance between hotspots, to prevent them from being displayed too close to each other.

For example, setting the value to **1 s** ensures that there is at least a one-second space between the hotspots.

> TIP
>
> Make sure you set the value low enough, so that the desired number of hotspots is displayed.

Lower Section

5

You can display the results of the analysis for **Version A** or for **Version B** or both of them at the same time.

> NOTE
>
> Hotspots are displayed by default, whereas the visibility of curves depends on the selected analysis parameters.

- **Analyze** initiates the analysis of the loudness attributes of the active, unprocessed audio file in the **Audio Editor** or the selected, unprocessed clips in the **Audio Montage** window.

  As a result, a loudness profile is generated that is labeled as **Version A**.

  Version A allows you to display loudness-related hotspots, values, and curves for unrendered audio files or clips.

- **Analyze Rendering** starts the analysis with processing applied; that is, as if the audio file or clips were rendered, and generates a loudness profile labeled as **Version B**.

  > NOTE
  >
  > For audio files, the analysis is based on the **Master Section** plug-ins.
  >
  > For clips in an audio montage, the analysis encompasses any processing, including clip effects, track effects, output effects, and the **Master Section** plug-ins.
  >
  > As a consequence, the more plug-ins and effects you add, the more time it takes to complete the analysis.

- **Version B** allows you to display loudness-related hotspots, values, and curves for rendered audio files or clips.

You can access further options by clicking the arrow in the lower right corner of the **Version A** and/or **Version B** buttons:

Version A: Copy to Clipboard

Version B: Paste from Clipboard

- - **Copy to Clipboard** for **Version A** and **Paste from Clipboard** for **Version B** allow you to save the analysis results, so that you can access and compare them with each other or with another audio file at a later point in time.
  - **Faded Comparison**

When comparing **Version A** to **Version B**, checking **No** prevents the curves for the selected version from being faded. However, fading the display for one version can make it easier to distinguish the curves for **Version A** and **Version B** from each other. **Slightly Faded** sets them to a minor level of transparency, while **Moderately Faded** further reduces the opacity of the curves for the selected version.

TIP

To reduce the opacity of the waveform display, in addition to or instead of fading the curves, choose one of the options from the **Dimmed Waveform** menu.

- **Difference** displays a curve that represents the results of a comparison between **Version A** and **Version B**.

  You can choose from the following options by clicking the arrow in the lower right corner of the **Difference** button:

  - **Version A minus B** subtracts the analysis results for **Version B** from **Version A** and displays the difference.

  - **Version B minus A** subtracts the analysis results for **Version A** from **Version B** and displays the difference.

- In the **Dimmed Waveform** menu, when comparing **Version A** to **Version B**, checking **No** prevents the curves for the selected version from being faded. However, fading the display for one version can make it easier to distinguish the curves for **Version A** and **Version B** from each other. **Slightly Faded** sets them to a minor level of transparency, while **Moderately Faded** and **Very Faded** further reduce the opacity of the curves for the selected version.

- **Curve Smoothing** displays smoother curves, which may, however, be slightly inaccurate, due to extrapolation and interpolation between quantized values.

  Therefore, if precise values and accurate quantization of curves are your priority, we recommend that you deactivate this option.

- With **Auto-Update** activated, WaveLab Pro automatically performs the analysis again, as soon as any audio files have been modified.

NOTE

If this option is deactivated, loudness profiles are automatically deleted after modifying the audio material.

TIP

We recommend that you delete the analysis results as soon as you do not need the loudness profiles any more, as they consume a significant amount of memory. To do so, click the trash can button to the right of the **Difference** button.

Visual Analysis: Spectral Profile

The **Analysis** window allows you to create a spectral profile of your audio; that is, a visual representation of the average frequency of the audio.

NOTE

The average frequency refers to the center of gravity of the frequencies, also referred to as the spectral centroid. The higher a value on the curve, the brighter the sound.

You can use the spectral analysis as an orientation guide, prior to and during mastering, or for quality assurance purposes following a mastering session.

TIP

If you are a beginner, experimenting with the settings in the **Analysis** window can support your learning process by providing you with insight into audio characteristics and the effects of audio processing.

The feature is available both for audio files in the **Audio Editor** and for clips in the **Audio Montage** window.

Creating a Spectral Profile: Version A

You can create a spectral profile for active audio files in the **Audio Editor** or for selected clips in the **Audio Montage** window.

PROCEDURE

1. Open a file in the **Audio Editor**, or select clips in the **Audio Montage** window.

2. Do one of the following:

   - Select **Tool Windows** > **Visual Analysis**.

   - Click the **Analyze** tab at the top of the **Audio Editor** or the **Audio Montage** window, and select **Visual Analysis**.

3. Select the **Spectral Profile** tab.

4. Choose from the available options, and set the corresponding parameters.

5. Click **Analyze**.

RESULT

The results of the analysis are saved and labeled as **Version A**. They are visually represented in the **Waveform** view of the **Audio Editor** or in the selected clips of the **Audio Montage**.

- Average frequency values are displayed as a continuous curve. You can hover over any position on a curve to see the value for the corresponding point on the timeline.

- Color-coded markers indicate hotspots for the respective metering values. You can hover over them to see their value and type.

NOTE

Hotspots point to values that are considered as particularly relevant for monitoring, because they stand out from the rest of the audio material.

- Upward-pointing arrows mark hotspots at low frequencies.

- Downward-pointing arrows mark hotspots at high frequencies.

EXAMPLE
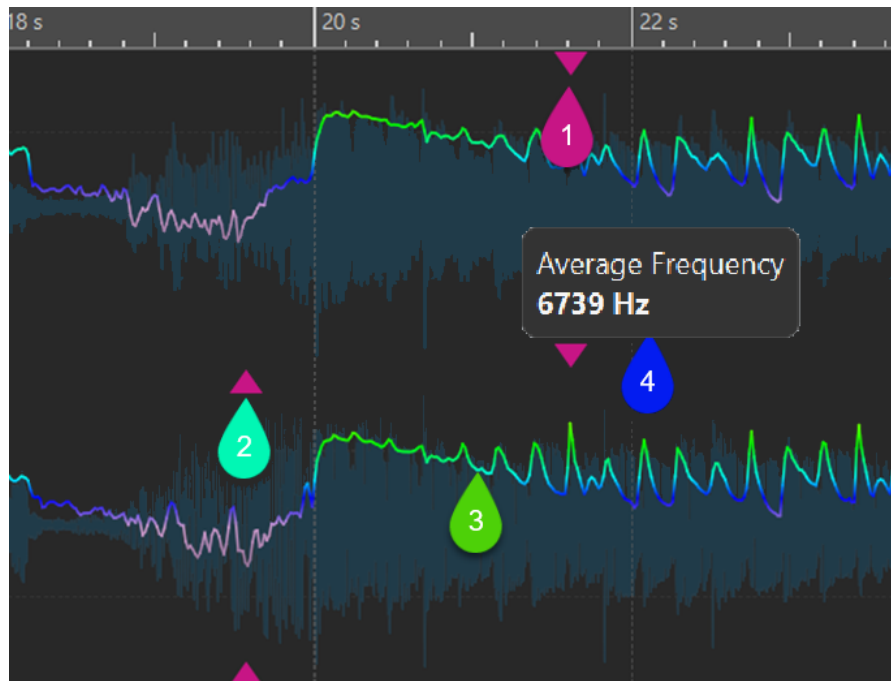
Spectral Profile in the **Audio Editor**

1 Downward-pointing arrow marking a high-frequency hotspot

2 Upward-pointing arrow marking a low-frequency hotspot

3 Brightness Curve

4 Brightness Value (Average Frequency)

AFTER COMPLETING THIS TASK

Additionally, you can create a spectral profile for the files in their rendered state, without the need to actually render them as a separate audio file. The resulting spectral profile, labeled as **Version B**, allows you to compare the average frequency of the unprocessed state with the processed state.

RELATED LINKS

Creating a Spectral Profile: Version B

To obtain detailed information on the average frequency of audio files or clips in their final processed state, without actually rendering them as a separate audio file, you can generate a spectral profile labeled as **Version B**.

PREREQUISITE

You have generated a **Version A** spectral profile for the unrendered audio files or clips.

PROCEDURE

1. Open a file in the **Audio Editor**, or select clips in the **Audio Montage** window.

2. Do one of the following:

    ● Select **Tool Windows** > **Visual Analysis**.

    ● Click the **Analyze** tab at the top of the **Audio Editor** or the **Audio Montage** window, and select **Visual Analysis**.

3. Select the **Spectral Profile** tab.

4. Choose from the available options, and set the corresponding parameters.

5. Click the **Analyze Rendering** button.

6. In the **Audio Rendering** window, press **Start**.

RESULT

The results of the analysis are saved and labeled as **Version B**.

AFTER COMPLETING THIS TASK

To see a visual representation of the results in the **Waveform** view of the **Audio Editor** or in the selected clips of the **Audio Montage**, activate **Version B** in the **Analysis** window.

RELATED LINKS

Comparing Spectral Profiles

You can either compare the spectral profile of an audio file or clip in its unrendered state to its rendered state, or the spectral profiles of clips from different audio montages or of two audio files.

PREREQUISITE

● To compare the unprocessed state of an audio file or clip with its processed/rendered state, you have generated **Version A** and **Version B** of the audio file or clip via the **Analysis** window.

● To compare clips from different audio montages or two audio files, you have created a **Version A** spectral profile for each of them.

IMPORTANT

For the comparison to be effective, the length, the number of channels, and the sample rate of both audio files or clips must be identical. In addition to this, verify that you have used the same spectral profile settings for both files or clips in the **Analysis** window.

CHOICES

- Choose from the following options:

  - To display the results for **Version A** or **Version B**, activate the corresponding button.

    TIP

    To quickly switch between **Version A** and **Version B**, click on either of the buttons while pressing Ctrl/Cmd .

  - To display both the unprocessed and the processed version of a clip or audio file in one view and compare them, activate **Version A** and **Version B** at the same time.

  - To display the difference between the two versions, activate **Difference**.

  - To compare curves in different audio files, use the **Navigation Sync** feature. Exclusively selecting **Version A** enables you to switch between the files by pressing F5 .

  - To compare the spectral profiles of two different audio files, select **Version A** of the first audio file. Click the arrow to the right of the **Version A** button. Select **Copy to Clipboard** from the pop-up menu. Select **Version B** of the second audio file. Click the arrow to the right of the **Version B** button. Select **Paste from Clipboard** from the pop-up menu.
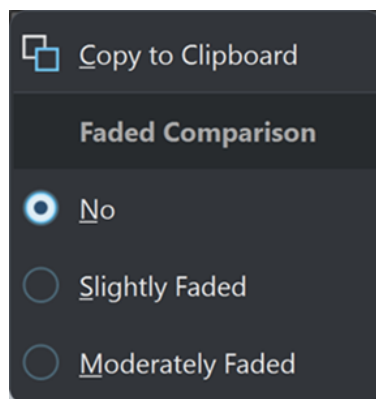
File 1, Version A: Copy to Clipboard   File 2, Version B: Paste from Clipboard
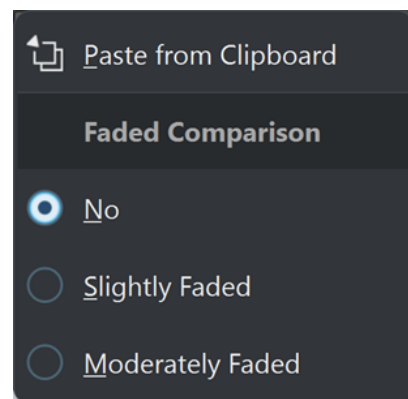
Spectral Profile Tab

The **Spectral Profile** tab allows you to set the parameters for the frequency-related **Visual Analysis** and to specify how to display the results.

- To access the **Spectral Profile** tab, do one of the following:

  - Select **Tool Windows** > **Visual Analysis**.

  - Click the **Analyze** tab at the top of the **Audio Editor** or the **Audio Montage** window, and select **Visual Analysis**.
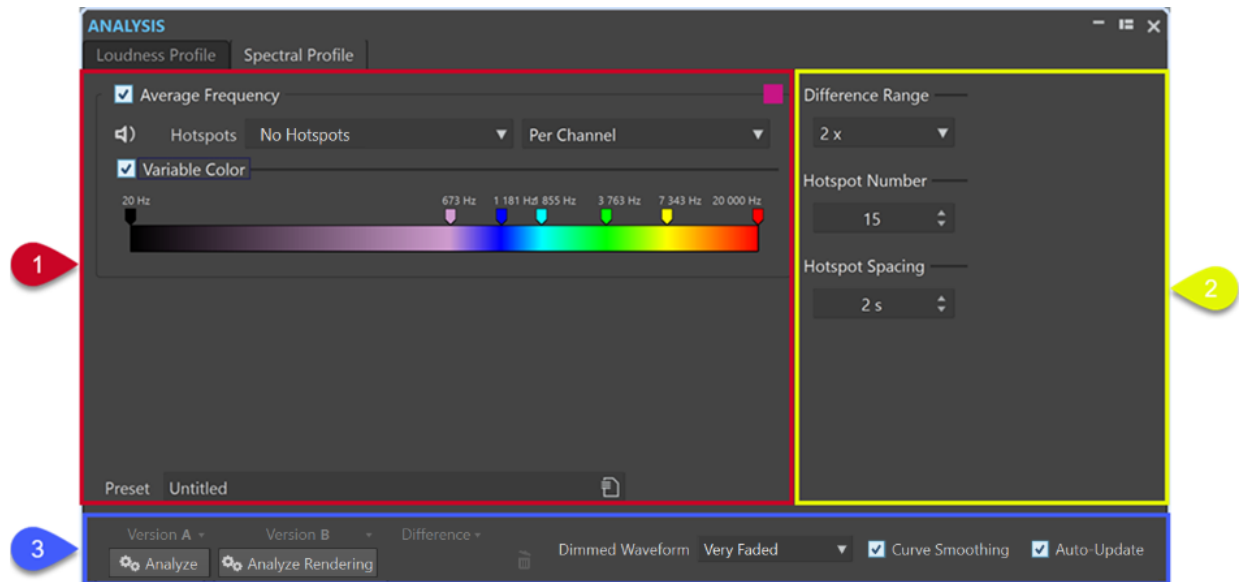
Upper Left Section

1

Average Frequency

Activates/Deactivates the visual representation of the analysis results by displaying the average frequency values as a curve.

The **Color** button to the right of the menu allows you to set a unique color for the curve.

Play

🔊

Exclusively plays all hotspots in a linear sequence. To enable you to clearly distinguish the hotspots from each other, one second of silence is automatically inserted prior to each of them. Furthermore, any preroll and postroll settings, as specified on the transport bar, are applied.

NOTE

In the **Audio Montage** window, hotspot playback is limited to the active clip.

Hotspots

Allows you to choose which hotspots to display.

- **No Hotspots** suppresses the display of hotspots.

- **Lowest Frequency Averages** exclusively displays hotspots for the lowest average frequencies.
- **Highest Frequency Averages** exclusively displays hotspots for the highest average frequencies.
- **Both Lowest and Highest Frequency Averages** displays hotspots for both the lowest and the highest average frequencies.

The **Spectral Average Balance** menu to the right of the **Hotspots** menu allows you to display the hotspots **Per Channel**, **Per Channel Cluster**, or as a **Balance Curve**. In addition to this, you can choose to display the average spectral values for a channel, for a channel cluster, or for the balance.

Variable Color (not available for Balance and Difference Curves)

With this option activated, you can define colors for frequencies on the curves via the slider below. This makes it easier to compare curves and to identify regions with a particularly low or high brightness.

You can choose from the following options:

- To add a color, right-click on the color bar, and select **Create Color Handle Here**.
- To modify the color gradient, click and drag one of the color handles above the color bar.
- To edit the color of a color handle, right-click the color handle, and select **Edit Color**, which opens the **Color Selection** window.
- To edit the frequency that the color represents, right-click on a color handle, select **Edit Frequency**, and enter a numeric value for the frequency.
- To delete a color handle, right-click on it, and select **Delete**.

TIP

If color handles are very close to each other and their labels overlap, hover over them to see their frequencies displayed in a tooltip.

Preset

Allows you to save and organize presets.

Upper Right Section

Difference Range

Serves as a vertical zooming tool and indicates the relation between the range of the display and the frequencies below and above the axis.

The lower the value, the more the display zooms in on the disparities.

Hotspot Number

Limits the number of hotspots to be displayed and selects the highest ones only.

For example, setting the value to **1** results in exclusively displaying the brightest section. Setting the value to **2** displays the two brightest sections, and so on.

Hotspot Spacing

Controls the distance between hotspots, to prevent them from being displayed too close to each other.

For example, setting the value to **1 s** ensures that there is at least a one-second space between the hotspots.

TIP

Make sure you set the value low enough, so that the desired number of hotspots is displayed.

Lower Section

3

You can display the results of the analysis for **Version A** or for **Version B** or both of them at the same time.

- **Analyze** initiates the analysis of the spectral attributes of the active, unprocessed audio file in the **Audio Editor** or the selected, unprocessed clips in the **Audio Montage** window.

  As a result, a spectral profile is generated that is labeled as **Version A**.

  Version A allows you to display frequency-related hotspots, values, and curves for unrendered audio files or clips.

- **Analyze Rendering** starts the analysis with processing applied; that is, as if the audio file or clips were rendered, and generates a spectral profile labeled as **Version B**.

  NOTE

  For audio files, the analysis is based on the **Master Section** plug-ins.

  For clips in an audio montage, the analysis encompasses any processing, including clip effects, track effects, output effects, and the **Master Section** plug-ins.

  As a consequence, the more plug-ins and effects you add, the more time it takes to complete the analysis.

- **Version B** allows you to display frequency-related hotspots, values, and curves for rendered audio files or clips.

You can access further options by clicking the arrow in the lower right corner of the **Version A** and/or **Version B** buttons:

Version A: Copy to Clipboard

Version B: Paste from Clipboard

- - **Copy to Clipboard** for **Version A** and **Paste from Clipboard** for **Version B** allow you to save the analysis results, so that you can access and compare them with each other or with another audio file at a later point in time.

  - **Faded Comparison**

    When comparing **Version A** to **Version B**, checking **No** prevents the curves for the selected version from being faded. However, fading the display for one version can make it easier to distinguish the curves for **Version A** and **Version B** from each other. **Slightly Faded** sets them to a minor level of transparency, while **Moderately Faded** further reduces the opacity of the curves for the selected version.

    TIP

    To reduce the opacity of the waveform display, in addition to or instead of fading the curves, choose one of the options from the **Dimmed Waveform** menu.

- **Difference** displays a curve that represents the results of a comparison between **Version A** and **Version B**.

  You can choose from the following options by clicking the arrow in the lower right corner of the **Difference** button:

  - **Version A minus B** subtracts the analysis results for **Version B** from **Version A** and displays the difference.

  - **Version B minus A** subtracts the analysis results for **Version A** from **Version B** and displays the difference.

- In the **Dimmed Waveform** menu, when comparing **Version A** to **Version B**, checking **No** prevents the curves for the selected version from being faded. However, fading the display for one version can make it easier to distinguish the curves for **Version A** and **Version B** from each other. **Slightly Faded** sets them to a minor level of transparency, while **Moderately Faded** and **Very Faded** further reduce the opacity of the curves for the selected version.

- **Curve Smoothing** displays smoother curves, which may, however, be slightly inaccurate, due to extrapolation and interpolation between quantized values.

  Therefore, if precise values and accurate quantization of curves are your priority, we recommend that you deactivate this option.

- With **Auto-Update** activated, WaveLab Pro automatically performs the analysis again, as soon as any audio files have been modified.

  NOTE

  If this option is deactivated, spectral profiles are automatically deleted after modifying the audio material.

> **TIP**
>
> We recommend that you delete the analysis results as soon as you do not need the spectral profiles any more, as they consume a significant amount of memory. To do so, click the trash can button to the right of the **Difference** button.

Audio Editor Only: Global Analysis

In the **Audio Editor**, you can perform an advanced analysis of your audio to identify areas with specific properties. This helps you to find problem areas such as glitches or clipped samples. You can also check general information, such as the pitch of a sound.

If you analyze a section of an audio file, WaveLab Pro scans the section or the audio file and extracts information, which is displayed in the dialog. WaveLab Pro also marks sections of the file that meet specific characteristics; for example, sections that are very loud or almost silent. You can then navigate between these points, set markers, or zoom in on markers. Most of the tabs allow you to determine exactly how to perform the analysis. Each tab focuses on a particular area for the analysis.

The **Global Analysis** dialog consists of the following tabs, which represent different types of analysis:

- The **Peaks** tab allows you to identify individual samples with very high values.
- The **Loudness** tab allows you to identify sections with a high intensity.
- The **Pitch** tab allows you to determine the exact pitch of a sound or section.
- The **Extra** tab provides information about DC offsets and the significant bit depth.
- The **Errors** tab allows you to find glitches and sections where the audio is clipped.

Most of the analysis types display "hot points"; that is, positions in the file that indicate peaks, glitches, etc.

Preparing the Global Analysis

The **Global Analysis** dialog provides various analysis options.

PROCEDURE

1. In the **Audio Editor**, select the audio range that you want to analyze.

   To analyze the entire file, press `Ctrl/Cmd` - `A`. If **Process Whole File If There Is No Selection** is activated in the **Audio Files Preferences**, the whole file is analyzed automatically, provided that no selection has been made.

2. In the **Audio Editor**, select the **Analyze** tab.

3. In the **Tools** section, click **Global Analysis**.

4. Optional: Click **Open New Global Analysis Dialog** at the top of the **Global Analysis** dialog to open another **Global Analysis** dialog.
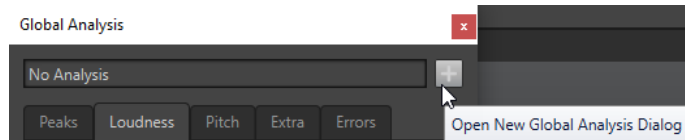
RELATED LINKS
Audio Editor Only: Global Analysis on page 271

Choosing the Analysis Type

You can choose from several types of analysis.

NOTE

Analyzing files takes some time, regardless of the analysis type. For this reason, we recommend that you exclusively select the types required to obtain the desired information.

You can select the analysis types in the **Global Analysis** dialog by activating them via the corresponding tabs.

● To perform a peaks analysis, select the **Peaks** tab, and activate **Find Peaks**.

● To perform a loudness analysis, select the **Loudness** tab, and activate **Analyze Loudness**.

● To perform a pitch analysis, select the **Pitch** tab, and activate **Find Average Pitch**.

● To perform a DC offset analysis, select the **Extra** tab, and activate **Find DC Offset**.

● To perform an error analysis, select the **Errors** tab, and activate **Find Possible Glitches** and/or **Find Clipped Samples**.

RELATED LINKS
Audio Editor Only: Global Analysis on page 271

Peaks Tab (Global Analysis)

The **Peaks** tab allows you to apply settings that help you to find digital peak and true peak values in your audio material; that is, single samples with very high values.

● In the **Global Analysis** dialog, select the **Peaks** tab.
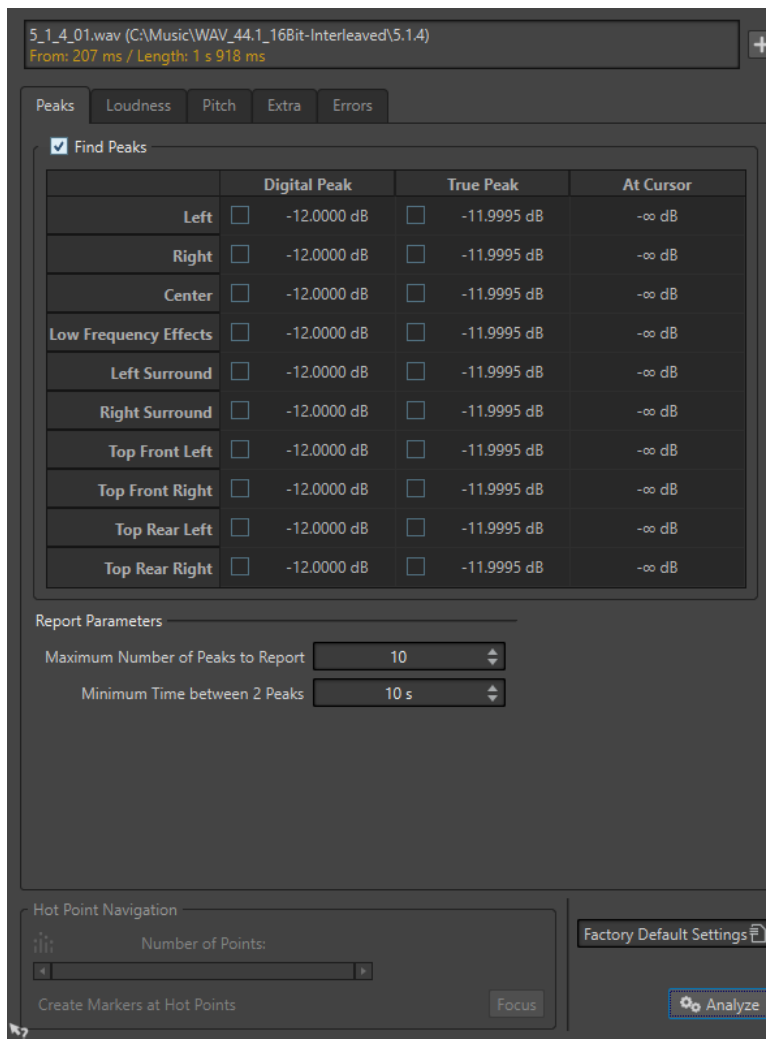
Find Peaks

Enables the peak analysis.

Digital Peak/True Peak

Displays the highest peak in the analyzed section. When you click this value, the number of peaks that are detected in the selection is shown in the **Number of Points** section in the lower left corner of the dialog. You can use the hot points to move the cursor between the peaks.

At Cursor

Displays the level at the current audio file cursor position at the time of the analysis.

Maximum Number of Peaks to Report

Restricts the number of reported peaks. For example, setting this to **1** reports only the highest peak.

Minimum Time between 2 Peaks

Controls the distance between peaks, so that they do not appear too close to each other. For example, setting this to **1 s** ensures that two reported peaks are at least one second apart from each other.

Results of the Analysis

The **Find Peaks** fields show the highest peak in the analyzed section and the level of the sample at the cursor position at the time of the analysis.

RELATED LINKS
Audio Editor Only: Global Analysis on page 271

Loudness Tab (Global Analysis)

The **Loudness** tab allows you to apply settings that help you to find sections that are perceived as louder or weaker in volume by the human ear.

NOTE

To identify sections that the ear perceives as significantly high in terms of volume, you must look at a longer section of audio.

● In the **Global Analysis** dialog, select the **Loudness** tab.

The following options are available for the **RMS Loudness** tab and the **EBU R-128** tab:

Maximum Number of Loudness Points to Report

Restricts the number of reported hot points. Only the highest points are reported. For example, setting this to **1** reports only the loudest section or one of the sections that have the same highest value.

Minimum Time between 2 Points

Controls the distance between points, so they do not appear too close to each other. For example, setting this to **1 s** ensures that two reported peaks are at least one second apart from each other.

Analyze Loudness

Enables the RMS loudness analysis.

RMS Loudness tab
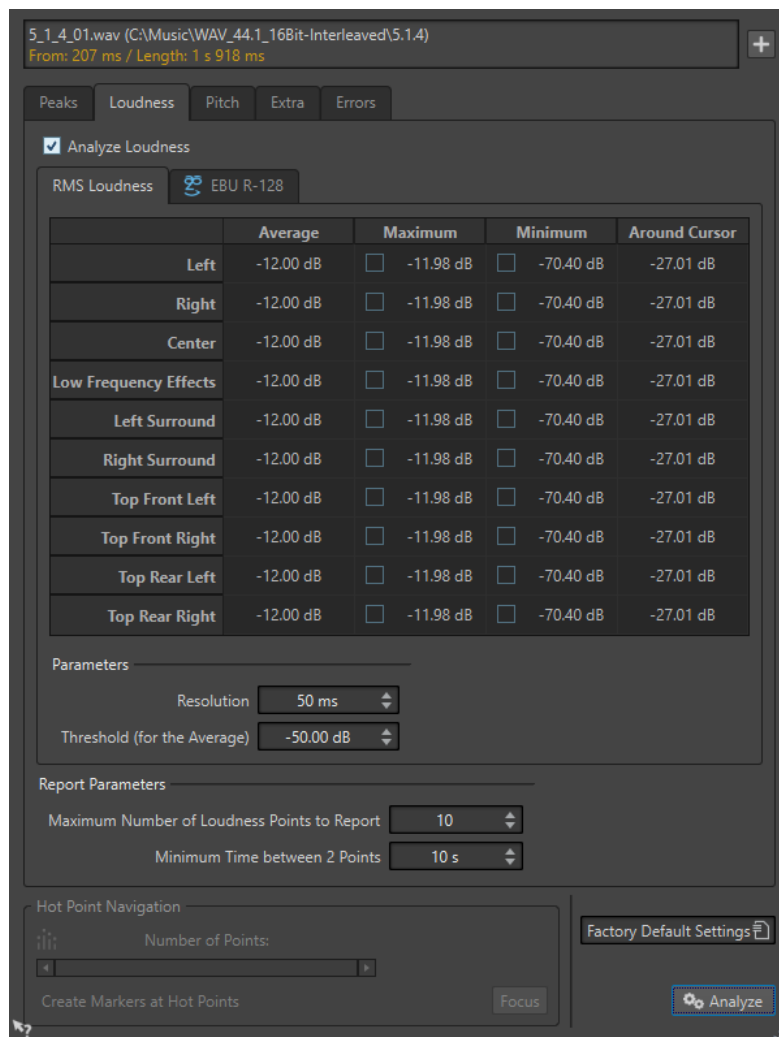
Analyze Loudness

Enables the RMS loudness analysis.

Average

Displays the overall loudness of the analyzed selection.

Maximum

Displays the level of the loudest section in the analyzed selection. Clicking this value displays the number of loud sections detected within the selection in the **Number of Points** section in the lower left corner of the dialog.

Minimum

Displays the level of the quietest section in the analyzed selection. Clicking this value displays the number of weak sections that are detected within the selection in the **Number of Points** section in the lower left corner of the dialog. This provides adequate information about the signal-to-noise ratio (SNR) of the audio material.

Around Cursor

Displays the loudness at the audio file cursor position at the time of the analysis.

Resolution

The length of audio to be measured and averaged. If this value is lowered, short passages of loud/weak audio are detected. If the value is raised, the sound must be loud/weak for a longer period to result in a hot point.

Threshold (for the Average)

Ensures that the average value is calculated correctly for recordings with pauses. The value that you set here determines a threshold below which any detected audio is considered to be silence, and is therefore excluded from average value calculations.

EBU R-128 tab

Integrated Loudness

Displays the integrated loudness of the analyzed selection, also known as programme loudness, according to the loudness analysis reference value. This indicates the average loudness of the audio.

Loudness Range

Displays the loudness range according to the loudness analysis reference value. It is based on a statistical distribution of loudness within a programme, thereby excluding the extremes.

Short-Term Loudness: Maximum

Displays the level of the loudest 3 second section in the analyzed selection. When you click this value, the number of loud sections that are detected within the selection is shown in the **Number of Points** section in the lower left corner of the dialog.

Short-Term Loudness: Minimum

Displays the level of the quietest 3 second section in the analyzed selection. When you click this value, the number of quiet sections that are detected within the selection is shown in the **Number of Points** section in the lower left corner of the dialog.
This provides adequate information about the signal-to-noise ratio (SNR) of the audio material.

Momentary Loudness: Maximum

Displays the level of the loudest very short section (400 milliseconds) in the analyzed selection. When you click this value, the number of loud sections that are detected within the selection is shown in the **Number of Points** section in the lower left corner of the dialog.

Momentary Loudness: Minimum

Displays the level of the quietest very short section (400 milliseconds) in the analyzed selection. When you click this value, the number of quiet sections that are detected within the selection is shown in the **Number of Points** section in the lower left corner of the dialog.

RELATED LINKS

Pitch Tab (Global Analysis)

On this tab, you can apply settings that help you find the average pitch of an audio section.

● In the **Global Analysis** dialog, select the **Pitch** tab.
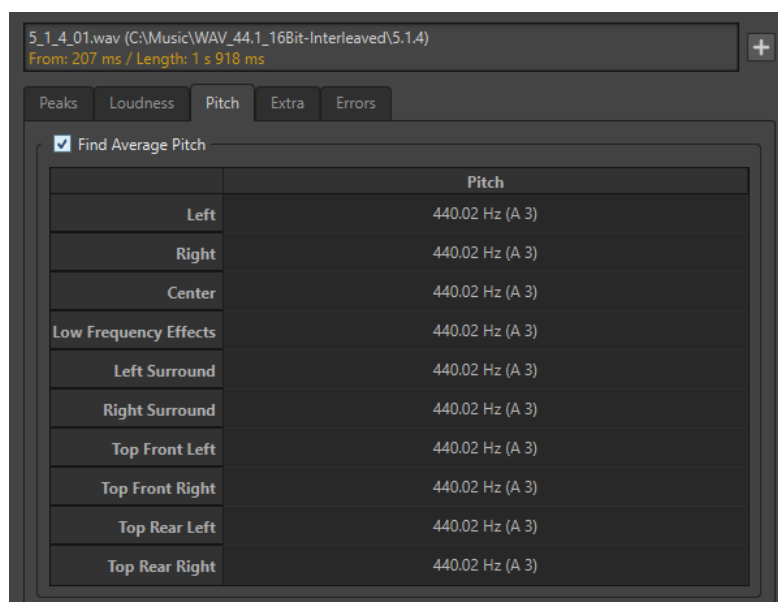
Settings on this tab allow you to gather information for pitch shifting, for example, to get one sound in tune with another. The display shows the pitch for each channel, in Hertz (Hz) and as semitones and cents (hundredths of a semitone). Because the display shows an overall value for

the entire analyzed section, the hot point controls in the lower section of the dialog are not used on this tab.

Usage guidelines for the **Pitch** tab:

- The result is an average value for the whole selection.
- The method only works on monophonic material, not on chords or harmonies.
- The algorithm assumes that the analyzed section has a reasonably stable pitch.
- The material must be relatively well isolated from other sounds.
- It is preferable to analyze the sustain portion of a sound rather than the attack. The pitch is usually not stable during the attack.
- Some synthetic sounds may have a weak fundamental (first harmonic) which can irritate the algorithm.

RELATED LINKS
Audio Editor Only: Global Analysis on page 271

Extra Tab (Global Analysis)

This tab shows the average DC Offset of the analyzed section and the **Apparent Bit Depth**.

- In the **Global Analysis** dialog, select the **Extra** tab.
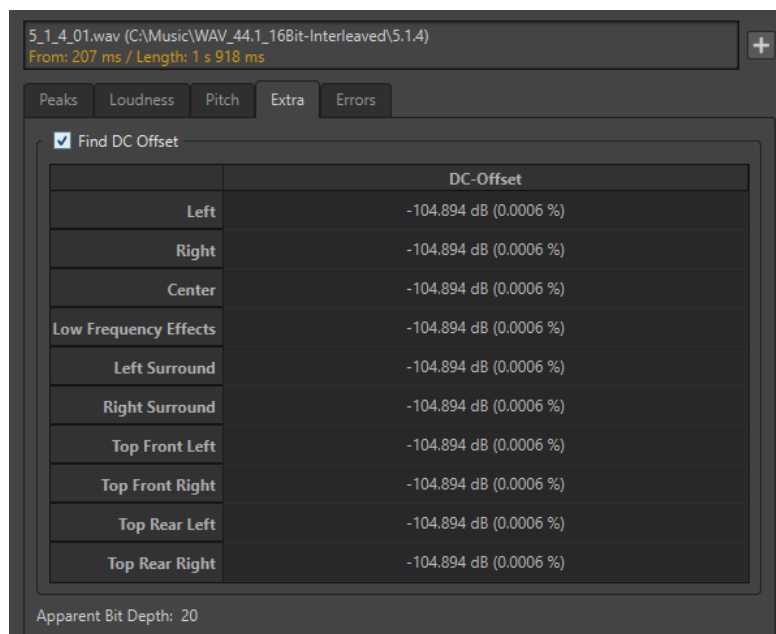
The **Apparent Bit Depth** attempts to detect the actual precision in the audio. This is useful, for example, if you want to check, whether a 24-bit file really uses 24 bits or if it was actually recorded with 16-bit precision and then expanded to 24 bits.

NOTE

For more accurate results on the bit depth, use the **Bit Meter**.

RELATED LINKS
Bit Meter on page 661
Audio Editor Only: Global Analysis on page 271

Errors Tab (Global Analysis)

This tab helps you find glitches and sections where the audio has clipped.

● In the **Global Analysis** dialog, select the **Errors** tab.
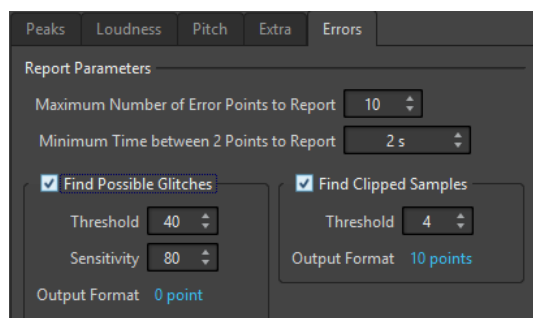
Maximum Number of Error Points to Report

Allows you to restrict the reported number of hot points.

Minimum Time between 2 Points to Report

Controls the distance between points, so they do not appear too close to each other. For example, setting this to **1 s** ensures that there is always at least one second between reported points.

Find Possible Glitches

Enables glitch analysis.

● **Threshold** sets the value at which a change in level is considered to be a glitch. The higher the value, the less sensitive the detection.

● **Sensitivity** is a length value that represents the length of time in which the waveform must exceed the threshold to be reported as a glitch. The higher the value, the less sensitive the detection.

● **Output Format** displays the number of clipping occurrences that are detected by the analysis. Clicking this value displays the number of clips in the **Number of Points** section in the lower left corner of the dialog.

> NOTE
>
> Make sure that the points that are detected by the algorithm are real glitches. Zoom in and play back to check whether the detected points really indicate a problem.

Find Clipped Samples

Enables clipping analysis.

● **Threshold** checks for a number of consecutive samples at full value to determine whether clipping has occurred. The **Threshold** setting determines the exact number of these consecutive samples that must occur for the program to report clipping.

● **Output Format** displays the number of clipping occurrences that are detected by the analysis. Clicking this value displays the number of clips in the **Number of Points** section in the lower left corner of the dialog.

RELATED LINKS

Error Detection

You can detect errors, such as glitches and sections where the audio has clipped. For a more advanced error detection, use the **Error Correction** window.

Glitches

- These are disruptions in the audio. Glitches may occur after problematic digital transfers, after careless editing, etc. They manifest themselves as "clicks" or "pops" in the audio.

Clipping

- A digital system has a finite number of levels that it can represent properly. When recorded sound levels are too high or when the system cannot handle levels that have been raised by digital processing, hard clipping occurs that you can hear as strong distortion.
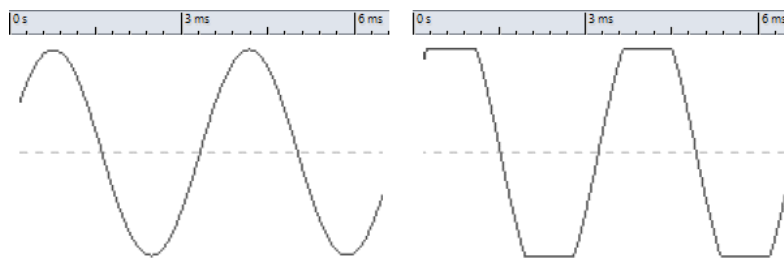
A sine waveform before clipping and after.

Result of the Analysis

This reports the number of glitches and clipping instances that have been detected.

RELATED LINKS
Error Correction on page 287

Performing a Global Analysis

PREREQUISITE

In the **Audio Editor**, select the **Analyze** tab, click **Global Analysis**, and select the tab that you want to include in the analysis.

PROCEDURE

1. In the **Global Analysis** dialog, set up the parameters.

   Most of the tabs have settings that determine how the analysis should be performed.

2. If the **Peaks** or **Loudness** tab is selected, move the cursor to the position that you want to analyze.

   The **Peaks** and **Loudness** tabs report values for the position of the cursor.

3. Click **Analyze**.

Results of the Global Analysis

Depending on the analysis type, one or several values are returned for the analyzed audio.

For the **Pitch** and **Extra** analyses, only one value is returned. The other analysis types provide a number of positions in the file that indicate peaks, glitches, etc. These points are called hot points.

Checking the Results of the Global Analysis

The results of the global analysis are marked with hot points. You can browse through these points to see the results of the analysis.

PREREQUISITE

In the **Audio Editor**, select the **Analyze** tab, click **Global Analysis**, and perform the analysis.

PROCEDURE

1. In the **Global Analysis** dialog, click the tab that represents the values that you want to check.

2. Check the display for maximum/minimum values in the entire analyzed section.

3. Decide which of these values you want to check.

4. Click the value.

5. Check the **Number of Points** value at the bottom of the dialog.

   The value shows the number of positions that were detected by the analysis.

6. Use the scrollbar below the **Number of Points** value to browse between the detected positions.

   The edit cursor shows the position in the wave window.

7. To browse another property, click the corresponding tab, and then the value button.

   NOTE

   The result of the analysis is saved until you close the dialog or click **Analyze** again.

Creating Markers at Hot Points

Creating markers at hot points simplifies browsing the results of the global analysis.

PREREQUISITE

In the **Audio Editor**, select the **Analyze** tab, click **Global Analysis**, and perform the analysis.

PROCEDURE

1. In the **Global Analysis** dialog, select the analysis type for which you want to create markers at hot points.

   You can add markers for only one channel at a time.
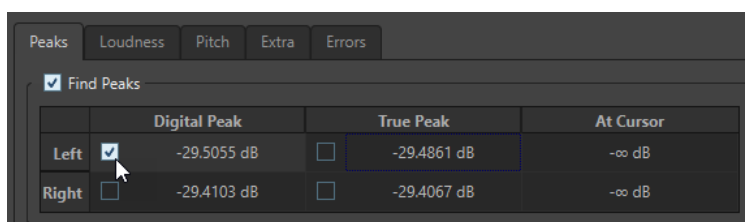
2. Click **Create Markers at Hot Points** at the bottom of the **Global Analysis** dialog.

Temporary markers are added at all hot points on the corresponding channel.

RESULT

The markers are named using the following principle: "Hot point number (Channel)". For example, a marker at the third hot point in the left channel would be labeled "3 (L)".

RELATED LINKS

Focusing Hot Points

After a global analysis, you can set the focus of the display to a specific hot point.

PREREQUISITE

In the **Audio Editor**, select the **Analyze** tab, click **Global Analysis**, and perform the analysis.

PROCEDURE

1. Use the **Number of Points** scrollbar to move the position indicator to the position in which you are.

2. Click **Focus**.

The wave window zooms in on the selected point. The **Global Analysis** dialog is reduced to the bottom part.

3. To return to the full view of the **Global Analysis** dialog, click **Focus** again.

RELATED LINKS

Audio Editor Only: Audio File Comparator

You can compare audio files to find differences.

Use the **Audio File Comparator** for the following:

- Seeing and hearing the effect of using an equalizer
- Checking the noise added by a processor
- Checking the effects of data compression
- Comparing two versions of an apparent similar recording to see if they are really the same

You can create a delta audio file that contains only the differences between the two compared audio files. To see and hear small differences easily, you can amplify them.

Markers can be automatically added at positions in the audio file where differences are detected.

RELATED LINKS

Audio File Comparator Dialog

In this dialog, you can compare two audio files.

- To open the **Audio File Comparator** dialog, select the **Analyze** tab in the **Audio Editor** and click **Audio File Comparator**.
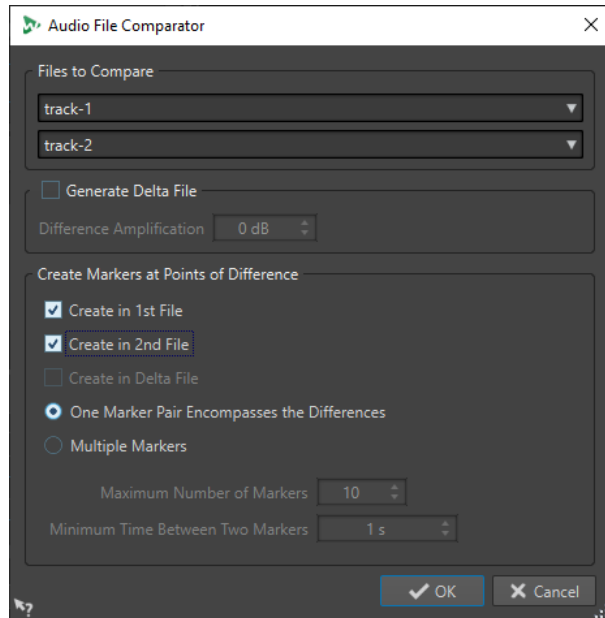
Files to Compare

Allows you to select the two audio files that you want to compare.

Generate Delta File

If this option is activated, a delta file is created that contains only the differences between the two compared files.

Difference Amplification

Amplifies the differences in the delta file to facilitate seeing and hearing them.

Create Markers at Points of Difference

Inserts markers at points where differences are detected. You can insert difference markers in the first, the second, or the delta file.

One Marker Pair Encompasses the Differences

If this option is activated, one marker pair is inserted that encompasses the range that contains differences.

Multiple Markers

If this option is activated, multiple markers are inserted according to the **Maximum Number of Markers** and **Minimum Time Between Two Markers** settings.

- **Maximum Number of Markers** sets the maximum number of markers to be inserted.

- **Minimum Time Between Two Markers** determines the density of the markers to be inserted.

RELATED LINKS

Comparing Audio Files

The file comparator lets you see the differences between two files.

1. Open the audio files that you want to compare.

2. In the **Audio Editor**, select the **Analyze** tab.

3. In the **Tools** section, click **Audio File Comparator**.

4. If more than two audio files are open, select the two files that you want to compare.

5. Optional: Activate **Generate Delta File**.

    This creates a new audio file that contains only the differences between the compared audio files.

6. Optional: Adjust the marker settings in the **Create Markers at Points of Differences** section.

    This creates markers at differing points to facilitate finding the differences. The markers are placed on the corresponding channel.

7. Click **OK**.

RELATED LINKS

Audio Editor Only: 3D Frequency Analysis

Using the 3D Frequency Analysis, you can view an audio file in the frequency domain.

Use the 3D Frequency Analysis for the following:

- Viewing the frequency spectrum distribution in a mix

- Identifying which frequencies can be reduced or boosted as a basis for equalizing

- Viewing parts of the frequency spectrum that are occupied by an ambience sound that you want to filter out

A wave display (time domain) informs you about the start and end of a sound in a file, but lacks information about the timbral contents of the file that a frequency graph (frequency domain) provides. The graph that is used in WaveLab Pro is often referred to as an FFT (Fast Fourier Transform) plot. If you select a stereo recording, a mix of the two channels is analyzed.

The wheel control allows you to view the frequency spectrum from different angles. For example, you can open several **3D Frequency Analysis** windows, each with a different perspective. This allows you to get a better view of an otherwise cluttered graph.
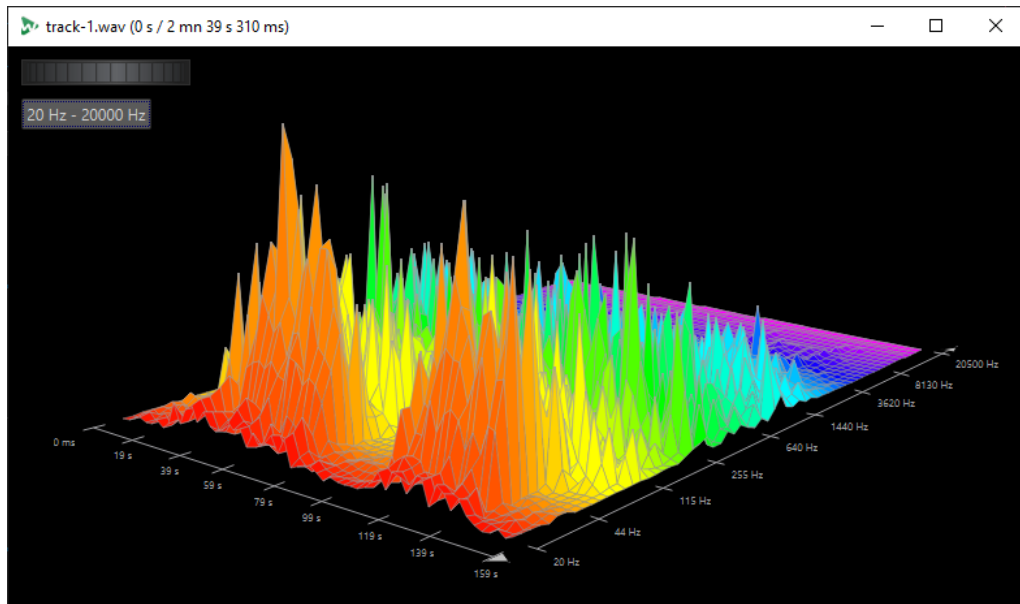
RELATED LINKS
Creating a Graph for 3D Frequency Analysis on page 285
3D Frequency Analysis Options Dialog on page 286

Creating a Graph for 3D Frequency Analysis

The length of the selected audio affects the accuracy of the analysis. For short selections, the result is more detailed. Consider making a separate analysis of the attack in which the most drastic variations occur.

PROCEDURE

1. In the wave window, select the section of the file that you want to analyze.

    If you make no selection, the whole audio file is analyzed.

2. In the **Audio Editor**, select the **Analyze** tab.

3. In the **Tools** section, click **3D Frequency Analysis**.

    The audio is analyzed.

4. To edit the analysis parameters, click **3D Frequency Analysis Options**.
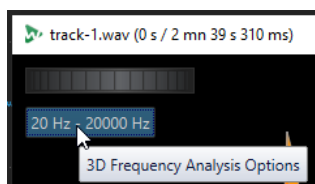
5. Adjust the parameters and click **OK**.

    The audio is re-analyzed.

RELATED LINKS
Edit Tab (Audio Editor) on page 190
3D Frequency Analysis Options Dialog on page 286

3D Frequency Analysis Options Dialog

In the options dialog of the **3D Frequency Analysis** dialog, you can define which frequency range is analyzed and modify the appearance of the graph for the 3D frequency analysis.

- In the **3D Frequency Analysis** dialog, click the **3D Frequency Analysis Options** button.
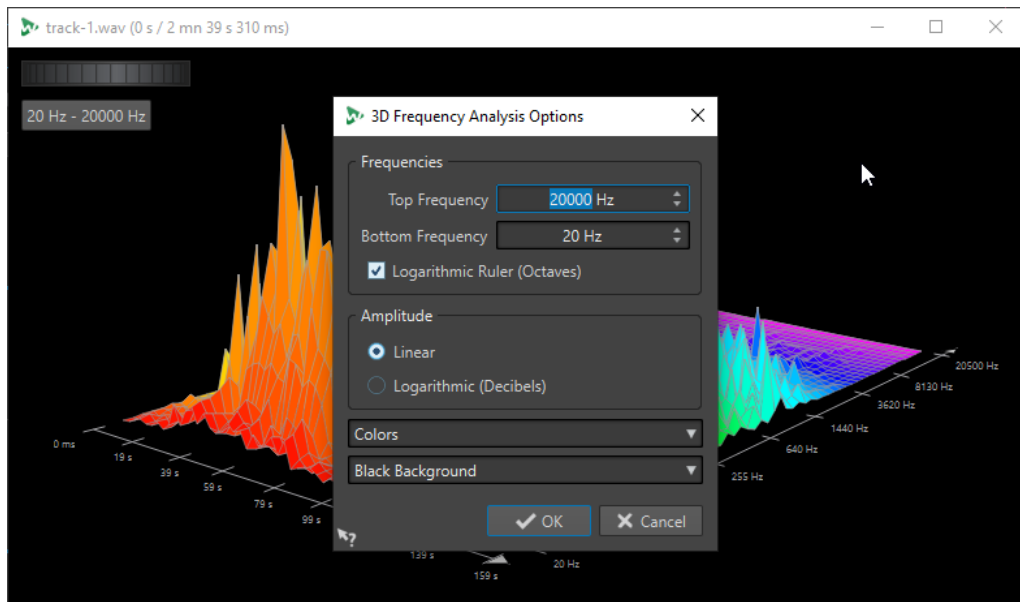
Top Frequency/Bottom Frequency

Specifies the highest/lowest frequency of the range.

Logarithmic Ruler (Octaves)

Divides the frequency ruler in equally spaced octaves.

Amplitude

Select whether you want the peaks to be proportional to their amplitude (**Linear**) or to their power (**Logarithmic Decibels**).

Colors

Defines the color scheme of the graph.

Background

Defines the background color.

RELATED LINKS
Audio Editor Only: 3D Frequency Analysis on page 284

Error Correction

You can search for unwanted clicks and digital artifacts in an audio file. The detection and correction methods allow you to detect, mark and name, jump to, play back, and remove individual audio errors. The **Correction** tab in the **Audio Editor** gives you access to the error detection and correction tools.

WaveLab Pro provides you with multiple options for automatic error detection, and we encourage you to try out different settings. Likewise, as errors can have multiple origins and effects, WaveLab Pro offers several correction methods and allows you to select the one that best suits your needs: **Short Resynthesis**, **Smooth Pencil Line**, and **Inpainting** are available.

NOTE

The error detection and correction functionality in WaveLab Pro is intended to detect and correct sparse errors in audio files. For audio files that contain many clicks, such as old vinyls, we recommend using a DeClicker plug-in. For example, the **DeClicker** module in the **RestoreRig** plug-in.

RELATED LINKS
Correction Tab (Audio Editor Only) on page 287
Detecting Errors in Audio Files on page 290
Correcting Errors in Audio Files on page 293

Correction Tab (Audio Editor Only)

The **Correction** tab, which is available in the **Audio Editor**, provides access to numerous error detection and correction tools.

- In the **Audio Editor**, click **Correction**.
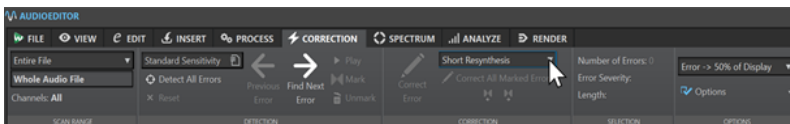
Scan Range

In this section, you can specify the range of audio to be scanned for errors.

Scan Range

- **Entire File** scans the whole audio file for errors.

- **Define as Current Selection** searches for errors in the audio selection. Once defined, you can change the audio selection without altering this search area.

  You can make an audio selection on individual channels. The selected channel is displayed in the **Scan Range** section.
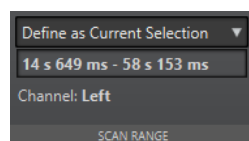
The search area indicator is displayed on the ruler.
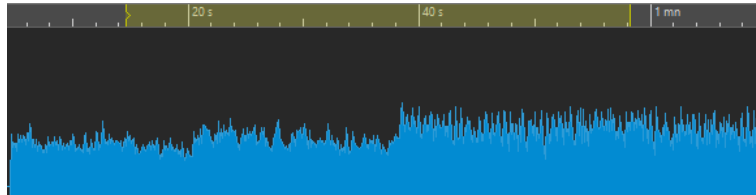
Detection

In this section, you can specify how to detect errors.

Presets

Allows you to open error detection presets and to access the **Error Detection Configuration** dialog, where you can define error detection presets.

To open the **Error Detection Configuration** dialog, click **Edit**.
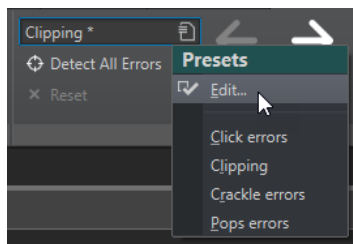
Detect All Errors

Scans the specified range from the beginning to the end and creates pairs of error markers for every detected error, without performing any correction.

Reset

Clears the detected error ranges previously memorized by WaveLab Pro after clicking **Detect All Errors**, and removes all error markers.

Previous Error

Returns to the last detected error.

Find Next Error

Selects the next error. If **Detect All Errors** was used to detect errors and create error markers, you can jump to the next error using **Find Next Error**.

If **Detect All Errors** was not used, clicking **Find Next Error** detects and selects the next error without creating error markers.

Play

Starts playback of the current audio selection while taking into account any pre-roll and post-roll settings you made on the transport bar.

Mark

Creates error markers at the beginning and the end of the audio selection, without performing any correction. If two channels are selected, a pair of error markers is created for each channel. If a single channel is selected, a pair of error markers is created for the selected channel only.

Unmark

Deletes the error markers that surround the audio selection.

Correction

In this section, you can specify the method to be used for error correction.

Correct Error

Restores the audio selection with the default correction method. You can select a different correction method from the pop-up menu.

Error Correction Method

Allows you to select an error correction method.

- **Smooth Pencil Line** is particularly suited for tiny clicks. This method corresponds to drawing an accurate line with a soft pencil. It replaces the corrupted sample with the pencil line.

- **Short Resynthesis** is best suited for minor errors. WaveLab Pro analyzes the immediate surroundings of the error to find the most appropriate method of correction.

- **Inpainting** is best suited for major errors. WaveLab Pro analyzes a larger portion of the audio file to find the most appropriate method of correction.

  Inpainting replaces the corrupt samples using spectral inpainting. For error correction, spectral inpainting is applied to the whole frequency range with predefined settings. To access further inpainting options for correcting errors, use the **Spectrum Editor**.

Correct All Marked Errors

Corrects all marked errors within the specified range.

Previous Correction/Next Correction

Jumps to the previous/next correction marker pair.

Selection

This section displays information about the errors:

Number of Errors

Displays the number of errors that were detected within the scan range.

Error Severity

Specifies the likelihood of the selected error. For clipping errors, the error severity value refers to the number of succeeding samples of the same value. For example, an error severity of 4 means that at least four succeeding samples have the same value. For other error types, the higher the value, the more likely it is that the detected audio part contains an error.

In the **Error Detection Configuration** dialog, you can specify the error severity values that you want WaveLab Pro to take into account for detecting errors.

Length

Displays the length of the selected error range.

Options

This section provides a range of parameters for playing back, viewing, and marking any detected errors.

Zoom Level

This pop-up menu allows you to specify the horizontal zoom level when displaying an error.
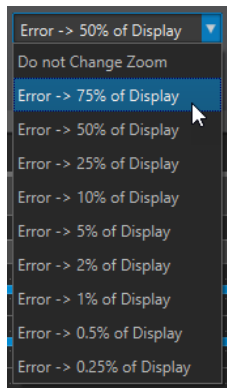
Options

This pop-up menu contains the following options:

- **Auto-Play** automatically plays back the error region after it has been detected or corrected.

- **Auto Vertical Zoom** automatically zooms in on the error vertically when navigating between errors via the **Previous Error** and **Find Next Error** buttons.

- **Set Markers around Corrected Errors** creates correction markers around the audio section, every time an error is corrected. This area can be larger than the marked error area when crossfades are performed by the corrector.

- **Remove Markers After Correction** removes the error marker pair whenever an error is corrected.

RELATED LINKS
Error Correction on page 287
Correcting Errors in Audio Files on page 293
Detecting Errors in Audio Files on page 290
Error Detection Configuration Dialog on page 292

Detecting Errors in Audio Files

WaveLab Pro allows you to automatically detect errors in audio files. You can then apply different error correction methods.

PROCEDURE

1. In the **Audio Editor**, select the **Correction** tab.

2. In the **Scan Range** section, do one of the following:

   - To scan the whole audio file for errors, select **Entire File**.

   - To scan an audio selection for errors, make an audio selection in the audio file, and select **Define as Current Selection**.

     You can make the audio selection on all channels or on individual channels. The selected channel is displayed in the **Scan Range** section.
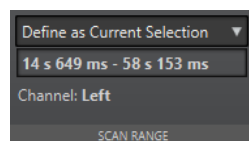
     Once defined, you can change the audio selection without altering this search area. The search area indicator is displayed on the ruler.
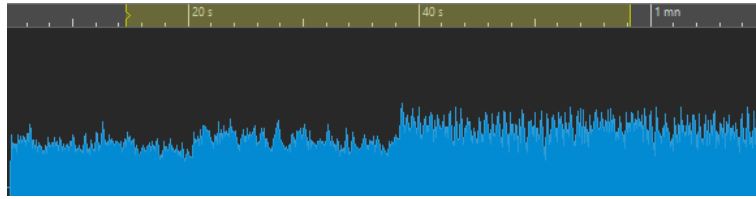
NOTE

The error detection and correction functionality in WaveLab Pro is intended to detect and correct sparse errors. If too many errors are found, reduce the audio selection.

3. In the **Detection** section, do one of the following:

- To find the next error, click **Find Next Error**. WaveLab Pro analyzes the audio file and selects the first detected error range.

- To detect all errors, click **Detect All Errors**. WaveLab Pro analyzes the audio file and marks the errors with error markers.

  The markers are created at the top of the channels for which you have defined the scan range.
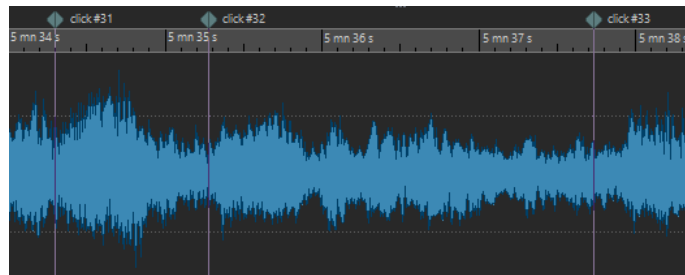
Error markers

NOTE

You can extend error markers to another channel via the **Channels** column in the **Markers** window.

4. You can configure the error detection to your needs. In the **Detection** section, do one of the following:

- Click **Presets** and select **Edit** to open the **Error Detection Configuration** dialog. In this dialog, make the desired adjustments, and click **Search**.
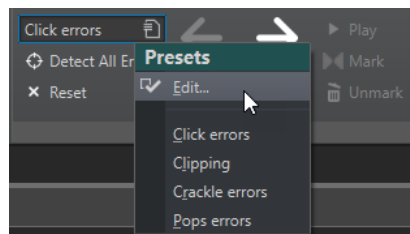
- If you have already saved error detection presets, click **Presets** and select the preset from the pop-up menu.

AFTER COMPLETING THIS TASK

Use the error correction function of WaveLab Pro to correct the detected errors.

Error Detection Configuration Dialog

- In the **Correction** tab of the **Audio Editor**, click **Presets** in the **Detection** section.

  If you have already saved error detection presets, click **Edit** to open the **Error Detection Configuration** dialog.
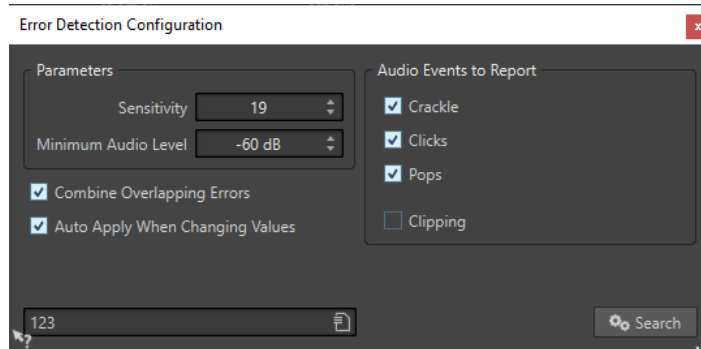
Sensitivity

Allows you to specify the sensitivity of the error detection. The higher the value, the more potential errors are detected. However, this reduces the likelihood of the reported errors being actual errors.

NOTE

There is a limit to the number of errors that can be reported. If you get a warning message that too many errors have been found, try a lower **Sensitivity** value.

Minimum Audio Level

Allows you to specify the minimum audio level that an error must have in order to be reported.

Combine Overlapping Errors

Errors can overlap with other errors and large error regions can contain smaller error regions. If **Combine Overlapping Errors** is activated, overlapping errors and error regions inside another error region are combined to a single error region.
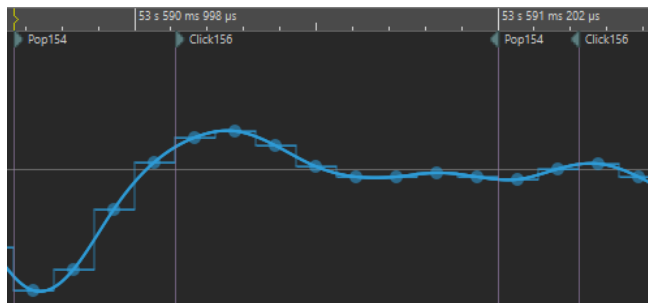
Click error overlaps pop error
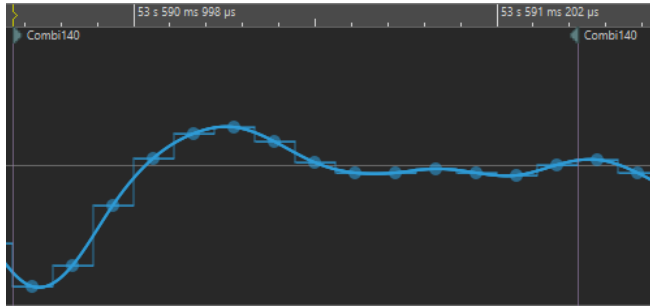
Both errors are combined to one error

Auto Apply When Changing Values

If this option is activated and you change settings in the **Error Detection Configuration** dialog, the error markers are automatically updated. This allows you to quickly see the effect your settings have on the error detection.

Error Types to Report

Allows you to select the types of error that you want to detect. WaveLab Pro can detect the following error types:

- **Crackle**, that is, very short impulsive noise.
- **Clicks**, that is, medium-sized impulsive noise.
- **Pops**, that is, long impulsive noise.
- **Clipping**, that is, several successive samples that have the same level.

RELATED LINKS
Error Correction on page 287
Correcting Errors in Audio Files on page 293
Error Detection Configuration Dialog on page 292

Correcting Errors in Audio Files

You can correct errors in audio files in the **Audio Editor**.

PREREQUISITE

You or the error detection tools of WaveLab Pro have identified errors in an audio file.

PROCEDURE

1. In the **Audio Editor**, click the **Correction** tab.

2. In the **Correction** section, select an error correction method from the **Error Correction Method** menu.

3. In the **Correction** section, do one of the following:

    - To correct an error, click inside an error marker pair, or select an audio range, and click **Correct Error**.
    - To correct all errors that are marked with error markers, click **Correct All Marked Errors**.

RESULT

The errors are corrected using the selected correction method. Correction markers are created at the start and at the end of the corrected audio range.

RELATED LINKS

Offline Processing

Offline processes are useful for a variety of editing purposes and creative effects, for example, if the computer is too slow for real-time processing or if the editing requires more than one pass.

After the processing, the audio file is permanently altered.

RELATED LINKS

Process Tab

The **Process** tab gives you access to the offline processing tools.

- In the **Audio Editor**, click **Process**.
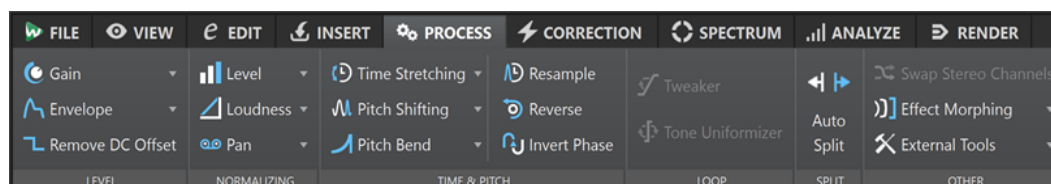
Level

Gain

Opens the **Gain** dialog, where you can apply a gain to change the level of an audio file.

Envelope

Opens the **Envelope** dialog, where you can create a level envelope which can be applied to a selected range or an entire audio file.

This is useful if you want to even out loud and quiet parts or create a sophisticated fade in/fade out, for example.

Remove DC Offset

DC offset in a file affects the loudness. **Remove DC Offset** sets the DC offset to zero.

Normalizing

Level

Opens the **Level Normalizer** dialog, where you can change the peak level of an audio file.

Loudness

Opens the **Loudness Normalizer** dialog, where you can specify the loudness of a file.

Pan

Opens the **Pan Normalizer** dialog, which allows you to ensure that both channels of a stereo file have the same level or loudness, and helps you to get the best possible stereo balance.

Time & Pitch

Time Stretching

Opens the **Time Stretching** dialog, where you can change the duration of an audio selection.

Pitch Shifting

Opens the **Pitch Shifting** dialog, where can change the pitch of your audio.

Pitch Bend

Opens the **Pitch Bend** dialog, where you can gradually change the pitch of your audio using an envelope curve.

Resample

Opens the **Sample Rate** dialog, where you can change the sample rate of your audio.

Reverse

Creates a backwards-tape effect.

Invert Phase

Inverts the phase; that is, turns the audio signal upside down.

Loop

Tweaker

Opens the **Loop Tweaker** dialog, where you can adjust the loop start and end points, and crossfade the loop boundaries.

Tone Uniformizer

Opens the **Loop Tone Uniformizer** dialog, where you can create loops from sounds that are not optimal for looping.

Split

Auto Split

Opens the **Auto Split** dialog, where you can specify how to split clips.

Split to Match

Divides the active clip into smaller clips to precisely match the position and length of selected reference clips.

Other

Swap Stereo Channels

Moves the audio from the left channel to the right channel, and vice versa.

Effect Morphing

Opens the **Effect Morphing** dialog, where you can gradually mix two audio ranges that have different effects/processing applied to them.

External Tools

Allows you to execute and configure external tools.

Applying Processing

Processing can be applied to a selection or to a whole file. For some operations processing the entire file is necessary.

NOTE

If **Process Whole File If There Is No Selection** is activated in the **Editing** tab of the **Audio Files Preferences**, the whole file is automatically processed if no selection exists.

PROCEDURE

1. In the **Audio Editor** make a selection.

2. Select the **Process** tab.

3. Select the type of processing that you want to apply.

4. If a dialog opens, make the desired adjustments, and click **Apply** to render the effect to the file.

RELATED LINKS
Audio Editor Window on page 176

Gain Dialog

In the **Gain** dialog, you can define a specific gain value to change the level of an audio range, and you can choose from two types of crossfades to ensure a seamless transition from the selection to the surrounding audio material.

● To open the **Gain** dialog, select the **Process** tab in the **Audio Editor**, and click **Gain** in the **Level** section.
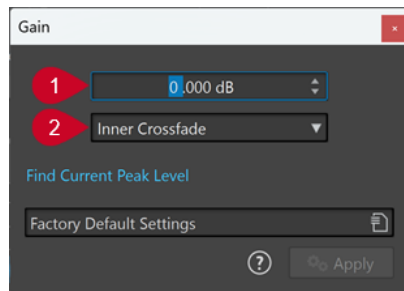
1 **Gain in dB**

Increases or decreases the audio level by the value you enter here.

2 **Crossfade Type**

Allows you to choose from the following options:

● **No Crossfade** adds the specified gain value to the entire audio range, without generating crossfades at its beginning or end.

● **Inner Crossfade** adds the specified gain value to the entire audio range and generates crossfades at its beginning and end, within the selected range.

● **Outer Crossfade** adds the specified gain value to the entire audio range and generates crossfades at its beginning and end, outside the selected range, As a result, the audio inside the range is affected by the change in gain, but not by crossfading, whereas the

audio outside the range remains unaffected by the change in gain, but crossfading takes effect on its boundaries.

NOTE

You can make global adjustments for the length and the shape of crossfades by selecting **File** > **Preferences** > **Global**. Clicking the **Audio** tab provides you with access to the options for fading and crossfading.

NOTE

WaveLab automatically recognizes whether the gain adjustment is applied to the start or to the end of an audio file and sets the crossfades accordingly:

- If you apply a gain change to the start of a file, WaveLab exclusively generates a crossfade at the right boundary.
- If you apply a gain change to the end of a file, WaveLab exclusively generates a crossfade at the left boundary.

Find Current Peak Level generates a report on the peak level of the audio selection, or on the whole file, if there is no selection. This allows you to calculate how much you can increase the overall gain of a file without clipping (exceeding 0 dB), for example.

NOTE

The processor also allows you to add clipping on purpose; that is, to increase the volume level to a point where distortion occurs. While this is generally not intended, mild clipping can add punch to your mix, to accentuate the attack of a drum sound, for example.

RELATED LINKS
Audio Tab (Global Preferences) on page 868

Level Normalizer Dialog

In this dialog, you can change the peak level of an audio file.

- To open the **Level Normalizer** dialog, select the **Process** tab in the **Audio Editor**, and click **Level** in the **Normalizing** section.

This dialog is also available as a multipass plug-in in the **Batch Processor** window.
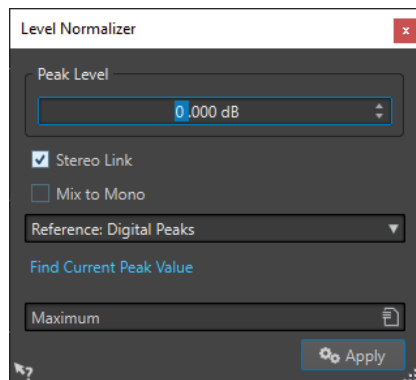
Peak Level

Enter the peak level (in dB) that you want the audio selection to have.

Stereo Link

Applies the gain to both channels.

Reference

In this pop-up menu, select whether WaveLab Pro uses sample values (digital peaks) or analog reconstructed values (true peaks).

Mix to Mono

Mixes the left and the right channel. The resulting mono file has the specified peak level. This ensures a mix without clipping.

Find Current Peak Value

Creates a report on the peak level of the current audio selection or the whole audio file if there is no selection.

Loudness Normalizer

You can use the **Loudness Normalizer** to achieve a specific loudness.

Increasing the loudness to a specific value can provoke clipping. To remedy this, a peak limiter (**Peak Master** plug-in) can be part of the process. The **Loudness Normalizer** raises the loudness and limits peaks in the signal at the same time if needed, to achieve the wanted loudness.

This process happens in several stages, first an analysis and then the final rendering.

RELATED LINKS

Loudness Normalizer Dialog

In this dialog, you can specify the loudness of a file.

● To open the **Loudness Normalizer** dialog, select the **Process** tab in the **Audio Editor**, and click **Loudness** in the **Normalizing** section.

This dialog is also available as a multipass plug-in in the **Batch Processor** window.
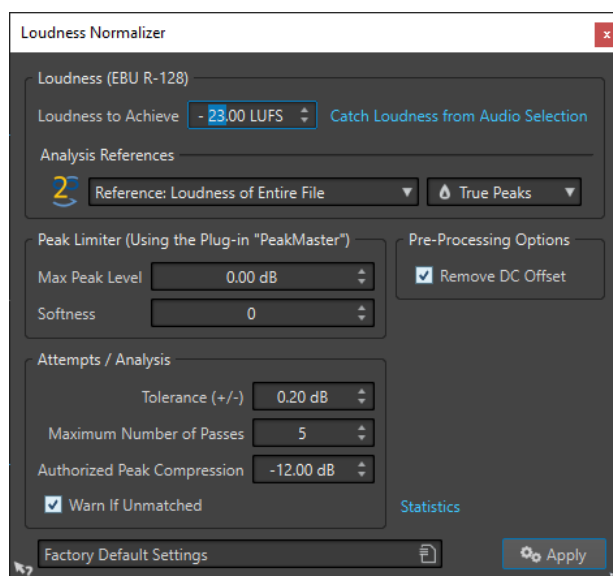
Loudness (EBU R-128)

Loudness to Achieve

> If the loudness cannot be achieved with a simple positive gain change, a limiter must come into action to prevent clipping.

> Here, specify the loudness that you want to achieve. The EBU R-128 recommendation for broadcast is -23 LUFS.

> Specifying high values might require a gain outside the normal capabilities of the limiter, which can cause distortion.

> It is recommended to use **Statistics** after specifying a loudness. This way, you know how much the gain needs to be raised and if peak limiting needs to be applied. If heavy limiting is necessary, this might degrade the audio quality. In such cases, a warning is shown after applying the process, allowing you to undo it.

Catch Loudness from Audio Selection

> Sets **Loudness to Achieve** to the average loudness found in the audio file or audio selection.

Reference

> This pop-up menu allows you to select a reference: the loudness of the entire file (EBU R-128 recommendation), the average loudest 3 second audio section (**Top of Loudness Range**), or the loudest 3 second audio section (**Maximum Short-Term Loudness**).

Peaks

> In this pop-up menu, select whether WaveLab Pro should limit the sample values (**Digital Peaks**) or the analog reconstructed samples (**True Peaks**).

Peak Limiter

Max Peak Level

> Specifies the maximum peak level of the resulting audio. The lower this value, the lower the loudness.

Softness

> Affects how the peak master operates. A high setting maximizes the perceived loudness effect, but can result in a slight harshness of the sound.

> Adjust this parameter to optimize the balance between sound quality and the effect that you want to achieve.

Pre-Processing Options

Remove DC Offset

> DC offset in the file affects the loudness computation. **Remove DC Offset** sets the DC offset to zero. We recommend that you keep this option activated.

Attempts/Analysis

Tolerance (+/-)

> If **Loudness to Achieve** requires peak limiting, this also reduces the loudness to some degree. This cannot be computed in advance and cannot be automatically applied to the gain change. Instead, several simulation passes are performed to find the best possible gain. This option allows you to define the precision of the result that you want to achieve.

Maximum Number of Passes

WaveLab Pro performs as many analysis passes as needed to match the precision that you want to achieve. Use this option to specify the maximum number of passes to be performed.

Authorized Peak Compression

As too much compression degrades the audio quality, you can specify a limit for the applied compression. The value can be set between -1 and -20 dB. Consider lowering the **Loudness to Achieve**, as this renders better results.

Warn If Unmatched

If this option is activated, you are warned if the normalizing process does not meet the specified loudness/precision.

This option is not available during batch processing.

Statistics

Opens a window that shows you information about the file to be processed. It shows any DC offset, the current loudness, the current peak level, and the required gain to achieve the specified loudness. Furthermore, you are informed if limiting is required.

RELATED LINKS
Loudness Normalizer on page 299
EBU Loudness Standard R-128 on page 69

Pan Normalizer Dialog

This dialog allows you to ensure that both channels of a stereo file have the same level or loudness, and helps you to get the best possible stereo balance.

● To open the **Pan Normalizer** dialog, select the **Process** tab in the **Audio Editor**, and click **Pan** in the **Normalizing** section.

This dialog is also available as a multipass plug-in in the **Batch Processor** window.
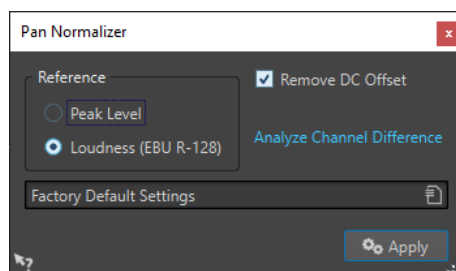
This process first analyzes the audio and then renders any required level changes. You must have a stereo selection in a stereo file to apply this process.

Peak Level

Raises the channel with the lowest peak level to match the peak level of the other channel.

Loudness (EBU R-128)

Analyzes the loudness of both channels and adjusts their gain so that both channels get the same loudness. No clipping can be introduced using the **Pan Normalizer**.

Remove DC Offset

DC offset in the file affects the loudness computation. **Remove DC Offset** sets the DC offset to zero. We recommend that you keep this option activated.

Analyze Channel Difference

Shows the current loudness ratio between the left and right channels. The result changes depending on the selected **Reference** option.

Envelope Dialog

In this dialog, you can create a level envelope which can be applied to a selected range or a whole audio file. This is useful if you want to even-out loud and quiet parts or create a sophisticated fade in or fade out, for example.

● To open the **Envelope** dialog, select the **Process** tab in the **Audio Editor**, and click **Envelope** in the **Level** section.
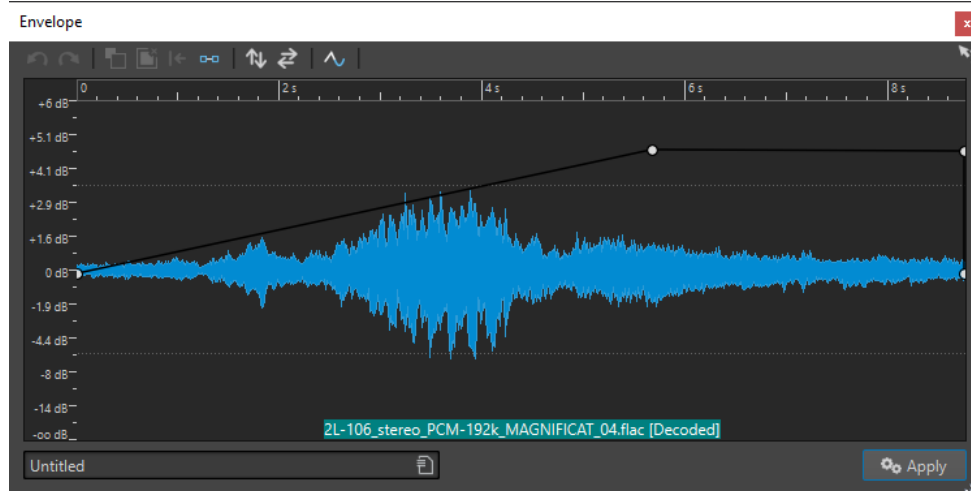
The dialog shows a waveform with an envelope curve (initially a straight line). A vertical ruler displays the level in dB, and the horizontal ruler displays the timeline.

The following options are available:

● **Undo the Last Operation**

● **Redo the Last Undone Operation**

● **Deselect the Envelope Points**

● **Delete the Selected Envelope Points**

● **Reset the Selected Envelope Points**

● **Reset the Whole Envelope**

● **Flip the Envelope Around the Horizontal Axis**

● **Reverse the Envelope Time Sequence**

● **Toggle the Envelope Smoothing**

Basic Envelope Operations

By adding points to the envelope curve, you can create an envelope curve that changes the volume of the material over time. When you point the mouse in the display or move a point, the current position and level change is shown in the field above the display.

● To add a point, double-click the envelope curve.

● To select a point, click it.

- To select several points, click and drag the selection rectangle or click them while pressing **Ctrl/Cmd** .

- To move a point, click and drag it. If more than one point is selected, all points are moved.

- To move the whole curve up or down, click the envelope curve, and drag up or down.
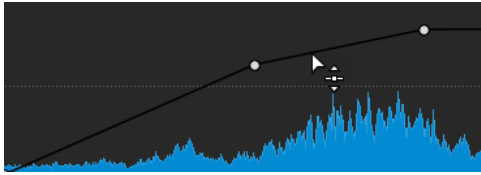
- To move the curve segments vertically, press **Ctrl/Cmd** , click the curve segment, and drag up or down.

- To move two points horizontally, press **Shift** , click the curve segment between two points, and drag left or right.
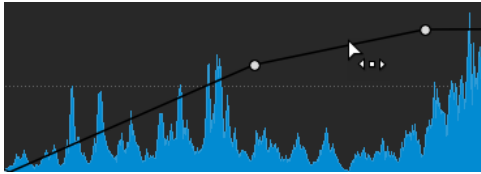
- To move two points vertically, press **Ctrl/Cmd** , click the curve segment between two points, and drag up or down.
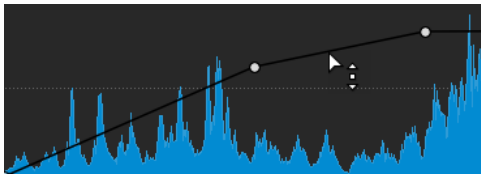
Fades in Audio Files

A fade in is a gradual increase in level and a fade out is a gradual decrease in level.

You can create fades by selecting an individual fading type for each fade in/fade out.

Creating Fade Ins and Fade Outs

PROCEDURE

1. In the **Audio Editor**, make a selection.

2. Select the **Edit** tab.

3. Depending whether you want to create a fade in or a fade out, select one of the following options in the **Fading** section:

   - To apply the default fade type, click the **Fade In** or **Fade Out** icon.

   - To select another fade type, click **Fade In** or **Fade Out** below the fade icon. From the pop-up menu, select the type of fade that you want to create.

Applying Easy Fades

The **Easy Fade** function allows you to quickly apply a default fade in or fade out to an audio file via shortcut.

The shape of the fade is governed by the **Fade In** and **Fade Out** settings in the **Fading** section of the **Edit** tab.

PROCEDURE

1. In the **Audio Editor**, make one of the following selections:

   ● From the start of the audio file to where you want the fade in to end.

   ● From the position where you want the fade out to start to the end of the audio file.

2. Click `Ctrl/Cmd`-`D`.

Crossfades

A crossfade is a gradual fade between two sounds, where one is faded in and the other one is faded out, to ensure a smooth transition.

You can either create individual crossfades when pasting an audio segment into another one, or you can opt for WaveLab to automatically generate crossfades whenever you perform particular editing operations.

RELATED LINKS

Creating Crossfades

You can create an individual crossfade between two audio selections by copying and pasting and choosing a crossfade option from a pop-up menu.

PROCEDURE

1. In the **Audio Editor**, select the **Edit** tab.

2. Make an audio selection at the beginning of the audio file that you want to fade in.

3. On the **Cut Copy Paste** panel, click **Copy**.

4. Make an audio selection at the end of the audio file that you want to fade out.

   NOTE

   The length of this selection determines the duration of the actual crossfade and is shown on the status bar. The section can be within the selected audio file or in another window. However, the selection must not be longer than the selection that you just copied.

5. In the **Paste** section, select **Crossfade Over Selected End**.

6. Choose a crossfade type (**Linear (Equal Gain)**, **Sinus (Equal Power)**, or **Square-Root (Equal Power)** from the pop-up menu.

RESULT

The crossfade is created.

NOTE

Any audio following the selection into which you paste is moved further toward the end.

Any excess audio in the copied selection following the crossfade is set to full level.

NOTE

If both files contain full level sections in the crossfade area; for example, after normalizing both files, there is a risk of clipping and distortion. To remedy this, reduce the amplitude of both files by 3 dB to 6 dB, and repeat the process.

RELATED LINKS
Edit Tab (Audio Editor) on page 190

Activating Automatic Crossfades

You can activate automatic crossfading for operations such as cutting, pasting, inserting, muting, cropping, or deleting segments of your audio.

PROCEDURE

1. In the **Audio Editor**, select the **Edit** tab.

2. On the **Cut Copy Paste** panel, activate **Crossfading**.

RESULT

With this option activated, WaveLab automatically applies crossfades when you initiate one of the following editing operations:

● **Cut**

● **Paste**

● **Crop**

● **Mute**

● **Delete**

● **Prepend**, **Append**, **Overwrite**, or **Multiple Copies** from the **Paste** menu

    In addition to this, the **Crossfading** option automatically generates a crossfade at the designated insertion point when you insert audio by dragging or when you choose an option from the **Audio File** panel of the **Insert** tab.

NOTE

For cuts at the beginning or the end of an audio file, a fade-in or a fade-out, respectively, is generated instead.

NOTE

To view and edit the global settings for fades and crossfades, you can click the button in the lower right corner of the **Cut Copy Paste** panel.
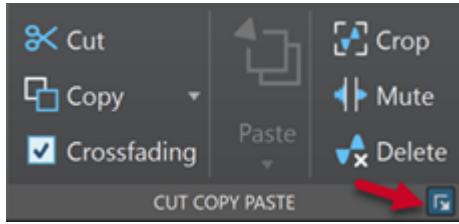
Phase Inverting

Inverting the phase turns the signal upside down. The most common use for this function is to fix a stereo recording if one of the channels has been recorded out of phase with the other.

Inverting the Audio Phase

PROCEDURE

1. Optional: If you only want to invert the phase for a specific time range of an audio file, create a selection range in the **Audio Editor**.

2. Select the **Process** tab.

3. In the **Time & Pitch** section, click **Invert Phase**.

Inverting the Phase of an Audio Montage Clip

PROCEDURE

1. In the **Audio Montage** window, select the **Process** tab.

2. In the **Process** section, click **Invert Phase**.

RESULT

An inverted phase is indicated by an icon in the montage window.
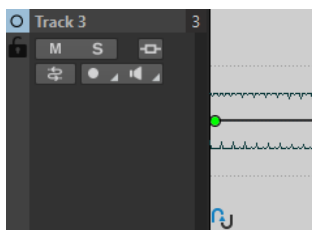
Reversing Audio

You can reverse an audio file or a part of an audio file as if playing a tape backwards.

PROCEDURE

1. Optional: If you only want to reverse a specific time range of the audio file, create a selection range in the **Audio Editor**.

2. In the **Audio Editor**, select the **Process** tab.

3. In the **Time & Pitch** section, click **Reverse**.

DC Offset

DC offset means that there is a too large DC (direct current) component in the signal. This most often occurs due to mismatches between various types of recording equipment.

A DC offset is problematic for the following reasons:

- It affects the zero crossing position.

- Some processing options do not give optimal results when performed on files with a DC offset.

Removing DC Offset

PROCEDURE

1. In the **Audio Editor**, open the audio file that you want to check for DC offset and that you want to fix.

2. Select the **Process** tab.

3. In the **Level** section, click **Remove DC Offset**.

   A dialog opens, stating the amount of DC offset in the audio file. You can also create a selection range in the wave window and select this option to only show the DC offset in the selection range.

   NOTE

   This function should be applied to whole files, because the problem is normally present throughout the entire recording.

4. Click **OK** to remove the DC offset.

Time Stretching

Time stretching is an operation that allows you to change the length of a recording without affecting its pitch.

With time stretching, you can make audio material longer or shorter. This function is most often used to match the duration of an audio section with other material. You select the material to be stretched and use the options in the **Time Stretching** dialog to find a stretch factor. You can specify the length or the tempo, according to what the situation requires.

NOTE

WaveLab Pro uses the ZPlane technology for high-quality time stretching.

RELATED LINKS

Time Stretching Dialog

In this dialog, you can change the duration of an audio selection, usually without changing its pitch. You can stretch a selection to a specified duration (in minutes, seconds, and milliseconds), tempo (in bpm), or stretch factor (as percentage).

- To open the **Time Stretching** dialog, select the **Process** tab in the **Audio Editor** and click **Time Stretching** in the **Time & Pitch** section.

This dialog is also available as a monopass plug-in in the **Batch Processor** window.
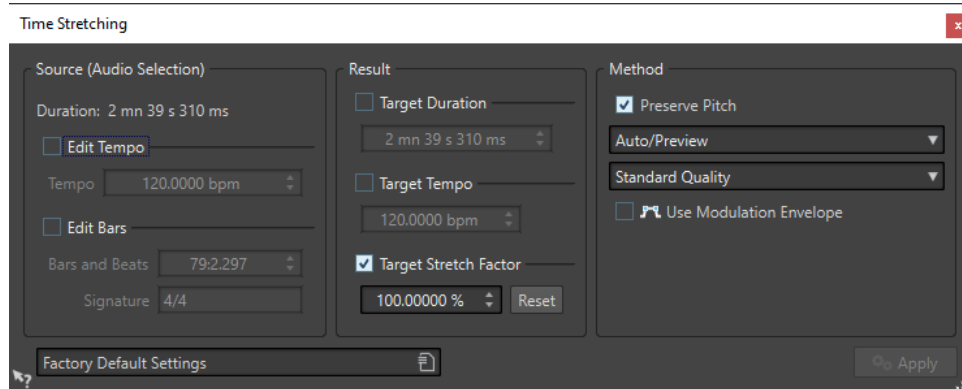
Source (Audio Selection)

Duration

If **Edit Tempo** is activated, you can change the tempo of the audio source. The number of bars and beats and the stretch factor is updated automatically.

If **Edit Bars** is activated, you can set the number of bars and beats and the signature for the audio source. The source tempo and the stretch factor is updated automatically.

Result

Target Duration

If this option is activated, the audio source changes its duration.

Target Tempo

If this option is activated, the audio source changes its tempo. For this to work, you must specify the original tempo or the number of bars and beats.

Target Stretch Factor

Indicates how much the audio duration changes. This parameter is automatically updated when you edit the other parameters, but you can also activate this option to edit it manually.

Reset

Resets the stretch factor to 100%, that is, no stretch.

Method

Preserve Pitch

If this option is activated, the pitch of the audio material is not affected when you apply time stretch. If this option is deactivated, the pitch changes proportionally with the time stretch ratio.

Method pop-up menu

The following options are available:

- Select **High Quality (Multi-Purpose)** if your audio is not monophonic or speech.
- **Fast Preview** is processed quickly and is best suited to quickly preview a setting.
- **Monophonic Material** is best suited for single unaccompanied melodic lines. This option preserves formants when time stretching.
- **Speech** is best suited for voice material. This option preserves formants when time stretching.

Accuracy pop-up menu

Allows you to select whether to favor duration accuracy or pitch accuracy when time stretching.

- **Favor Duration Accuracy** preserves the length of the original audio.
- **Favor Pitch Accuracy** can result in a slightly different audio length after pitch shifting.

Use Modulation Envelope

If this option is activated, the stretch factor is modulated over time. In the **Result** section, you can set the **Maximum Stretch Factor** for the modulation envelope.
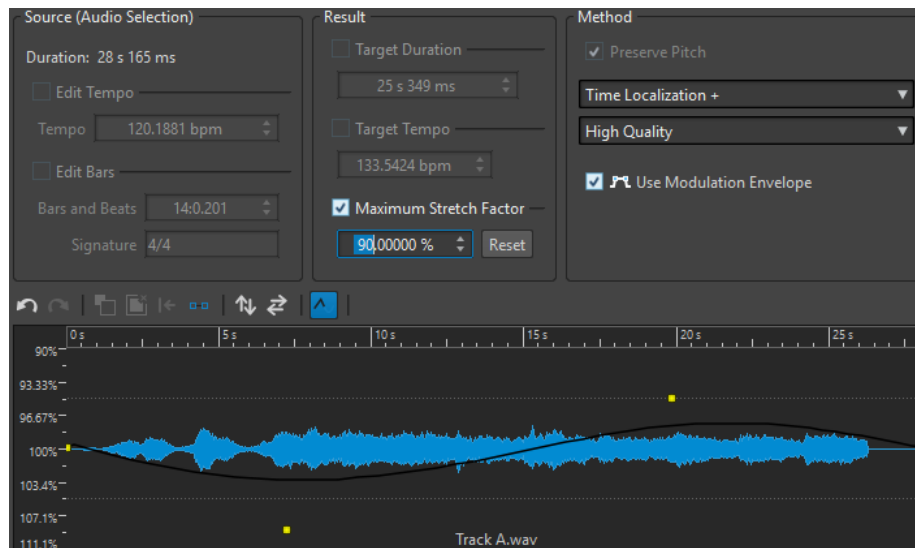
RELATED LINKS
Time Stretching on page 307

Time Stretching Limitations

Time stretch is a complicated Digital Signal Processing (DSP) operation that always affects the sound quality to some extent.

- For speech, stretch factors within a ±30% range provide good results.
- For composite music, try to limit the range to ±10%.
- For sensitive material, like solo piano, try to limit the range to ±3%.

RELATED LINKS
Time Stretching on page 307

Pitch Shift

Pitch shift allows you to detect and to change the pitch of a sound, with or without affecting its length. This is useful for fixing an off-key vocal note in a live recording, or for tuning the pitch of a kick drum sample to fit a particular song, for example.

RELATED LINKS
Pitch Shifting Dialog on page 310

Pitch Shifting Dialog

In this dialog, you can change the pitch of a sound. You can change the pitch of audio files and audio montage clips.

- To open the **Pitch Shifting** dialog for audio files, select the **Process** tab in the **Audio Editor**, and click **Pitch Shifting** in the **Time & Pitch** section.

- To open the **Pitch Shifting** dialog for audio montage clips, right-click the lower part of a clip, and select **Pitch Shifting**.

This dialog is also available as a monopass plug-in in the **Batch Processor** window.
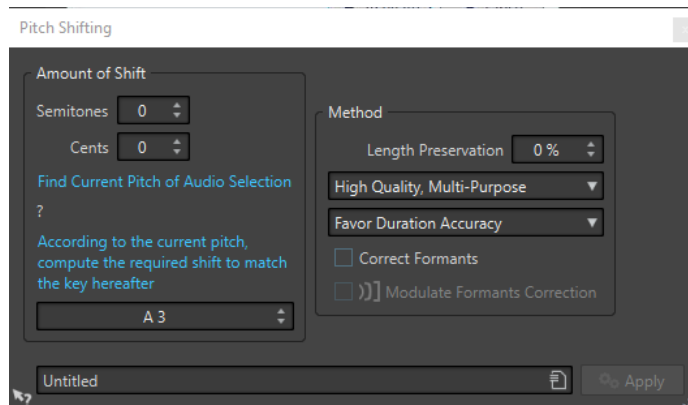
Pitch Shifting dialog for audio files

Amount of Shift

Semitones

Allows you to specify the amount of pitch change in semitones.

Cents

Allows you to specify the amount of pitch change in cents.

Find Current Pitch of Audio Selection

Analyzes the pitch of the selected audio and displays it below this button. This option is only available for audio files.

According to the current pitch, compute the required shift to match the key hereafter

Click to adjust **Amount of Shift** parameters automatically, based on the detected pitch and the pitch specified in the value field below this button. This option is only available for audio files.

Pitch field

Specifies the resulting pitch.

Method

Length Preservation

Specifies how the length of the selection is affected by the operation:

- A setting of 100 % means that the length of the audio remains unchanged.

- A setting of 0 % means that the program behaves like a tape recorder, when the speed of its tape is changed. For example, if you raise the pitch by one octave, the audio is half as long.

For large transposition values, the lower this setting, the better the quality of the effect.

Method pop-up menu

The following options are available:

- Select **High Quality (Multi-Purpose)** if your audio is not monophonic or speech.

- **Monophonic Material** is best suited for single unaccompanied melodic lines. This option preserves formants when pitch shifting.

- **Speech** is best suited for voice material. This option preserves formants when pitch shifting.

Accuracy pop-up menu

Allows you whether to favor duration accuracy or pitch accuracy when pitch shifting.

- If **Favor Duration Accuracy** is selected and the **Length Preservation** is set to 100 %, the resulting audio after pitch shifting is the same length as the source audio.

- If **Favor Pitch Accuracy** is selected, the resulting audio after pitch shifting might have a slightly different length than the source audio.

Correct Formants

If this option is activated, changing the pitch of vocal material gives a more realistic result. When processing non-vocal material, leave this option deactivated, because it uses a slightly slower processing algorithm.

NOTE

This algorithm might cause a noticeable increase in signal level.

Modulate Formants Correction

If this option is activated, you can modulate the formant correction over time via an envelope. This option is only available for audio files. If you activate **Modulate Formants Correction**, the envelope section becomes available at the bottom of the **Pitch Shifting** dialog.
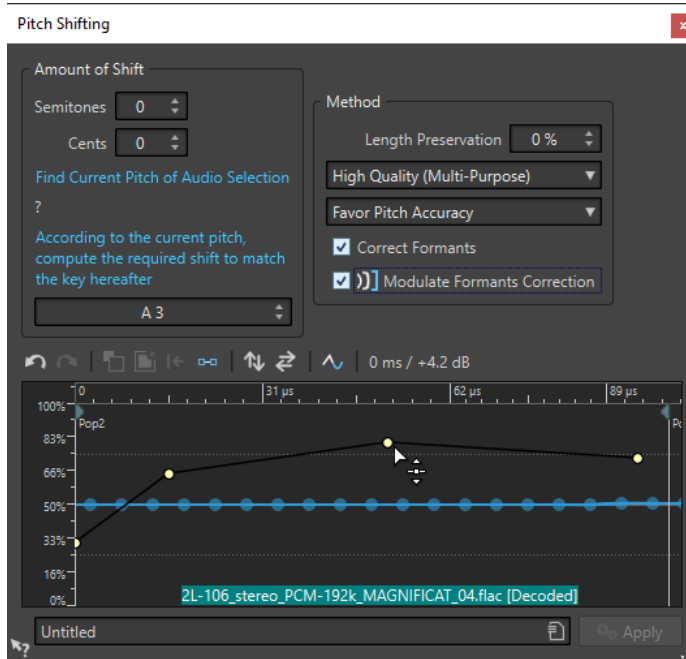
NOTE

If the envelope is not used and the formant correction is activated, a 100% correction is performed.

RELATED LINKS
Pitch Shift on page 310
Adding Plug-ins to a Batch Process on page 795

Pitch Bend

Pitch bend allows you to change the pitch of a sound over time.

This function can be used for creating the classic tape stop effect, or for blending the tempo/pitch of one track into another, for example.

In the **Pitch Bend** dialog, you can draw the envelope curve that you want the pitch to follow. The pitch offset is displayed on the vertical ruler of the envelope and the range of the envelope effects can be adjusted. Positive pitch values produce sounds with a higher pitch and a shorter length, negative values produce sounds with a lower pitch and a longer length.

Changing the pitch using pitch bend affects the length of the audio. However, you can use the **Length Preservation** option to control the time stretch of the resulting audio.

RELATED LINKS
Pitch Bend Dialog on page 312

Pitch Bend Dialog

In this dialog, you can gradually change the pitch of a sound using an envelope curve.

- To open the **Pitch Bend** dialog, select the **Process** tab in the **Audio Editor**, and click **Pitch Bend** in the **Time & Pitch** section.
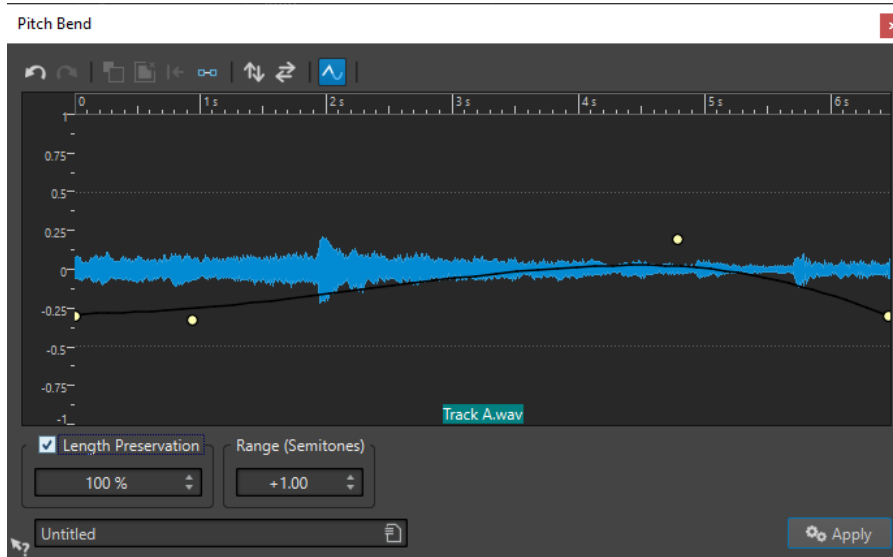
Pitch bend envelope

> Allows you to edit the envelope curve to change the pitch of a sound. To add an envelope point, double-click the envelope curve. You can then drag the envelope points to customize the pitch bend envelope.

> The following options to edit envelopes are available above the pitch bend envelope display:

> - **Undo the Last Operation**
> - **Redo the Last Undone Operation**
> - **Deselect the Envelope Points**
> - **Delete the Selected Envelope Points**
> - **Reset the Selected Envelope Points**
> - **Reset the Whole Envelope**
> - **Flip the Envelope Around the Horizontal Axis**
> - **Reverse the Envelope Time Sequence**
> - **Toggle the Envelope Smoothing**

Length Preservation

> If this option is activated, you can specify how the length of the selection is affected by the pitch bend operation:

> - A setting of 100 means that the length of the audio remains unchanged.
> - A setting of 0 means that the program behaves like a tape recorder, when the speed of its tape is changed. For example, if you raise the pitch by one octave, the audio is half as long.

> For large transposition values, the lower this setting, the better the quality of the effect.

Range (Semitones)

> Specifies the maximum range in semitones for the pitch change. When you change this value, this is indicated in the vertical ruler.

RELATED LINKS
Pitch Bend on page 312

Resampling

You can change the sample rate of a recording. This is useful if the file that you want to use in an audio system was recorded at a sample rate that this system does not support.

NOTE

- Sample rate conversion from a low frequency upwards does not improve the sound quality. The high frequencies that were lost cannot be restored by a conversion.

- If you resample to a lower frequency, high frequency material is lost. Therefore, converting down and then up again leads to a degradation in sound quality.

NOTE

Using the **Resampler** plug-in in the quality mode **High** changes the sample rate results in the same quality as when using the **Resample** option in the **Audio Editor**. However, that is only the case if the sample rate in the **Sample Rate** dialog exists in the values of the **Resampler Sample Rate** pop-up menu. If you choose a custom sample rate, another algorithm is used, which results in a lower quality of what the **Resampler** can achieve.

RELATED LINKS
Converting a Sample Rate on page 314

Converting a Sample Rate

Resampling allows you to convert the sample rate of an audio file to another sample rate.

NOTE

Sample rate conversion is always applied to the entire file.

PROCEDURE

1. In the **Audio Editor**, select the **Process** tab.

2. In the **Time & Pitch** section, click **Resample**.

3. In the **Sample Rate** dialog, select a sample rate from the pop-up menu.
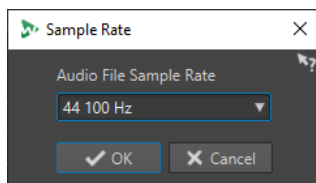
4. Click **OK**.

RELATED LINKS
Resampling on page 314

Effect Morphing

Effect morphing allows you to smoothly morph from one effect to another, or from an unprocessed audio segment to a processed audio segment.

Effect morphing always involves two audio ranges. For example, two versions of the same audio range, of which one is processed and the other unprocessed.

Effect Morphing Dialog

In this dialog, you can gradually mix two audio ranges that have different effects or processing applied to them.

● To open the **Effect Morphing** dialog, select the **Process** tab in the **Audio Editor**, and click **Effect Morphing** in the **Other** section.
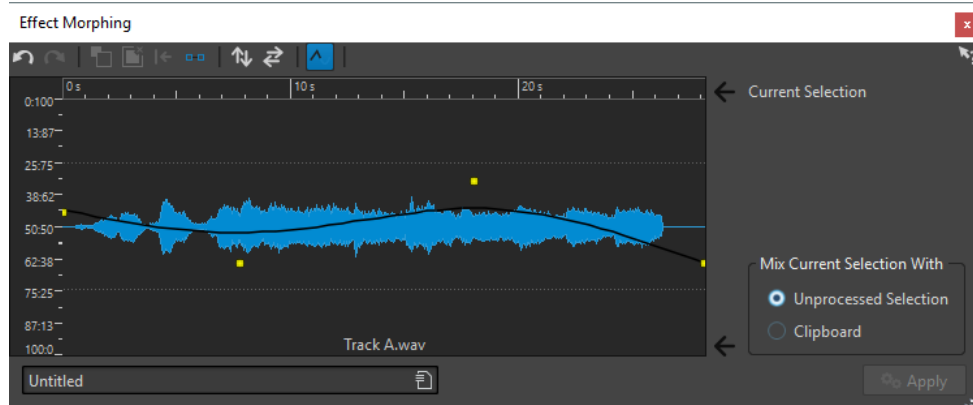
The dialog consists of a waveform display that shows the current selection and an envelope curve (by default a straight line) in the middle. By adding points to the envelope, you can create a curve that is used for the morphing process.

The following options are available at the top of the dialog:

● **Undo the Last Operation**

● **Redo the Last Undone Operation**

● **Deselect the Envelope Points**

● **Delete the Selected Envelope Points**

● **Reset the Selected Envelope Points**

● **Reset the Whole Envelope**

● **Flip the Envelope Around the Horizontal Axis**

● **Reverse the Envelope Time Sequence**

● **Toggle the Envelope Smoothing**

The following options are available in the lower right corner of the dialog:

Mix Current Selection With

Unprocessed Selection mixes the audio selection with the unprocessed version of the same audio.

Clipboard mixes the audio selection with the audio on the clipboard.

RELATED LINKS
Basic Envelope Operations on page 302

Setting Up the Effect Morphing

PROCEDURE

1. In the **Audio Editor**, open the two audio files for which you want to apply effect morphing.

   Effect morphing always involves two audio ranges.

2. In the wave window, make a selection range over the time that you want the effect morphing to take place.

3. Process this range by using any **Master Section** effects or offline processing.

   You cannot use processing/effects that alter the length of the selection, for example, time stretching.

4. Select the **Process** tab.

5. In the **Other** section, click **Effect Morphing**.

6. Make sure that **Unprocessed Selection** is activated.

   The current processed selection is mixed with an unprocessed version of the same selection.

7. Adjust your envelope points over time between 0% and 100%.

   This determines the level and direction of the morph. For example, starting at 100% and ending at 0% fades out the effect.
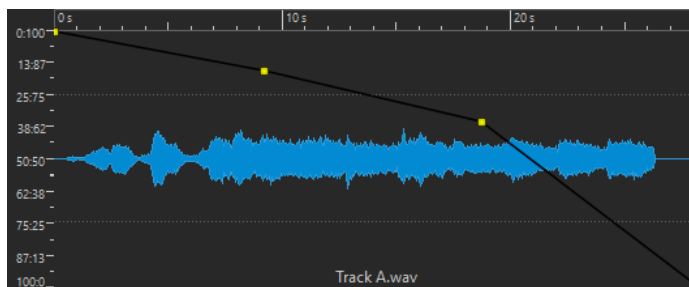
8. Click **Apply**.

Morphing Effects of Differently Processed Audio Segments

Effect morphing can take place between two differently processed audio segments.

PREREQUISITE

In the **Audio Editor**, make a range selection and process the selection.

PROCEDURE

1. Select the result, and press `Ctrl/Cmd` - `C` .

2. Undo the processing.

3. Process the selection again, this time with a different effect.

4. Select the **Process** tab.

5. In the **Other** section, click **Effect Morphing**.

6. In the **Effect Morphing** dialog, activate **Clipboard**.

7. Click **Apply**.

RESULT

The curve enables you to morph between two different processing methods.

NOTE

The clipboard can also be a copy from another wave file, but the clipboard size and the selection size must match.

Audio Montage

An audio montage is a multichannel and multitrack non-destructive editing environment.

You can import audio files into audio montages. As soon as they are part of the audio montage, audio files are referred to as "clips". As clips are just referenced representations of the original audio files, in the audio montage, you can edit and alter them as you like, without affecting the original audio files.

The non-destructive editing functions include both track- and clip-based effects, volume and pan automation, as well as a variety of features for fading and crossfading. Multichannel support enables you to create surround mixes.

Audio montages are particularly suited for album/audio CD creation, mastering, multimedia work, radio spot production, etc.

NOTE

Audio montages can contain an unlimited number of stereo tracks, mono tracks, null test tracks, and picture tracks, up to three reference tracks, and a video track. You can use them to structure your work graphically or logically. Depending on the channel configuration of the audio montage, you can route each track to a stereo output or to different surround channels or non-surround audio channels.

The number of clips that you can place on a track is unlimited.

In addition to the reference to a source audio file on your hard disk, clips contain information about the start and end positions in the file, which means that clips can play back sections of the source audio files. Any number of clips can reference the same source file.

RELATED LINKS
Audio Montage File Structure on page 318
Audio Montage Window on page 320
Creating Custom Audio Montages from Scratch on page 357
Assembling an Audio Montage on page 370
Clip Editing on page 406

Audio Montage File Structure

WaveLab generates a designated folder for each audio montage that you create. The essential file of an audio montage, the one with the .mon extension, is automatically saved in this folder, which can contain further files or sub-folders related to the audio montage.

Audio Montage Folder

The audio montage folder allows you to save all files and sub-folders that are associated with the audio montage in one location. We recommend doing so, as it helps you to keep an overview of the scope of your audio montage, and it makes it easy for you to transfer your work to different computers or to share it with other users.

- You are free to choose any name for the audio montage folder. However, we recommend using the same name as for the .mon file, so that their relation is clear.

- While it is good practice to save the audio files associated with the audio montage in the designated folder, they can be located elsewhere.

Audio Montage (.mon) File

The .mon file, which is saved in the audio montage folder, is at the heart of your work with an audio montage and constitutes what is referred to as the audio montage in the narrower sense. This central file is opened in the **Audio Montage** window, where you can access all features related to importing, editing, analyzing, and rendering. The .mon file acts as a database, in that it links to other files, which are referenced by the audio montage as clips and can be edited in a non-destructive way, without affecting the original source files. Any settings you apply in the **Audio Montage** window are saved in the .mon file.

NOTE

You can save multiple .mon files in a single audio montage folder, which can be useful if you want to keep alternative versions of an audio montage, for example.

RELATED LINKS

Loudness Overlay

You can overlay the **Waveform** or the **Rainbow** view of the **Audio Montage** window with an **RMS Loudness** view and adjust the transparency of the overlay.

The **RMS Loudness** overlay allows you to keep a constant eye on both peaks and loudness, so that you can easily identify audio sections with varying dynamics.

To overlay the **Waveform** or the **Rainbow** view with the **RMS Loudness** view, use the scroll wheel (**1**). The farther you turn the scroll wheel to the right, the higher the opacity of the **RMS Loudness** overlay (**2**); that is, the more prominent it becomes. The farther you turn the scroll wheel to the left, the more transparent the **RMS Loudness** overlay. Turning the scroll wheel all the way to the left sets the transparency to 100%, so that the **RMS Loudness** overlay is not visible.

Loudness overlay in the Waveform view of the Audio Montage window

To activate/deactivate the **RMS Loudness** overlay display (**2**), double-click on the scroll wheel (**1**).

> **NOTE**
>
> This feature is also available in the **Waveform** and the **Rainbow** view of the **Audio Editor**.

> **NOTE**
>
> - The transparency settings for the **Waveform** and the **Rainbow** view are independent of each other, because of their different graphics rendering.
> - The transparency settings for the **Audio Editor** and the **Audio Montage** window are independent of each other as well.

Audio Montage Window

The **Audio Montage** window is where you assemble, view, play back, and edit audio montages.

The **Audio Montage** window provides you with an overview of tracks and clips.
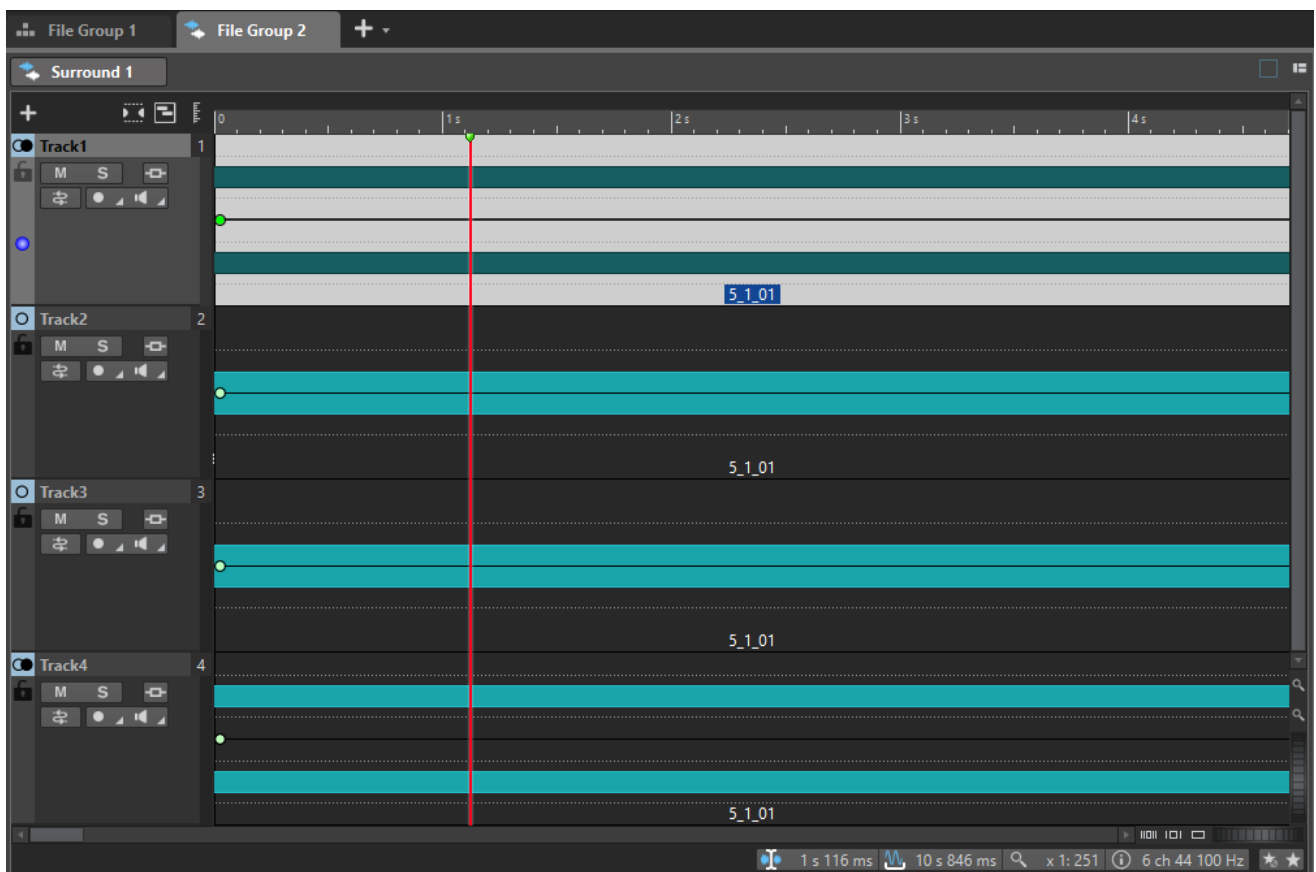
The **Audio Montage** window can be set to two different views:

- **Waveform** displays the waveform of the audio file that a clip in the audio montage refers to.
- **Rainbow** visualizes the spectral properties of the audio file that a clip in the audio montage refers to by assigning specific customizable colors to them along the waveform.

To activate one of the views, click the corresponding tab at the bottom of the **Audio Montage** window.
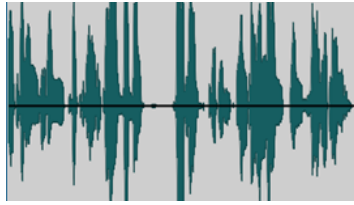
Waveform view
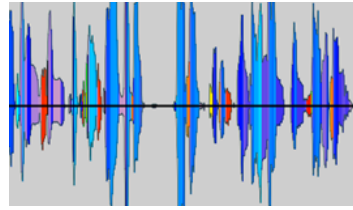
Rainbow view

RELATED LINKS

Track Control Area

The track control area offers several track settings and options, for example, rearranging, muting, soloing, and routing tracks. Each track type has dedicated controls.

You can scroll through the tracks and resize them.
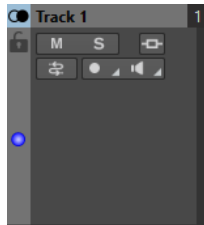
The track control area for mono and stereo tracks

The following options are available at the top of the track control area:

Add Track

Allows you to add a track to the audio montage.

Grouped Mute/Solo

If this option is activated, all tracks of a track group are muted/soloed when you mute/solo any of its tracks. This option is available if the audio montage contains at least one track group.

Title Navigator

The **Title Navigator** pop-up menu allows you to quickly navigate between titles that spread over multiple tracks or lanes in your audio montage. Each title is determined by a title marker pair, and the clips that are located within the title marker pair range on all tracks or lanes.

Navigator

Opens a panel that displays an overview of the entire audio montage and allows you to quickly navigate in it.

To change the size of the **Navigator** panel, right-click the panel and select **Small Navigator**, **Medium Navigator**, or **Large Navigator**.
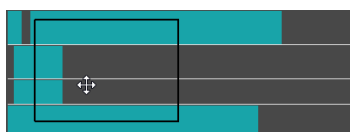
Track Control Area for Stereo and Mono Tracks

The track control area for stereo and mono tracks allows you to mute and solo tracks, add track effects, specify routing options, monitor the input signal, and record-enable tracks, for example.

Options
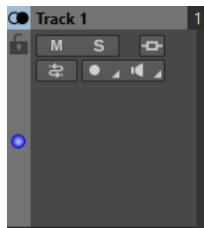
Track control area for mono and stereo tracks

Track Control Area Options

Track Name

Allows you to change the track name. Double-click the track name to open the **Track Name** dialog, where you can enter a name for the track.

Lock

Disables all editing on the track.

Mute

Mutes the track.

Solo

Solos the track.

Effects

Opens the **Effects** pop-up menu, which allows you to:

- Add effects to the track by clicking **Add Effects**. Once you have done so, the**Effects** button turns green.

- Bypass all effects by activating **Bypass All**.

NOTE

If the **Effects** button is highlighted in green, this indicates that effects are applied to the track.

Input Bus/Channel Output Routing

Allows you to select the **Input Bus**, the **Channel Output Routing**, and the **Track Routing** dialog. When you hover over the button, a tooltip displays the selected routing options.
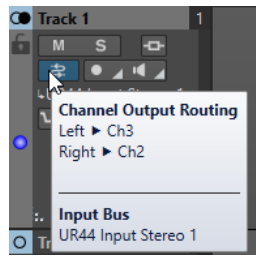
Record

To be able to record, you must record-enable the corresponding tracks.

Clicking the arrow to the right of the **Record** button gives you access to the following options:

File Properties for Recording opens a dialog that allows you to specify the name, location, and bit resolution of the audio file that you want to record.

If **Stop When Record Position Reaches Last Marker** is activated, recording stops when the record position reaches the last visible marker in the audio montage. Hidden markers are not taken into account. You can create and move the last marker while recording. This option is globally applied to all audio montages.

If **Stop When Record Position Reaches Next Marker** is activated, recording stops when the record position reaches the next visible marker in the audio montage. Hidden markers are not taken into account. This option is globally applied to all audio montages.

If **Stop When Record Position Reaches Selected Marker** is activated, recording stops when the record position reaches a selected marker.

NOTE

For this to work, you need to have selected a marker in the **Marker** window or on the timeline.

Hidden markers are not taken into account. This option is globally applied to all audio montages.

Monitor

Allows you to monitor the input signal.

Direct Monitoring

Allows you to monitor the input signal with lower latency. If **Direct Monitoring** is activated, the input signal is monitored directly; that is, without going through the audio montage and its effects.

● To activate direct monitoring, right-click **Monitor**, and activate **Direct Monitoring**.

Ducker On/Off

Allows you to activate or deactivate ducking. You can then select the voice modulator track and make adjustments.

Source

Opens the **Modulator Tracks** menu, which allows you to select the track that you want to use for ducking.

Ducker Settings

Opens the **Ducker** plug-in, which allows you to edit ducking settings to fine-tune the ducking effect.

Change Track Height of All Tracks

The lower left area of the track control area allows you to change the track height of all tracks simultaneously. Click and drag to change the track height.

Change Track Height of Active Track

The lower middle area of the track control area allows you to change the track height of the active track. Click and drag to change the track height.

Change Track Height of Active Track and Track Below

The lower right area of the track control area allows you to change the track height of the active track and the track below. Click and drag to change the track height.

Track peak meter

The track peak meter shows the volume level for audio tracks. It is located on the right side of the track control area.

Track Pop-up Menu

This pop-up menu contains all track-related options.

● To open the **Track** pop-up menu, right-click in the track control area.

Add Track

Adds a track below the active track.

Duplicate Track

Creates a copy of the active track. The duplicate is added below the active track.

Split Channels

Allows you to split channels.

Split into Left/Right Mono Tracks converts the stereo track into two mono tracks that represent the left and right channels of a stereo track. This does not alter the audio material.

Split into Mid/Side Mono Tracks converts the stereo track into two mono tracks that represent the mid and side channels. This assumes that each channel of a stereo track is a mid/side recording. This does not alter the audio material.

Copy Clips to Track

Allows you to copy all clips or only selected clips of a track with or without their plug-in and envelope settings to another track.

Remove Track

Removes the active track.

Sideline Track

Hides and deactivates the track, temporarily disconnecting it from the audio montage.

When tracks in the audio montage are sidelined, this is indicated by a green **+** symbol at the top left of the track control area.

You can reveal and activate a sidelined track by clicking **+** and selecting the sidelined track from the **Add Track** menu.

The **+** symbol is reset to its default color (white).

Add Lane

Adds a lane to the active track.

Stagger Clips Across Two Lanes

Allows you to stagger clips on two alternating lanes. If the lane contains title marker pairs, each title is lined up on two alternating lanes. If the lane contains no titles, all clips are lined up on two alternating lanes. This option is only available if the track has one or two lanes.

Convert Lanes to Tracks

Converts each lane to a track. If the track contains track plug-ins, you have the following options:

- **Add Effects to First Track**
- **Add Effects to Each Track**
- **Add Effects to Track Group**

Convert Selected Tracks to Lanes on This Track

Removes all selected tracks and inserts their clips onto new lanes of the active track.

Add Selected Tracks to Group

Allows you to add the selected tracks to an existing track group or to a new track group.
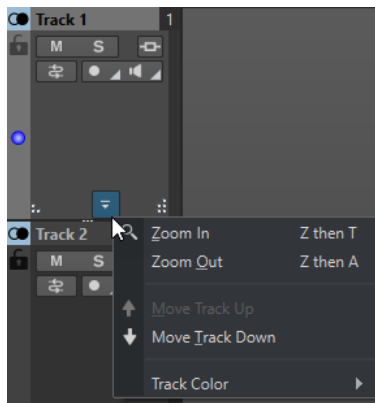
Edit Track Groups

Opens the **Track Groups** dialog, which allows you to create track groups, add tracks to track groups, and rename tracks and track groups. You can also the adjust color settings for the waveform of tracks in a track group.

Ungroup Selected Tracks

Removes the selected tracks from their track group.

Show Ducking Controls

Activates the ducking controls in the track control area.

Track Settings Menu

- To open the **Track Settings** menu, click the down arrow in the lower middle area of the track control area.
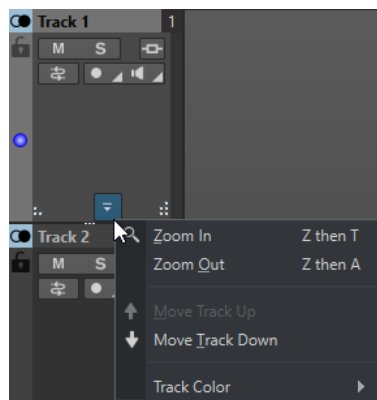
Zoom In

Shows the active track in the full available height.

Zoom Out

Shows as many tracks as possible.

Move Track Up/Move Track Down

Moves the active track up or down.

Track Color

Opens a submenu, where you can select a color for the active track.

RELATED LINKS
[File Properties for Recording Dialog](#) on page 565
[Additional Ways of Adding Effects](#) on page 501
[Ducking](#) on page 476
[Ducker Settings for Track Ducking](#) on page 477
[Input Monitoring](#) on page 566
[Direct Monitoring](#) on page 567
[Track Peak Meter](#) on page 334
[Track Control Area](#) on page 321
[Track Routing Dialog](#) on page 404

Track Control Area for Reference Tracks

The track control area for reference tracks allows you, for example, to listen to the reference track, specify routing options, and monitor the input signal.

Options

Track Name

Allows you to change the track name. Double-click the track name to open the **Track Name** dialog where you can enter a name for the track.

Lock

Disables all editing on the track.

Input Bus/Channel Output Routing

Allows you to select the **Input Bus**, the **Channel Output Routing**, and the **Track Routing** dialog. When you hover over the button, a tooltip displays the selected routing options.

Listen Alone

Allows you to enable the reference track while muting all other tracks.

Monitor

Allows you to monitor the input signal.

Direct Monitoring

Allows you to monitor the input signal with lower latency. If **Direct Monitoring** is activated, the input signal is monitored directly without going through the audio montage and its effects.

- To activate direct monitoring, right-click **Monitor** and activate **Direct Monitoring**.

Effects

Opens the **Effects** pop-up menu where you can select effects for the track. A highlighted icon indicates that a track has track effects.

Change Track Height of All Tracks

The lower left area of the track control area allows you to change the track height of all tracks simultaneously. Click and drag to change the track height.

Change Track Height of Active Track

The lower middle area of the track control area allows you to change the track height of the active track. Click and drag to change the track height.

Change Track Height of Active Track and Track Below

The lower right area of the track control area allows you to change the track height of the active track and the track below. Click and drag to change the track height.

Track Pop-up Menu

This pop-up menu contains all track-related options.

● To open the **Track** pop-up menu, right-click in the track control area.

Add Track

Allows you to add a track below the active track.

Duplicate Track

Creates a copy of the active track. The duplicate is added below the active track.

Copy Clips to Track

Allows you to copy all clips or only selected clips of a track with or without their plug-in and envelope settings to another track.

Remove Track

Deletes the active track.

Sideline Track

Hides and deactivates the track, temporarily disconnecting it from the audio montage.

When tracks in the audio montage are sidelined, this is indicated by a green **+** symbol at the top left of the track control area.

You can reveal and activate a sidelined track by clicking **+** and selecting the sidelined track from the **Add Track** menu.

The **+** symbol is reset to its default color (white).

Add Lane

Adds a lane to the active track.

Stagger Clips Across Two Lanes

Allows you to stagger clips on two alternating lanes. If the lane contains title marker pairs, each title is lined up on two alternating lanes. If the lane contains no titles, all clips are lined up on two alternating lanes. This option is only available if the track has one or two lanes.

Convert Lanes to Tracks

Converts each lane to a track. If the track contains track plug-ins, you have the following options:

● **Add Effects to First Track**

● **Add Effects to Each Track**

     ●   **Add Effects to Track Group**

Convert Selected Tracks to Lanes on This Track

Removes all selected tracks and inserts their clips onto new lanes of the active track.

Add Selected Tracks to Group

Allows you to add the selected tracks to an existing track group or to a new track group.

Edit Track Groups

Opens the **Track Groups** dialog, which allows you to create track groups, add tracks to track groups, and rename tracks and track groups. You can also adjust the color settings for the waveform of tracks in a track group.

Ungroup Selected Tracks

Removes the selected tracks from their track group.

Track Settings Menu

●   To open the **Track Settings** menu, click the down arrow in the lower middle area of the track control area.

Zoom In

Shows the active track in the full available height.

Zoom Out

Shows as many tracks as possible.

Move Track Up/Move Track Down

Moves the active track up or down.

Track Color

Opens a submenu, where you can select a color for the active track.

RELATED LINKS

Track Control Area for Null Test Tracks

The track control area for null test tracks allows you to record on the null test track, to render, play back, and mute it, and to add effects to it.

Options

Track control area for null test tracks

Track Control Area Options

Track Name

Allows you to change the track name. Double-click the track name to open the **Track Name** dialog, where you can enter a name for the track.

Lock

Disables all editing on the track.

Mute

Mutes the track.

Solo

Solos the track.

Change Track Height of All Tracks

The lower left area of the track control area allows you to change the track height of all tracks simultaneously. Click and drag to change the track height.

Change Track Height of Active Track

The lower middle area of the track control area allows you to change the track height of the active track. Click and drag to change the track height.

Change Track Height of Active Track and Track Below

The lower right area of the track control area allows you to change the track height of the active track and the track below. Click and drag to change the track height.

Track peak meter

The track peak meter shows the volume level for audio tracks. It is located on the right side of the track control area.

Track Pop-up Menu

This pop-up menu contains all track-related options.

● To open the **Track** pop-up menu, right-click in the track control area.

Add Track

Adds a track below the active track.

Duplicate Track

Creates a copy of the active track. The duplicate is added below the active track.

Copy Clips to Track

Allows you to copy all clips or only selected clips of a track with or without their plug-in and envelope settings to another track.

Remove Track
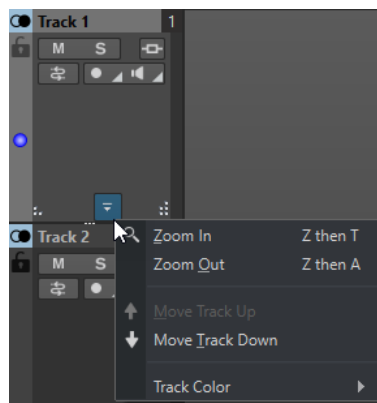
Removes the active track.

Sideline Track

Hides and deactivates the track, temporarily disconnecting it from the audio montage.

When tracks in the audio montage are sidelined, this is indicated by a green **+** symbol at the top left of the track control area.

You can reveal and activate a sidelined track by clicking **+** and selecting the sidelined track from the **Add Track** menu.

The **+** symbol is reset to its default color (white).

Add Lane

Adds a lane to the active track.

Stagger Clips Across Two Lanes

Allows you to stagger clips on two alternating lanes. If the lane contains title marker pairs, each title is lined up on two alternating lanes. If the lane contains no titles, all clips are lined up on two alternating lanes. This option is only available if the track has one or two lanes.

Convert Lanes to Tracks

Converts each lane to a track. If the track contains track plug-ins, you have the following options:

- **Add Effects to First Track**
- **Add Effects to Each Track**
- **Add Effects to Track Group**

Convert Selected Tracks to Lanes on This Track

Removes all selected tracks and inserts their clips onto new lanes of the active track.

Track Settings Menu

- To open the **Track Settings** menu, click the down arrow in the lower middle area of the track control area.

Zoom In

Shows the active track in the full available height.

Zoom Out

Shows as many tracks as possible.

**Move Track Up/Move Track Down**

Moves the active track up or down.

Track Color

Opens a submenu, where you can select a color for the active track.

Track Control Area for Video Tracks

The track control area for video tracks allows you, for example, to activate/deactivate thumbnails and show/hide the frame numbers of the video. Below the video track, the corresponding audio track has the same options as mono and stereo tracks.

Options

Track Name

Allows you to change the track name. Double-click the track name to open the **Track Name** dialog, where you can enter a name for the track.

Lock

Disables all editing on the track.

Show Thumbnails

Allows you to activate/deactivate the thumbnails of the video track.

Show Frame Numbers

Allows you to show each thumbnail with the corresponding video frame number.

Change Track Height of All Tracks

The lower left area of the track control area allows you to change the track height of all tracks simultaneously. Click and drag to change the track height.

Change Track Height of Active Track

The lower middle area of the track control area allows you to change the track height of the active track. Click and drag to change the track height.

Change Track Height of Active Track and Track Below

The lower right area of the track control area allows you to change the track height of the active track and the track below. Click and drag to change the track height.

Track Pop-up Menu

This pop-up menu contains all track-related options.

● To open the **Track** pop-up menu, right-click in the track control area.

Add Track

Allows you to add a track below the active track.

Remove Track

Deletes the active track.

Sideline Track

Hides and deactivates the track, temporarily disconnecting it from the audio montage.

When tracks in the audio montage are sidelined, this is indicated by a green **+** symbol at the top left of the track control area.

You can reveal and activate a sidelined track by clicking **+** and selecting the sidelined track from the **Add Track** menu.

The **+** symbol is reset to its default color (white).

Edit Track Groups

Opens a dialog where you can add, remove, and organize track groups.

Track Settings Menu

● To open the **Track Settings** menu, click the down arrow in the lower middle area of the track control area.
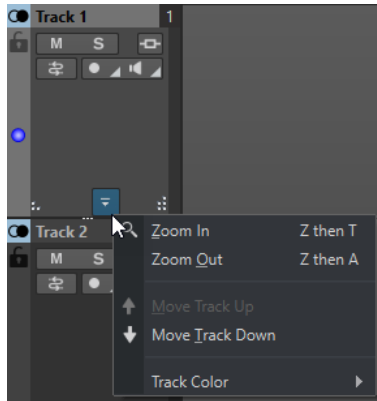
Zoom In

Shows the active track in the full available height.

Zoom Out

Shows as many tracks as possible.

Move Track Up/Move Track Down

Moves the active track up or down.

RELATED LINKS

Track Control Area for Picture Tracks

The track control area for picture tracks allows you to add pictures to your picture track.

Options
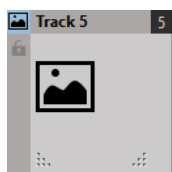
Track Name

Allows you to change the track name. Double-click the track name to open the **Track Name** dialog where you can enter a name for the track.

Lock

Disables all editing on the track.

Change Track Height of All Tracks

The lower left area of the track control area allows you to change the track height of all tracks simultaneously. Click and drag to change the track height.

Change Track Height of Active Track

The lower middle area of the track control area allows you to change the track height of the active track. Click and drag to change the track height.

Change Track Height of Active Track and Track Below

The lower right area of the track control area allows you to change the track height of the active track and the track below. Click and drag to change the track height.

Track Pop-up Menu

This pop-up menu contains all track-related options.

● To open the **Track** pop-up menu, right-click in the track control area.

Add Track

Allows you to add a track below the active track.

Remove Track

Deletes the active track.

Sideline Track

Hides and deactivates the track, temporarily disconnecting it from the audio montage.

When tracks in the audio montage are sidelined, this is indicated by a green **+** symbol at the top left of the track control area.

You can reveal and activate a sidelined track by clicking **+** and selecting the sidelined track from the **Add Track** menu.

The **+** symbol is reset to its default color (white).

Track Settings Menu

● To open the **Track Settings** menu, click the down arrow in the lower middle area of the track control area.

Zoom In

Shows the active track in the full available height.

Zoom Out

Shows as many tracks as possible.

Move Track Up/Move Track Down

Moves the active track up or down.

RELATED LINKS
Track Control Area on page 321

Track Peak Meter

The track peak meter shows the volume level for the left channel and the right channel of stereo tracks. It is located on the right side of the track control area in the **Audio Montage** window.

The track peak meter provides an overview of which tracks are playing back audio at what approximate level. The left bar shows the volume level of the left stereo channel and the right bar shows the volume level of the right stereo channel.
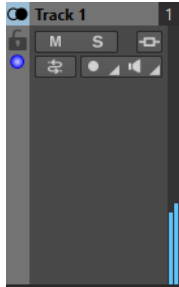
RELATED LINKS
Track Control Area for Stereo and Mono Tracks on page 322

Audio Montage Tabs

The tabs in the **Audio Montage** window give you access to the tools and options you need for editing audio montages. For example, you can edit the envelope curves and fades in clips, adjust the settings for zooming, analyze the audio, and render the audio montage.

View Tab (Audio Montage)

● In the **Audio Montage**, click **View**.
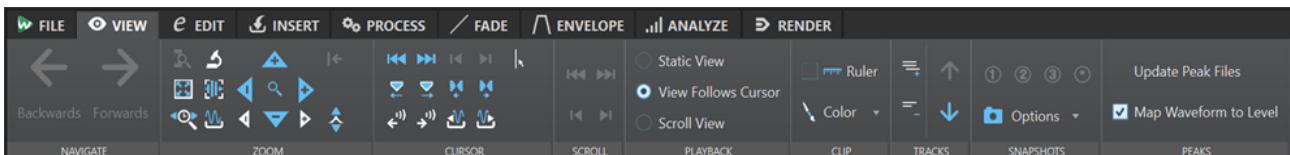
Navigate

Backwards/Forwards

Navigates to the previous/next cursor position, zoom factor, and selection range.

Zoom

Zoom

Activates the **Zoom** tool, which allows you to define a time range that is zoomed in.

Time

Opens a pop-up menu that allows you to adjust the zoom to display the selected time range. **Zoom in 1:1** zooms in so that one pixel on the screen represents one sample.

You can edit the zoom factor by clicking **Edit Zoom Factor**. This opens the **Zoom Factor** dialog, where you can choose from the following options:

● **Set Time Range** allows you to define the time range to be displayed.

- **Samples per Screen Point** allows you to specify the number of audio samples encompassed by each screen point.
- **Screen Points per Sample** allows you to specify the number of screen points that represent a single audio sample.

Zoom Selection

Zooms the window so that the current selection occupies the entire montage window.

Microscope

Zooms in as far as possible.

View All

Zooms out as far as possible.

Display Whole Clip

Adjusts the view to display the active clip.

Zoom in Audio (10x)/Zoom out Audio (10x)

Zooms in/out in big steps.

Zoom in Audio/Zoom out Audio

Zooms in/out in small steps.

Zoom in Vertically/Zoom out Vertically

Zooms in/out to show waveforms at a lower/higher level.

Level

Adjusts the zoom to only display samples below the selected dB value.

Reset Zoom to 0 dB

Adjusts the zoom to display audio levels up to 0 dB.

Cursor

Move Cursor to Start of File/Move Cursor to End of File

Moves the cursor to the start/end of the file.

Previous Marker/Next Marker

Moves the cursor to the previous/next marker.

Start of Selection/End of Selection

Moves the cursor to the start/end of the selected time range.

Previous Region Edge/Next Region Edge

Moves the cursor to the previous/next region edge.

Edit Cursor Position

Opens the **Cursor Position** dialog, where you can edit the cursor position.

Previous Clip Edge/Next Clip Edge

Moves the cursor to the previous/next clip edge.

Scroll

Start/End

Displays the start/end of the audio without moving the cursor.

Start of Selection/End of Selection

Displays the start/end of the audio selection without moving the cursor.

Playback

Static View

Deactivates scrolling.

View Follows Cursor

Automatically scrolls the view to keep the playback cursor visible.

Scroll View

Automatically scrolls the view to keep the playback cursor centered.

Clip

Ruler

If this option is activated, the markers of the source audio file are displayed in the clip, together with a ruler.

Color

Allows you to assign a color to the active clip, to apply random colors to selected clips, or to reset the default clip colors.

Tracks

Display More Tracks/Display Fewer Tracks

Allows you to change the number of tracks that are displayed in the montage window.

Focus on Previous Track/Focus on Next Track

Sets the focus on the previous/next track.

Snapshots

Allows you to take, recall, and edit snapshots.

Take Snapshot

Activates/Deactivates the snapshot function. If this option is activated, click on a preset button to save a snapshot.

Presets

The buttons **1**, **2**, and **3** allow you to save a snapshot of the scroll position, zoom factor, cursor position, audio selection, and clip selection. The rightmost preset button is a global preset that is available for all audio montages.

Options

Allows you to select which settings are restored when applying a snapshot preset. The following options are available:

- **Scroll Position and Zoom**
- **Cursor Position**
- **Audio Selection**
- **Clip Selection**

Peaks

Update Peak Files

Updates the peak files of the audio file.

Map Waveform to Level

If this option is activated, changes in the level envelope are reflected in the waveform.

RELATED LINKS
Audio Montage Tabs on page 334

Edit Tab (Audio Montage)

● In the **Audio Montage** window, click **Edit**.
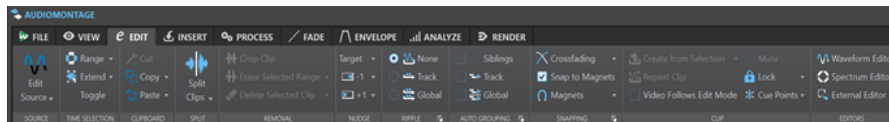
Source

Edit Source

Opens the source audio file of the clip in the **Audio Editor**.

Edit Cubase Project

Opens the Cubase project relating to the clip.

Time Selection

Range

Opens the **Range Selection** dialog, where you can define selection ranges very accurately.

You can right-click **Range** to open the **Preset** pop-up menu, where you can select factory presets and custom presets.

Extend

Opens a menu that allows you to choose from the following options for creating or extending selection ranges:

● **Extend to Start of File** extends the selection to the start of the audio file. If there is no selection, a selection is created from the edit cursor position.

● **Extend to End of File** extends the selection to the end of the audio file. If there is no selection, a selection is created from the edit cursor position.

● **Extend to Previous Marker** extends the left edge of the selection to the nearest marker to the left or the start of the audio file. If there is no selection, a selection is extended to the previous marker position.

● **Extend to Next Marker** extends the right edge of the selection to the nearest marker to the right or the end of the audio file. If there is no selection, a selection is extended to the next marker position.

● **Extend to Cursor** extends the selection to the edit cursor position.

● **From Start of File Until Cursor** selects the range between the start of the audio file and the edit cursor position.

● **From Cursor to End of File** selects the range between the edit cursor position and the end of the audio file.

● **From Cursor to Previous Marker** selects the range between the edit cursor position and the previous marker or the start of the audio file.

- **From Cursor to Next Marker** selects the range between the edit cursor position and the next marker or the end of the audio file.

- **Shift Selection to the Left** moves the selection lengthwise to the left.

- **Shift Selection to the Right** moves the selection lengthwise to the right.

- **From Playback Position to End** creates a selection range from the playback position to the end of the selection, or to the end of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **From Start to Playback Position** creates a selection range from the playback position to the start of the selection, or to the start of the file, if there is no selection. If playback is not active, the position of the edit cursor is used.

- **Double Selection Length** doubles the length of the current selection range.

- **Halve Selection Length** reduces the length of the current selection range to 50% of the original length.

Toggle

Switches the selection range on/off.

Clipboard

Cut

Cuts the selected audio range and saves it to the clipboard.

Copy

Copies the active clip or the selected audio range to the clipboard.

Right-clicking **Copy** opens a pop-up menu with additional options:

- **Memorize Cursor Position** copies the position of the edit cursor to the clipboard.

- **Memorize Selection Length** copies the length of the active selection range to the clipboard.

Paste

Pastes the clipboard content.

Right-clicking **Paste** opens a pop-up menu with additional paste options.

Split

Split Selected Clips

Splits the selected clips at the edit cursor or playback cursor position.

Split Clips on All Tracks

Splits the clips on all tracks at the edit cursor or playback cursor position.

Removal

Crop Clip

Removes the areas of the clip that are outside the selection range.

Erase Selected Range

Erases the part of the clip inside the selection range on the active track, without filling the gap.

You can erase the selection range from all tracks by right-clicking **Erase Selected Range** and selecting **Erase Selected Range on All Tracks**.

Delete Selected Clip/Delete Selected Range

Deletes the part of the clip inside the selection range on the active track and moves the right section of the clip to the left, to fill the gap.

If there is no selection range, the selected clips are deleted.

You can delete the selection range from all tracks by right-clicking **Delete Selected Range** and selecting **Delete Selected Range on All Tracks**.

Nudge

Target

Allows you to select the items to be affected by the nudge function.

- **Auto Select Item** automatically selects elements to be nudged, depending on your last action. For example, if your last action was to select or move a clip, the **Clip Position** option is automatically selected.

- **Clip Position** moves the selected clips.

- **Clip's Left/Right Edge** resizes the active clip.

- **Clip's Fade In/Fade Out** moves the fade in/fade out junction points of the active clip. For stereo envelopes, both sides are adjusted.

- **Clip's Crossfade** narrows or widens the crossfade zone by moving the junction points of both clips in the crossfade. This only works if you select the second clip of a crossfade pair; that is, the one on the right.

- **Edit Cursor** moves the edit cursor.

- **Left Edge of Selected Time Range/Right Edge of Selected Time Range** moves the left/right edge of a selection range.

- **Selected Marker** moves the selected marker.

- **Volume of Active Clip** gradually adjusts the volume of the active clip, based on the **Gain** setting in the **Preferences**.

- **Volume of All Selected Clips** adjusts the volume of all selected clips step by step according to the **Gain** setting in the **Audio Montages Preferences**.

- **Pan of Active Clip** adjusts the pan of the active clip. **Nudge +** pans to the left and **Nudge –** to the right.

- **Pan of All Selected Clips** adjusts the pan of all selected clips. **Nudge +** pans to the left and **Nudge –** to the right.

Nudge –

Nudges the target to the left or down, by the amount that is defined in the **Audio Montages Preferences**.

Right-click **Nudge Left** to open a pop-up menu that allows you to change the nudge amplitude.

Nudge +

Nudges the target to the right or up, by the amount that is defined in the **Audio Montages Preferences**.

Right-click **Nudge Right** to open a pop-up menu that allows you to change the nudge amplitude.

Ripple

None

Deactivates the auto-shift function.

Track

If this option is activated and you move a clip horizontally, all clips on the active track that are located to the right of the edited clip are moved as well. This option also applies when moving or resizing clips, and when inserting or pasting more than one clip at a time.

Global

If this option is activated and you move a clip horizontally, all clips on all tracks that are located to the right of the edited clip are also moved. This option is taken into account when moving or resizing clips, and when inserting or pasting more than one clip at a time.

Additional Options

Allows you to choose whether to include or exclude reference tracks when initiating global ripple processes by activating or deactivating the **Global Ripple Affects Reference Tracks** option.

Auto Grouping

Siblings

If this option is activated and you move or resize a clip horizontally, all clips on any tracks that are at the same vertical position and of the same length as the clip that is moved or resized are moved or resized along with it.

When you double-click the lower area of a clip, all siblings of the clip are selected as well. If you have already selected several clips, double-clicking the lower area of a clip only selects that particular clip.

Track

If this option is activated and you move a clip horizontally, all overlapping or adjacent clips on the same track are moved along with it.

Global

If this option is activated and you move a clip horizontally, all vertically overlapping clips on all tracks are moved along with it.

Additional Options

Allows you to choose whether to include or exclude reference tracks when auto-grouping clips by activating or deactivating the **Global Auto Grouping Affects Reference Tracks** option.

Snapping

Crossfading

This pop-up menu allows you to choose from snapping options for crossfades.

- If **Snap to Waveform When Crossfading** is activated and you create a crossfade by dragging a clip onto a clip to its left, the position of the clip that is moved is automatically adjusted, to obtain a good match between the clip waveforms. This correlation process provides a crossfade that is aligned in phase.

- If **Create Crossfade and Snap to Waveform When Snapping to Left Clip** is activated and you move a clip to make its start snap to the end of another clip to its left, the clip is slightly moved to the left to create a short crossfade that is based

on an optimal correlation between the two waveforms. This correlation process provides a crossfade that is aligned in phase.

- If **Create Crossfade When Snapping to Left Clip (Based on Fade Out)** is activated and you move a clip to make its start snap to the end of another clip to its left, the clip is slightly moved to the left to create a crossfade.

  The length of the crossfade is the fade-in length of the clip on the right. If the fade-in length is zero, the fade-out length of the left clip is used as a basis instead. If that length is also zero, the **Create Crossfade and Snap to Waveform When Snapping to Left Clip** function is performed, if activated.

Snap to Magnets

If this option is activated, any elements that you have activated in the **Magnets** pop-up menu, such as clip starts, time selection edges, or markers, snap to magnets.

Magnets

Allows you to set the behavior of particular elements to magnetic.

Additional Options

Opens the **Audio Cue Points** dialog.

- **Clear** removes audio cue points from view.
- **Sticky** causes audio cue points to remain visible after releasing the mouse.
- **Options...** opens the **Audio** tab in the general **Preferences**, where you can set further parameters for audio cue points.

Clip

Create from Selection

Allows you to create clips from the selection range. The following options are available:

- **Create Clip from Selection** splits the clip at the start and end of the selection range. If no clip intersects with the selection, an empty clip is created.
- **Copy Selected Range to Muted Lane** copies the selected range to a muted lane as a clip. If the audio montage does not contain a muted lane, a muted lane is created. This allows you to edit the selected range with external editors, while keeping a backup of the original selected range.

Repeat Clip

Opens the **Repeat Clip** dialog, where you can specify how to repeat clips.

Video Follows Edit Mode

If this option is activated, the video in the **Video** window automatically follows each edit that you make. This allows you to instantly see where in the video your edit is being applied.

Mute

Mutes the active clip.

Lock

This pop-up menu allows you to lock the active clip.

- If **Full Lock** is activated, the clip is locked to prevent accidental editing.
- If **Time Lock** is activated, the position and the size of a clip are locked. Other editing options are still available.

Cue Points

This pop-up menu allows you to make adjustments for front and back cue points.

- **Front Cue Point**

    - **Show** displays an existing front cue point.

    - **Set at Cursor** sets the front cue point to a fixed position from the start of the clip.

    - **Set at Default Gap Position** inserts the front cue point before the start of the clip, at a distance governed by the default gap position.

        You can specify the default gap in the **Audio Montage Preferences**, via the **Active Audio Montage** tab.

    - **Follows Fade In End Point** sets the front cue point to the fade-in end point.

    - **Follows Fade Out Start Point** sets the front cue point to the fade-out start point.

- **Back Cue Point**

    - **Show** displays an existing back cue point.

    - **Custom Cue End** allows you to set the back cue point at a custom position from the end of the clip, enabling you to edit the gap for each clip individually.

        If this option is deactivated, the default gap that is defined in the **Audio Montages Preferences** is used.

    - **End Offset** opens the **Back Cue Point Offset** dialog, which allows you to set the back cue point to a custom position from the end of the clip.

Editors

NOTE

We recommend that you do not use clip effects when working in external editors, to prevent duplicating clip effects when you insert a new clip.

Waveform Editor

Opens the audio selection in an inline **Waveform Editor**. This allows you to edit the audio selection in a non-destructive environment.

Spectrum Editor

Opens the audio selection in an inline **Spectrum Editor**. This allows you to edit the audio selection in a non-destructive environment.

External Editor

Allows you to chose an external editor for opening the audio selection.

Edit Editor List

Opens the **External Applications** tab in the general **Preferences**, where you can specify paths to external editors.

RELATED LINKS

Insert Tab (Audio Montage)

● In the **Audio Montage**, click **Insert**.

Markers

Marker Name

Allows you to enter the name of the start marker. Otherwise, a generic name is used.

To edit the default names, open the **Markers** window, and select **Functions** > **Default Marker Names**.

Different Name for End Marker

Allows you to enter a different name for the end marker in the **End Marker Name** field.

If this option is deactivated, the name of the start marker is also used for the end marker.

Create/Name Marker

The **Create/Name Marker** button in the lower right corner of the **Markers** section opens the **Create Marker** dialog, which allows you to create different types of markers and marker pairs at the edit cursor position or at the selection range.

Import

Audio Files

Allows you to select one or more audio files to insert at the edit cursor position on the active track.

Video File

Allows you to select a video file to insert at the edit cursor position on the video track. If the audio montage has no video track, a video track is created.

Clip Files

Opens the file browser where you can select one or more clips to insert at the edit cursor position on the active track. If you import several clips at the same time, they are lined up in alphabetical order, according to their file names, and separated according to the set default gap. You can set the default gap in the **Active Audio Montage** tab in the **Audio Montages Preferences**.

Audio Montages

Allows you to select an audio montage to insert at the edit cursor position on the active track.

Selected Clip

Clone and Substitute

Creates a copy of the source audio file and makes the clip refer to this new file. As a result, you can modify the new source file without affecting other clips of the original audio file.

The cloned audio file is saved in the audio montage subfolder `edits.mon`.

Replace Audio File

Allows you to make the clip refer to another audio file while retaining all clip settings. The audio file must be at least as long as the end position of the clip. You cannot substitute a stereo file with a mono file or vice versa. Clicking the arrow icon opens the list of recently used folders.

RELATED LINKS

Process Tab (Audio Montage)

This tab provides access to processing tools.

● In the **Audio Montage**, click **Process**.
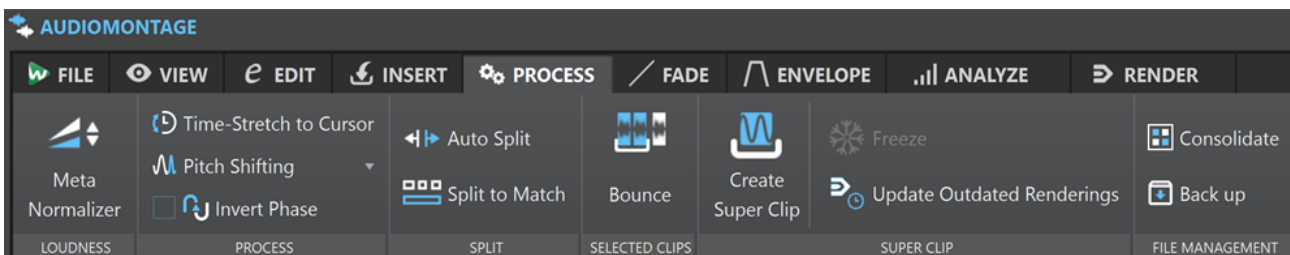
Loudness

Meta Normalizer

Opens the **Loudness Meta Normalizer** dialog where you can adjust the loudness of each clip in the audio montage so that they get the same loudness. You can also adjust the whole output, while taking the EBU R-128 audio measurement recommendation and a true peak analysis into account.

Process

Time-Stretch to Cursor

Opens the **Time Stretching** dialog that allows you to time-stretch the clip so that it ends at the audio montage edit cursor position. When this function is used, a clone of the original audio file is created, containing the audio range used in the clip. The process is applied to the clone, and the clip refers to this file instead. Neither the original audio file nor other clips that refer to the same audio file are affected.

The cloned audio file is saved in the audio montage subfolder `edits.mon`.

Pitch Shifting

Opens the **Pitch Shifting** dialog where you can change the pitch of the clip. When this function is used, a clone of the original audio file is created that contains the audio range used in the clip. The process is applied to the clone, and the clip refers to this file instead. Neither the original audio file nor other clips that refer to the same audio file are affected.

The cloned audio file is saved in the audio montage subfolder `edits.mon`.

Invert Phase

Inverts the phase of the clip. An inverted phase is indicated by an icon in the wave window.

Split

Auto Split

Opens the **Auto Split** dialog, where you can specify how to split clips.

Split to Match

Divides the active clip into smaller clips to precisely match the position and length of selected reference clips.

Selected Clips

Bounce

Renders selected clips and replaces them with a single clip.

Super Clip

Create Super Clip

Replaces the selected clips with a super clip that points to a sub-montage.

Freeze

Renders a super clip to a permanent audio file and converts the super clip to a regular clip within the parent montage.

Update Outdated Renderings

Applies changes made in the source audio montage of a super clip to the parent montage.

File Management

Consolidate

Opens the **Consolidate Audio Montage** dialog, where you can set parameters for managing files referenced by the audio montage.

Back Up

Allows you to copy the audio montage, along with all the files it references, either to a new independent folder by choosing **Self-Contained Copy** or to a ZIP archive file by activating **ZIP File**.

RELATED LINKS

Fade Tab (Audio Montage)

- In the **Audio Montage**, click **Fade**.
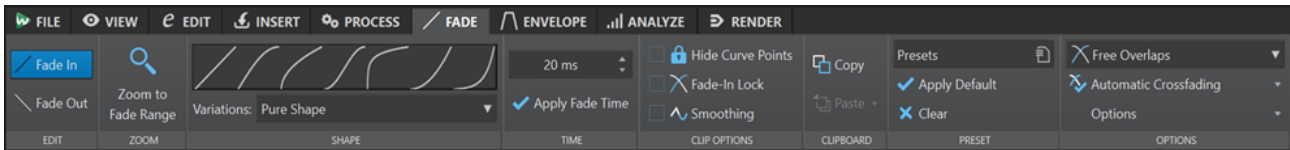
Edit

Fade In/Fade Out

Allows you to switch between the fade in and the fade out settings.

Zoom

Zoom to Fade Range

Adjusts the view to display the fade in/fade out part of the active clip.

Shape

Curve

Allows you to select preset fade curves.

- **Linear** changes the level linearly.

- **Sinus (*)** changes the level according to a sine curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.

- **Square-Root (*)** changes the level according to a square-root curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.

- **Sinusoid** changes the level according to a sine curve.

- **Logarithmic** changes the level according to a logarithmic curve.

- **Exponential** changes the level according to an exponential curve.

- **Exponential+** changes the level according to a more pronounced exponential curve.

Variations

When creating a crossfade, the fade in/fade out shape changes to optimize the volume evolution during the crossfade. The following options are available:

- If **Pure Shape** is selected, the fade shape is not changed and is used as defined. This is the default setting when any fade in/fade out preset is selected.

- If **Amplitude Compensation** is selected for a fade in/fade out curve in a crossfade, the summed fade in/fade out gains remain constant along the crossfade region. This option is recommended for short crossfades.

- **Medium Compensation** provides an intermediary between amplitude compensation and power compensation. This option is recommended if the other two compensation options do not provide the expected result.

- If **Power Compensation** is selected, the power of the crossfade remains constant along the crossfade region. Crossfading between completely different types of audio material can sometimes cause harmonics to cancel each other out at the crossfade splice point, causing the volume to drop. Constant power crossfades compensate for this. Using either the **Sinus (*)** or **Square-Root (*)** fade presets

for a fade in/fade out provide a constant power crossfade without selecting this
option.

> **NOTE**
>
> Selecting a compensation option for a single fade (not a crossfade) changes the shape
> of the curve. However, the actual compensation is only applied when the fade becomes
> part of a crossfade.

Time

Fade Time

Allows you to specify a fade in/fade out time for the clip.

Apply Fade Time

Applies the specified clip fade in/fade out time.

Clip Options

Hide Curve Points

Hides the envelope curve points. This way, they cannot be edited with the mouse.
However, you can drag the whole curve up or down.

Fade-In Lock

If this option is activated, fade ins/fade outs are not automatically adjusted when clips
are moved so that they overlap each other. This option is useful if you have set a fade
that you do not want to be altered, even though you may want to overlap the clip with
another clip.

If this option is deactivated, fade ins/fade outs are changed automatically when a clip
overlaps with another clip.

This option is individual for each clip, as opposed to the global **No Automatic
Crossfading**.

Smoothing

Rounds the resulting envelope curve angles. This produces smoother, more natural
envelope curves.

Clipboard

Copy

Copies the fade in/fade out shape to the clipboard.

Paste

This pop-up menu allows you to set the paste behavior.

- **Paste Shape Only** replaces the fade in/fade out shape with the shape that was
  copied to the clipboard. The original length is preserved.

- **Paste to Selected Clips** replaces the fade in/fade out shape in all selected clips
  with the shape that was copied to the clipboard.

Preset

Presets

This pop-up menu allows you to save and restore fade presets, and set up the default
settings for automatic fades and crossfades.

Apply Default

Replaces the current fade in/fade out with the default setting that is specified on the **Presets** pop-up menu.

Clear

Removes the fade in curve.

Options

Overlaps

This pop-up menu allows you to set parameters for automatic crossfading.

- If **No Automatic Crossfading** is activated, no automatic crossfading is performed for any overlapping clips.

- If **Free Overlaps** is activated, automatic crossfades are created when a clip overlaps with another clip on the same track. The length of the overlap determines the duration of the crossfade.

- If **Fade In Constrains Overlaps** is activated, the fade-in length of a clip determines the maximum possible overlap, and thus the crossfade time. If the clip on the right side, that is, the clip whose fade in is included in the overlap, is moved to the left, past the set overlap time, the other clip is progressively resized. Moving the other clip to the right produces the same result.

- If **Fade Out Constrains Overlaps** is activated, the fade-out length of a clip determines the maximum possible overlap, and thus the crossfade time. If the clip on the left side, that is, the clip whose fade out is included in the overlap, is moved to the right, past the set overlap time, the other clip is progressively resized. Moving the other clip to the left produces the same result.

Automatic Crossfading

This pop-up menu allows you to choose from a range of options for automatic crossfading.

- If **Crossfades between Clips on Different Lanes** is activated, crossfades are automatically created when you move a clip on a lane so that it overlaps with another clip that is located on another lane of the same track.

- If **Automatic Crossfades with Clips on Active Track** is activated, crossfades are automatically created when you move a clip so that it overlaps with another clip that is located on the active track.

- If **Allow Multiple Automatic Crossfades** is activated, crossfades are automatically created for all moved clips that overlap with other clips on their track or lane. If this option is deactivated, a crossfade is only created for the clip that you drag, even if several clips are moved simultaneously.

Options

- If **Create Default Fades in New Clips** is activated, all new clips assume the default fade-in and fade-out shape and length. For clips that are created by splitting a clip, only the default fade time is used.

- If **Lock Fade Times When Adjusting Clip Edges** is activated, the defined fade-in and fade-out lengths are locked to the clip start or end, even if you adjust the clip edges. This means that if you resize a clip by dragging its edge, the corresponding fade junction point moves accordingly, while maintaining the fade length.

RELATED LINKS
Audio Montage Tabs on page 334

Envelope Tab (Audio Montage)

- In the **Audio Montage** window, click **Envelope**.
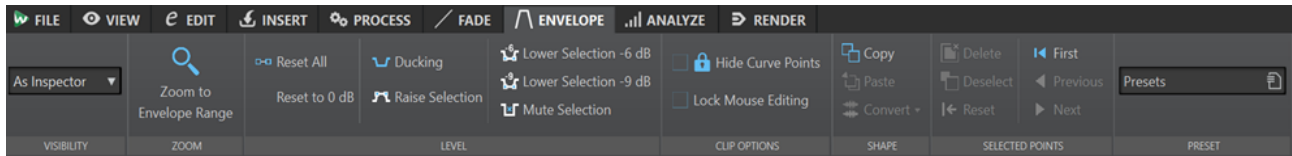
Visibility

Envelope Type

Sets the type of the envelope. Depending on the selected type, you can choose from different options. The following options are available:

- **Hide All** hides all envelopes.
- **Volume/Fades** only displays the volume/fades envelope.
- **As Inspector** displays the envelopes that you selected on the **Automation/Envelope** pane of the **Inspector** window.

Zoom

Zoom to Envelope Range

Adjusts the view to display the active envelope of the active clip.

Level

Reset All

Resets the envelope to its neutral form.

Reset to 0 dB

Replaces the segments between the fade-in and fade-out points with a single neutral segment.

Ducking

Opens the **Ducking Settings** dialog. This dialog allows you to create ducking effects between clips on two adjacent tracks, where the level or send effect of one clip is modified whenever clips are present on the other track.

Raise Selection

Adds level envelope points and draws a curve to raise the audio level of the selection with 20 ms fall and rise times. You can drag the segment up and down to adjust the level.

Lower Selection -6 dB

Draws a level envelope curve to reduce the audio level of your selection by -6 dB, with 20 ms fall and rise times. You can drag the segment up and down to adjust the level.

Lower Selection -9 dB

Draws a level envelope curve to reduce the audio level of your selection by -9 dB, with 20 ms fall and rise times. You can drag the segment up and down to adjust the level.

Mute Selection

Adds level envelope points and draws a curve to mute the selection by lowering the level to zero with default 20 ms fall and rise times.

Clip Options

Hide Curve Points

Hides the envelope curve points. As a result, they cannot be edited with the mouse. However, you can drag the whole curve up or down.

Lock Mouse Editing

If this option is activated, all envelopes are locked and cannot be edited with the mouse. The envelopes and their points are still displayed.

Shape

Copy

Copies the envelope shape to a dedicated clipboard while excluding any fade part.

Paste

Replaces the current envelope shape with the one on the clipboard without altering any fade part.

Convert

- **Convert to Stereo** creates independent envelopes for the left and right channels.
- **Convert to Mono** combines the envelopes of the left and right channels to form a single envelope.

Selected Points

Delete

Deletes the selected envelope points from the active clip.

Deselect

Deselects the selected envelope points in the active clip.

Reset

Resets the selected points in the active clip to their default level.

Preset

Presets

This pop-up menu allows you to save and restore envelope presets.

RELATED LINKS

Analyze Tab

The **Analyze** tab provides you with tools for monitoring your audio.

- In the **Audio Montage** window, click **Analyze**.

Monitoring

Playback

This is the standard metering mode, in which the meters reflect the audio that is played back. Metering occurs after the **Master Section**, which means that effects, dithering, and master faders are taken into account. You can monitor playback in audio files, audio montages, lists of titles of an album, etc.

Audio Input

In this mode, the meters reflect the audio input. Typically, this is the mode to use when recording. The **Master Section** settings are not taken into account. This option is only available when the **Recording** dialog is open.

File Rendering

In this mode, you can monitor what is being written to disk during file rendering or recording. Average and min/max peak values are calculated. After rendering, the meters freeze until you refresh or change the monitor mode.

Freeze Meters

This mode freezes the values for all open meters. The meters remain frozen until you select another monitor mode or deactivate **Freeze Meters**.

Floating Meters

Show/Hide

Shows/Hides floating meters.

Tools

Loudness

Opens the **Loudness Analysis** dialog, which allows you to make adjustments for analyzing the loudness of your audio material, and for comparing it with reference material or a standard.

Visual Analysis

Opens the **Analysis** dialog, which allows you create a **Loudness Profile** or a **Spectral Profile** for your audio material.

RELATED LINKS

Render Tab (Audio Montage)

The **Render** tab allows you to mix down audio montages to audio files.

- In the **Audio Montage**, click **Render**.
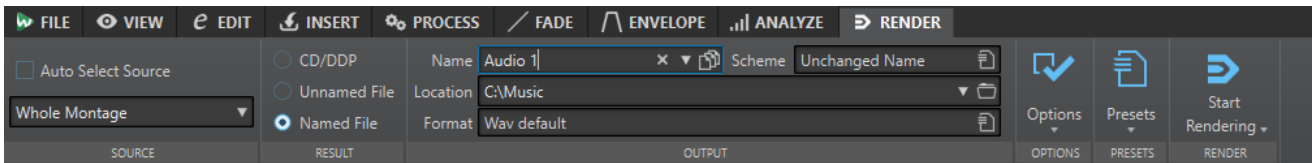
Source

Auto Select Source

If this option is activated, the source option changes according to the selection that you make in the audio file. If there is no selection, the whole audio montage is processed.

Source pop-up menu

The **Source** pop-up menu allows you to select which part of the audio montage you want to process.

The source options in the **Single Output** section result in a single file when rendering. The source options in the **Multiple Outputs** section allow you to create multiple files at the same time when rendering. When using **Multiple Outputs**, the file names are generated automatically depending on the selected source. You can customize the name for some sources with the **Scheme** option in the **Outputs** section.

The following options are available:

Whole Montage

Processes and renders the entire audio material.

Range of Active Video Clip

Processes and renders the audio between the start and the end of the video clip on all audio tracks. A copy of the active video is created.

Selected Audio Range

Processes and renders an audio selection that can encompass multiple tracks and/or lanes.

Union of Selected Clips

Processes and renders the audio range that starts with the first selected clip and ends with the last selected clip. Only the selected clips are included in the process.

Active Track

Processes and renders the active track from the start of the first clip to the end of the last clip. Muted clips are not rendered.

Active Track Group

Processes and renders the track group of the active track from the start of the first clip to the end of the last clip. Muted clips and tracks are not rendered.

Selected Title

Processes and renders the selected title in the **Album** window.

Title Group

Processes and renders the title group that you can select on the pop-up menu below this option.

Specific Marked Region

Processes and renders a specific audio range to an independent file.

You can specify the region to process via the pop-up menu.

All Selected Tracks

Processes and renders each selected track to an independent file, from the start of the first clip to the end of the last clip. Muted clips and tracks are not rendered.

All Track Groups

Processes and renders each track group to an independent file, from the start of the first clip to the end of the last clip. Muted clips and tracks are not rendered.

All Titles

Processes and renders all titles.

All Titles in Group

Processes and renders all titles in the selected title group.

All Marked Regions

Processes and renders each marked audio range to an independent file. By defining multiple isolated regions in an audio file, you can process them in a single operation.

You can specify the types of regions to be processed via the pop-up menu.

All Clip Groups

Processes and renders each audio montage group to an independent file. The group names are used as the file names.

All Selected Clips

Processes and renders each selected clip to an independent file. The clip names are used as the file names.

Result

CD/DDP

Allows you to write a CD or generate a DDP file from the audio montage.

Unnamed File

Renders a temporary untitled file.

Named File

Allows you to specify a name for the rendered file.

Output

Name

Allows you to enter a name for the rendered file. Clicking the arrow icon opens a pop-up menu that offers you several naming options.

Scheme

Allows you to specify a naming scheme for the file name.

Location

Allows you to select a destination folder for the rendered files.

You can choose from the following options:

- Enter a fixed folder path into the **Location** field.
- Click on the folder icon to select a folder.

- Select a contextual folder from the menu that opens on clicking the arrow to the left of the **Location** field.

To maintain independent render paths for individual audio montages and to ensure that, when switching audio montages, the render path changes accordingly, you can activate **Keep Independent Folder for Each Source File**.

Format

Opens a pop-up menu, where you can select a single file format or multiple file formats.

Options

Depending on the selected source, different options are available.

Bypass Master Section

Bypasses the plug-ins and the gain of the **Master Section** when rendering.

Auto Save Master Section Preset

Automatically saves the **Master Section** preset in the audio montage when you render the file. You can load the **Master Section** preset via the **Load Master Section Preset** option in the lower right corner of the montage window.

Fade In/Out at Boundaries

Applies a fade to the audio range boundaries when a new file is created, or a crossfade with the adjacent audio, if the audio range is processed in place.

Crossfades allow for smooth transitions between processed and non-processed parts. You can set the crossfade time and shape via the **Preferences**. If the fade time is longer than half the length of the processed file, the fade is not applied.

Add Reverb Tail

Includes the audio tail that is produced by effects such as reverb in the rendered file.

Some plug-ins do not transfer information on the tail duration to WaveLab Pro. In this case, this option has no effect. For such plug-ins, you can add the **Silence** plug-in to add extra samples to the end of the file.

Copy Markers

Copies the markers that are included in the range to process to the rendered file.

Create CD Image and Cue Sheet

Exports the audio montage as a CD image, with an accompanying cue sheet. A cue sheet is a text file identifying the titles in the image file. You can import the cue sheet and the image file it describes into any CD recording application that supports this function (including WaveLab Pro) and written onto a CD. You can use this option with any sample rate.

Create Audio Montage from Result

Imports the rendered audio file into a new audio montage.

Open Resulting Audio File

Opens every rendered file in a new window.

Reveal in File Explorer

Opens the File Explorer/macOS Finder to locate the selected file.

Open Files in New File Group

Imports the rendered audio file into a new file group.

Bypass Master Section on Resulting Audio File

Causes playback of the resulting audio file to bypass the entire **Master Section** except the **Playback Processing** section. You can turn this setting on and off by clicking the button at the bottom right of the **Audio Editor** or the **Audio Montage** window.

NOTE

We recommend that you activate this option, as this prevents monitoring new files through effects that have already been applied to them.

Include Pause before Title

When rendering titles of an album, this option adds a pause prior to each title in the rendered file.

Include Pause after Title

When rendering titles of an album, this option includes a pause after each title in the rendered file.

Render Audio File, Do Not Change Audio Montage

Renders the selected title to a separate audio file.

Replace On Same Audio Montage Track

Replaces the clips on the selected montage track with the rendered file.

Add to Next Empty Audio Montage Track

Adds the rendered file to the next empty audio montage track. The original clips are preserved.

Add to New Audio Montage Track

Adds the rendered file to a new audio montage track. The original clips are preserved.

Bypass Audio Montage Processing

Renders clips without effects and track gain.

Bypass Volume/Pan Envelopes

Renders the selected clips without volume and pan envelopes.

Replace Clips with Rendered Audio Files

If this option is activated, the rendered audio files replace the selected clips.

Presets

Presets

This pop-up menu allows you to save and restore render presets. All settings are saved and restored, except the file name and the file location.

Render

Start Rendering

Starts the rendering process. This is the same as clicking **Start** via the **Render** tab for the **Master Section**.

Start Rendering (Real Time)

Starts the rendering process in real time. This allows you to listen to the audio while it is being rendered.

Signal Path in the Audio Montage

The audio signal follows a specific path when passing through the various areas of WaveLab Pro.

1. The audio samples are read.

2. Clip envelope (unless post-effects mode is active)

3. Clip effects

4. Clip envelope (if post-effects mode is active)

5. Clip pan

6. Individual clip gain (**Clips** window)

7. Clips are mixed into the track slot (for example, overlapping clips).

8. Track effects

9. Track level settings

10. Each track is mixed into a bus that has as many channels as defined by the audio properties of the audio montage (between 1 to 8).

11. The audio channels are processed through the plug-ins of the master output.

12. The channels are sent to the **Master Section** input.

Signal Path in the Master Section

1. Channels/Sample rate can change at each plug-in slot.

2. **Master Section** meters

3. **Final Effects/Dithering** pane in the **Master Section**

4. **Playback Processing** pane

5. Independent meters

6. Speaker gain for playback

7. Playback or file format rendering

Creating Audio Montages

To create an audio montage, you can either take a "top-down" approach and start with the general setup or a "bottom-up" approach; that is, use individual files as the basis.

There are two basic methods to create audio montages in WaveLab:

Top-Down Approach: Starting with the General Setup

WaveLab comes with several default templates, which allow you to set up the general layout of your audio montage with a single click.

If you intend to create a CD, for example, you can select the **CD Standard** template. As a result, an audio montage with a single stereo track that does not contain any audio files is opened in the **Audio Montage** window.

After selecting a template, you can add audio files to the tracks, which are represented by clips, or you can record audio on the tracks.

Choosing the **Custom** option allows you to configure your audio montage by defining its general properties, such as the number of channels and the sample rate.

Bottom-Up Approach: Using Audio Files as the Basis

You can use audio files as the foundation for your audio montage and build it up from this basis.

Creating Custom Audio Montages from Scratch

You can create new, empty audio montages from scratch and customize them.

PROCEDURE

1. Select **File** > **New**.

2. Select **Audio Montage** > **Custom**.

3. Specify the channel configuration and the sample rate of the audio montage.

4. In the **Audio Montage Location** dialog, enter a name for your audio montage, and select the location where you want to save the audio montage folder.

   NOTE

   You can skip this step by clicking the **Save Later** button. This allows you to define the audio montage location at a later point in time.

5. Click **Create**.

RESULT

A new audio montage folder is created, which contains a .mon file of the same name.

RELATED LINKS
Audio Montage File Structure on page 318
Audio Montage Properties on page 366
Creating Audio Montages from an Audio File on page 359
Creating Audio Montages from Multiple Audio Files on page 361
Creating Audio Montages from All Opened Audio Files on page 361

Creating Audio Montages Based on Templates

To establish the general setup of your audio montage, you can choose from several default templates.

PROCEDURE

1. Select **File** > **New**.

2. Select **Audio Montage** > **Templates**.

3. Select a template: **CD Standard**, **2 Tracks 44.1k**, **2 Tracks 96k**, **Mid-Side Tracks 44.1k**, **Surround 44.1k**, or **8 Channels 44.1k**.

4. In the **Audio Montage Location** dialog, enter a name for your audio montage, and select the location where you want to save the audio montage folder.

> **NOTE**
>
> You can skip this step by clicking the **Save Later** button. This allows you to define the audio montage location at a later point in time.

5. Click **Create**.

RESULT

A new audio montage folder is created, which contains a .mon file of the same name.

RELATED LINKS

Audio Montage Location Dialog

The **Audio Montage Location** dialog allows you to enter a name for your audio montage and to select the location where you want to save the audio montage folder.
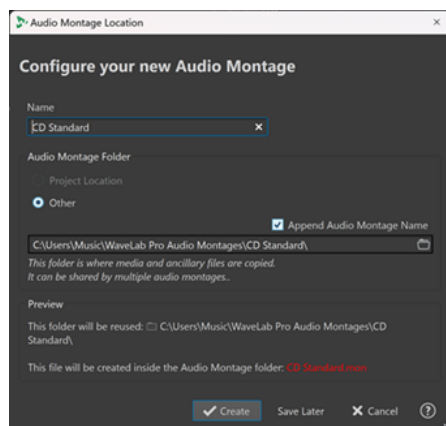
Name

Allows you to enter a name for your audio montage. If you have chosen a template to create your audio montage, WaveLab suggests the name of the template as the name, but you can overwrite it.

Audio Montage Folder

Allows you to choose whether to save the folder in the **Project Location** or in another location (**Other**).

> **NOTE**
>
> **Project Location** is only available in connection with an active, open project.
>
> In the project folder location, you can create a new sub-folder for the audio montage, with the project folder as the root folder.

In the entry field below, you can specify the path to the new audio montage folder.

With **Append Audio Montage Name** activated, the new folder automatically assumes the name of the audio montage.

> **NOTE**
>
> We recommend that you activate **Append Audio Montage Name**, as it makes it easier to allocate the audio montage file (.mon) to the corresponding audio montage folder later on.

Preview

Displays a preview of the path to the new audio montage folder and of the new audio montage (.mon) file.

Create

Initiates the creation of the new audio montage folder and the audio montage file.

Save Later

Closes the dialog so that you can skip setting the parameters and choose an audio montage location at a later point in time.

Cancel

Cancels the operation.

Creating Audio Montages from an Audio File

You can create an audio montage from an audio file or from a time selection in an audio file.

PROCEDURE

1. In the **Audio Editor**, open the audio file from which you want to create a new audio montage.

2. Optional: If you want to open a specific section of the audio file in a new audio montage, make a time selection in the audio file.

3. Right-click the file tab of the audio file.

4. Select **Create Audio Montage** > **From Current Audio File**.
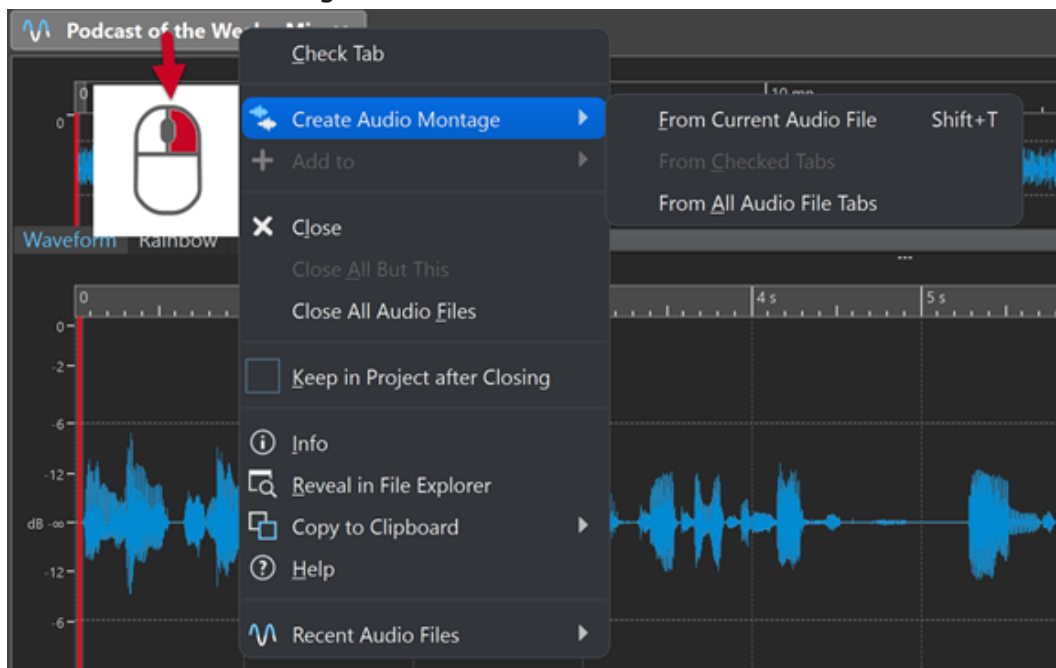
5. In the **Create Audio Montage from Audio File** dialog, do one of the following:

- To open the audio file in a new audio montage, select **Whole File**.

- To open the time selection that you have made in the audio file in a new audio montage, select **Current Time Selection**.

6. Optional: Do one of the following:

   - To import the markers of the audio file into the new audio montage, activate **Import Markers**.

   - To split the audio file at the generic region markers, activate **Split at Generic Region Markers**.

   - To split the audio file at the title markers, activate **Split at Title Markers**.

7. Click **OK**.

RESULT

The audio file opens in a new audio montage.

RELATED LINKS

Create Audio Montage from Audio File Dialog

In this dialog, you can specify whether you want to open the audio file or a time selection inside an audio file as a new audio montage. You can also specify whether you want to import markers into the new audio montage and split at certain markers.

To open the **Create Audio Montage from Audio File** dialog, do one of the following:

- Right-click the file tab of an audio file, and select **Create Audio Montage** > **From Current Audio File**.

- Open an audio file in the **Audio Editor**, select **File** > **New** > **From Current File**, select **From Current Audio File**, and click **Create**.
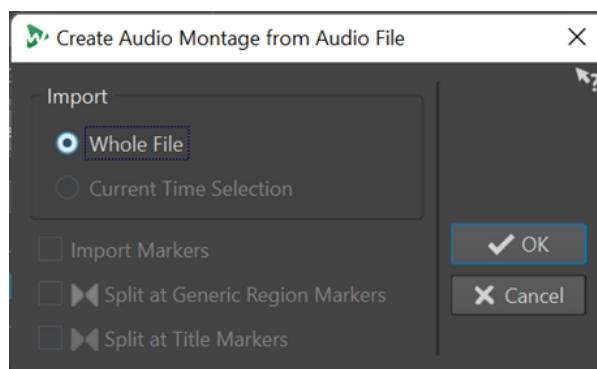
Whole File

If this option is activated, the audio file opens in a new audio montage.

Current Time Selection

If this option is activated, the time selection that you have made in the audio file opens in a new audio montage.

Import Markers

If this option is activated, the markers inside the audio file are imported into the new audio montage.

Split at Generic Region Markers

If this option is activated and the audio file contains generic region markers, the audio file is split at the marker positions when it is imported into a new audio montage. Audio outside the marker boundaries is removed.

Split at Title Markers

If this option is activated and the audio file contains title markers, the audio file is split at the marker positions when it is imported into a new audio montage. Audio outside the marker boundaries is removed.

RELATED LINKS

Creating Audio Montages from Multiple Audio Files

You can create an audio montage from multiple audio files that are opened in WaveLab Pro. Each audio file is added to the audio montage as a clip.

PROCEDURE

1. In the **Audio Editor**, right-click the file tab of an audio file, and select **Check Tab**.
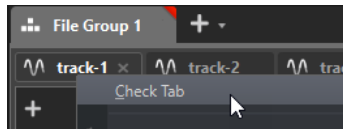
2. Activate the file tabs of the audio files that you want to add to the audio montage.
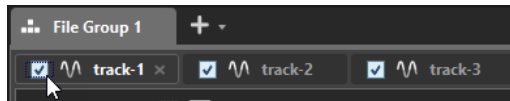
3. Right-click the file tab of an audio file.

4. Select **Create Audio Montage** > **From Checked Tabs**.

5. In the **Insert Audio Files** dialog, specify where to insert the audio files.

6. Click **OK**.

RELATED LINKS

Creating Audio Montages from All Opened Audio Files

You can create an audio montage from all audio files that are opened in WaveLab Pro. Each audio file is added to the audio montage as a clip.

PROCEDURE

1. In the **Audio Editor**, right-click the file tab of an audio file.

2. Select **Create Audio Montage** > **From All Audio File Tabs**.
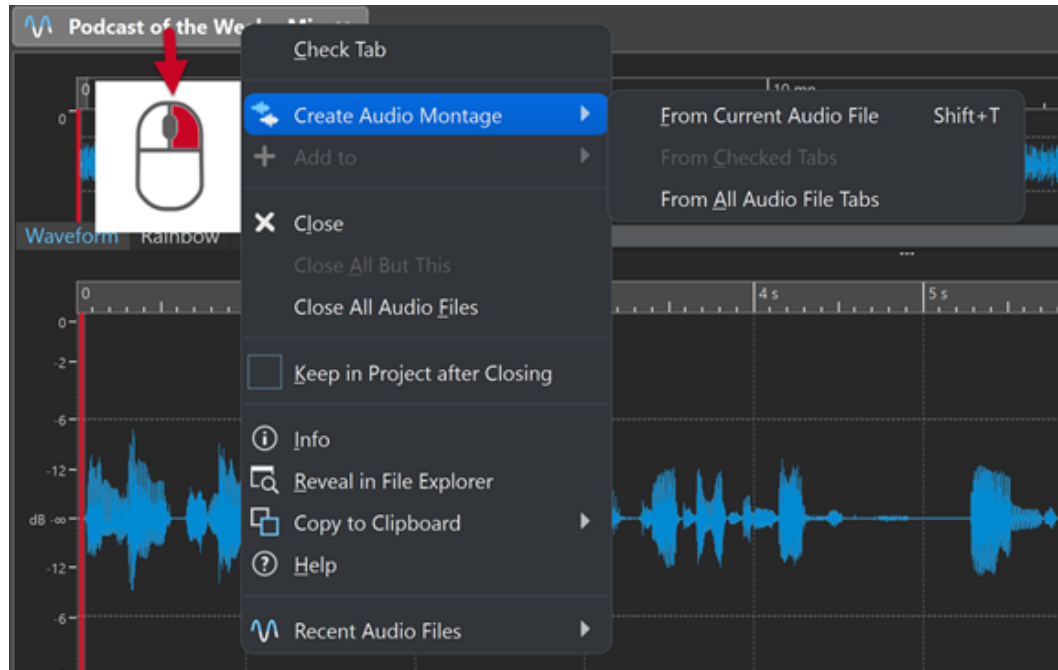
3. In the **Insert Audio Files** dialog, specify where to insert the audio files.

4. Click **OK**.

RELATED LINKS
[Managing Tabs in the Audio Editor / Audio Montage Window](#) on page 91
[Creating Audio Montages from Multiple Audio Files](#) on page 361
[Creating Audio Montages from an Audio File](#) on page 359
[Insert Audio Files Dialog](#) on page 398

Alternative Ways of Creating New Audio Montages

There are several ways to create a new audio montage.

- Import cue sheets/CD images as audio montage
- Import titles to an audio montage
- Create an audio montage from a wave file with the **Auto Split** function
- Import an AES-31 project file to an audio montage
- Import an XML text file to an audio montage
- Convert wave files to an audio montage
- Open the resulting file into a montage when you render
- Duplicate audio montages
- Import DDP files to an audio montage
- Press **Ctrl**/**Opt**, and drag a montage tab on the tab bar
- Create an audio montage from a script

RELATED LINKS
[Audio Montage Duplicates](#) on page 363

Audio Montage Duplicates

You can duplicate audio montages in various ways. This allows you to quickly create new audio montages using the same properties and audio files as for previously created audio montages.

The following variants of audio montage duplicates are available:

Empty (With Same Properties)

Creates a new audio montage with the channel settings and sample rate of the original audio montage, without any clips.

Exact Duplicate (Using the Same Audio Files)

Creates an exact duplicate of the original audio montage and lets the new clips reference to the original audio files. The duplicated audio montage uses the channel settings and sample rate of the original audio montage.

This is useful if you want to create several versions of the audio montage, for example, to experiment with variations. However, any processing or editing that you apply to the actual audio files are reflected in all audio montages.

You can also press **Ctrl/Cmd**, drag a tab, and drop it on the tab bar to create an exact duplicate of an audio montage.

Customized Duplicate

Allows you to specify which parts of the audio montage to include in the duplicate of this audio montage.

Duplicate (Recreate Audio Files)

Allows you to copy the audio montage together with its audio files to create a new self-contained audio montage. There are several uses for complete cloning:

- Edit and process the audio files without affecting other audio montages.

- Create different versions of the audio montage that focus on specific aspects of the audio montage by removing any unused audio sections.

- Split audio files and give them specific names.

- Reduce the size of an audio montage project by only using the needed audio material.

NOTE

Duplicate (Recreate Audio Files) does not render effects to files.

RELATED LINKS
Duplicating Audio Montages on page 363

Duplicating Audio Montages

PROCEDURE

1. Open the audio montage that you want to duplicate.

2. In the **Audio Montage** window, select the **File** tab.

3. Select **New** > **Audio Montage** > **From Current File**.

4. In the **From Current Audio Montage** section, select one of the following:

- **Empty (With Same Properties)**

- **Exact Duplicate (Using the Same Audio Files)**

- **Customized Duplicate**
- **Duplicate (Recreate Audio Files)**

5. Click **Create**.

6. If you have selected **Customized Duplicate** or **Duplicate (Recreate Audio Files)**, a dialog opens. In the dialog, make the desired adjustments, and click **OK**.

RESULT

A duplicate of the audio montage opens in a new tab.

RELATED LINKS
Audio Montage Duplicates on page 363

Create Customized Audio Montage Duplicate Dialog

In this dialog, you can specify which parts of an audio montage you want to include in the duplicate.

- To open the **Create Customized Audio Montage Duplicate** dialog, open an audio montage and select the **File** tab. Select **New** > **Audio Montage** > **From Current File**, select **Customized Duplicate**, and click **Create**.
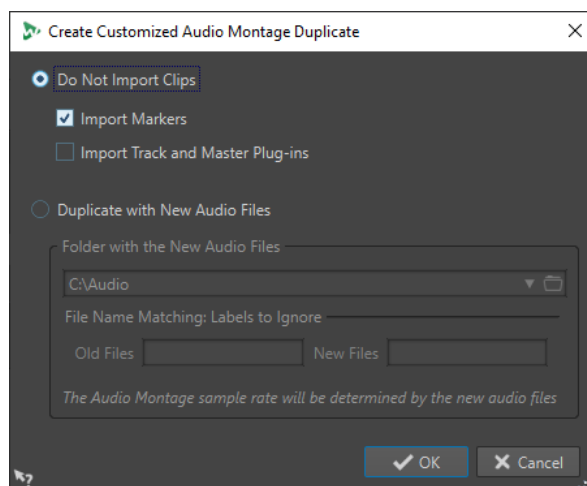
Do Not Import Clips

If this option is activated, the clips of the source audio montage are not imported. For example, this option can be used to open an audio montage with all the CD markers in place and to insert alternate audio clips to compare them with the original audio montage.

Import Markers

If this option is activated, the markers of the source audio montage are imported.

Import Track and Master Plug-ins

If this option is activated, the track and master plug-ins of the source audio montage are imported.

Duplicate with New Audio Files

If this option is activated, you can replace the audio files of the source audio montage with new audio files. For this, specify the folder that contains the new audio files.

If the audio files that you want to use as replacement have different file names than the source audio files, you can specify the differences between the source files and the new files.

For example, if the file `piano_96k.wav` is replaced by the file `piano_44k.wav`, specify **96k** in the **Old Files** field and **44k** in the **New Files** field.

If no matching audio files are available, you can create empty clips instead and later replace the empty clips with audio files.

If there is a difference between the sample rate of the source montage and the sample rate of the new montage, the position, length, envelope, and marker settings are adjusted accordingly.

Duplicate Audio Montage by Recreating Audio Files Dialog

You can create a copy of the audio montage in which the actual audio files are duplicated to create a new self-contained audio montage. In this dialog, you can specify how the selected audio montage is duplicated.

● To open the **Duplicate Audio Montage by Recreating Audio Files** dialog, open an audio montage and select the **File** tab. Select **New** > **Audio Montage** > **From Current File**, select **Duplicate (Recreate Audio Files)**, and click **Create**.
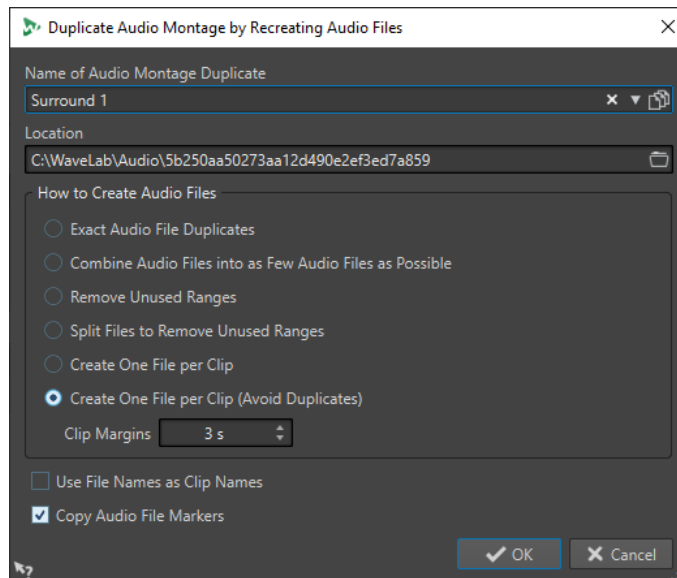
Name of Audio Montage Duplicate

Specifies the file name of the audio montage duplicate.

Location

The location where you want to create the audio montage duplicate and its audio files.

Exact Audio File Duplicates

If this option is activated, the cloned audio files are exact copies of the original files. Unused ranges are not removed.

The files are recreated and saved in an uncompressed format. For example, an MP3 file that is included in an audio montage will be recreated as a PCM file. In other words, the content is recreated, not the file format.

Combine Audio Files into as Few Audio Files as Possible

If this option is activated, all used ranges in the original audio files are copied and combined into a single audio file to which the clips in the clone refer. The file gets the same name as the audio montage clone file.

NOTE

If the audio montage contains both mono and stereo clips, there will be two combined audio files, one for mono material (with the suffix "M") and one for stereo material (with the suffix "S").

Remove Unused Ranges

If this option is activated, the same number of audio files is created, but any unused ranges in the files are removed. This reduces the file size.

Split Files to Remove Unused Ranges

If this option is activated, unused ranges in the files are removed, and the file is split into several new files when a range is removed.

Create One File per Clip

If this option is activated, every clip in the audio montage clone refers to a unique file, containing only the audio that is used in the clip. The files are named after the clips. A number is added if several clips have the same name.

Create One File per Clip (Avoid Duplicates)

If this option is activated, every clip in the audio montage clone refers to a unique file, containing only the audio that is used in the clip. The files are named after the clips. However, if two clips use the same audio range, a common file is created for these clips.

Clip Margins

Allows you to add a number of seconds before and after the beginning and end of the clip range in the created audio files. This allows you to lengthen the clips in the cloned audio montage at a later stage.

Use File Names as Clip Names

If this option is activated, the clips in the cloned audio montage get the name of the corresponding audio file.

Copy Audio File Markers

If this option is activated, the markers in the original audio files are included in the recreated files.

Audio Montage Properties

In the **Audio Montage Properties**, you can define the channel configuration (mono, stereo, surround, Ambisonics, multi mono), the audio channel layout, and the sample rate of the audio montage.

To open the audio montage properties for the selected audio montage, do one of the following:

- Select the **File** tab, and click **Info**.

- Click the **Audio Montage Properties** button at the bottom right of the montage window. This opens the **Audio Montage Properties** dialog.
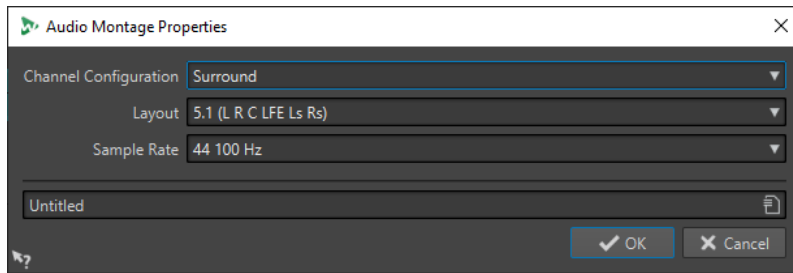
In the **Audio Montage Properties**, you can specify the following settings for the selected audio montage:

Mode

Allows you to select the following channel modes for the audio montage.

- **Mono**
- **Stereo**
- **Surround**
- **Ambisonics**
- **Multi Mono**

Channels

Allows you to define the number of audio channels and their configuration at the output of the audio montage. This is only available in **Surround**, **Ambisonics**, and **Multi Mono** mode.

Sample Rate

Allows you to select the sample rate for the audio montage.

Changing the Sample Rate of Audio Montages

You can change the sample rate of audio montages in the **Audio Montage Properties** dialog.

PROCEDURE

1. At the bottom right of the montage window, click the **Audio Montage Properties** button.
2. In the **Audio Montage Properties** dialog, select a new sample rate.
3. Click **OK**.

RELATED LINKS
Audio Montage Properties on page 366

Changing the Channel Configuration of Audio Montages

You can change the channel configuration of audio montages in the **Audio Montage Properties**.

PROCEDURE

1. At the bottom right of the montage window, click the **Audio Montage Properties** button.
2. In the **Audio Montage Properties** dialog, select a new mode (stereo, mono, or multichannel) and the number of audio channels.
3. Click **OK**.

Import Options for Audio Montages

You can import different files into your audio montage, for example, audio files, audio montages, video files, and DDP images.

The following import options are available via the **Import** section on the **Insert** tab of the **Audio Montage** window:

- To import audio files, click **Audio Files** and select the audio files that you want to import at the edit cursor position on the active track.

  If you import a single audio file, the **Paste** pop-up menu opens. Here, you can specify how the clip should be inserted, whether existing clips should be affected, etc.

  If you import multiple audio files, the **Insert Audio Files** dialog opens. Here, you can specify where to insert the files.

- To import video files, click **Video Files** and select the video file that you want to import at the edit cursor position on the video track. If no video track is available, a video track is created.

- To import clips, click **Clip Files** and select the clips that you want to import at the edit cursor position on the active track.

  If you import several clips at the same time, they are inserted in alphabetical order, according to their file names, and separated according to the set **Default Gap**. You can set the default gap in the **Active Audio Montage** tab in the **Audio Montages Preferences**.

- To import audio montages, click **Audio Montages** and select the audio montages that you want to import at the edit cursor position on the active track.

To access the following import options, select **File** > **Import**.

- To import audio files, click **Audio File to Montage**, select the audio files that you want to import, and click **Import**.

- To import a DDP image, click **DDP**. In the File Explorer/macOS Finder, select the file that you want to import, and click **Import**.

- To import a CD cue file with its audio data, click **CD Cue**. In the File Explorer/macOS Finder, select the file that you want to import, and click **Import**.

- To import an AES-31 file, click **AES-31**. In the File Explorer/macOS Finder, select the file that you want to import, and click **Import**.

- To import a Basic Audio CD file, click **Basic Audio CD**. In the File Explorer/macOS Finder, select the file that you want to import, and click **Import**.

- To import an audio montage that has been saved as an XML file, click **XML**. In the File Explorer/macOS Finder, select the file that you want to import, and click **Import**.

- To open audio files that have an unknown format, click **Unknown Audio**. Via the **Special File Format** dialog, you can specify how to interpret the format of the audio file that you want to open.

- To import titles from an audio CD, click **Audio CD**. Via the **Import Audio CD** dialog, browse for the titles to extract.

- To import a file group, click **File Group**. In the File Explorer/macOS Finder, select the file group that you want to import, and click **Import**.

Broken Audio File References

An audio montage consists of references to one or multiple audio files. These references can be broken if you move audio files to another location on your hard disk, for example. WaveLab Pro detects broken references and allows you to specify new file locations or replace the missing audio file with another audio file.

RELATED LINKS

Fixing Broken Audio File References

When you open an audio montage that contains broken audio file references, the **Missing Files** dialog opens automatically.

PROCEDURE

1. In the **Missing Files** dialog, select the missing audio file references that you want to fix.

2. In the **Where to Search** field, specify the file location of the new audio file reference.

3. Optional: Activate **Search Sub-Folders** to include subfolders in your search.

4. Do one of the following:

   - To let WaveLab Pro automatically search for audio files with the same name as the missing files, click **Find Files with the Same Name**.

     In the **Select a Replacement** field, select the new audio file references and click **OK**.

   - To select audio files to replace the missing files, click **Replace Selected Files With**, select the new files, and click **Open**.

RELATED LINKS

Missing Files Dialog

This dialog opens when you open an audio montage, and some audio files that the audio montage refers to cannot be found. You can then search for the files or select a replacement.
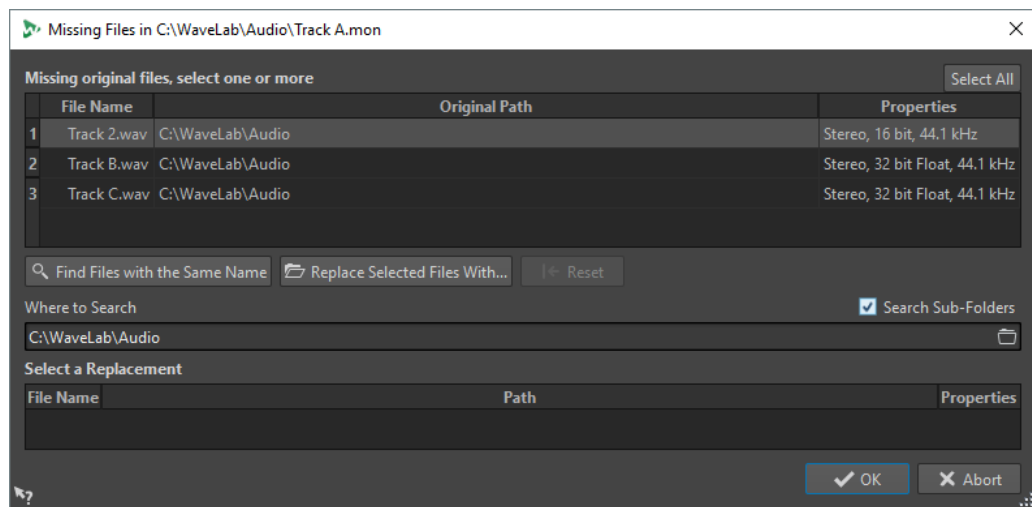
Missing Original Files

Lists the files that cannot be found. Each file can be replaced by an existing file. To search replacements for multiple files, select the files, and specify a new path in the **Where to Search** field.

A file with a green checkmark is associated with a valid replacement. A file with a red checkmark is not yet associated with a valid replacement, but there are possible replacement candidates available at the bottom of this dialog.

Find Files with the Same Name

Instructs WaveLab Pro to find all files with the same name in the folder specified in the **Where to Search** field.

Replace Selected Files With

Replaces the missing files with a single specific file.

Reset

Removes all possible replacements for the selected missing files.

Where to Search

Lets you specify a location for searching files. Click **Find Files with the Same Name** to start the search.

Replacement List

Lists the files that can be used as a replacement. You can also drag a file into the list from the File Explorer/macOS Finder.

Assembling an Audio Montage

You assemble your audio montage by adding tracks, clips, and lanes.

Tracks

Tracks provide the structure for organizing clips. In addition to a variety of audio track types, WaveLab Pro offers further track types, such as video tracks and picture tracks.

- **Mono** tracks and **Stereo** tracks allow you to add audio clips to an audio montage.
- **Null Test** tracks allow you to perform null testing.
- **Picture** tracks allow you to add images to your audio montage.
- **Video** tracks allow you to add moving images to an audio montage.
- **Reference** tracks allow you to compare your mix to a reference audio file or input signal without latency.

RELATED LINKS
Reference Tracks on page 376
Video Track on page 757
Adding Tracks on page 371
Lanes on page 384

Adding Tracks

You can add mono tracks, stereo tracks, reference tracks, null test tracks, video tracks, and picture tracks.

PROCEDURE

1. Do one of the following:
   - In the **Audio Montage** window, click **+** at the top of the track control area.
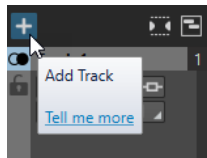
   - Right-click the track control area to open the **Track** pop-up menu, and select **Add Track**.
2. Select the track type that you want to add to your audio montage.

RELATED LINKS
Tracks on page 371
Track Control Area on page 321

Moving Tracks in the Track List

You can move tracks up or down in the track list.

CHOICES

- In the **Audio Montage** window, select a track, and drag it up or down in the track list.
- At the bottom of the track control area, click the down arrow, and select **Move Track Up** or **Move Track Down**.
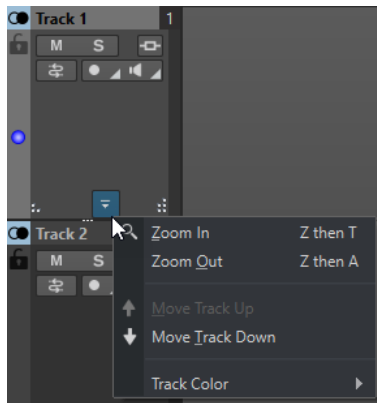
Resizing Tracks

You can freely resize the track height and width.

There are different ways of resizing the track height and width, depending on where in the track control area of each track you click and drag.

CHOICES

- To change the track height of all tracks simultaneously, click and drag the lower left area of a track control area.
- To change the track height of the active track, click and drag the lower middle area of a track control area.
- To change the track height of the active track and the track below proportionally, click and drag the lower right area of a track control area.

Removing Tracks

Removing a track with clips also removes the clips. However, the audio files to which the clips refer are not affected.

PROCEDURE

- In the track control area, right-click the track control area of the track that you want to remove and click **Remove Track**.

Selecting Tracks

You can select multiple tracks at once. This allows you to group and ungroup multiple tracks at the same time or render multiple independent tracks, for example.

CHOICES

- To select a track, click the track control area of the track. The track control area of selected tracks has a different background color.
- To select multiple tracks, **Ctrl/Cmd** -click the track control area of the tracks that you want to select.
- To select adjacent tracks, **Shift** -click the track control area of the tracks that you want to select.

RELATED LINKS
Track Groups on page 380
Selecting Clips on page 411
Selected Clips and the Active Clip on page 410

Selected Tracks vs. Active Tracks

In WaveLab Pro, a track can have the status unselected, selected, and active. Some editing functions can only be applied to an active tracks, while others can be applied to selected tracks.

- A selected track is a track that you have selected using any of the selecting tracks procedures. Several tracks can be selected at the same time. This allows you add the selected tracks to a track group or render multiple tracks.

  The track control area of selected tracks has a different background color.

- An active track is a track that you selected, clicked, or edited last. Only one track is active at a time. Some functions can only be applied to an active track.

  The active track is indicated by a blue dot at the left side of the track control area.

RELATED LINKS
Selecting Tracks on page 373
Track Groups on page 380

Locking and Unlocking Tracks

You can lock tracks to prevent them from being accidentally moved, edited, or deleted.

- To lock a track, click the **Lock** button of the track in the track control area.
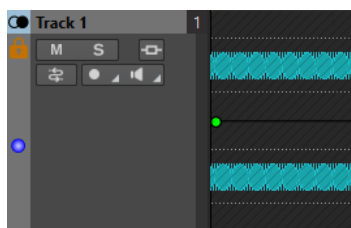
- To unlock a track, click the **Lock** button in the track control area again.

Sidelining Tracks

Sidelining a track means hiding it from view and temporarily deactivating it, so that it does not consume any resources and is excluded from playback and rendering.

You can sideline any track type and as many tracks in your audio montage as you want, as long as at least one track remains activated.

Sidelining tracks is particularly useful when working on complex, intricate projects with many tracks and effects. It serves the following purposes:

- **Saving resources**: Sidelined tracks do not consume any resources, so you can free up CPU power for other tracks and tasks by temporarily sidelining tracks that are currently not in use.
- **Managing projects**: Sidelining tracks helps you to keep your track overview clean, organized, and manageable. Hiding and deactivating tracks that you do not use all the time prevents cluttering up your workspace.

  TIP

  If your projects contains null test tracks and/or a reference track, consider sidelining them whenever they are not in use.

- **Staying focused**: Temporarily hiding and deactivating unused or less important tracks helps you to concentrate on the essential parts of your projects.
- **Preserving clips**: Clips on sidelined tracks are not affected by ripple, auto grouping, and any other multi-clip editing actions. This means that you can sideline tracks to prevent any clips on these tracks from being edited.
- **Archiving for later retrieval**: Sidelining tracks allows you to set them aside instead of deleting them for good, so you can retrieve them again, in case you change your mind.
- **Versioning**: Sidelining allows you to keep several different versions of a track, enabling you to trace your editing and processing and to easily alternate between earlier and more recent versions for comparison.

Hiding and Deactivating Tracks by Sidelining Them

To save resources when performing editing and processing tasks in the **Audio Montage** window, you can sideline tracks in your audio montage.

Sidelined tracks are hidden and deactivated, but you can activate them again at any time.

Right-click on a track in the track control area, and choose one of the following options from the **Track** menu:

- **Sideline Track** hides and deactivates the track.

- **Sideline All Tracks But** hides and deactivates all tracks, with the exception of the track that you select from this menu, which contains the active track and any other tracks that are currently sidelined.

RESULT

Depending on your choice, either one track is hidden and deactivated, or all tracks except for a particular track. The **+** symbol at the top left of the track control area turns green, to indicate that the audio montage contains sidelined tracks.

AFTER COMPLETING THIS TASK

- To reveal and activate sidelined tracks again, click **+** at the top left of the track control area, and select one or all sidelined tracks from the **Add Track** menu.

- To reveal and activate sidelined tracks again and to position them after a particular track, right-click on the track in the track control area, and select one or all sidelined tracks from the **Recover Sidelined Track** menu.
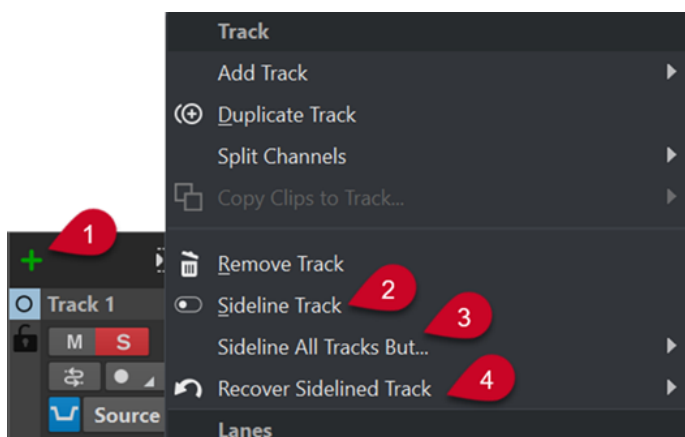
1   **+** symbol, its green color indicating that there are sidelined tracks in the audio montage

2   **Sideline Track** option, to hide and deactivate a track

3   **Sideline All Tracks But** option, to hide and deactivate all tracks except for a particular track

4   **Recover Sidelined Track** option, to recover a particular track or all tracks

Left/Right and Mid/Side Mono Tracks

You can split a stereo audio track into two mono tracks, either in **Left/Right** or **Mid/Side** mode. This is a virtual split which does not affect or create audio files.

When you split into mid/side mono tracks, the upper track displays the mid signal and the lower track displays the side signal. This allows you to process the mid or side signal with any effect plug-in independently, and use independent envelopes.
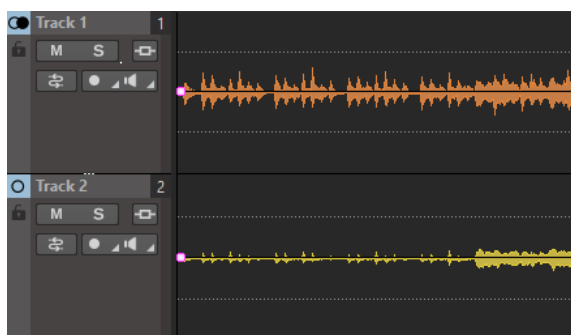
The mid/side signals are automatically converted back to left/right signal at the montage output.

Reference Tracks

Reference tracks allow you to compare your mix to a reference audio file or input signal without latency.

You can use a reference track for the following purposes:

- Comparing different masters
- A/B comparison of a mix with up to 3 reference tracks with zero latency via WaveLab Pro or hardware monitor controllers
- Comparing the non-mastered version of your audio file with the mastered version
- Comparing your mix with an external gear mix
- Comparing your mix with a different song
- Recording the output of a reference track to another montage track while using external gear

You can route a reference track to different buses. Reference tracks are always stereo tracks.

There is no delay when you switch between reference tracks, even if you use plug-ins with latency.

TIP

Use key commands to quickly switch between reference tracks.

- To toggle the selected reference track on/off, press **O** .
- To switch between multiple reference tracks, click **Num 1** , **Num 2** , or **Num 3** , and then **N** .

Reference tracks serve to compare audio rather than to edit audio. Clips on reference tracks are not affected by the **Global Ripple** and **Auto Grouping** options, unless you activate **Global Ripple Affects Reference Tracks** on the **Ripple** panel or **Global Auto Grouping Affects Reference Tracks** on the **Auto Grouping** panel, respectively, via the **Edit** tab. The **Album Wizard** does not take reference tracks into account. The **Loudness Meta Normalizer** only takes clips on reference tracks into account if **Listen Alone** is activated for the reference track. In this case, only the clips on the reference track are taken into account.

RELATED LINKS
Reference Track Routing on page 376
Edit Tab (Audio Montage) on page 337
Options for Moving and Crossfading Clips on page 429

Reference Track Routing

You can route reference tracks to the **Master Section** output, to the **Playback Processing** pane of the **Master Section**, and to additional output buses.

Reference track routing allows you to route reference tracks to another output than the montage output. This way, you can switch between the output of the reference track and the output of the montage to compare the mix. You can switch between the output buses via a hardware monitor controller, for example.

You can also use reference tracks as a source for recording. Send the reference tracks through its plug-ins to some external effects for further processing. Then enable recording on a montage track to record the processed reference track.

Routing the Reference Track to Main Playback Bus

When you route reference tracks to the **Main Playback Bus**, all effects of the montage output are bypassed, except for the track and clip effects of the reference track. Also, all **Master Section** effects are bypassed and you have zero latency.

The reference track bypasses the meters. This is why the WaveLab Pro meters show the signal of the mixdown, even if you monitor the reference track.

PROCEDURE

1. In the **Audio Montage** window, add a reference track.
2. Activate **Listen Alone** for the reference track.

NOTE

If you activate **Listen Alone** for the reference track, all other tracks are muted, and you can listen to the reference track without latency and glitches.

3. In the track control area, click **Routing**.
4. In the **Routing** menu, select **Main Playback Bus** in the **Output Bus (Listen)** section.

Routing Reference Tracks to the Master Section Playback Processing

When you route reference tracks to the **Master Section Playback Processing** output, all audio montage effects are bypassed, except for the track and clip effects of the reference track. In addition to this, all **Master Section** effects are bypassed, aside from the **Playback Processing** effects.

PROCEDURE

1. In the **Audio Montage** window, add a reference track.
2. Activate **Listen Alone** for the reference track.

NOTE

If you activate **Listen Alone** for a reference track, only the effects of the **Playback Processing** pane in the **Master Section** and the **ASIO-Guard** can cause latency.

3. In the track control area, click **Routing**.
4. In the **Routing** menu, select **Master Section Playback Processing** in the **Output Bus (Listen)** section.
5. Optional: To make the WaveLab Pro meters show the reference track meters, activate **Monitoring Point** in the **Playback Processing** pane of the **Master Section**.
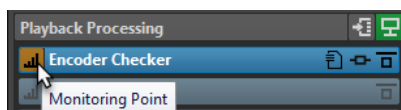
This allows you to compare the meters when doing A/B testing, for example. Note that this can cause latency when switching between A and B.

RELATED LINKS
Track Control Area for Reference Tracks on page 326
Playback Processing Pane on page 593
ASIO-Guard on page 31

Routing Reference Tracks to Additional Output Buses

You can define additional output buses for reference tracks. This allows you to use a hardware console to compare the reference track and the montage mix with zero latency. You can also use additional output buses to record the reference track output on another montage track while using external gear. Tracks can be sent to multiple buses at the same time.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. On the **Playback** tab, click **Add New Bus**.

3. Optional: Click the bus name, and enter a new name.

4. Assign audio ports to the bus.

5. Click the menu below the track list, and select **Reference Track**.

6. In the **Audio Montage** window, add a reference track.

7. In the track control area, click **Routing**.

8. On the **Routing** pop-up menu, select the custom buses.

RELATED LINKS
Track Control Area for Reference Tracks on page 326
Adding Tracks on page 371
Recording in the Audio Montage Window on page 561

Null Test Tracks

Null test tracks allow you to perform null tests; that is, to combine the phase-inverted signal of your rendered audio with the audio montage output, so that any differences between them are manifested by sounds, whereas identical regions produce silence.

Null testing is a popular measurement technique in audio processing. It identifies differences between two audio signals by subtracting one signal from the other one, and playing back the resulting signal. If the two signals are identical, on playback, you hear silence. If they are not identical, the residual sounds constitute the difference between the two signals.

In WaveLab Pro, you can perform a null test by adding a null test track to your audio montage. On null test tracks, the phase of the signal is inverted automatically.

IMPORTANT

The signal of the null test track is not processed through any output plug-ins. It is latency-compensated and mixed with the output signal of the rest of your audio montage; that is, everything but the null test track.

NOTE

- The default output routing of null test tracks is left/right. For this reason, you cannot use them to perform null testing on a surround sound audio montage.
- **Master Section** processing is not taken into account when conducting null tests with null test tracks.
- You cannot add null test tracks to a track group.

TIP

As it only makes sense to have a single null test track active at a time, if you add more than one null test track to your audio montage, we recommend that you temporarily hide and deactivate the ones currently not in use by selecting **Sideline Track** from the track control context menu.

Performing null testing with null test tracks is useful for the following purposes:

- **Quality Assurance**: To ensure that, when using plug-ins, clip transitions do not include any silent parts or are affected by random distortion.
- **Audio Analysis**: To identify and analyze differences between two tracks that sound very similar.
- **Sound Design**: To extract and isolate specific sound elements that are revealed by the null test, and to use them as an inspiration.
- **Mastering**: To ensure that any editing you perform on the mix produces the intended results and does not lead to any additional, undesired changes.

RELATED LINKS

Conducting Null Tests

You can conduct a null test to reveal possible problems invoked by the rendering of an audio montage.

PROCEDURE

1. Render the entire audio montage via the **Render** tab.
2. Click **+** at the top left of the track control area, and select **Null Test Track** from the **Add Track** menu.
3. Import the rendered audio file into the audio montage, on the null test track.
4. Play back the entire audio montage.

RESULT

If no sound is produced on playback, the two audio signals are identical.

NOTE

Complete silence, also referred to as a "perfect null" in audio processing, is rarely achieved in real-world null testing situations, because minor issues, such as quantization loss of precision or randomness, are likely to occur. As a rule of thumb, the more silent the result, the more similar the two audio signals.

Adding Pictures to a Picture Track

You can add JPG, JPEG, PNG, BMP, GIF, TIF, and TIFF files to your picture track.

PREREQUISITE

In the **Audio Montage** window, add a picture track to your audio montage.

PROCEDURE

1. On the picture track, set the edit cursor to the position where you want to insert the picture.

2. Right-click an empty area of the picture track and click **Insert Files**.

3. Select a picture and click **Open**.

Splitting Stereo Tracks into Mono Tracks

You can split stereo tracks into left/right or mid/side mono tracks. This is a virtual split which does not affect or create audio files.

PROCEDURE

1. In the **Audio Montage** window, right-click the track control area of the track that you want to split.

2. Do one of the following:

   - To split the stereo track into two left/right mono tracks, select **Split Channels** > **Split into Left/Right Mono Tracks**.

   - To split the stereo track into two mid/side mono tracks, select **Split Channels** > **Split into Mid/Side Mono Tracks**.

RESULT

The track is split. If there are clips on the track, the two stereo sides are now separate clips, allowing you to move, edit, or process them independently. If the track has no clips, this is the same as deleting the track and inserting two new mono tracks.

The mono tracks are automatically grouped and can only be moved and resized together.

When you drag a stereo clip onto a mid/side mono track, the stereo clip is automatically split into mid and side signals. During playback and rendering, the mid/side channels are automatically combined to left/right channels at the montage output.

Track Groups

Track groups are selections of tracks whose outputs are mixed together and routed through the group effects, montage effects, gain settings, and pan settings in the **Inspector**. This allows you

to apply effects to a track group while still being able to apply effects to individual tracks of a group. This is useful for stem-mastering, for example.

RELATED LINKS
Inspector Window on page 490
Track Groups Dialog on page 381
Grouping Tracks on page 382
Clip Groups on page 447

Track Groups Dialog

In this dialog, you can create track groups, add tracks to track groups, and rename tracks and track groups. You can also edit the color settings for the waveform of tracks in a track group.

● To open the **Track Groups** dialog, right-click in the track control area of a track and select **Edit Track Groups**.
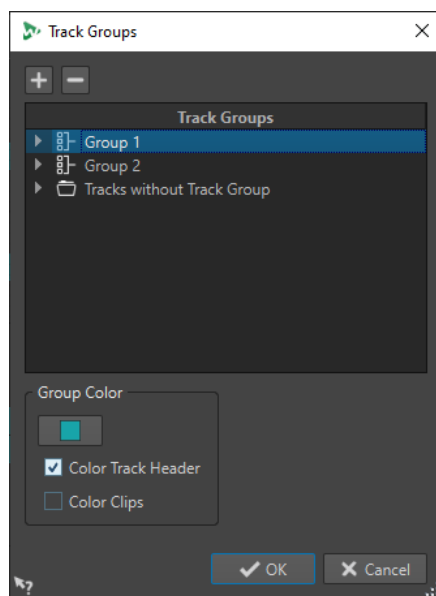
Add Track Group

Adds a new, empty track group to the **Track Groups** list.

Remove Track Group

Removes the selected track group from the **Track Groups** list.

Track Groups

This list displays all track groups, the tracks they contain, and the tracks that are not part of a track group. You can double-click a track or track group to enter a name or rename tracks and track groups.

You can move tracks to other track groups or to the **Tracks without Track Group** list via drag and drop.

Track Color

Allows you to select a color for the clip waveform of the selected track. To apply the default color, click the color button and select **Reset Default Color**.

Group Color

Allows you to select a color for the selected track group. To apply the default color, click the color button and select **Reset Default Color**. You can apply colors to the following elements:

- If **Color Track Header** is activated, the selected color is displayed in the track control areas of the selected track group.

- If **Color Clips** is activated, the selected color is applied to the wave form of the clips in the selected track group.

To apply the default color, click the color button and select **Reset Default Color**.

RELATED LINKS
Track Control Area on page 321
Track Groups on page 380
Grouping Tracks on page 382

Grouping Tracks

You can add one or multiple tracks to a new track group or to an existing track group.

PROCEDURE

1. In the montage window, select the tracks that you want to add to a track group.

2. Right-click in the track control area of a track and select **Add Selected Tracks to Group**.

3. In the **Track Groups** dialog, do one of the following:

   - To add the selected tracks to a new track group, click **Add Track Group**, enter a name for the track group, and click **Add Tracks to Selected Group**.

   - To add the selected tracks to an existing track group, select the track group and click **Add Tracks to Selected Group**.

RESULT
The selected tracks are grouped.

AFTER COMPLETING THIS TASK
You can now add effects to the track group in the **Inspector** window.

RELATED LINKS
Track Groups on page 380
Selecting Tracks on page 373
Track Groups Dialog on page 381
Coloring Track Groups on page 383
Adding Effects via the Inspector Window on page 501

Moving Tracks to Other Track Groups

You can move tracks from one track group to another track group or to the **Tracks without Track Group** list.

PROCEDURE

1. Right-click the track control area and select **Edit Track Groups**.

2. In the **Track Groups** dialog, drag and drop a track to another track group or to the **Tracks without Track Group** list.

RELATED LINKS
Track Groups on page 380
Track Groups Dialog on page 381

Removing Tracks from Track Groups

You can remove one or multiple tracks from a track group.

PROCEDURE

1. In the montage window, select the tracks that you want to ungroup.

2. Right-click the track control area of a track and select **Ungroup Selected Tracks**.

    If this would remove all tracks from a track group, the following applies:

    - If the track group has no effects assigned to it in the **Groups** section of the **Inspector** window, the track group is removed.

    - If the track group has effects assigned to it, the **Ungroup Selected Tracks** dialog opens.

3. In the **Ungroup Selected Tracks** dialog, do one of the following:

    - To remove the selected tracks from the track group but keep the empty track group with its effects, select **Remove Tracks and Keep Empty Group**.

    - To remove the track group, select **Remove Tracks and Group**.

RELATED LINKS
Track Groups on page 380
Track Groups Dialog on page 381

Muting/Soloing Track Groups

You can mute/solo all tracks of a track group when you mute/solo one track of a track group.

PREREQUISITE
Your audio montage contains at least one track group.

PROCEDURE

1. At the top of the track control area, activate **Grouped Mute/Solo**.

2. In the track control area of a track, click **Mute** or **Solo**.

RESULT
All tracks of the track group are muted/soloed.

RELATED LINKS
Track Control Area on page 321
Track Groups on page 380

Coloring Track Groups

You can assign colors to track groups to quickly identify which tracks are in a track group. The color setting is applied to the waveform of clips and to the track control area.

PROCEDURE

1. Right-click in the track control area of a track, and select **Edit Track Groups**.

2. In the **Track Groups** dialog, do one of the following:

    - To change the color of a track group, select the track group from the **Track Groups** list, and edit the color settings in the **Group Color** section.

- To change the color of an individual track in a track group, select the track from the **Track Groups** list, and choose a color in the **Track Color** section.

3. Click **OK**.

RESULT

The waveform of the clips and/or the track control area of each track are displayed in the selected color.
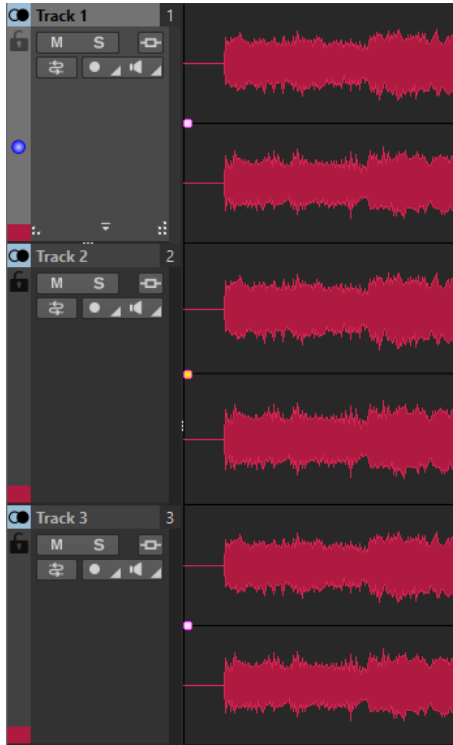
RELATED LINKS
Track Groups on page 380
Track Groups Dialog on page 381

Lanes

You can divide tracks into lanes. This allows you to place clips on the same track on different lanes in parallel for stem mastering, for example.

You can add up to 8 lanes to a stereo track, mono track, or reference track. If a track contains only one lane, the lane behaves like a track. That is, the lane control area is not available.

Stereo tracks can only contain stereo lanes and mono tracks can only contain mono lanes.

RELATED LINKS
Adding Lanes to Tracks on page 384
Lane Control Area on page 388

Adding Lanes to Tracks

You can add up to 8 lanes to a stereo track, mono track, or reference track.

PROCEDURE

1. Do one of the following:

- If the track contains no lanes, right-click the track control area.

- If the track already contains lanes, select the lane after which you want to add a new lane, and right-click the track control area.

2. Select **Add Lane**.

3. Optional: Repeat the first two steps to add as many lanes as you need.

RELATED LINKS
Track Control Area on page 321

Removing Lanes

You can remove each lane individually.

PROCEDURE

- Do one of the following:

  - Right-click the lane control area of the lane that you want to remove, and select **Remove Selected Lane**.
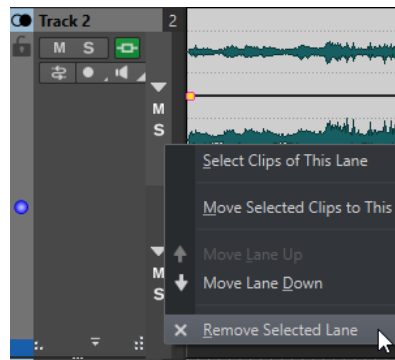
  - Right-click an empty area of the lane that you want to remove, and select **Lane** > **Remove Selected Lane**.

RELATED LINKS
Lane Control Area on page 388

Muting and Soloing Lanes

You can mute and solo each lane individually.

CHOICES

- In the lane control area of a lane, do one of the following:

  - To mute a lane, click **Mute**.
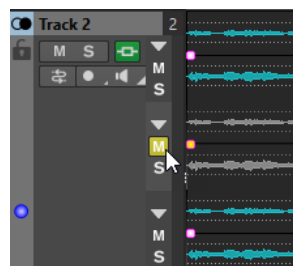
  - To mute all lanes, click **Mute** for the track.
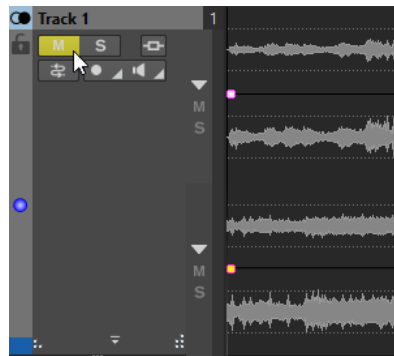
- To solo a lane, click **Solo**.
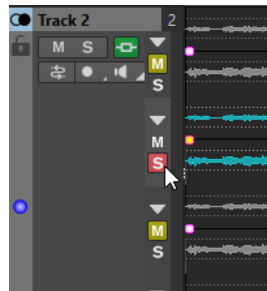
- To solo multiple lanes, `Ctrl/Cmd`-click **Solo** for all lanes that you want to solo.
- To activate solo defeat for a lane, press `Ctrl/Cmd` - `Alt/Opt` and click **Solo**.

  In this mode, the lane is not muted when you solo another lane. To deactivate solo defeat, click **Solo** again.

RELATED LINKS
Lane Control Area on page 388

Converting Lanes to Tracks

You can convert the lanes of a track to individual tracks.

PROCEDURE

1. Right-click the track control area of the track that contains the lanes that you want to convert to individual tracks.
2. Select **Convert Lanes to Tracks**.
3. Depending on whether the track contains effects, the following options are available:
   - To add the effects to the first new track only, click **Add Effects to First Track**.
   - To copy the effects to each new track, click **Add Effects to Each Track**.
   - To create a track group that contains the new tracks and the track effects, click **Add Effects to Track Group**.

RELATED LINKS
Track Control Area on page 321

Converting Tracks to Lanes

You can convert the selected tracks to individual lanes on the active track.

PROCEDURE

1. Select the tracks that you want to convert to lanes.

2. Right-click the track control area of the track to which you want to add the lanes.

3. Select **Convert Selected Tracks to Lanes on This Track**.

RELATED LINKS
Track Control Area on page 321

Folding and Unfolding Lanes

You can fold and unfold each lane individually.

CHOICES

- In the lane control area, do one of the following:

  - To fold/unfold a lane, click **Fold/Unfold Lane**.

  - To fold all lanes except one, `Ctrl/Cmd`-click **Fold/Unfold Lane** for the lane that you want to keep unfolded.

  - To unfold all lanes, `Shift`-click **Fold/Unfold Lane** for any lane.

RELATED LINKS
Lane Control Area on page 388

Exchanging Clips between Lanes

You can quickly exchange one clip with another clip between lanes. This allows you to compare different versions of a clip, for example.

PREREQUISITE

To be able to exchange clips between lanes, the following applies:

- The track must have at least two lanes.

- The clips that you want to exchange must be on different lanes and overlap each other by at least 50 %.

NOTE

Only one clip per lane is available for exchange.

PROCEDURE

1. In the montage window, right-click the bottom area of the clip that you want to exchange with another clip.

2. In the **Active Clip** menu, select **Exchange With**, and select the clip that you want to exchange.

RELATED LINKS
Active Clip Menu on page 418

Lane Control Area

The lane control area allows you to mute, solo, collapse, and expand lanes. The corresponding **Lane** pop-up menu contains lane selection options and allows you to move lanes up or down.

The lane control area is located at the right side of the track control area. It is only visible if the track contains lanes.
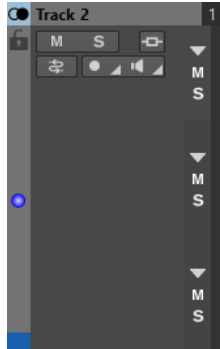
Fold/Unfold Lane

Allows you to fold/unfold individual lanes.

Mute

Mutes the lane.

Solo

Solos the lane.

Lane Pop-up Menu

- To open the **Lane** pop-up menu, right-click the lane control area of a lane.
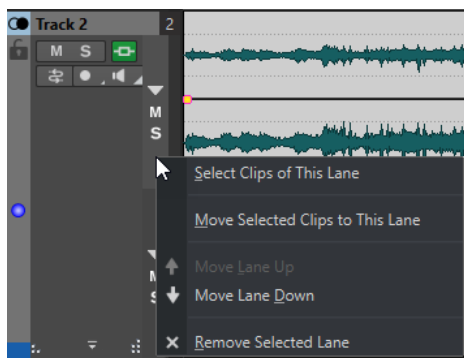
Select Clips of This Lane

Selects the clips of this lane without deselecting clips that you have selected on other lanes or tracks.

Move Selected Clips to This Lane

Moves the selected clips from another lane to this lane. The selected clips must be part of the same lane.

Move Lane Up/Move Lane Down

Moves the selected lane up or down.

Remove Selected Lane

Removes the selected lane.

Title Navigator

The **Title Navigator** pop-up menu allows you to quickly navigate between titles that spread over multiple tracks or lanes in your audio montage. Each title is determined by a title marker pair, and the clips that are located within the title marker pair range on all tracks or lanes.

- To open the **Title Navigator** pop-up menu, click **Title Navigator** at the top of the track control area.
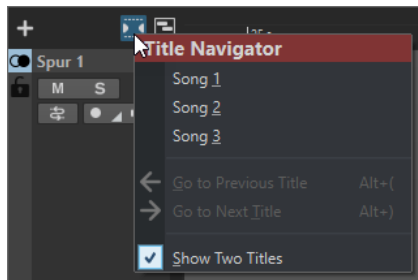
Title list

The title list displays the names of the title start markers of your audio montage. You can edit the name of the title start marker in the **Markers** window or by right-clicking a title start marker and selecting **Rename**.

Go to Previous Title

Jumps to the title that is located to the left of the selected title.

Go the Next Title

Jumps to the title that is located to the right of the selected title.

Show Two Titles

If this option is activated, you can select two titles in the title list to be displayed in the montage window. This allows you to have a better overview when you edit the transition between two titles, for example.

Clips

The audio files that you insert to audio montages are represented as clips. A clip contains a reference to a source audio file on your hard disk as well as start and end positions in the file, volume and pan curves, fades, etc. This allows clips to play back smaller sections of their source audio files.

Any number of clips can reference the same source file. Because a clip only references to the original source file, it contains no audio data. Any number of clips can reference the same source file.

You can also use envelopes and effects on clips.

You can see the clips of the active audio montage in the **Clips** window.
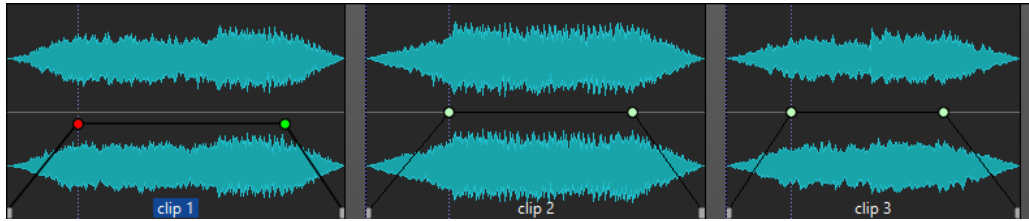
3 clips on a track

RELATED LINKS
Clip Editing on page 406

Inserting Audio Files into Audio Montages

When you insert audio files into audio montages, the audio files are represented as clips. There are several ways to insert audio files into audio montages.

RELATED LINKS
Clips on page 389
Inserting Audio Files into Audio Montages Using Drag and Drop on page 390
Inserting Audio Files into Audio Montages Using the Context Menu on page 391
Inserting Audio Files into Audio Montages Using Copy and Paste on page 391
Inserting Audio Files into Audio Montages Using the File Explorer/macOS Finder on page 391
Inserting Audio Files into Audio Montages Using the File Browser Window on page 392
Inserting Audio File Regions into Audio Montages Using Drag and Drop on page 392
Inserting Audio Files into Audio Montages by Copying From Other Audio Montages on page 393
Inserting Stereo Audio Files into Mono Tracks or Vice Versa on page 394
Inserting Clips into Audio Montages Using the Clips Window on page 395
Audio Montage Creation via the Startup Assistant on page 25

Inserting Audio Files into Audio Montages Using Drag and Drop

You can drag an audio file or a section of an audio file from the **Audio Editor** to the **Audio Montage** window to insert it into the audio montage.

PROCEDURE

1. In the **Audio Editor**, do one of the following:

    - To add the whole audio file into the audio montage, drag the audio file tab to an audio montage tab and drop it on a track.

    - To add a part of the audio file into the audio montage, select the audio part that you want to add to the audio montage, drag it to the audio montage tab, and drop it on a track.

2. Make adjustments in the **Import Files** dialog, and click **OK**.

RESULT

A clip is created, named after the original file.

RELATED LINKS
Import Files Dialog on page 393
Audio Editor Window on page 176
Audio Montage Window on page 320

Inserting Audio Files into Audio Montages Using the Context Menu

The context menu of the **Audio Montage** window allows you to insert audio files into audio montages.

PROCEDURE

1. In the **Audio Montage** window, right-click an empty area of a track.

2. Select **Insert Audio Files** from the **Insert** pop-up menu, and choose the audio file that you want to position on the track.

3. Make adjustments in the **Import Files** dialog, and click **OK**.

RESULT

A clip is created, named after the original file.

RELATED LINKS

Inserting Audio Files into Audio Montages Using Copy and Paste

You can copy and paste an audio file or a section of an audio file from the wave window to the montage window to insert it into the audio montage.

PROCEDURE

1. In the **Audio Editor**, select the audio section to which you want the clip to refer to.

2. Select the **Edit** tab and click **Copy**, or press **Ctrl/Cmd**-**C**.

3. In the **Audio Montage** window, select the track where you want to insert the clip.

    The clip insert position is indicated by the edit cursor.

4. Select the **Edit** tab and click **Paste**, or press **Ctrl/Cmd**-**V**.

RESULT

A clip is created, named after the original file.

Inserting Audio Files into Audio Montages Using the File Explorer/macOS Finder

You can copy and paste an audio file from the File Explorer/macOS Finder to the montage window to insert it into the audio montage.

PROCEDURE

1. In the File Explorer/macOS Finder, select an audio file and press **Ctrl/Cmd**-**C**.

2. In the montage window, set the edit cursor at the position where you want to insert the clip.

3. Select the **Edit** tab and click **Paste**, or press **Ctrl/Cmd**-**V**.

RESULT

A clip is created, named after the original file.

Inserting Audio Files into Audio Montages Using the File Browser Window

You can drag an audio file from the **File Browser** window to the montage window to insert it into the audio montage.

> NOTE

The following can also be done from the File Explorer/macOS Finder.

PROCEDURE

1. Select **Tool Windows** > **File Browser**.

2. In the **File Browser** window, select the audio files to which you want the clip to refer, and drag them on a track.

    *   If you have selected a single audio file, the **Paste** pop-up menu opens.

    *   If you have selected several audio files, the **Import Files** dialog opens.

3. Do one of the following:

    *   If you have selected a single audio file, make adjustments in the **Import Files** dialog.

    *   If you have selected several audio files, specify how the files should be ordered and placed, and click **OK**. Then select an insert option from the pop-up menu.

RESULT

A clip is created, named after the original file.

RELATED LINKS
File Browser Window on page 102
Import Files Dialog on page 393

Inserting Audio File Regions into Audio Montages Using Drag and Drop

If you have defined marker regions in an audio file, you can drag these regions from the **File Browser** window onto a track.

PROCEDURE

1. Select **Tool Windows** > **File Browser**.

2. In the **File Browser** window, select the audio file from which you want to insert marker regions into your audio montage.

    On the right side of the **File Browser** window, the audio regions section shows the marker regions of the selected file. This section is hidden by default. To show the audio regions section, select an audio file that contains markers, and click **Show Audio Regions**.
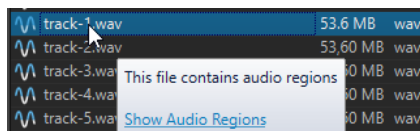
3. Drag any region to the track.

4. Select an insert option from the pop-up menu.

RESULT

A clip is created, named after the original file.

Inserting Audio Files into Audio Montages by Copying From Other Audio Montages

If you have opened more than one audio montage, you can copy clips from one audio montage to another, either by using drag and drop or by using copy and paste.

PROCEDURE

1. In an audio montage, select the clips that you want to insert into another audio montage.

2. Do one of the following:

    ● Drag the clip to the tab of another audio montage and drop it on a track.

    ● Click **Ctrl/Cmd**-**C** . Open another audio montage and place the edit cursor at the position where you want to insert the clip. Click **Ctrl/Cmd**-**V** .

Import Files Dialog

On importing audio files into audio montages, the **Import Files** dialog allows you to choose to create a copy of the original audio file in the audio montage folder or one of its subfolders, and whether or not to save this choice for future imports.
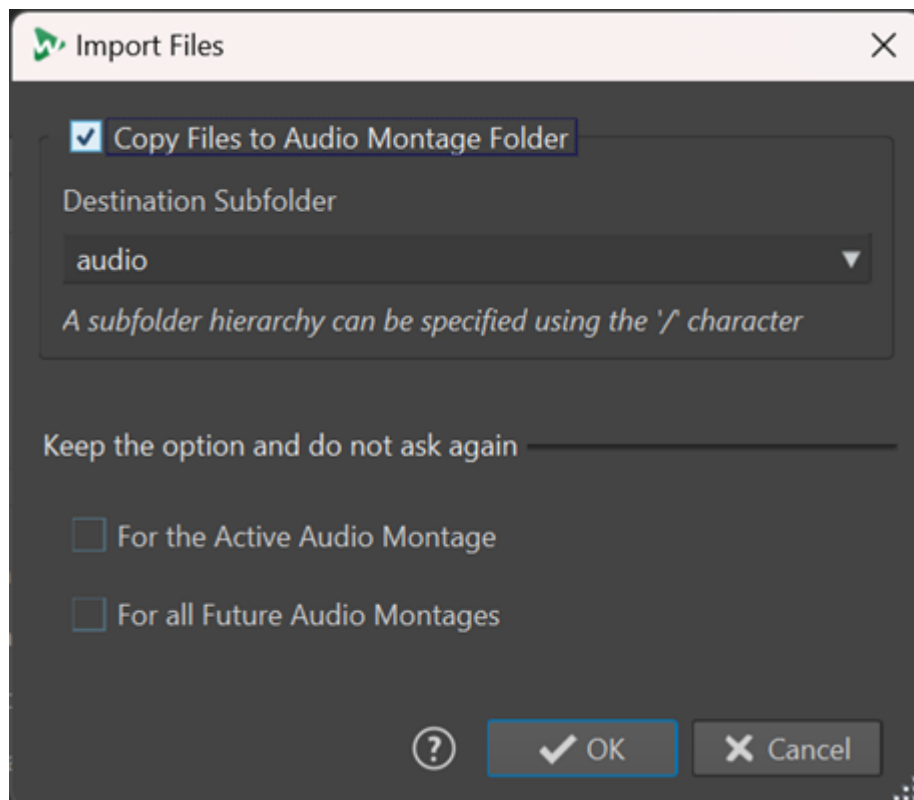
Copy Files to the Audio Montage Folder

> Creates a duplicate of the audio files and saves them in the audio montage folder. Activated by default, the option ensures that the source files remain unchanged in the audio montage; that is, they are unaffected by any editing in the **Audio Editor**.

Optionally, the **Destination Subfolder** menu allows you to choose a subfolder of the audio montage folder as the location for the duplicate of the audio file. You can use "/" to specify the folder hierarchy.

> **NOTE**
>
> ● If you deactivate **Copy Files to the Audio Montage Folder**, you can still add the source file or a copy of it to the audio montage folder or one of its subfolders at a later point in time, using the **Audio Montage Consolidation** feature.
>
> ● If you add a previously imported audio file to the same audio montage again, the **Import Files** dialog does not appear.

Keep the Option and Do Not Ask Again

To save your current **Copy File to the Audio Montage Folder** setting for further import operations, activate **For the Active Audio Montage** or **For All Future Audio Montages**.

As a result, the dialog does not open again, when importing further audio files into the active audio montage or when importing audio files into any future audio montage, respectively.

> **NOTE**
>
> To reset this option, activate **Show Copy Option Dialog When Importing Files** on the **All Audio Montages** panel or the **Active Audio Montage** panel the of the **Preferences** for audio montages.
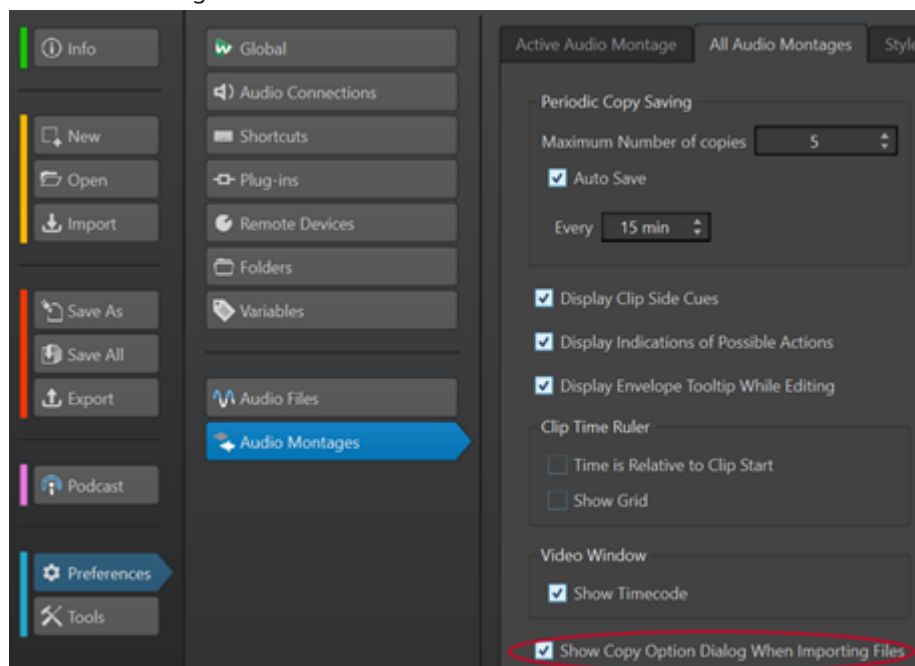
Inserting Stereo Audio Files into Mono Tracks or Vice Versa

When you insert a stereo audio file into a mono track, you can decide whether to automatically create a stereo track, split the stereo file on two mono tracks, or split the stereo track on two lanes.

Insert Stereo Audio Files on Mono Tracks
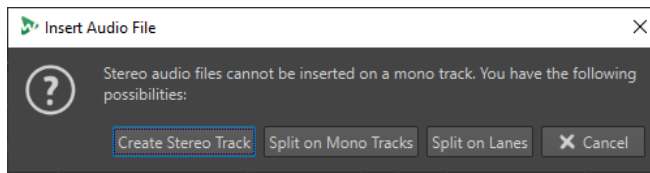
When you insert a stereo audio file into a mono track, the following options are available in the **Insert Audio File** dialog:

Create Stereo Track

Creates a stereo track and inserts the stereo audio file.

Split on Mono Tracks

Splits the stereo audio file on two mono tracks. If the track below the first track is already a mono track, this track is used for the second mono file. If there is no second mono track, a mono track is created automatically.

Split on Lanes

Splits the stereo audio file on two lanes. If a second lane already exists below the target lane, this lane is used for the second mono file. Otherwise, a second lane is created automatically.

Insert Mono Audio Files on Stereo Tracks
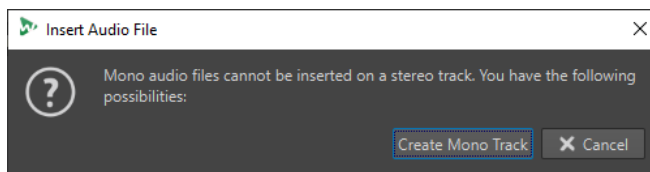
When you insert a mono audio file into a stereo track, you can select **Create Mono Track** to automatically create a mono track below the stereo track and insert the mono audio file here.

RELATED LINKS

Inserting Clips into Audio Montages Using the Clips Window

You can drag a clip from the **Clips** window to the montage window to insert it into the audio montage.

PROCEDURE

1. Select **Tool Windows** > **Clips**.

2. Select one or several clips, and drag them to a track.

   If you drag a single clip on a clip on the track, you must select an insert option from the pop-up menu.

RESULT

A clip is created, named after the original file.

Clip Inserting Options

When dragging a single clip on another clip, you can choose between different clip inserting options. For example, you can create default fades. You can also insert multiple clips at the same time. When you insert multiple audio files, the **Insert Audio Files** dialog opens.

You can insert clips by pasting, importing from disk, using drag and drop, etc.

RELATED LINKS

Single Clip Inserting

If you insert a single clip at a position in an audio montage that contains another clip, a pop-up menu opens. By selecting one of the menu items, you specify how the clip should be inserted, whether existing clips should be affected or not, etc.
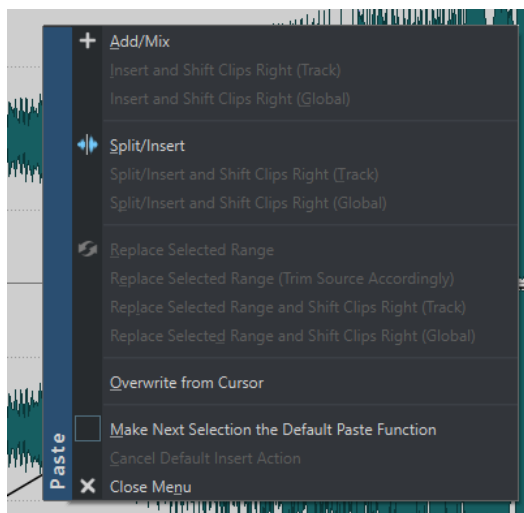
Add/Mix

Inserts the clip without affecting any clips that already exist on the destination track. However, if an inserted audio clip partially overlaps another audio clip, a crossfade is created in the overlapping zone provided that an auto crossfade option is active.

Insert and Shift Clips Right (Track)

All clips to the right of the inserted clip (on the same track) are moved to the right.

Insert and Shift Clips Right (Global)

All clips to the right of the inserted clip (on all tracks) are moved to the right.

Split/Insert

Only available if the insertion point is within an existing clip (audio tracks only). The existing clip is split and the right section is moved to the right. Other clips are not affected.

Split/Insert and Shift Clips Right (Track)

Applies the **Split/Insert** function and moves all other clips on the same track to the right (audio tracks only).

Split/Insert and Shift Clips Right (Global)

Applies the **Split/Insert** function and moves all other clips on all tracks to the right (audio tracks only).

Replace Selected Range

Only available if there is a selection range on the destination track. The clip with the selection range is split at the selection range edges, the inserted clip replaces the range, and the section to the right of the range is moved to the left or right (depending on the length of the inserted clip and the length of the selection range), to close gaps behind the inserted clip.

Replace Selected Range (Trim Source Accordingly)

Only available if there is a selection range on the destination track and if that selection range is shorter than the range of the clip that is to be inserted. The inserted clip overwrites only the selected range. If necessary, the range to be inserted is trimmed according to the current selection.

Replace Selected Range and Shift Clips Right (Track)

Applies the **Replace Selected Range** function and moves all other clips on the same track to the right.

Replace Selected Range and Shift Clips Right (Global)

Applies the **Replace Selected Range** function and moves all other clips on all tracks to the right.

Overwrite from Cursor

Inserts the clip at the edit cursor position. If the inserted clip overlaps any other clips, the overlapped regions are removed from the existing clips.

Make Next Selection the Default Paste Function

If this option is activated, you can select a default option from the menu. This default option is used when inserting audio. However, if the option is not compatible with the context, it is not processed and the default option is deactivated. For example, when using **Replace Selected Range** while there is no range selected.

- To deactivate the default insert action, select the **Edit** tab, right-click the **Paste** button, and select **Cancel Default Insert Action**.

Close Menu

No clip is added.

RELATED LINKS
Clip Inserting Options on page 396
Insert Audio Files Dialog on page 398

Insert Audio Files Dialog

When you insert multiple audio clips to an audio montage by importing them from disk or by using drag and drop, the **Insert Audio Files** dialog opens. You can add the files to tracks or lanes.
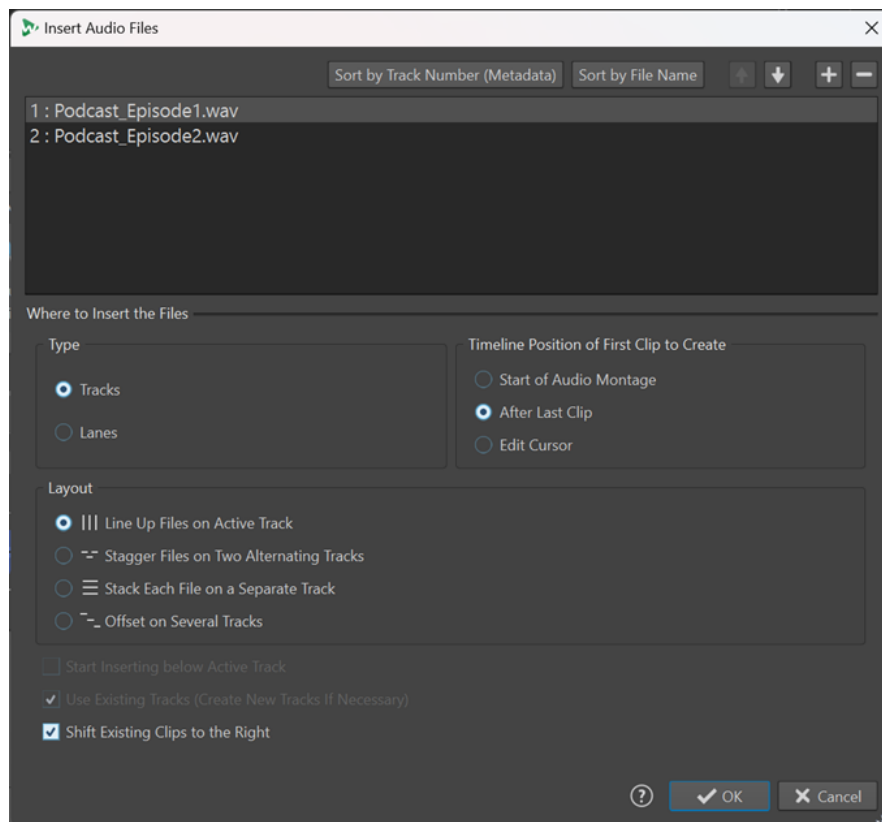
Audio Files List

This list displays the audio files that you want to insert to the audio montage.

Sort by Track Number (Metadata)

Sorts the audio files in the audio file list according to their metadata track number. WaveLab Pro looks for metadata track number information in the following order:

1   RIFF

2   ID3v2

3   CART

Audio files that have the same track number metadata are displayed in orange. Audio files that do not contain track number metadata are displayed in red at the end of the file list.

Sort by File Name

Sorts the audio files in the audio file list according to their file names.

Up/Down Arrow Buttons

Moves the selected file up/down in the list.

Add File

Opens the File Explorer/macOS Finder where you can select files to be added to the list.

Remove File

Removes the selected file from the list.

Type

Tracks

If this option is activated, the audio files are inserted on tracks.

Lanes

If this option is activated, the audio files are inserted on lanes. If the audio files that you want to insert contain stereo and mono files, the **Lanes** option is not available.

Position of First Clip

Start of Audio Montage

If this option is activated, the first clip is inserted at the start of the audio montage.

Edit Cursor

If this option is activated, the first clip is inserted at the edit cursor position.

Layout

Line up Files on Active Track/Line up Files on Active Lane

If this option is activated, the clips are added to the audio montage, lined up contiguously on a single track/lane and spaced according to the **Default Gap**. You can set the default gap in the **Active Audio Montage** tab in the **Audio Montages Preferences**.

Stagger Files on Two Alternating Tracks/Stagger Files on Two Alternating Lanes

If this option is activated, the clips are added to the audio montage, lined up contiguously on two alternating tracks/lanes.

Stack Each File on a Separate Track/Stack Each File on a Separate Lane

If this option is activated, the clips are added to the audio montage on separate tracks/lanes, according to the following settings.

- If **Start Inserting below Active Track/Start Inserting below Active Lane** is activated, the new tracks/lanes for the added files are inserted below the active track/lane.

- If **Use Existing Tracks (Create New Tracks If Necessary)/Use Existing Lanes (Create New Lanes If Necessary)** is activated, the files are added to the existing tracks/lanes. If there are more files than existing tracks/lanes, new tracks/lanes are created.

Offset on Several Tracks

If this option is activated, the clips are added to the audio montage on separate tracks, one clip after the other.

Shift Existing Clips to the Right

If this option is activated, any existing clips in the audio montage are moved to the right by an amount equaling the length of the first new added file.

RELATED LINKS

Resolving Sample Rate Mismatches between Audio Montages and Audio Files

If the sample rate of your audio montage differs from the sample rates of the audio files that you want to insert into it, WaveLab Pro allows you to adjust either the sample rate of the audio montage itself or the sample rates of copies of the audio files, so that they match.

PREREQUISITE

On inserting audio files into your audio montage, the **Mismatched Sample Rates** dialog appears and warns you of a sample rate mismatch.

In the **Mismatched Sample Rates** dialog, do one of the following:

- To set the audio montage to the sample rate of the audio files, click **Change Audio Montage**.

  NOTE

  This option is only available if the sample rate is identical for all audio files and the audio montage does not yet contain any audio clips. The latter is the case when using a template, for example.

- To create copies of the audio files and set them to the sample rate of the audio montage, click **Convert Files**.

  As a result, resampled audio file versions are created in the audio montage subfolder `edits.mon`. The process results in a 32-bit float file, without any dithering applied. The name of the file corresponds to the name of the original file, with the new sample rate added as a suffix. If there is an existing file of this name, it is not recreated.

RELATED LINKS
All Audio Montages Tab on page 880
Mismatched Sample Rates Dialog on page 400
Insert Tab (Audio Montage) on page 343

Mismatched Sample Rates Dialog

When you insert audio files into an audio montage and their sample rates differ, the **Mismatched Sample Rates** dialog helps you to resolve the issue.
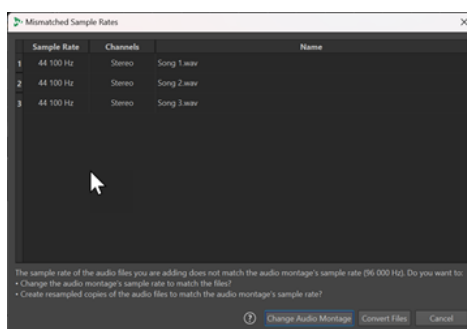
Mismatched Sample Rates Dialog for an empty audio montage, with an identical sample rate set for all audio files to be inserted
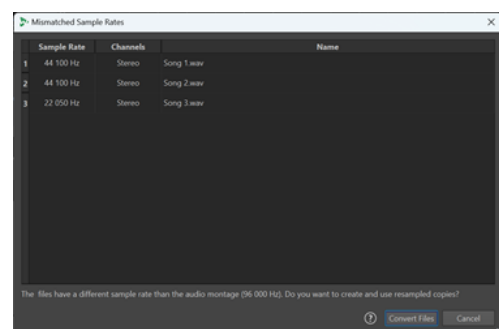
Mismatched Sample Rates Dialog for audio montages with existing clips and/or different sample rates set for the audio files to be inserted

Change Audio Montage

Sets the audio montage to the sample rate of the audio files.

NOTE

This option is only available if the sample rate is identical for all audio files and the audio montage does not yet contain any audio clips.

Convert Files

Creates copies of the audio files and sets them to the sample rate of the audio montage.

TIP

You can adjust the **Resample Conversion Quality** on the **Audio** tab in the **Global Preferences**.

RELATED LINKS
Audio Tab (Global Preferences) on page 868
Resolving Sample Rate Mismatches between Audio Montages and Audio Files on page 400

Multichannel Operations in the Audio Montage

You can open multichannel audio files in audio montages. Each track of the multichannel audio file is organized in channel clusters. A channel cluster is a logical group of channels. It is always one channel or a channel pair.

You can add plug-ins to individual channel clusters.

The channel layout of the audio montage must be compatible with the channels of the multichannel file. For example, you can open a 5.1 audio file or a stereo file in a 5.1 or 7.1 audio montage channel layout. But you cannot open a 5.1 audio file in a stereo audio montage channel layout.

To be able to use WaveLab Pro for multichannel audio files, you need an audio card/interface with multiple inputs and outputs. You must also set up an ASIO driver in the **Audio Connections** tab and specify how the internal input/output channels are connected to your audio card.

RELATED LINKS
Audio Connections Tab on page 33

Multichannel Configuration

You can configure the number of channels to use for each audio montage.

Which configuration you should select depends on a number of factors:

● The number of outputs that are available on your audio card. If you only have 4 outputs on your card, you can only use surround formats with 4 or less channels.

● Whether or not you intend to mix the audio montage to a surround format. If not, select the **Multi Mono** mode when working with Ambisonics files, for example.

● The intended use of the final surround mix. For example, if you want your mix to be compatible with the 5.1 surround set-up, select the **Surround** mode **5.1 (L R C LFE Ls Rs)**.

All multichannel configurations are internally assigned to surround channels in WaveLab Pro. This means that the channels go through the **Master Section** and then to the audio card or they are rendered to a multichannel file or a set of mono/stereo files.

Surround Mode in Audio Montages

If you are using **Surround** mode for an audio montage, you can choose from various multichannel configurations.

On the **Info** tab of the audio montage, select **Surround**. On the **Layout** pop-up menu, the following multichannel layouts are available:

```
3 channels
    LR+LFE (L R LFE)
    LRC (L R C)
    LRS (L R S)
4 channels
    LRC+LFE (L R C LFE)
    LRS+LFE (L R LFE S)
    LRCS (L R C S)
    Quadro (L R Ls Rs)
5 channels
    LRCS+LFE (L R C LFE S)
    Quadro+LFE (L R LFE Ls Rs)
    5.0 (L R C Ls Rs)
6 channels
    5.1 (L R C LFE Ls Rs)
    6.0 Cine (L R C Ls Rs Cs)
    6.0 Music (L R Ls Rs Sl Sr)
7 channels
    6.1 Cine (L R C LFE Ls Rs Cs)
    6.1 Music (L R LFE Ls Rs Sl Sr)
    7.0 Cine (SDDS) (L R C Ls Rs Lc Rc)
    7.0 Music (Dolby) (L R C Ls Rs Sl Sr)
8 channels
    7.1 Cine (SDDS) (L R C LFE Ls Rs Lc Rc)
    7.1 Cine Full Rear (L R C LFE Ls Rs Lcs Rcs)
    7.1 Music (Dolby) (L R C LFE Ls Rs Sl Sr)
    7.1 Proximity (L R C LFE Ls Rs Pl Pr)
    8.0 Cine (L R C Ls Rs Lc Rc Cs)
    8.0 Music (L R C Ls Rs Cs Sl Sr)
    8.0 Cube (L R Ls Rs Tfl Tfr Trl Trr)
    7.1 Cine Top Center (L R C LFE Ls Rs Cs Tc)
    7.1 Cine Center High (L R C LFE Ls Rs Cs Tfc)
    7.1 Cine Front High (L R C LFE Ls Rs Tfl Tfl)
    7.1 Cine Side High (L R C LFE Ls Rs Tsl Tsl)
9 channels
    8.1 Music (L R C LFE Ls Rs Cs Sl Sr)
    8.1 Cine (L R C LFE Ls Rs Lc Rc Cs)
    5.0.4 (L R C Ls Rs Tfl Tfr Trl Trr)
    7.0.2 (L R C Ls Rs Sl Sr Tsl Tsr)
10 channels
    5.1.4 (L R C LFE Ls Rs Tfl Tfr Trl Trr)
    7.1.2 (L R C LFE Ls Rs Sl Sr Tsl Tsr)
    10.0 Auro-3D (L R C Ls Rs Tc Tfl Tfr Trl Trr)
11 channels
    7.0.4 (L R C Ls Rs Sl Sr Tfl Tfr Trl Trr)
    11.0 Auro-3D (L R C Ls Rs Tc Tfl Tfc Tfr Trl Trr)
    10.1 Auro-3D (L R C LFE Ls Rs Tc Tfl Tfr Trl Trr)
12 channels
    10.2 Experimental (L R C LFE Ls Rs Tfl Tfc Tfr Trl Trr LFE2)
    7.1.4 (L R C LFE Ls Rs Sl Sr Tfl Tfr Trl Trr)
    11.1 Auro-3D (L R C LFE Ls Rs Tc Tfl Tfc Tfr Trl Trr)
13 channels
    7.0.6 (L R C Ls Rs Sl Sr Tfl Tfr Trl Trr Tsl Tsr)
    13.0 Auro-3D (L R C Ls Rs Sl Sr Tc Tfl Tfc Tfr Trl Trr)
14 channels
    7.1.6 (L R C LFE Ls Rs Sl Sr Tfl Tfr Trl Trr Tsl Tsr)
    12.2 (L R C LFE Ls Rs Lc Rc Tfl Tfc Tfr Trl Trr LFE2)
    13.1 Auro-3D (L R C LFE Ls Rs Sl Sr Tc Tfl Tfc Tfr Trl Trr)
    14.0 (L R Ls Rs Sl Sr Tfl Tfr Trl Trr Bfl Bfr Brl Brr)
24 channels
    22.2 (L R C LFE Ls Rs Lc Rc Cs Sl Sr Tc Tfl Tfc Tfr Trl Trc Trr LFE2 Tsl Tsr Bfl Bfc Bfr)
```

Assigning Track Channels to Output Channels

When you select a multichannel configuration, you must create and assign track channels to surround output channels manually.

PROCEDURE

1. In the **Audio Montage** window, click **Channel Output Routing** in the track control area for an audio track and select **Track Routing**.

   Each track has its own **Track Routing** dialog. You can have multiple **Track Routing** dialogs open at the same time.

2. In the **Track Routing** dialog, route each channel of the track to an output channel by activating the corresponding channels.
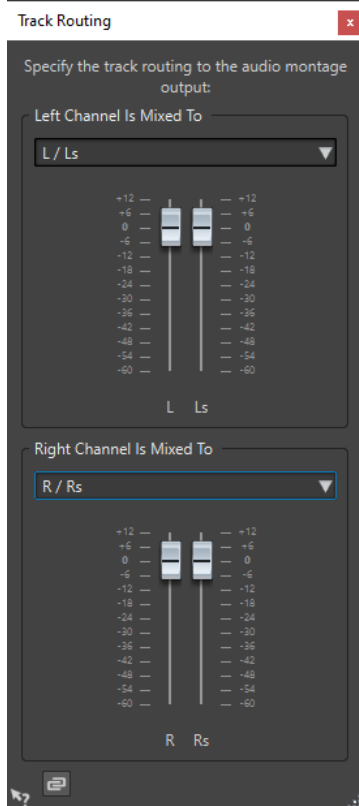
   Which channels are available depends on the selected channel configuration.

3. Click **OK**.

RESULT

If you have selected a surround format, you can route a track channel to several or all surround output channels.

Track Routing Dialog

In this dialog, you set up to which montage output channels the track channels in your audio montage are sent. The available channels depend on the selected channel configuration.

- To open the **Track Routing** dialog, in the **Audio Montage** window, click **Channel Output Routing** in the track control area for an audio track and select **Track Routing**.
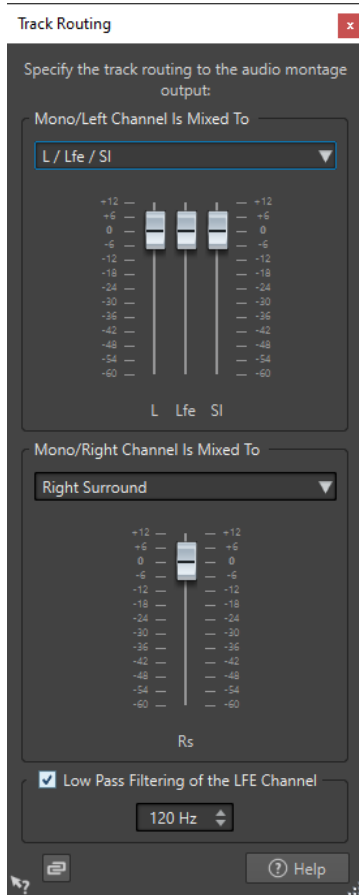
Top Audio Channel Is Sent To

Lets you select to which audio montage audio outputs the left channel of the track is sent.

Bottom Audio Channel Is Sent To

Lets you select to which audio montage audio outputs the right channel of the track is sent.

Gain

Each channel has a gain slider. This allows you to set make individual gain settings for each channel.

Low Pass Filtering of the LFE Channel

If an LFE output is selected, a low pass filter (12 dB/octave) can be applied to the track signal so that only the low frequency content can pass. The cutoff frequency for the filter can be adjusted.

Unlink Faders

Determines whether you can adjust the faders individually or together.

If **Unlink Faders** is deactivated, moving one fader also moves the other by the same amount. Activating **Unlink Faders** allows you to adjust the gain of the channels individually.

RELATED LINKS
Track Control Area on page 321
Assigning Track Channels to Output Channels on page 403

Multichannel Configurations in the Master Section

The **Master Section** automatically rearranges itself when starting playback of a multichannel audio montage. You can rearrange the **Master Section** without starting playback by clicking **Rearrange** in the **Settings** menu at the top of the **Master Section**.

The output channels for the selected channel configuration are displayed in the **Master Section**, with one level fader and clip indicator for each output channel.
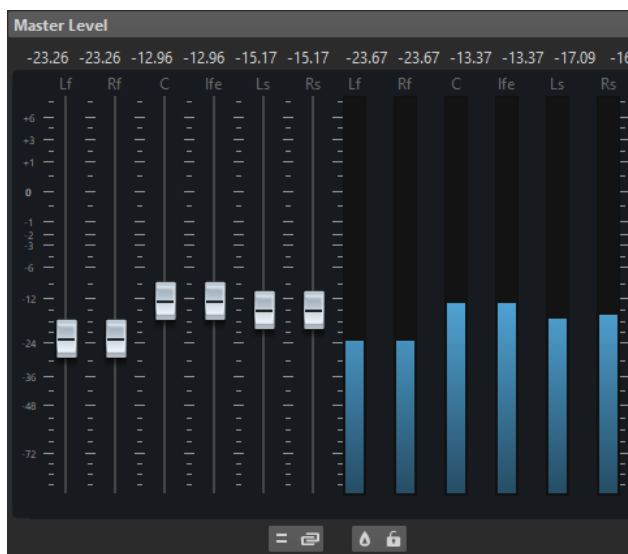
RELATED LINKS
Master Section on page 572

Monitoring a Stereo Mixdown of Multichannel Configurations

In the **Master Section**, you can monitor a stereo mixdown of a multichannel configuration. This allows you to preview a stereo mixdown setting for a surround project, for example.

PROCEDURE

1. In the **Master Section**, open the **Master Level** pane.

2. Below the master meter, click **Audio Channel Processing**.

3. Select **Mix to Stereo**.

Master Effects and Multichannel Audio Montages

Handling effects for a multichannel audio montage is similar to handling effects when working in stereo mode. However, not all plug-ins support multichannel operations. In this case, a warning is displayed when you try to insert them.

Clip Editing

All clips are displayed in the **Clips** window. In this window, you can edit and rearrange clips and drag them into the audio montage.

The active clip is highlighted in the clips list.

RELATED LINKS
Clips on page 389
Clips Window on page 406

Clips Window

This window contains a list of the clips in the active audio montage, with additional information about the clips and options.

● To open the **Clips** window, open an audio montage, and select **Tool Windows** > **Clips**.

		Srce	Name	Track	Lane	FX	Pre-Gap	Start	End	Length			Pre-Gain	Post-Gain	Mute	Comment
1	⊪▶⊪	∿	Track A	1	1		0 s	0 s	10 mn 9 s 465 ms	10 mn 9 s 465 ms	☐	☐	0 dB	0 dB	☐	
2	⊪▶⊪	∿	Track B	2	2		0 s	10 mn 9 s 465 ms	20 mn 5 s 240 ms	9 mn 55 s 775 ms	☐	☐	0 dB	0 dB	☐	
3	⊪▶⊪	∿	Track C	2	2		2 s 227 ms	20 mn 7 s 466 ms	20 mn 15 s 615 ms	8 s 149 ms	☐	☐	0 dB	0 dB	☐	
4	⊪▶⊪	∿	Track D	2	2		3 s 644 ms	20 mn 19 s 259 ms	20 mn 24 s 800 ms	5 s 541 ms	☐	☐	0 dB	0 dB	☐	

Clip List

In the **Clips** window, the following columns are available:

● **Play Pre-Roll/Play** allows you to play the clip with or without pre-roll.

● **Srce** selects the clip in the montage window.

● **Name** displays the name of the clip. You can double-click the name to enter a new name for the clip.

● **Track** displays the track number of the clip. You can click the track number and assign the clip to another track.

● **Lane** displays the lane number of the clip. You can click the lane number and assign the clip to another lane.

● **FX** indicates whether a clip contains effects. Click the **FX** indicator to open the effects of the clip.

● **Pre-Gap** displays the distance to the previous clip. You can double-click the pre-gap value and enter a new distance value.

● **Start** displays the start time of the clip. You can double-click the start value and enter a new start value.

- **End** displays the end time of the clip. You can double-click the end value and enter a new end value.
- **Length** displays the length of the clip. You can double-click the length value and enter a new length value.
- **Lock** locks the clip to avoid that it is accidentally edited.
- **Time Lock** locks the clip to avoid that it is accidentally edited in the time domain.
- **Pre-Gain** allows you to set the pre-effect gain for the clip.
- **Post-Gain** allows you to set the post-effect gain for the clip.
- **Comment** allows you to add a comment to a clip.

You can also mute and lock clips, search for clip names, and play back a clip with or without pre-gap. The playback buttons work in the following way:

From Start with Pre-Roll

⏸▶

Playback from start with a pre-roll.

You can also press **Alt** and click **From Start with Pre-Roll** to play back from the start with a short pre-roll.

From Start

▶⏸

Playback from start.

The FX icon indicates that a clip contains one or more plug-ins. Double-clicking the FX icon opens the **Inspector** window.

- To zoom in on the clip, click the name of the clip.
- To select the time range corresponding to the clip, **Alt** -click the number to the left of the clip name.
- To zoom in and select the time range at the same time, double-click the number to the left of the clip name.

Select Menu

Select All Clips

Selects all clips in the audio montage.

Select Clips on Active Track

Selects all clips that are included in the selected track.

Select Clips Inside Selected Time Range

Selects all clips that are fully encompassed in the selected time range on all tracks.

Select Clip Located at the Cursor Position (on Active Track)

Selects the first clip on the active track that overlaps with the cursor.

Select Clip Located at the Cursor Position (on All Tracks)

Selects all clips on all tracks that overlap with the cursor.

Select Clips Located Before the Cursor (on Active Track)

Selects all clips that have their end point to the left of the cursor on the active track.

Select Clips Located Before the Cursor (on All Tracks)

Selects all clips that have their end point to the left of the cursor on all tracks.

Select Clips Located After the Cursor (on Active Track)

Selects all clips that start to the right of the cursor on the active track.

Select Clips Located After the Cursor (on All Tracks)

Selects all clips that start to the right of the cursor on all tracks.

Inverse Selection

Deselects all selected clips and selects all other clips.

Deselect All Clips

Deselects all selected clips.

Omit Reference Tracks from Select Commands

If this option is activated, the select commands of the **Select** menu are not applied to clips on reference tracks, except for **Deselect All**.

Functions Menu

Bounce Selected Clips

Renders the selected clips and replaces the clips with a single clip.

Create Super Clip from Selected Clips

Replaces the selected clips with a super clip that refers to a sub-montage.

Export Clip List as Text

Opens a plain text version of the clip list in the default text editor.

Batch Renaming

Opens the **Batch Renaming** dialog in which you can batch-rename any number of clips.

Use Audio File Name for Selected Audio Clips

Names each clip after the audio file to which it refers.

Update BWF Time Stamps (Selected Clips)

Updates the time stamp of each audio file that is referenced by a selected clip to reflect the clip position in the audio montage.

The file header of a WAV audio file may contain a time stamp in the Broadcast Wave Format. This time stamp makes it possible to insert audio at precise positions in different applications. The audio files are marked as modified and must be saved.

Move Selected Clips to Their Related BWF Time Stamp

Moves the selected clips to the positions that are contained in their source audio files, provided the audio files contain a time stamp.

Align Clips

Opens the **Align Clips** dialog, which facilitates clip alignment operations.

Zoom in on Selected Clips

Zooms to fit all selected clips in the window.

Resize Selected Clips to Match the Active Clip

Uses the length of the active clip as a reference to change the length of all selected clips.

Mute/Unmute Selected Clips

Mutes/Unmutes all selected clips.

Lock/Unlock Selected Clips

Locks the selected clips to avoid accidental editing. Selected clips that are already locked are unlocked.

Lock/Unlock Moving and Resizing

Locks the position and size of a clip. Other editing options are still available.

Activate All Effects (selected clips)/Deactivate All Effects (selected clips)

Activates/Deactivates all effects assigned to the selected clips in the audio montage at once.

This option is very useful for the following purposes:

- To help you manage CPU resources on albums with many songs, at higher sample rates, oversampling, etc.

- To avoid latency issues due to high CPU consumption while recording.

- To identify the source of issues in your project, such as unwanted noise or glitches, because it allows you to inspect your audio material by selectively activating and deactivating plug-ins on individual or multiple clips.

NOTE

- Deactivated plug-ins do not consume any resources, in contrast to bypassed plug-ins.

- It may take a while for WaveLab Pro to process the request. Unlike bypassing plug-ins, activating or deactivating plug-ins does not take effect instantaneously.

Options Menu

Only Show Selected Clips

If this option is activated, only clips that are selected in the montage window are displayed. This is useful to display only the clips that belong to a specific group (**Clip Groups** window) or to a specific audio file (**File Browser** window).

Show Audio Clips

If this option is activated, audio clips are displayed.

Show Clips of Reference Tracks

If this option is activated, clips that are located on reference tracks are displayed.

Show Video Clips

If this option is activated, video clips are displayed.

Show Picture Clips

If this option is activated, picture clips are displayed.

Show Global Pre-Gaps

Displays the length of the gap between the start of a clip and the end of the previous clip on any track in the **Pre-Gap** column. If the clips overlap, the length is displayed in red.

Show Pre-Gaps by Track

Displays the length of the gap between the start of a clip and the end of the previous clip on the same track. If the clips overlap, the length is displayed in red.

Zoom the Clip When Selected

If this option is activated when you select a clip from the list, the clip fills the track area in the most efficient way.

Make Clip Entirely Visible When Selected

If this option is activated when you select a clip from the list, the track area is scrolled and/or zoomed to display the whole clip.

Customize Command Bar

Opens the **Customize Commands** dialog, which contains options for hiding or showing specific command bar buttons.

RELATED LINKS

Selected Clips and the Active Clip

There is a difference between selected clips and the active clip in an audio montage. Some editing functions can only be performed on an individual clip or the active clip, while others can be performed on multiple clips or selected clips.

Selected Clips

- A selected clip is a clip that you have selected by any of the clip selecting procedures.

- Selected clips are displayed with a lighter background color than unselected clips.

- Multiple clips can be selected at a time. This allows you to perform editing, such as copying, moving, or deleting, on all of them in a single step.

NOTE

Right-clicking the top of a clip opens the **Clips** menu.

Active Clip

- Only one clip can be active at a time.

- The active clip is the most recently selected, clicked, or edited clip.

- The name of the active clip in the **Audio Montage** window is highlighted by a blue background.

- The name of the active clip is displayed in the **Inspector** window.

  Example: **Inspector** window with a clip called "Podcast Teaser Music" that is set as the active clip in the audio montage
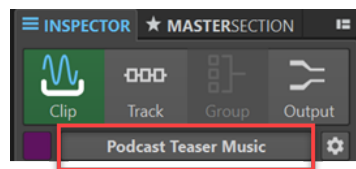
- A clip can be both the active clip and a selected clip at the same time, so that it is marked by the blue background of its name and the lighter background of the clip itself, but the active clip is not necessarily a selected clip.

- With one or several clips selected in an audio montage, there is not necessarily an active clip.

- Some editing tasks can only be performed on active clips.

> **NOTE**
>
> Right-clicking the lower part of a clip opens the **Active Clip** menu.
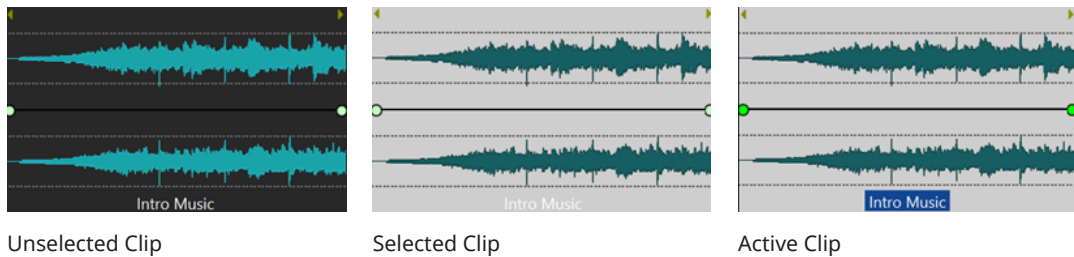
Unselected Clip	Selected Clip	Active Clip

RELATED LINKS

Selecting Clips

For most editing operations on clips, you need to select clips. You can select multiple clips at a time.

Choose from the following options:

- To select a clip and deselect all other selected clips, click the lower part of a clip.
- To select multiple clips, **Ctrl/Cmd**-click the lower part of the clips.
- To make an audio range selection within a clip, position the edit cursor where you want the selection to start. **Shift**-click to indicate the end of the selection.
- To make an audio range selection encompassing several adjacent clips, double-click the upper part of a clip. After the second click, drag to select the audio range.
- To select multiple clips on several tracks with a selection rectangle, hold down **Ctrl/Cmd**-**Shift**, click anywhere, and drag the rectangle.
- For an overview of the clip selection options, open the **Clips** window. Select an option from the **Select** menu, or right-click the upper part of a clip, and select an option from the **Clips** pop-up menu.
- To select multiple clips and designate one of them as the active clip, do one of the following:
  - Press **Ctrl/Cmd** or **Shift**, and select the clips by clicking on them. **Ctrl/Cmd**-click on the clip that you want to make the active clip.
  - Click on the clip that you want to set as the active clip. Then, hold down **Ctrl/Cmd**-**Shift** while clicking and dragging to select further clips.

Selection Ranges in Audio Montages

A selection range is a selected area on a track. The selection range can be entirely or partially within a clip or an empty section of the track. You can make selection ranges on one or multiple tracks.

- To make a selection range, click the upper area of a track and drag to the left or right on one or multiple tracks.

Selection ranges are useful for the following:

- To edit clips by cutting or erasing the selection, or trimming the clip to the selection.

- To create a new clip by dragging the selection range to another track.

- To open a montage window with the selection range from the source audio file by dragging the selection range to the **Audio Editor**.

- To play back only the selection range, either the whole audio montage or only the clip with the intersecting clip part.

- To loop the playback within the selection by activating the loop and selecting the **Loop** mode on the transport bar.

Creating and Editing Selection Ranges in Audio Montages

You can resize, create, move, and remove selection ranges.

- To create a selection range in an empty area on a track, click and drag with the mouse. The start and end position and the length of the range are displayed on the info line.

- To create a selection range within a clip, click and drag with the mouse in the upper clip area. The start and end position and the length of the range are displayed on the info line.

- To create a selection range of the area between two markers, double-click between the markers.

- To create a selection range from a region marker pair, press **Shift**, and double-click the start or end marker. In the **Markers** window, you can also double-click the **Length** field of a region marker.

- To create a selection range from a title of an album, open the **Album** window, and double-click the number to the left of the corresponding title.

- To create a selection range from a clip, open the **Clips** window and **Alt**-click the number to the left of the corresponding clip. To zoom in on the selected clip, click the number to the left of the clip.

- To resize a selection range, **Shift**-click and drag to the left or to the right, or click and drag the edges of the selection range.

- To move a selection range, press **Ctrl/Cmd** and **Shift**, and drag the selection range to the left or right.

- To deselect a selection range, click elsewhere in the audio montage, or press **Esc**.

RELATED LINKS
Markers Window on page 622
Album Window on page 524
Clips Window on page 406

Rearranging Clips

You can freely arrange clips in the montage window.

Mouse Zones

The different areas in a clip are called mouse zones. By clicking and dragging in a particular mouse zone, you can rearrange clips in a specific manner.

By default, the mouse zones have the following basic functionalities:

Top Clip Area
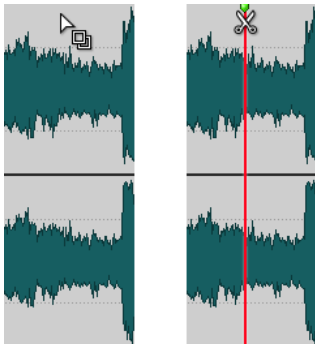
Allows you to:

- Copy a clip or a selection range within a clip by dragging.
- Open the source file by double-clicking.
- Split the clip at the cursor position by double-clicking the edit cursor or pressing **S** .

Upper Clip Area
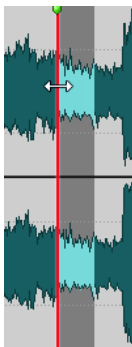
Allows you to:

- Select a range within a clip.
- Open the **Clips** menu by right-clicking.

Lower and Bottom Clip Area
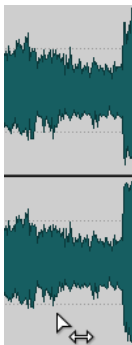
Allows you to:

- Move a clip by dragging.
- Open the **Active Clip** menu by right-clicking.

Clip Edges
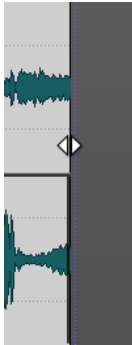
Allow you to:

● Resize a clip by dragging the edges while keeping the audio source static.

● Resize the left or right side of a clip while letting the audio follow by holding **Ctrl/Cmd** and dragging the left or right edges.

Clip Name

● Allows you to rename the clip by double-clicking.

NOTE

When you move the mouse cursor over a mouse zone, the
info line at the bottom left indicates the corresponding actions.
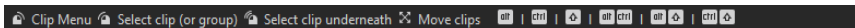
RELATED LINKS
Clips Menu on page 420
Active Clip Menu on page 418

Reordering Clips in Audio Montages By Dragging

In the **Clips** window, you can re-order clips by dragging them to another position in the list.

PROCEDURE

1. Open the **Clips** window.

2. In the clip list, drag a clip to another position in the list.

   The option **Move Overlapping Clips Together** is taken into account.

   You can move more than one clip at the same time, by selecting multiple clips and dragging them. If more than one clip is selected, all clips between the leftmost selected clip and the rightmost selected clips are moved.

Info Line

The info line at the bottom of the **Audio Montage** window shows what happens when you click the mouse button with or without modifier keys, depending on the cursor position.
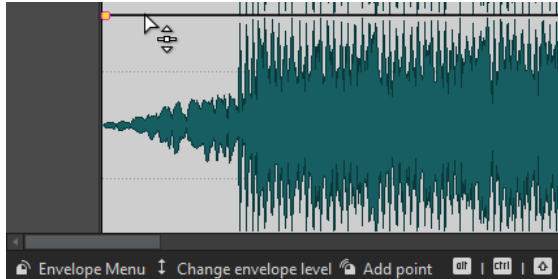
- To activate/deactivate the info line, open the **Audio Montages Preferences**, and on the **All Audio Montages** tab, activate/deactivate **Display Indications of Possible Actions**.

The following symbols are used on the info line:

Single-click

Indicates what happens when you click.

Double-click

Indicates what happens when you double-click.

Right-click

Indicates that you can right-click to display a menu. The name of the menu is displayed to the right of the symbol.

Ctrl/Cmd -click

Indicates that you can **Ctrl/Cmd** -click for an additional function.

Alt -click

Indicates that you can **Alt** -click for an additional function.

Shift -click

Indicates that you can **Shift** -click for an additional function.

Drag up/down

Indicates what happens when you click and drag up or down.

Drag left/right

Indicates what happens when you click and drag left or right.

Drag in any direction

Indicates what happens when you click and drag an item in any direction within the audio montage.

Drag out of the audio montage

Indicates what happens when you click and drag an item out of the audio montage.

Moving/Resizing clips or changing envelope values

This indicates that you are moving or resizing clips, or changing envelope values, for example.

Combined modifier keys

Indicates that you can use combined modifier keys.

RELATED LINKS
All Audio Montages Tab on page 880

Magnetic Bounds in Audio Montages

Some positions, such as markers or the start and end of a clip, can be defined as magnetic. Dragged elements can snap to these positions. This makes it easier to position items accurately.

For example, when you move or resize a clip, and its edges or its front cue point get close to one of the magnetic bounds, the clip snaps to this position. A label is displayed, indicating the snap position.
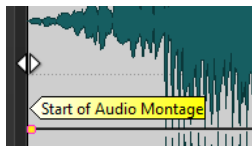
To place the cursor at a magnetic position, click the time line and hold the mouse button pressed. When you now move the cursor vertically, the cursor jumps to the next magnetic bound.

RELATED LINKS
Magnets Menu on page 417

Activating Snapping to Magnets

To make use of the magnetic bounds function, **Snap to Magnets** must be activated.

PROCEDURE

1. In the **Audio Montage** window, select the **Edit** tab.

2. In the **Snapping** section, activate **Snap to Magnets**.

RELATED LINKS
Magnetic Bounds in Audio Montages on page 416
Edit Tab (Audio Montage) on page 337

Magnets Menu

In this pop-up menu, you can specify which positions should be magnetic. When **Snap to Magnets** is activated, items that you move snap to these positions.

- To open the **Magnets** pop-up menu, select the **Edit** tab in the **Audio Montage** window, and click **Magnets** in the **Snapping** section.

You can let items snap to the following positions:

Start of Montage

Makes the start of the audio montage magnetic.

Clip Start

Makes the start of the clips magnetic.

Clip End

Makes the end of the clips magnetic.

Clip Front Cue Point

Makes the front cue point in the clips magnetic.

Clip Back Cue Point

Makes the position that is located after the clip end magnetic. If this option is deactivated, all back cue points are invisible in the audio montage.

Time Ruler Marks

Makes the main time units that are displayed in the ruler magnetic.

Markers

Makes the markers magnetic.

Markers in Audio Sources

Makes the markers in the original audio files of the clip magnetic if they are visible.

Time Selection Edges

Makes the edges of the selected time range magnetic.

Cursor

Makes the edit cursor magnetic.

RELATED LINKS
Edit Tab (Audio Montage) on page 337

Clip Context Menus

Many editing functions for clips can be accessed via the clip context menus. Depending on where you right-click the clip, different context menus are available.
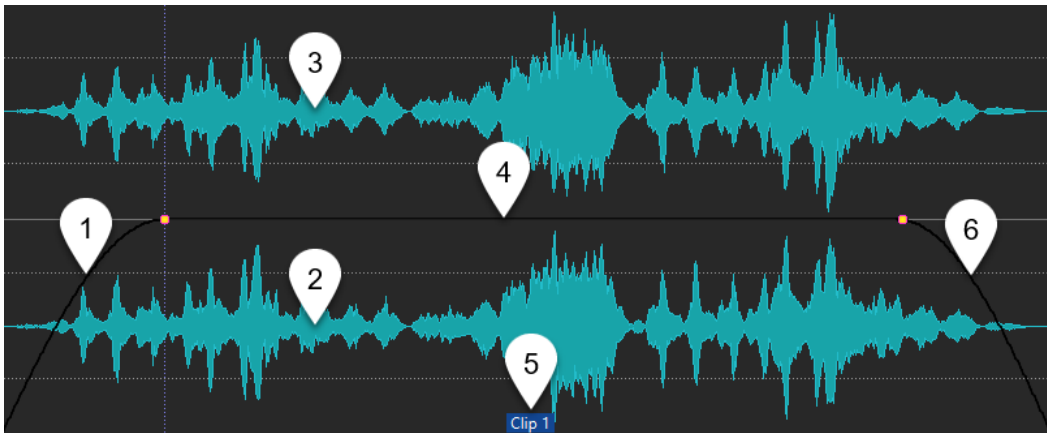
1 **Fade in section**

Opens the **Fade In** pop-up menu, where you can edit the fade in.

2 **Bottom area of a clip**

Opens the **Active Clip** pop-up menu, where you can edit the active clip.

3 **Upper area of a clip**

Opens the **Clips** pop-up menu, where you can select specific areas of a clip, lock a clip, etc.

4 **Sustain section**

Opens the **Envelope** pop-up menu, where you can edit the envelope.

5 **Clip name**

Opens the **Effects** pop-up menu, where you can add effects to the clip.

6 **Fade out section**

Opens the **Fade Out** pop-up menu, where you can edit the fade out.

RELATED LINKS
Active Clip Menu on page 418
Clips Menu on page 420

Active Clip Menu

The **Active Clip** pop-up menu allows you to edit and play back the active clip with or without pre-roll.

● To open the **Active Clip** pop-up menu, right-click the bottom area of a clip.
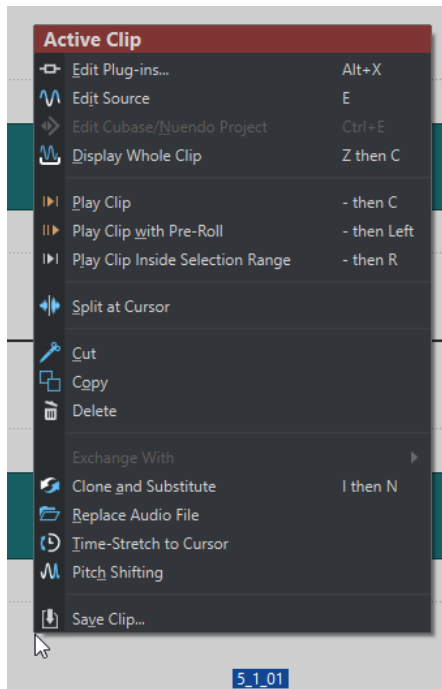
Edit Plug-ins

Opens the plug-in window of the plug-ins that are applied to the active clip. You can also right-click the clip name and select a plug-in to open the corresponding plug-in window.

Edit Source

Opens the source audio file of the clip in the **Audio Editor**.

Edit Cubase/Nuendo Project

Opens the project of the audio file in Cubase/Nuendo.

This allows you to correct issues that you have identified during mixing and correct these issues in the audio file in Cubase/Nuendo.

Display Whole Clip

Adjusts the view to display the active clip.

Play Clip

Plays back the active clip.

Play Clip with Pre-Roll

Plays back the active clip with pre-roll.

Play Clip Inside Selection Range

Plays back the selected audio range. Overlapping clips or clips on other tracks are muted.

Split at Cursor

Splits the active clip at the edit cursor position. You can also split at the edit cursor position by double-clicking the edit cursor or pressing **S**.

Cut

Cuts the active clip to the clipboard. You can then paste it to another position on an audio montage track.

Copy

Copies the active clip or the selected audio range to the clipboard.

419

Delete

Deletes the active clip.

Clone and Substitute

Creates a copy of the source audio file and makes the clip refer to this new file. As a result, you can modify the new source file without affecting other clips of the original audio file.

The cloned audio file is saved in the audio montage subfolder `edits.mon`.

Replace Audio File

Allows you to make the clip refer to another audio file while retaining all clip settings. The audio file must be at least as long as the end position of the clip. You cannot substitute a stereo file with a mono file or vice versa. Clicking the arrow icon opens the list of recently used folders.

Time-Stretch to Cursor

Opens the **Time Stretching** dialog that allows you to time-stretch the clip so that it ends at the audio montage edit cursor position. When this function is used, a clone of the original audio file is created, containing the audio range used in the clip. The process is applied to the clone, and the clip refers to this file instead. Neither the original audio file nor other clips that refer to the same audio file are affected.

The cloned audio file is saved in the audio montage subfolder `edits.mon`.

Pitch Shifting

Opens the **Pitch Shifting** dialog where you can change the pitch of the clip. When this function is used, a clone of the original audio file is created that contains the audio range used in the clip. The process is applied to the clone, and the clip refers to this file instead. Neither the original audio file nor other clips that refer to the same audio file are affected.

The cloned audio file is saved in the audio montage subfolder `edits.mon`.

Save Clip

Allows you to save a clip to disk as a separate file. This is useful if you have, for example, created a perfect fade, envelope, or clip effect configuration, but want to continue experimenting with the clip in the audio montage.

By saving the clip, you can always revert to the perfect version by reloading it. However, saved clips are still a reference to the original source file and contain no audio data.

RELATED LINKS

Clips Menu

The **Clips** pop-up menu allows you to perform clip-related operations, such as selecting, locking, and zooming in on clips.

● To open the **Clips** pop-up menu, right-click on the upper half of a clip.

Cut

Cuts the selected clips or the selection range to the clipboard.

Copy

Copies the selected clips or the selection range to the clipboard.

Copy Raw Clips to the Active Track

Copies the selected clips – in their "raw" state; that is, without any effects or automation applied – to the active track.

Create Clip from Selection

Splits the clip at the start and end of the selection range. If no clip is overlapping the selection, an empty clip is created.

Copy Selected Range to Muted Lane

Copies the selected range to a muted lane as a clip. If the audio montage does not contain a muted lane, a muted lane is created. This allows you to edit the selected range with external editors while keeping a backup of the original selected range.

Delete Selected Clip

If there is no selection range, the selected clips are deleted. If there is a selection range, the selection range is deleted. The clip part to the right of the deleted selection range is moved to the left to fill the gap.

Bounce Selected Clips

Renders the selected clips and replaces the clips with a single clip.

Create Super Clip from Selected Clips

Replaces the selected clips with a super clip that refers to a sub-montage.

Zoom in on Selected Clips

Zooms to fit all selected clips in the window.

Mute/Unmute Selected Clips

Mutes/Unmutes all selected clips.

Lock/Unlock Selected Clips

Locks the clip to prevent accidental editing.

Lock/Unlock Moving and Resizing

Locks the position and size of a clip. Other editing options are still available.

Show/Hide Mid/Side Channels

Switches between the left/right and the mid/side channels of the selected stereo clips.

Create Mid/Side Tracks with Selected Clips

Creates two mono tracks that contain the mid and the side channels of the selected stereo clip.

Select All Clips

Selects all clips in the audio montage.

Select Clips on Active Track

Selects all clips on the active track.

Select Clips Inside Selected Time Range

Selects all clips that are fully encompassed in the selected time range on all tracks.

Select Clips Located Before the Cursor (on Active Track)

Selects all clips that have their end point to the left of the cursor on the active track.

Select Clips Located Before the Cursor (on All Tracks)

Selects all clips that have their end point to the left of the cursor on all tracks.

Select Clips Located After the Cursor (on Active Track)

Selects all clips that start to the right of the cursor on the selected track.

Select Clips Located After the Cursor (on All Tracks)

Selects all clips that start to the right of the cursor on all tracks.

Inverse Selection

Deselects all selected clips and selects all other clips.

Deselect All Clips

Deselects all selected clips.

Saving and Loading Clips

You can save clips to disk as separate files. This is useful if you have, for example, created a perfect fade, envelope, or clip effect configuration, but want to continue experimenting with the clip in the audio montage.

By saving the clip, you can always revert to the perfect version by reloading it. However, saved clips are still a reference to the original source file and contain no audio data.

Saving Clips

PROCEDURE

1. In the montage window, right-click the bottom area of a clip.

2. From the pop-up menu, select **Save Clip**.

3. In the **Save Clip as** dialog, specify a name and location, and click **Save**.

Loading Clips

PREREQUISITE

Select a stereo track for stereo clips and a mono track for mono clips.

PROCEDURE

1. In the montage window, on an empty part of a track, right-click where you want to insert the clips.

2. From the pop-up menu, select **Insert Clip Files**.

3. Select a `.clip` file, and click **Open**.

RESULT

The clips are inserted on the active track. If you selected more than one clip, the first clip is positioned at the audio montage cursor, and any following clips are placed according to the default gap. You can set the default gap in the **Active Audio Montage** tab in the **Audio Montages Preferences**. When you import several clips, they are sorted alphabetically according to their file names.

Filtering Clip Names

The search field in the **Clips** window allows you to filter the clips list.

You can perform a text search in the **Name** and **Comment** columns. To perform a text search in the **Comment** column, this column must be sorted. Otherwise, the name column is searched. The **Select All** function selects the filtered items.

- To search for clips, click in the search field, and enter text.
- To switch the focus from the search field to the clips list, press the `Down Arrow` key.
- To switch the focus from the clips list to the search field, press `Ctrl/Cmd`-`F`.

Align Clips Dialog

The **Align Clips** dialog offers several options to perform clip alignment operations.

- To open the **Align Clips** dialog, open the **Clips** window, and select **Functions** > **Align Clips** ▥.
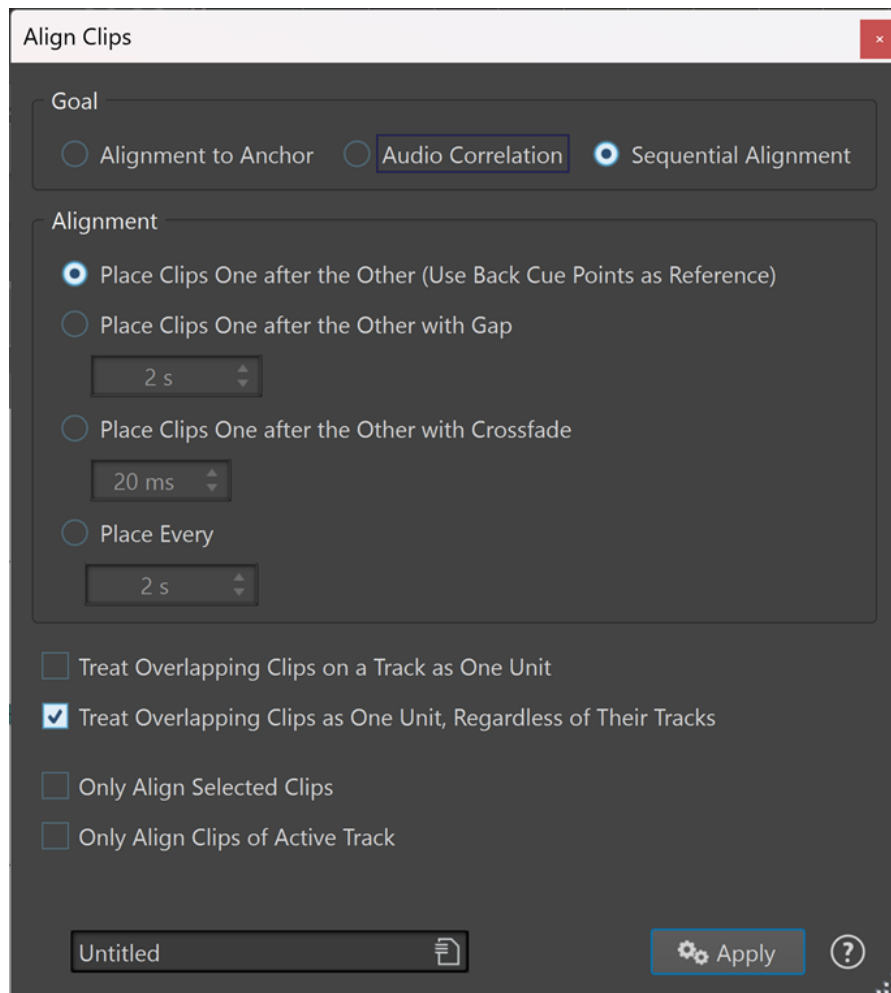
NOTE

Clips can be moved independently from the group to which they belong, if any.

Goal

Alignment to Anchor

Allows you to move selected clips, so that their left edge (**Start of Selected Clip**) or right edge (**End of Selected Clip**) aligns with an anchor point (the edit cursor, the start/end of the active clip, or the start/end of the selected time range).

Audio Correlation

Allows you to align two clips with each other, based on an analysis of their audio content (waveform matching). You can define a search range for the analysis via the **Audio Search Length** entry field in the **Move Active Clip to Match the Selected Audio Within Another Clip** section.

Sequential Alignment

Allows you to align two or more selected clips at specific positions, with a space between them.

- **Place Clips One after the Other (Use Back Cue Points as Reference)**

  Positions the selected clips successively on the active track. Each clip is aligned at the back cue point of the preceding clip.

- **Place Clips One after the Other with Gap**

  Positions the selected clips on the active track. In the value field, you can specify the time between the end of a clip and the start of the next clip.

- **Place Clips One after the Other with Crossfade**

  Positions the selected clips on the active track and creates crossfades between them. In the time field, you can specify the crossfade time.

- **Place Every**

  Makes each clip start at the specified interval from the start of the preceding clip. In this case, the clips can overlap each other. In the time field, you can specify the interval between the start of a clip and the start of the next one.

- **Treat Overlapping Clips on a Track as One Unit**

  All overlapping or adjacent clips on a track are treated as one unit. This means that all clips are aligned with the same offset.

- **Treat Overlapping Clips as One Unit, Regardless of Their Tracks**

  All overlapping or adjacent clips on a track are treated as one unit, even if they are on different tracks. This means that all clips are aligned with the same offset.

- **Only Align Selected Clips**

  If this option is activated, only selected clips are moved. If a group of overlapping clips contains a clip that is not selected, the group is not moved.

- **Only Align Clips of Active Track**

  If this option is activated, only clips of the active track are moved. For example, if a group of overlapping clips contains a clip that is not part of the active track, the group is not moved.

TIP

You can leave this dialog open, which allows you to perform multiple consecutive alignment operations.

Aligning Two Clips with Each Other

You can align two clips of an audio montage with each other, based on an analysis of their audio content.

PREREQUISITE

Your audio montage contains two clips that you want to align with each other:

● The reference clip; that is, the clip that the active clip is to be aligned with.

● The active clip, which is to be moved to align the start of its waveform with the selected audio range of the reference clip.

PROCEDURE

1. Select an audio range within the reference clip, to indicate where you want the alignment to take effect.

> NOTE
>
> Aligning can be applied anywhere within the reference clip. The time selection defines the audio range on which WaveLab Pro performs the corresponding audio correlation analysis.

2. Select **Tool Window** > **Clips** > **Align Clips** ⦙⦙⦙ to open the **Align Clips** dialog.

3. In the **Goal** section, activate **Audio Correlation**.

4. Specify a search range in the **Audio Search Length** entry field, which delineates the audio material to be analyzed.

    For example, with the audio search length set to three seconds, the start of the active clip is aligned within a time window that begins three seconds before the center of the audio selection and ends three seconds after it.

> NOTE
>
> The analysis is rather demanding on your computational resources, which is why we recommend that you keep the search range as short and the time selection as accurate as possible.

5. Click **Apply**.

RESULT

The active clip is moved, to align it with the reference clip.

> NOTE
>
> It is possible to align two clips with unrelated audio material. In this case, alignment takes effect at the point within the search range where WaveLab Pro detects the smallest amount of phase cancellation.

RELATED LINKS
Selected Clips and the Active Clip on page 410
Align Clips Dialog on page 424

Exporting the Clip List as Text

You can export clip list information like names, source files, tracks, and clip length.

1. Open the **Clips** window.

2. In the **Clips** window, select **Functions** > **Export Clip List as Text**.

3. Activate the option for the information that you want to export.

4. Select the output format from the pop-up menu.

5. Click **OK**.

RESULT

The clip list opens in the selected output format. If you select **Print**, the **Print Preview** window opens. The text file is saved in the folder for temporary files.

RELATED LINKS
Temporary Files on page 110

Export Clip List as Text Dialog

This dialog allows you to export the clip list in various file formats, or to print it out. You can select what clip information is included in the exported file.

● To open the **Export Clip List as Text** dialog, open the **Clips** window, and select **Functions** > **Export Clip List as Text**.
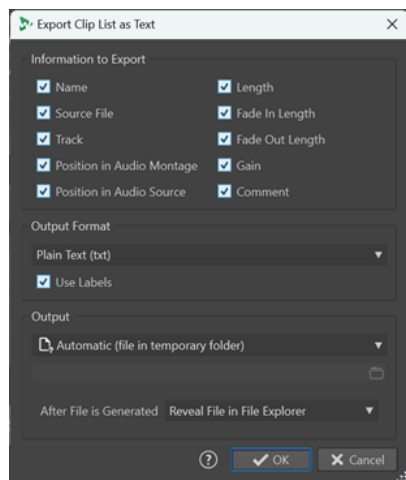
Information to Export

Allows you to select which clip information you want to export.

Output Format

Allows you to select the output format of the exported file.

Output

Allows you to define which of the following types of output to generate:

● **Specific File** allows you to indicate a file path in the entry field below.

● **Automatic (file in temporary folder)** causes WaveLab Pro to automatically create a file in a temporary folder.

- **Print Preview** opens a preview dialog, which allows you to make adjustments for printing the text.
- **Copy Text to Clipboard** copies the text to the clipboard.

After File is Generated

Allows you to specify what you want WaveLab Pro to do after generating the file:

- **Do Nothing** creates the file without opening it.
- **Reveal File in File Explorer** displays the file in the File Explorer/macOS Finder.
- **Open File in Associated Application** launches the application that you have specified for opening the generated file format, if any.
- **Copy File Path to Clipboard** copies the file path to the clipboard.

Moving and Crossfading Clips

You can make clips overlap with other clips, move them, and create crossfades between clips.

RELATED LINKS
Moving Clips on page 428

Moving Clips

You can drag one clip or all selected clips to another position.

NOTE

The channel configuration of the clip must match the destination track.

PROCEDURE

1. In the montage window, select the clips that you want to move.

2. Optional: To automatically group clips while moving them, do one of the following in the **Auto Grouping** section of the **Edit** tab:

   - To move all clips on all tracks that are vertically at the same position with the same length as the clip that you are moving, activate **Siblings**.

   - To move all overlapping or adjacent clips on the same track when you move a clip, activate **Tracks**.

   - To move all overlapping or adjacent clips on all tracks when you move a clip, activate **Global**.

3. Click the lower clip area, and drag the clips in any direction.

   While dragging, the info line displays the current start position of the clip.

RELATED LINKS
Moving and Crossfading Clips on page 428
Edit Tab (Audio Montage) on page 337

Moving Clips to Another Track or Lane in the Clips Window

In the **Clips** window, you can quickly move a clip to another track or lane.

PROCEDURE

1. Open the **Clips** window.

2. Click the **Tracks** or **Lanes** column of a clip.

3. Select to which track or lane you want to move the clip.

Options for Moving and Crossfading Clips

WaveLab offers helpful options for moving and crossfading clips. You can choose whether to move several clips at a time or to handle each clip individually, and create automatic crossfades, for example.

Ripple

When you move a clip, ripple determines whether the clips to its right are moved along with it. The ripple options are available via the **Edit** tab of the **Audio Montage** window.

Track

If this option is activated and you move a clip horizontally, all clips on the active track that are located to the right of the edited clip are moved as well. This option also applies when moving or resizing clips, and when inserting or pasting more than one clip at a time.

Global

If this option is activated and you move a clip horizontally, all clips on all tracks that are located to the right of the edited clip are also moved. This option is taken into account when moving or resizing clips, and when inserting or pasting more than one clip at a time.

None

Deactivates the **Ripple** feature. As a result, only the selected clip is moved.

NOTE

By default, when you move clips on standard tracks, **Ripple** is not applied to clips on reference tracks. However, you can include clips on reference tracks in **Ripple** processes by activating **Global Ripple Affects Reference Tracks** via **Additional Options** at the bottom of the **Ripple** panel.

Auto Grouping

The auto grouping options are available via the **Edit** tab of the **Audio Montage** window.

Siblings

If this option is activated and you move or resize a clip horizontally, all clips on any tracks that are at the same vertical position and of the same length as the clip that is moved or resized are moved or resized along with it.

When you double-click the lower area of a clip, all siblings of the clip are selected as well. If you have already selected several clips, double-clicking the lower area of a clip only selects that particular clip.

Track

If this option is activated and you move a clip horizontally, all overlapping or adjacent clips on the same track are moved along with it.

Global

If this option is activated and you move a clip horizontally, all vertically overlapping clips on all tracks are moved along with it.

NOTE

By default, when you move clips on standard tracks, **Auto Grouping** is not applied to clips on reference tracks. However, you can include clips on reference tracks in **Auto Grouping** processes by activating **Global Auto Grouping Affects Reference Tracks** via the **Additional Options** button at the bottom of the **Auto Grouping** panel.

TIP

While moving clips by dragging, you do not have to interrupt your workflow to click on the **Ripple** or **Auto Grouping** options of the **Edit** tab. Key commands for the options are displayed on the **Context Options** info bar above the tab bar:

- **Ripple Track**: **T**
- **Ripple Global**: **G**
- **Auto Grouping Track**: **A**
- **Auto Grouping Global**: **Q**
- **Marker Binding**: **M**
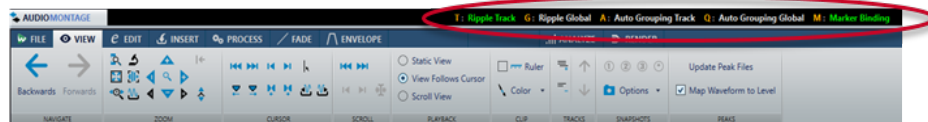
Crossfading

The following crossfading options are available via the **Fade** tab of the **Audio Montage** window, in the **Options** section.

Overlaps

This pop-up menu allows you to set the automatic crossfading behavior.

- If **No Automatic Crossfading** is activated, no automatic crossfading is performed for any overlapping clips.

- If **Free Overlaps** is activated, automatic crossfades are created when a clip overlaps with another clip on the same track. The length of the overlap determines the duration of the crossfade.

- If **Fade In Constrains Overlaps** is activated, the fade-in length of a clip determines the maximum possible overlap, and thus the crossfade time. If the clip on the right side, that is, the clip whose fade in is included in the overlap, is moved to the left, past the set overlap time, the other clip is progressively resized. Moving the other clip to the right produces the same result.

- If **Fade Out Constrains Overlaps** is activated, the fade-out length of a clip determines the maximum possible overlap, and thus the crossfade time. If the clip on the left side, that is, the clip whose fade out is included in the overlap, is moved to the right, past the set overlap time, the other clip is progressively resized. Moving the other clip to the left produces the same result.

Automatic Crossfading

This pop-up menu allows you to choose from a range of options for automatic crossfading.

- If **Crossfades between Clips on Different Lanes** is activated, crossfades are automatically created when you move a clip on a lane so that it overlaps with another clip that is located on another lane of the same track.

- If **Automatic Crossfades with Clips on Active Track** is activated, crossfades are automatically created when you move a clip so that it overlaps with another clip that is located on the active track.

- If **Allow Multiple Automatic Crossfades** is activated, crossfades are automatically created for all moved clips that overlap with other clips on their track or lane. If this option is deactivated, a crossfade is only created for the clip that you drag, even if several clips are moved simultaneously.

Options

- If **Create Default Fades in New Clips** is activated, all new clips assume the default fade-in and fade-out shape and length. For clips that are created by splitting a clip, only the default fade time is used.

- If **Lock Fade Times When Adjusting Clip Edges** is activated, the defined fade-in and fade-out lengths are locked to the clip start or end, even if you adjust the clip edges. This means that if you resize a clip by dragging its edge, the corresponding fade junction point moves accordingly, while maintaining the fade length.

The following crossfading options are available via the **Edit** tab of the **Audio Montage** window, in the **Snapping** section.

Crossfading

This pop-up menu allows you to choose from snapping options for crossfades.

- If **Snap to Waveform When Crossfading** is activated and you create a crossfade by dragging a clip onto a clip to its left, the position of the clip that is moved is automatically adjusted, to obtain a good match between the clip waveforms. This correlation process provides a crossfade that is aligned in phase.

- If **Create Crossfade and Snap to Waveform When Snapping to Left Clip** is activated and you move a clip to make its start snap to the end of another clip to its left, the clip is slightly moved to the left to create a short crossfade that is based on an optimal correlation between the two waveforms. This correlation process provides a crossfade that is aligned in phase.

- If **Create Crossfade When Snapping to Left Clip (Based on Fade Out)** is activated and you move a clip to make its start snap to the end of another clip to its left, the clip is slightly moved to the left to create a crossfade.

  The length of the crossfade is the fade-in length of the clip on the right. If the fade-in length is zero, the fade-out length of the left clip is used as a basis instead. If that length is also zero, the **Create Crossfade and Snap to Waveform When Snapping to Left Clip** function is performed, if activated.

RELATED LINKS
Edit Tab (Audio Montage) on page 337

Copying Clips to Other Tracks

You can copy all clips or only selected clips of a track with or without their plug-in and envelope settings to another track.

PROCEDURE

1. Optional: If you want to copy only specific clips to another track, **Ctrl/Cmd** -click the clips that you want to copy.

    To select multiple clips, you can also hold down **Ctrl/Cmd** - **Shift** and drag with the mouse.

2. In the track header area, right-click to open the pop-up menu.

3. On the pop-up menu, select **Copy Clips to Track** and select the track to which you want to copy the clips.

4. In the **Copy Clips to Track** dialog, do one of the following:

    ●   To copy all clips to the selected track, click **All Clips**.

    ●   To copy only the selected clips to the selected track, click **Only Selected Clips**.

    ●   To copy clips with their plug-ins, envelopes, and/or gain and pan settings, activate **Copy Plug-ins**, **Copy Volume/Pan Envelopes**, and/or **Copy Gain and Pan**.
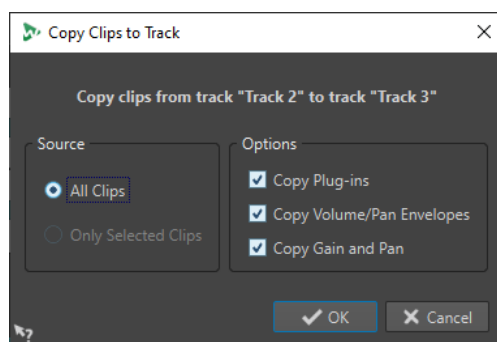
RELATED LINKS

Optimized Crossfades When Snapping to Other Clips

If you line up clips so that one clip ends exactly where the next one starts, for example, by using the **Magnets** option, the waveforms at the intersection point probably do not match. To avoid sudden level changes, that may result in pops and clicks, you can optimize the crossfade when snapping to other clips.

On the **Edit** tab, in the **Snapping** section, open the **Crossfading** pop-up menu, and activate **Snap to Waveform When Crossfading**. When this option is activated and you move a clip so that its start snaps to the end of another clip, the following happens:

●   WaveLab Pro scans the waveforms of the clips within a short range to find the position where the waveforms of the two clips match best. This is the same automatic phase matching as in the **Wave Matching** window. You can specify how far you want the program to scan into the clips, by selecting a search range on the menu of the **Wave Matching** window.

- The position of the clip that you moved is adjusted slightly to achieve the best possible match between the waveforms. This creates a short crossfade.

NOTE

This function only applies when moving from right to left, for example, when you let the start of the moved clip snap to the end of the clip on the left.

RELATED LINKS
Magnetic Bounds in Audio Montages on page 416
Wave Matching Window on page 487

Overlapping Clips

You can move clips so that they overlap each other.

Note the following:

- The tracks in the audio montage are polyphonic, which means that each track can play back several overlapping clips at the same time. Overlapping clips are transparent, allowing you to see the underlying clips and their waveforms.
- To select an overlapped clip, click the bottom clip area of the crossfade area.
- There are crossfading options that automatically adjust the level envelope curves when you overlap clips.

Creating Clips from Selection Ranges

You can create clips from a selection range.

PROCEDURE

1. In the montage window, make a selection.

   NOTE

   If no clip is overlapping the selection, an empty clip will be created.

2. Select the **Edit** tab.

3. In the **Clip** section, click **Create from Selection** and do one of the following:

   - To create a clip from the selected range, click **Create Clip from Selection**. If no clip is overlapping the selection, an empty clip is created.
   - To copy the selected range as a clip to a muted lane, click **Copy Selected Range to Muted Lane**. This allows you to edit the selected range with external editors while keeping a backup of the original selected range.

RELATED LINKS
Clip Editing on page 406
Edit Tab (Audio Montage) on page 337

Duplicating Clips

You can quickly duplicate one or several clips via drag and drop. It is possible to drag duplicated clips to another position on the same track, another track, or another audio montage.

NOTE

Make sure that the channel configuration of the clip matches the channel configuration of the destination track.

PROCEDURE

1. In the **Audio Montage** window, select one or more clips.

2. Click the upper clip area and drag the clips to another position on the same track, another track, or another audio montage tab.
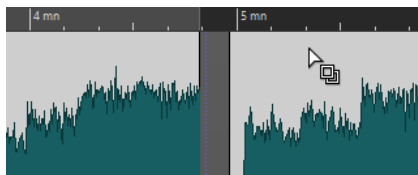
The cursor changes to indicate that you are located in the upper clip area.

While you are dragging, a dotted line indicates where the first of the copied clips will be placed. The position is also indicated on the info line.

If you dragged a single clip, a pop-up menu opens. Select the option that you want to apply to the duplicate of the clip. The **Ripple** and **Auto Grouping** settings that you can edit via the **Edit** tab of the **Audio Montage** window are taken into account.

RELATED LINKS
Edit Tab (Audio Montage) on page 337

Repeating Clips

You can make a number of copies of a clip and position them at various intervals on the current track of your audio montage.

NOTE

Repeating clips does not create overlapping clips.

PROCEDURE

1. In the montage window, select the clip that you want to repeat.

2. Optional: Place the edit cursor.

3. Select the **Edit** tab.

4. In the **Clip** section, click **Repeat Clip**.

5. In the **Repeat Clip** dialog, select one of the following options:

   - Select **Count**, and specify the number of copies.

   - Select **Repeat Until Cursor**.

6. Select one of the **Placement** options.

7. Click **OK**.

RESULT

The clips are repeated. If you chose **Repeat Until Cursor**, the last clip starts to the left of the audio montage cursor.

Repeat Clip Dialog

This dialog allows you to specify the number of clones to produce and control their placement, alignment, and spacing.

● To open the **Repeat Clip** dialog, select the **Edit** tab in the **Audio Montage** window, and click **Repeat Clip** in the **Clip** section.
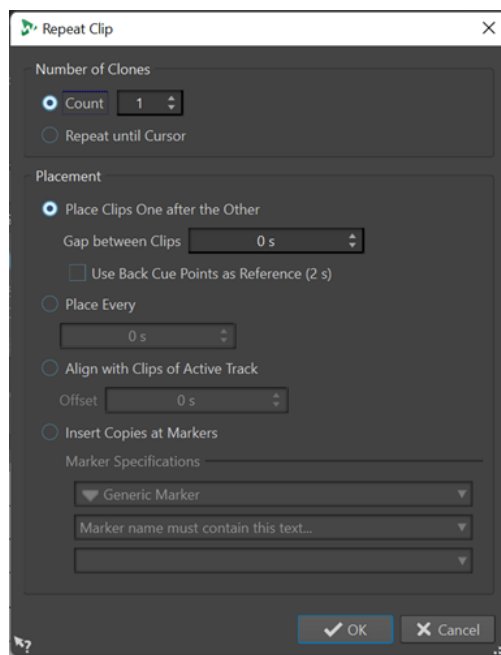
Number of Clones

Count creates the specified number of clones.

Repeat until Cursor creates clones up to the edit cursor.

Placement

Place Clips One after the Other places the clips one after the other on the track.

Use Back Cue Points as Reference places the selected clips one after the other on the active track. Each clip is aligned with the back cue point of the preceding clip.

Gap between Clips allows you to set the gap duration between clips.

Place Every places the copied clips in the time interval that you set in the field below. This is the interval between two succeeding clip starts.

Align with Clips of Active Track aligns the copied clips with the starting position of the clips on the active track, including any offset value that you can set in the **Offset** field.

Insert Copies at Markers aligns the copied clips with specific markers. Specify these markers on the menus below.

Creating New Clips by Dragging Selections

You can drag selection ranges to create a new clip.

PROCEDURE

1. In the **Audio Montage** window, select a range.

   If the selection range covers more than one clip, only the section that is part of the active clip is copied.

2. Click the upper clip area and drag the selection to the new position.

   When you are dragging, the position of the pointer is displayed on the info line. The magnets settings are taken into account.

3. Select one of the insert options.

   NOTE

   Envelopes and effects are not included when you copy selection ranges.

Coloring Clips

To make it easier to identify individual clips, you can assign colors to clips in an audio montage or prompt WaveLab to automatically assign a unique random color to each of your selected clips.

PROCEDURE

1. In the **Audio Montage** window, select the **View** tab.

2. In the **Clip** section, click **Color**.

3. Do one of the following:

   - To assign a color to the active clip or to assign a color to multiple selected clips, choose a color from the color palette.

   - To reset the active clip to the default color, select **Reset Default Color**.

   - To automatically assign a random color to each of your selected clips, select **Apply Random Colors**.

     NOTE

     - The color palette encompasses 20 different shades. With up to 20 clips selected, WaveLab assigns a different color to each of them, without repeating a color. Any clip that you select beyond this number is randomly assigned one of the colors of the palette again.

     - As the colors are assigned in a random manner, applying this feature to the same set of clips repeatedly generates a different outcome for each iteration.

   NOTE

   Alternatively, you can access the clip coloring features via the **Clip Color** option on the **Clip** tab of the **Inspector** window. However, in this case, coloring only takes effect on the currently displayed clip in the **Inspector** window.

NOTE

By default, with the **Rainbow** display selected, the corresponding **Rainbow** colors are displayed. To display custom colors that you assigned to clips instead, select **File** > **Preferences** > **Audio Montages** > **All Audio Montages**, and activate **Colored Clips Take Priority Over Rainbow Display**.

RELATED LINKS

Resizing Clips

With regard to clips, resizing means adjusting their start and end points, to reveal more or less of the original audio file.

You can keep the audio source static; that is, relative to the timeline of the audio montage, or relative to the resized edge of the clip.

Clip Side Cues

After resizing clips, the audio to the left or to the right of the clip edges has not been erased but is still available. Instead, the audio is temporarily inactive; that is, excluded from view, editing, and processing. This is indicated by small red arrows, so-called **Clip Side Cues** (**1**), at the right/left edge of the clip. You can hover over a clip side cue to display information about the length of the currently inactive audio in the clip. The time unit is based on the time ruler settings.

NOTE

You can show or hide clip side cues via the **Display Clip Side Cues** option, which you can access by selecting **File** > **Preferences** > **Audio Montages** > **All Audio Montages**.

Resizing Clips with a Static Audio Source

You can resize a clip relative to the timeline of the audio montage, keeping the audio source static.

PROCEDURE

1. Hover over the left or right edge of a clip.

2. When the **Trim** ◀▷ icon appears, click and drag to the left or to the right, and release the mouse button as soon as the audio is resized to your liking.

   The start and end positions and the length of the clip are displayed on the info line while you are dragging.

   NOTE

   - You cannot drag the edge of a clip past the start or end point of the audio file to which it refers.

   - When you drag the right edge of a clip, the **Ripple** settings are taken into account. If **Track** is activated, all subsequent clips on the track are moved when you resize a clip. If **Global** is activated, all clips on all tracks in the audio montage are moved.

   TIP

   - To resize multiple selected clips by the same value, press **Alt** when dragging.

AFTER COMPLETING THIS TASK

Optional: To reveal audio information that is currently excluded from view, editing, and processing again, hover over the left or right border of the clip. When the **Trim** ◀▷ icon appears, click and drag to the left or to the right, and release the mouse button as soon as the audio is resized to your liking.

Resizing Clips with the Audio Source Tied to an Edge of the Clip

When resizing a clip, you can tie the audio source to the edge of the clip that you are moving.

PROCEDURE

1. Hover over the left or right edge of a clip.

2. When the **Trim** ◀▷ icon appears, **Ctrl/Cmd** -click and drag to the left or to the right, and release the mouse button as soon as the audio is resized to your liking.

   The start and end positions and the length of the clip are displayed on the info line while you are dragging.

   NOTE

   - You cannot drag the edge of a clip past the start or end point of the audio file to which it refers.

   - Magnetic bounds and the auto grouping options that you can apply via the **Edit** tab of the **Audio Montage** window are taken into account.

   TIP

   - To resize multiple selected clips by the same value, press **Alt** - **Ctrl/Cmd** when dragging.

Optional: To reveal audio information that is currently excluded from view, editing, and processing again, hover over the left or right border of the clip. When the **Trim** ◀▶ icon appears, click and drag to the left or to the right, and release the mouse button as soon as the audio is resized to your liking.

Cropping Clips

You can crop a clip; that is, select some of its audio material and exclude the audio before and after the selection from view, editing, and processing.

PROCEDURE

1. Select an audio range in a clip.

2. In the **Removal** section of the **Edit** tab, click **Crop Clip**.

RESULT

Any audio before and after the selection is removed in a non-destructive way.

NOTE

After cropping, the audio to the left or to the right of the audio selection has not been erased for good but can be retrieved again. This is indicated by small red arrows, so-called **Clip Side Cues** (**1**), at the right/left edge of the clip. You can hover over a clip side cue to display information about the length of the currently inactive audio in the clip. The time unit is based on the time ruler settings.

NOTE

You can show or hide clip side cues via the **Display Clip Side Cues** option, which you can access by selecting **File** > **Preferences** > **Audio Montages** > **All Audio Montages**.

Bouncing Selected Clips

Bouncing clips allows you to render several clips to a single clip. This creates a new audio file in the montage folder. You can render the effects of a single clip to create a new audio file that is used by the clips. The rendering takes plug-ins, envelope settings, and gain settings of the clips into account. Track and output effects are not rendered.

Bouncing clips creates a new audio file that is used by the new clip. The new clip has no plug-ins, envelope settings, or gain settings. After rendering, the new clip sounds as the clips before. Its audio is still processed through the track and output plug-ins.

RELATED LINKS
Creating Clips from Selected Clips on page 440
Rendering Clip Effects to Clips on page 440

Creating Clips from Selected Clips

You can render several clips to a single clip. The plug-ins, envelope settings, and gain settings of the clips are rendered to the new clip.

PROCEDURE

1. In the audio montage, select the clips that you want to render to a single clip.

2. Select the **Render** tab.

3. In the **Selected Clips** section, click **Bounce**.

RESULT

The selected clips are rendered to a single clip.

RELATED LINKS
Bouncing Selected Clips on page 440
Render Tab (Audio Montage) on page 352

Rendering Clip Effects to Clips

To save CPU power, you can render the effects of a single clip to create a new audio file that is used by the clip. After rendering the clip, the effects are part of the clip and the clip plug-ins are removed.

PROCEDURE

1. In the audio montage, select a clip.

2. Select the **Render** tab.

3. In the **Selected Clips** section, click **Bounce**.

RESULT

The clip effects are rendered to the selected clip.

RELATED LINKS
Bouncing Selected Clips on page 440
Render Tab (Audio Montage) on page 352

Sliding Audio in Clips

You can slide the audio in a clip. This moves the section of the audio source that the clip refers to.

PROCEDURE

1. In the montage window, position the mouse cursor over the lower area of the clip.

2. Press **Ctrl/Cmd** - **Alt** , and drag left or right to slide the audio source.
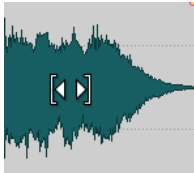
Moving Clips With Fixed Audio Sources

You can move the clip while the audio source remains fixed in position.

PROCEDURE

1. In the montage window, position the mouse cursor over the lower area of the clip.

2. Press **Shift** - **Alt** , and drag left or right to move the clip.
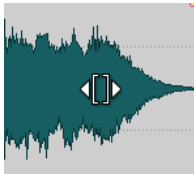
This reveals other sections of the underlying audio source.

Splitting Clips

You can split clips to turn one clip into two independent clips. The two clips have the same name and settings. Envelopes and fades are converted so that the two clips play back as if they were still one clip.

PREREQUISITE

Decide whether you want to automatically create crossfades between the left and right clip. To activate/deactivate this option, select the **Fade** tab, click **Options** in the **Options** section, and activate/deactivate **Create Default Fades in New Clips**.

PROCEDURE

1. In the montage window, click the position where you want to split the clip.

2. Do one of the following:

   ● To split clips on one track, position the mouse cursor on the edit cursor position in the top clip area and double-click.
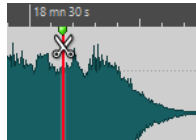
The cursor becomes a pair of scissors.

To split clips on all tracks at the edit cursor or playback position, select the **Edit** tab, right-click **Split Clips** in the **Split** section, and select **Split Clips on All Tracks**.

To split each selected clip on all tracks at the edit cursor or playback position, select the **Edit** tab, right-click **Split Clips** in the **Split** section, and select **Split Selected Clips**.

RELATED LINKS
Edit Tab (Audio Montage) on page 337

Splitting Clips to Match Them to Reference Clips

WaveLab Pro can automatically split or crop the active clip so that the position and length of one or several selected clips on another track or lane is precisely matched; for example, to process several unmastered songs by means of analog gear and then prompt WaveLab Pro to split the recording into individual titles again, perfectly aligned with the original clips.

Common Use Case:

You want to process the titles of an album by playing them back through analog gear and recording the signal on a track in your audio montage. As a result, you obtain a single long clip on the corresponding track. You can choose to manually divide this recording into individual clips/titles again, but this is a very time-consuming task.

Provided that the original, unprocessed titles are part of the audio montage as well and represented by individual clips on another track, WaveLab Pro can save you this tedious work by automatically splitting the recording into separate clips and matching their length and timeline position to the source clips, based on the latter's clip boundaries.

PREREQUISITE

A track in your audio montage, typically a reference track, contains one or several clips. You have positioned a clip that you want to match to the reference clips on another track or lane.

PROCEDURE

1. Select the clips on the reference track.

2. Set the clip to be split and matched to the reference clips as the active clip by **Ctrl/Cmd** - clicking on it.

3. Select the **Process** tab.

4. In the **Split** section, click **Split to Match**.

   IMPORTANT

   Make sure that there is some overlap between the reference clips and the active clip on the timeline; that is, that they have a timeline range in common. Otherwise, WaveLab Pro cannot match them.
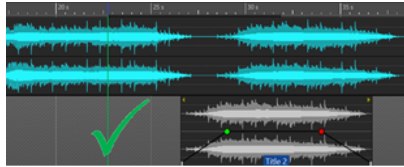
OK: Clips on both tracks share a common timeline range
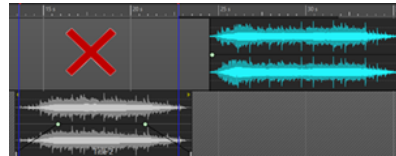
Wrong: Clips on both tracks do not share a common timeline range

---

TIP

If you press **Alt** when clicking the **Split to Match** button, the attachment of any markers to the reference clips is transferred to the clips matched by the **Split to Match** function.

RESULT

The active clip is split or (in case there is only one selected reference clip) cropped to match the selected clips on the reference track, with regard to their position and length.

Example:
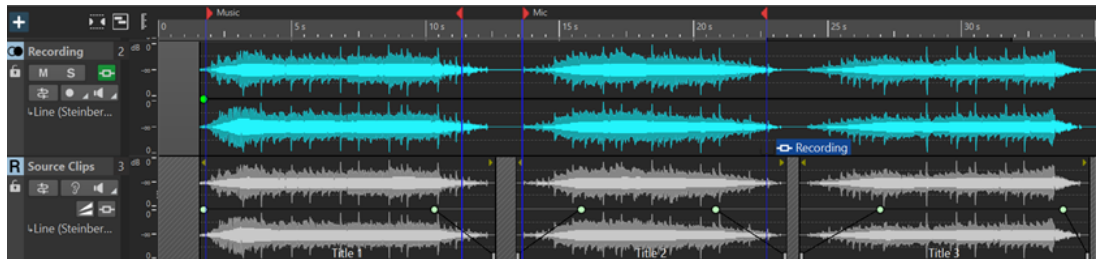
Initial state (before applying Split to Match): Audio montage with a reference track named "Source Clips" that contains several titles and a single long clip called "Recording" on another track
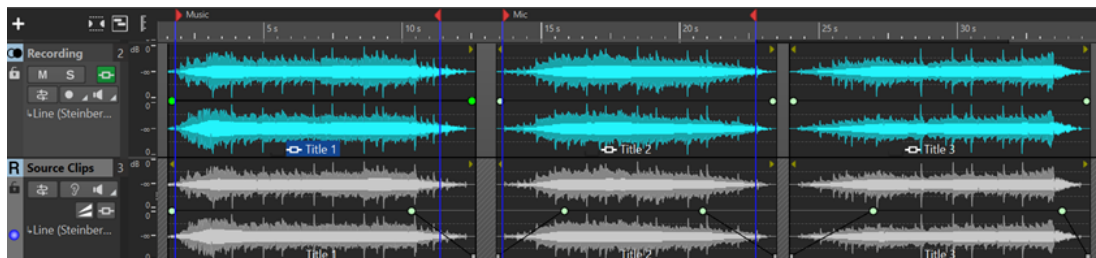
Result (after applying Split to Match): The long clip on the "Recording" track is split into individual clips and aligned with the clips on the reference track

RELATED LINKS

Editing Clips in Inline Editors

You can edit clips in an inline editor, that is, the **Waveform Editor** or the **Spectrum Editor**, without changing the original audio files, as WaveLab creates and saves copies of them.

PROCEDURE

1. In the montage window, make a selection range.

2. Select the **Edit** tab.

3. In the **Editors** section, click **Waveform Editor** or **Spectrum Editor**.
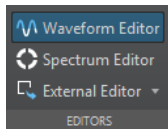
The audio range opens in the selected inline editor.

4. Edit the clips in the inline editor.

5. Save the file.

RESULT

The file is inserted as a new clip inside the previously selected range. The file is saved in the data folder of the audio montage.

Inline Editing

You can edit clips inline in a non-destructive **Waveform Editor** or **Spectrum Editor**.

When you open a selection range in an inline editor, WaveLab Pro creates a copy of the original audio file. The copy is stored in the data folder of the audio montage. This allows you to edit a selection range without modifying the original audio file.

RELATED LINKS
Editing Clips in Inline Editors on page 443

Erasing Parts of Clips Inside Selection Ranges

You can erase a selection range within a clip. Erasing the part of a clip inside a selection range results in a gap between the two resulting clips.

PROCEDURE

1. In the montage window, select a range in a clip.

2. Select the **Edit** tab.

3. In the **Removal** section, click **Erase Selected Range**.

    If **Snap to Waveform when Crossfading** or **Create Crossfade when Snapping to Left Clip (Based on Fade Out)** are activated, the position of the right clip is adjusted for the best possible phase match between the clips.

    The auto grouping settings are taken into account.

RELATED LINKS
Snapping on page 340

Deleting Clips

Deleting clips does not delete the audio file that is referenced by the clips.

PROCEDURE

● Do one of the following:

    ● Right-click a clip and select **Delete**.

    ● Select a clip and press **Delete** .

To ensure that there is no selection range, press Esc .

Deleting Parts of Clips Inside Selection Ranges

Deleting the part of a clip inside a selection range removes the selected range and moves the right section of the clip to the left to fill the gap.

PROCEDURE

1. In the montage window, select a range in a clip.

2. Select the **Edit** tab.

3. In the **Removal** section, click **Delete Selected Range**.

    If any of the automatic crossfading modes or the option **Create Default Fades in New Clips** are activated, a default crossfade is created between the resulting two clips. This creates a clean transition.

RESULT

The selected range is deleted and the right section of the clip is moved to the left to fill the gap.

Creating Empty Clips

You can create an empty clip from a selection range.

If the audio file of a clip is missing, an empty clip displays the length and position of the missing clip. Empty clips are useful for the following:

●   As place holders, to create audio montage templates with empty clips.

●   As an alternative to muting a clip. The difference is that for empty clips no audio is copied when cloning the audio montage.

●   To define regions. Because a clip has a start and end point in the audio montage, it defines a range which can be used as a reference for any purpose.
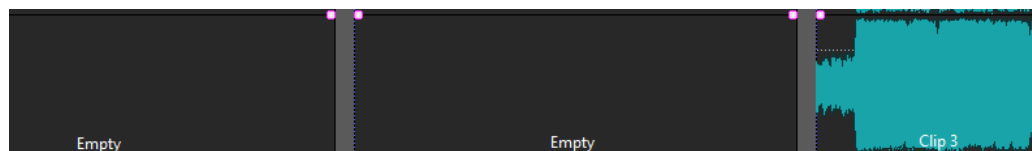
PROCEDURE

1. In the montage window, select a range.

2. Right-click an empty area of the track, and select **Create Empty Clip from Selection Range**.

RELATED LINKS

Removing the Source of Clips

You can create an empty clip by removing a source file of a clip. This does not delete the audio file from the disk.

PROCEDURE

1. In the montage window, select the clip for which you want to remove the source audio file.

2. Select the **Insert** tab.

3. In the **Selected Clip** section, click **Replace Audio File**, and select **Remove Source**.

Locking Clips

You can lock clips to prevent them from being accidentally moved, edited, or deleted.

PROCEDURE

1. In the montage window, select a clip.

2. Do one of the following:

   • Select the **Edit** tab, open the **Lock** pop-up menu in the **Clip** section, and activate **Full Lock** or **Time Lock**.

   • In the **Clips** window, select **Functions**, and activate **Lock/Unlock Selected Clips** or **Lock/Unlock Moving and Resizing**.

RESULT

A lock symbol indicates that a clip is locked.
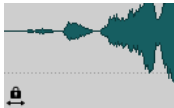
Unlocking Clips

Use one of the following methods to unlock a clip:

• Click in the lower area of the locked clip, and click **Yes** in the message.

• Select the **Edit** tab, open the **Lock** pop-up menu in the **Clip** section, and deactivate **Full Lock** or **Time Lock**.

Copying Raw Clips to the Active Track

To compare your processed audio material with the equivalent original audio material, you can copy and paste "raw" versions of clips – that is, their initial state, without any effects and automation applied – from one or more tracks to the active track.

This feature is particularly useful if you use a reference track as the target of the copy and paste operation and perform an A/B comparison.

PROCEDURE

1. Select the clips that you want to copy and paste.

2. Click on the header of the target track.

   NOTE

   The target can also be a lane on a track.

3. Right-click on the upper half of one of the selected clips, and select **Copy Raw Clips to the Active Track**.

RESULT

The "raw" versions of the selected clips are pasted to the active track, at the same timeline positions as the source clips.

RELATED LINKS
Reference Tracks on page 376

Clip Groups

Clip groups are selections of clips that can be accessed via the **Clip Groups** window or by clicking any clip of a group.

A clip cannot be part of more than one group. If you add a clip to a group, it is automatically removed from any other group. You can select a specific color for a group to make it easy to discern it in the track view.

You can render all groups as individual files using the **Render** function of the **Master Section**.

- To create nested groups, drag a group into another group.

- To deactivate a group, deactivate its checkbox in the list. If a group is deactivated, you can move the individual clips.

- To rename a group, double-click its name and enter a new name.

- To select all clips of a group in your audio montage for editing, click the group.

RELATED LINKS
Super Clips on page 457
Track Groups on page 380

Clip Groups Window

This window displays a list of the groups that are part of the current audio montage.

- To open the **Clip Groups** window, open an audio montage and select **Tool Windows** > **Clip Groups**.
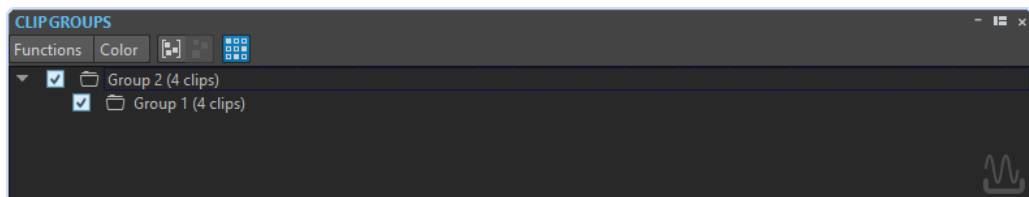
Group Selected Clips

Creates a group from all selected clips.

Remove Selected Group

Removes the group that is selected in the list. The clips themselves are not removed from the montage.

Click Selects Group

If this option is activated, selecting a clip in the track view automatically selects all clips in the same group.

If this option is deactivated, selecting a whole group requires that you click the group name in the groups view list. This is useful if you want to be able to modify the relative positions of clips in the group without having to remove them from the group.

Color

Lets you select a color for the group.

Customize Command Bar

Opens the **Customize Commands** dialog, which contains options for hiding or showing specific command bar buttons.

Grouping Clips

PROCEDURE

1. In the montage window, select the clips that you want to group.

2. In the **Clip Groups** window, select **Functions** > **Group Selected Clips**.

3. Enter a name for the group, and click **OK**.

RESULT

The new group is displayed in the group list. The group name is prepended to the names of the clips that are included in the group.

Adding Clips to an Existing Clip Group

PROCEDURE

1. In the montage window, select the clips that you want to add to a group.

2. In the **Clip Groups** window, select **Functions** > **Group Selected Clips**.

3. Select the group to which you want to add the clips, and click **OK**.

Removing Clip Groups

PROCEDURE

1. In the **Clip Groups** window, select a group.

2. Select **Functions** > **Remove Selected Group**.

RESULT

The group is removed. The clips themselves are not removed from the montage.

Coloring Clip Groups

PROCEDURE

1. In the **Clip Groups** window, select a group.

2. Open the **Color** menu and select a color.

Any individual color selections for the clips override the group color.

Clips and Cue Points

A cue point is a defined position marker that belongs to a clip. It may be positioned inside or outside the clip. Cue points are displayed as dotted vertical lines.
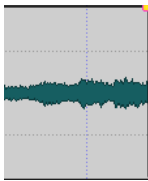
When you move a clip, its cue point is magnetic to any edges, markers, or positions that are activated on the **Magnets** menu. Magnetic cue points allow for easy selection. There are several uses for this:

● Set the cue point at a relevant position in the audio to align the clip with other clips, etc.

● Set the cue point before the start of a clip to position clips in a row with pre-defined spaces.

● Set the cue point at the fade in or fade out point of a clip to maintain defined fade lengths when crossfading.

NOTE

Each clip can only have one cue point. If you select another cue point insert option, the cue point is moved to a new position.

RELATED LINKS
Adding Cue Points on page 449
Magnets Menu on page 417

Adding Cue Points

You can add one cue point for each clip.

PROCEDURE

1. In the audio montage, click the clip position where you want to set a cue point.

2. Select the **Edit** tab.

3. In the **Clip** section, select **Cue Points**.

4. From the pop-up menu, select one of the following options:

   ● **Set at Cursor**

   ● **Set at Default Gap Position**

   ● **Follows Fade In End Point**

   ● **Follows Fade Out Start Point**

5. Optional: Select **Custom Cue End**, and specify a custom cue end point.

RELATED LINKS
Clips and Cue Points on page 449
Edit Tab (Audio Montage) on page 337

Nudging

Nudging in the **Audio Montage** window allows you to make fine adjustments. You can nudge clips, objects, and properties.

Elements That Can Be Nudged

The **Target** pop-up menu lists the elements and properties that can be nudged.

- To open the **Target** pop-up menu, select the **Edit** tab in the **Audio Montage** window, and right-click **Target** in the **Nudge** section.

Auto Select Item

Automatically selects an item to be nudged, based on your last action. For example, if your last action was to select or move a clip, the **Clip Position** option is automatically selected from the **Target** menu. In most cases, this allows you to use the nudge feature without having to manually select nudge elements from the submenu.

Clip Position

Moves all selected clips.

Clip's Left/Right Edge

Resizes the active clip. This function is similar to resizing with a static audio source.

Clip's Fade In/Fade Out

Moves the fade in/fade out junction points of the active clip. If the envelope is a stereo envelope, both sides are adjusted.

Clip's Crossfade

Narrows or widens the crossfade zone by moving the junction points of both clips in the crossfade. This nudging only takes effect if you select the second clip (the one to the right) in a crossfade pair.

Edit Cursor

Moves the edit cursor.

Left Edge of Selected Time Range

Moves the left edge of a selection range.

Right Edge of Selected Time Range

Moves the right edge of a selection range.

Selected Marker

Moves the selected audio montage marker. To select a marker, click it in the area above the ruler.

Volume of Active Clip

Adjusts the volume of the active clip step by step, based on the **Gain** setting in the **Audio Montages Preferences**.

Volume of All Selected Clips

Adjusts the volume of all selected clips step by step, based on the **Gain** setting in the **Audio Montages Preferences**.

Pan of Active Clip

Adjusts the pan of the active clip. **Nudge +** pans to the left, and **Nudge -** pans to the right.

Pan of All Selected Clips

Adjusts the pan of all selected clips. **Nudge +** pans to the left, and **Nudge -** pans to the right.

Nudging clips, objects, or properties

Each time that you use the nudge function, the selected element is nudged by a specific amount.

Magnetic bounds are not taken into account. Nudged elements do not snap to positions. They can be moved freely.

PROCEDURE

1. In the Audio Montage window, select the objects that you want to nudge.

2. Select the **Edit** tab.

3. In the **Nudge** section, click **Target**.

4. In the **Target** pop-up menu, activate the elements that you want to nudge or activate **Auto Select Item**.

5. Click **Nudge -** or **Nudge +** in the **Nudge** section or use the nudge icons on the transport bar.

   By holding down user-specified modifier keys, you can nudge the element by a smaller or larger amount.

Setting the Default Nudge Impulse

You can set the nudge value that is used to adjust the elements. The large, small, and micro impulses are relative to the default value.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Montages**.

2. Select the **All Audio Montages** tab.

3. In the **Basic Amplitudes for Nudging** section, specify a default time for the nudge impulse in the **Time** field.

4. In the **Gain** field, specify the default impulse gain for the nudging volume.

Displaying Clips in Mid and Side View

- To activate the mid/side view, right-click the upper area of a clip, and select **Show/Hide Mid/Side Channels**.

NOTE

This does not affect playback and plug-in processing.

Source File Management

You can manage the source files of clips that are used in the active audio montage via the **Files** window.

It displays all files that are used by clips in the active audio montage, along with their location, size, and last modification date.

Files Window

The Files tool window helps you to manage files that are used in the active audio montage, including sub-montages (Super Clips).

● To open the **Files** window, open an audio montage, and select **Tool Windows** > **Files**.
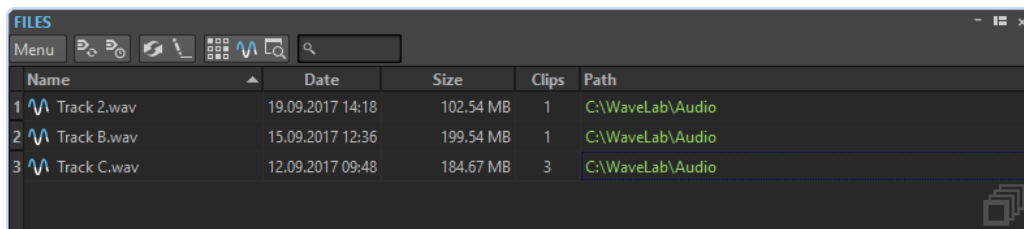
Files List

The files list shows the names, dates, sizes, and paths of the files that are used in the active audio montage. The **Clips** column shows how often a clip uses the corresponding audio file. The location and the type of the files determine how paths are displayed:

● If the path is relative to the audio montage file location, the path is displayed in green.

● If the path is on the same partition as the audio montage, for example in a subfolder, the path is displayed in blue.

● If the path is on another partition, the path is displayed in red.

Menu

Replace With

Allows you to replace the selected file with another one.

Rename File

Allows you to change the file name. The references of the audio montage are updated accordingly.

Export File Names as Text

Creates a text file that lists all files that are used in the active audio montage.

Select Clips of Selected File

Selects all clips that refer to the selected file.

Edit Source

Opens the selected files in the **Audio Editor** or in the **Audio Montage** window.

Reveal in File Explorer

Opens the File Explorer/macOS Finder to locate the selected file.

Customize Command Bar

Opens the **Customize Commands** dialog, which contains options for hiding or showing specific command bar buttons.

Replacing Source Files of Clips

You can replace a source file of a clip with another file and have all clips that refer to the old source file refer to the new source file.

PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows** > **Files**.
3. In the **Files** window, select the file that you want to exchange.
4. Select **Menu** > **Replace With**.
5. Select the replacing file.

Changing Names and File Locations of Audio Files

You can change the name and location of an audio file in your audio montage project. All clips that reference this file are automatically updated.

PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows** > **Files**.
3. In the **Files** window, select the file that you want to rename.
4. Select **Menu** > **Rename File**.
5. In the **Rename File** dialog, enter a new name.
6. To enter a new file location, activate **Change Folder**, and enter a new file location.
7. Optional: If you want the related clips to change their name according to the new file name, activate **Rename Related Clips as File Name**.
8. Click **OK**.

Exporting File Names as Text

You can export the file names list as text to various formats. The list contains the names and paths of the audio files in the active audio montage.

PREREQUISITE

Set up your audio montage.

PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows** > **Files**.
3. In the **Files** window, select **Menu** > **Export File Names as Text**.
4. Choose the information that you want to export and the output format.
5. Click **OK**.

The file names list opens in the selected output format. When selecting **Print**, the **Print Preview** window opens. The text file is saved in the specified folder for temporary files.

Editing Source Files of Clips

Editing the audio montage may require that you process or edit the actual audio files that are referenced by the clips.

Use one of the following methods to edit the source file of a clip:

- Right-click the bottom area of the clip that you want to edit, and select **Edit Source**, or double-click the top area of the clip. The source file of the clip opens in the **Audio Editor**. Edit the clip, save it, and return to the audio montage.

- Double-click the clip and drag the clip to the tab list or in the **Audio Editor**.

Note the following:

- Any editing that you perform this way affects the source audio file and thereby all clips that use the audio file, including clips in other audio montages.

- You can undo/redo all changes in audio files, even after saving the file. These changes are reflected immediately in all open audio montages.

- If you use **File** > **Save As** to save the source audio file with a different name, all open audio montages that refer to the file now refer to the new file.

Source File Cloning and Substitution

Cloning an audio source file avoids the risk that other clips are affected when the source file of a clip is edited.

Use the **Clone and Substitute** function to create a copy of the audio source file, and make the clip reference to the new file. As a result, you can edit the source file without affecting other clips or the original audio file.

The cloned audio file has the original file name with the suffix _#X, where X is a number.

The cloned audio file is saved in the audio montage subfolder `edits.mon`.

The implicit folder is used when WaveLab Pro needs to create new files that can be referenced by an audio montage. Files that are saved in the implicit folder are not temporary, that is, they are not deleted when you close WaveLab Pro. This is necessary because the audio montage contains references to the files.

RELATED LINKS

Cloning and Substituting Source Files of Clips

- In the montage window, right-click the bottom area of a clip, and select **Clone and Substitute**.

A clone of the source file replaces the selected clip. All clips that are referring to the original file are referenced to the new file.

Replacing Audio Files of Clips

You can replace the audio file of a clip to compare different takes.

NOTE

You cannot replace a stereo file with a mono file and vice versa.

PROCEDURE

1. In the montage window, right-click the bottom area of a clip, and select **Replace Audio File**.

2. Select the file to which you want to reference, and click **Open**.

RESULT

The selected audio file replaces the clip. All clip settings are retained. Clip references to the replaced file are still available.

NOTE

To replace the source files of audio montages in bulk, you can use the **Source File Replacement in Bulk** feature.

RELATED LINKS

Source File Replacement in Bulk

To replace all clips of an audio montage at the same time – for example, to replace an entire album with instrumental versions of the titles – you can use the **Bulk Audio File Replacement** feature.

Once you specify a folder with the replacement files, **Bulk Audio File Replacement** automatically allocates the corresponding new audio files to the original source files of the audio montage, based on the similarity of their names.

EXAMPLE

Let us assume that your band has recorded an album that is made up of ten titles of electronic music. After releasing it, you decide to record and release an alternative, purely acoustic version of the same album. Thanks to the **Bulk Audio File Replacement** feature, WaveLab Pro can automatically associate and replace the source files of the original electronic titles (such as "intro.wav") with the acoustic counterparts (such as "intro_acoustic.wav"), provided they are available in the selected folder, while ignoring other file paths.

RELATED LINKS

Replacing Source Files in Bulk

PREREQUISITE

● You have opened an audio montage in the **Audio Montage** window.

- You have created a folder with alternative versions of the source files of this audio montage. The alternative source files are similar in name to the files that the clips in the active audio montage refer to.

PROCEDURE

1. Select **Clips** > **Functions** > **Bulk Audio File Replacement**.

   The **Bulk Audio File Replacement** dialog is opened.

2. To replace all clips in your active audio montage, select **All Clips**. To replace selected clips only, choose **Selected Clips**.

3. Click **Select Folder Where New Files Are Located**, and navigate to the folder.

4. Verify that the source files are properly allocated to the corresponding replacement files.

5. Optional: To choose a different replacement file for a particular source file, double-click the file in the **Replacement** column, and navigate to the file that you want to use instead.

6. Click **OK**.

RESULT

The source files of the clips in the audio montage are replaced by the corresponding new files from the selected folder.

RELATED LINKS
Source File Replacement in Bulk on page 455
Bulk Audio File Replacement Dialog on page 456

Bulk Audio File Replacement Dialog

The **Bulk Audio File Replacement** dialog allows you to select audio files to replace the source files that the clips in your audio montage refer to, so that you can replace all files in the audio montage in one go.
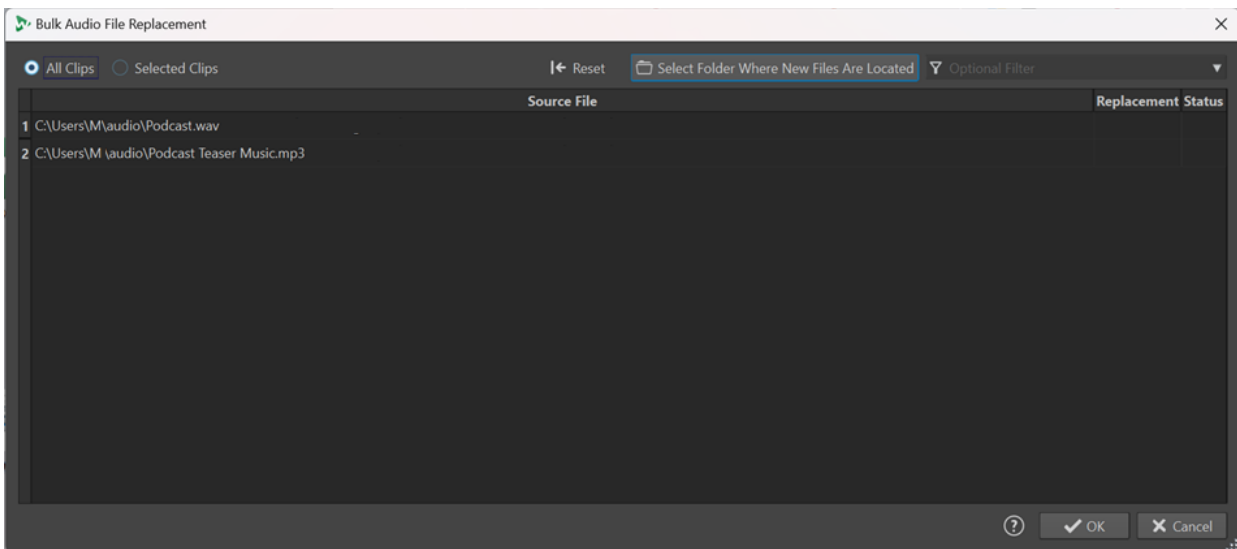
All Clips/Selected Clips

Allows you to choose whether to replace all clips or just selected clips of your active audio montage.

Select Folder Where New Files Are Located

Allows you to navigate to the folder with the replacement files.

Source File

Displays the path to the source files that the clips in your active audio montage refer to.

Replacement

Displays the paths to the corresponding new files that WaveLab Pro has automatically identified. You can double-click on a particular file path to modify it.

Status

- **OK** indicates that the number of channels and the sample rate of the new file exactly match those of the original source file.

- **Sample Rate Difference** warns you that the sample rates of the two files differ. This does not prevent the source file from being replaced, however, as WaveLab Pro automatically performs the required resampling.

- **Size Mismatch** warns you that the two files are not equal in size. However, this mismatch does not prevent the source file from being replaced.

- **Channel Mismatch** informs you that the number of channels of the two files does not match. It is not possible to replace the source file in question with the corresponding file in the **Replacement** column.

NOTE

The information in the **Replacement** and the **Status** columns is color-coded and indicates the degree to which the two files differ from each other, and the implications this has for the replacement process:

- **Green** means that the files are fully compatible.

  Implication: Replacing the original source file with the new one is possible.

- **Purple** indicates a sample rate issue that WaveLab Pro can automatically resolve.

  Implication: Replacing the original source file with the new one is possible.

- **Orange** indicates a size mismatch between the old file and the new file.

  Implication: Replacing the original source file with the new one is possible.

- **Red** indicates a channel mismatch between the old file and the new file.

  Implication: Replacing the original source file with the new one is not possible. If you press **OK**, WaveLab Pro ignores this file and keeps the original source file in the audio montage.

RELATED LINKS

Super Clips

A super clip is a clip that represents the rendered state of another audio montage (mono or stereo). The source montage that the super clip is based on is a separate, independent audio

montage. You can create a super clip from any audio montage, and you can insert any number of super clips into an audio montage.

IMPORTANT

In this manual, as soon as a super clip is included in an audio montage, this audio montage is referred to as the parent montage, and the source montage that the super clip is based on is referred to as a sub-montage. A sub-montage can itself contain super clips.

Super clips help you to create and manage even the most complex audio montages. Instead of having to handle a single complex montage each time you want to apply a change to one of its components, you can assemble a parent montage from smaller, less complex audio montages. This saves time and resources, with regard to the performance of your system.

A super clip in a parent montage behaves like any other clip. If you perform any editing on the sub-montage that the super clip is based on, you need to render the sub-montage for the changes to be reflected in the audio file of the super clip as part of a parent montage. Once you have done that, you can easily update all super clips in a parent montage with one single click.

EXAMPLE

You are working on an album that is composed of 15 songs. Each song needs to undergo complex editing processes. Instead of performing all editing in one single audio montage, you create 15 super clips, each of them a separate audio montage containing the audio material of one song. You create another audio montage and insert the 15 super clips into it, and you arrange them as you like. You can now edit the sub-montages that the super clips refer to individually. After rendering the edited sub-montages, you can update the super clips in the parent montage with a single click.

Creating a Super Clip

You can render clips of an audio montage into a super clip. This process automatically creates a new audio montage, which can serve as a sub-montage within a parent montage.

PROCEDURE

1. Open the audio montage in which you want to create a super clip.

2. In the **Audio Montage** window or in the **Clips** window, select the clips that you want to render as a sub-montage.

3. Do one of the following:

   - Click the **Process** tab, then **Create Super Clip** in the **Super Clip** section.

   - Right-click in the upper half of one of the selected clips, and select **Create Super Clip from Selected Clips**.

   - In the **Clips** window, select **Functions** > **Create Super Clip from Selected Clips**.

4. Optional: In the **Create Super Clip** dialog, enter a name for the super clip.

5. Optional: To include the track effects in the auto-generated new audio montage, tick **Include Track Effects**.

   To prevent double processing, output effects are not included.

6. Click **OK**.

RESULT

The selected clips are rendered to a super clip. Within the parent audio montage, the super clip is indicated by an icon, followed by its name: . To rename the super clip, double-click, and enter a new name, as for any regular clip.

Inserting Audio Montages into Audio Montages

You can insert an existing audio montage into another audio montage by means of Super Clips.

PROCEDURE

1. Open the audio montage in which you want to create one or multiple Super Clips.

2. Do one of the following:

   - Right-click an empty area of the montage window, and select **Insert Audio Montages** > **Browse**. Select the desired audio montage files, and click **Open**.

   - Drag the desired audio montages from the File Explorer/macOS Finder or from inside WaveLab Pro, and drop them in the montage window.

3. In the **Import Files** dialog that opens, choose whether you want to copy the file to the audio montage folder or one of its subfolders, and whether you want WaveLab Pro to limit this to the active audio montage or to remember this choice for future audio montages.

4. In the **Create Super Clip** dialog, click **Create**.

RESULT

The selected Super Clip is created in the audio montage at the edit cursor position.
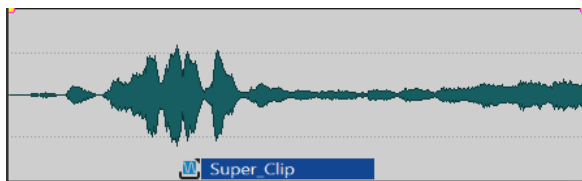
Editing Super Clips

You can reopen the source audio montages of super clips and edit the clips that they contain.

PROCEDURE

1. In the **Audio Montage** window, right-click the bottom area of a super clip, and select **Edit Source**, or double-click in the top area of the super clip.

   The source audio montage of the super clip is opened in another tab.

2. Edit the source audio montage.

3. Save the changes.

Updating Super Clips in Parent Montages

You can apply changes made in the source audio montage of a super clip to the parent montage.

PREREQUISITE

You have saved the source audio montage after editing it.

PROCEDURE

1. Open the parent montage.

2. Click the **Process** tab, then **Update Outdated Renderings** on the **Super Clip** panel.

Freezing Super Clips

Freezing renders a super clip to a permanent audio file and converts the super clip to a regular clip within the parent montage.

IMPORTANT

After freezing a super clip, the original source audio montage of the super clip is still available, but it is not connected to the parent montage anymore. Thus, once a super clip has been frozen, any changes you apply to the source audio montage file cannot be updated in the former parent montage anymore.

PROCEDURE

1. In the parent audio montage, select the super clip that you want to freeze.

2. Click the **Process** tab, then **Freeze** on the **Super Clip** panel.

3. Click **OK**.

RESULT

A new .wav file has been created, which is part of the parent montage now. The source audio montage of the former super clip is not linked to its former parent montage anymore.

Envelopes for Clips

For clips in the audio montage, you can create envelopes for volume and fades, for panning, and for effects that are routed to a clip.

You can create an independent level envelope curve to automate the level, to create fades and crossfades, and to mute clip sections.

You can also draw pan envelopes to automate pan settings for clips. For mono clips, pan governs the left/right position in the stereo field. For stereo clips, pan sets the left/right balance.

You can edit the envelope settings on the **Envelope** tab, or by right-clicking an envelope curve. The settings menu contains different options depending on whether you click the fade in part, the fade out part, or the sustain part.

RELATED LINKS

Level Envelopes

By default, all clips display a level envelope curve. The envelope consists of three parts: the fade in part, the sustain part, and the fade out part.

The points on the left and right side of the curve are the fade in and fade out junction points that separate the fade parts from the sustain part. The gray points at the start of a fade-in and at the end of a fade-out allow you to see small fades even when you have fully zoomed out.
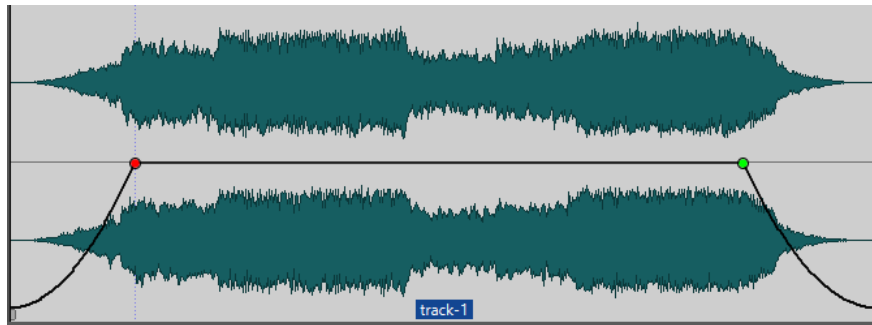
The envelope curve indicates if points, fade ins, or fade outs have been defined. In addition to the curve, changes in the level envelope are also reflected in the waveform.

You can activate/deactivate the **Map Waveform to Level** option in the **Peaks** section of the **View** tab.

RELATED LINKS
Envelopes for Clips on page 460
View Tab (Audio Montage) on page 334

Selecting Envelopes

You can select volume/fade envelopes and pan envelopes.

PROCEDURE

1. In the **Audio Montage** window, select a clip.

2. Select the **Envelope** tab.

3. In the **Visibility** section, open the **Envelope Type** pop-up menu, and choose the **Volume/Fades** envelope or the **Pan** envelope for editing.

RELATED LINKS
Envelopes for Clips on page 460
Envelope Tab (Audio Montage) on page 349

Hiding Envelope Curves

All clips display envelopes by default. You can hide these envelopes. However, hidden envelopes are still active.

PROCEDURE

1. In the **Audio Montage** window, select a clip.

2. Select the **Envelope** tab.

3. In the **Visibility** section, open the **Envelope Type** pop-up menu, and select **Hide All**.

RELATED LINKS
Envelopes for Clips on page 460
Envelope Tab (Audio Montage) on page 349

Adding Envelope Curve Points

Curve points allow you to create volume curves, pan curves, and fade curves for a clip. You can edit the envelope curve by adding and moving curve points. You can add one or multiple envelope curve points.

CHOICES

- To add a curve point, double-click the envelope curve.

  If you keep the mouse button pressed after double-clicking the envelope curve, you can move the curve point to another position.

- To add multiple curve points within a selection range, do one of the following:

  - To add three curve points, make a selection range, and double-click the envelope curve within the selection range.

    This creates a curve point at the start and the end of the selection, and a curve point at the position that you have clicked. If the selection range already contains a curve point and you double-click the envelope curve, two curve points are created.
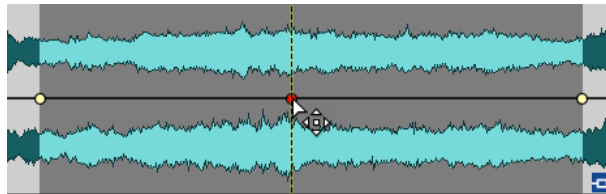
  - To add four curve points with two curve points at the beginning of the selection and two curve points at the end of the selection, make a selection range, and click and drag the envelope curve up or down.

    This only works if the selection range does not contain any curve points. The distance between the first and the second, and between the third and the last curve point is determined by the **Default Fade/Crossfade** setting in the **Audio** tab of the **Global Preferences**.
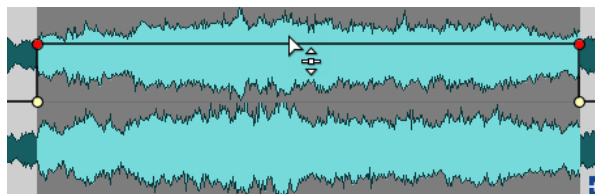
  - To add four curve points that have an equal distance to each other, make a selection range, press Ctrl/Cmd , and click and drag the envelope curve up or down.
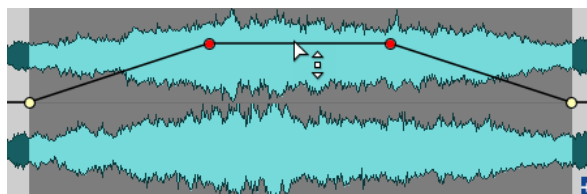
    This only works if the selection range does not contain any curve points.

- To add four curve points where the two curve points in the middle have a greater distance to each other that to the first and last curve points, make a selection range, press **Ctrl/Cmd** - **Alt** , and click and drag the envelope curve up or down.
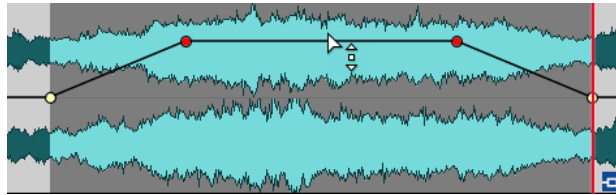
This only works if the selection range does not contain any curve points.

RELATED LINKS
Envelopes for Clips on page 460
Editing Envelope Curves on page 463
Audio Tab (Global Preferences) on page 868

Editing Envelope Curves

Many of the editing operations that are commonly used in the context of your computer operating system can be applied when editing envelope curves. On top of these, a number of specific procedures apply.

CHOICES

- To delete a curve point, double-click the curve point. The curve point between the sustain and fade parts of the envelope cannot be deleted.
- To select multiple curve points, hold down **Ctrl/Cmd** and click the curve points that you want to select.
- To select a range of points, **Alt** -click and drag to create a selection rectangle.
- To delete multiple curve points, select the curve points that you want to delete, right-click one of the points, and select **Delete Selected Points**.
- To move all selected points, click one of the selected points and drag.
- To raise or lower the value of two consecutive curve points, **Ctrl/Cmd** -click the segment between the points and drag up or down.
- To change the time position of two consecutive curve points, **Shift** -click the segment between the points and drag left or right.
- To raise or lower the entire envelope curve, make sure that no curve point is selected, click the envelope curve, and drag up or down. Do not drag a segment that is limited by selected points.
- To adjust the envelopes in all selected clips, hold down **Alt** , and drag any envelope curve up or down. This is a quick way to adjust the level or pan of multiple clips at the same time and also to adjust both sides of a stereo envelope simultaneously.
- To move a fade in/fade out point vertically, **Ctrl/Cmd** -click and drag the fade point.
- To change the level or the fade in/out time of multiple envelopes at the same time, select the clips that you want to edit, press **Alt** , and edit the envelope with the mouse.

RELATED LINKS
Envelopes for Clips on page 460
Adding Envelope Curve Points on page 462

Resetting Envelope Curves

You can reset curve points to the default level 0 dB.

- To reset a single point to 0 dB, select the point, right-click it, and select **Reset Selected Points**.
- To reset the whole envelope curve to default, right-click the envelope curve, and select **Reset Level to 0 dB**.

Moving the Edit Cursor to an Envelope Point

The **Envelope** context menu allows you to move the edit cursor to the exact position of an envelope point.

Moving the edit cursor to an envelope point is useful to insert a marker at the envelope point, for example. It also allows you to snap to the envelope point when you edit an envelope from another track.

1. Right-click an envelope point.
2. From the **Envelope** context menu, select **Move Edit Cursor to Point**.

Envelope		
⊷ Reset All	465	B then Del
Delete Selected Points		B then Ctrl+Backspace
Deselect All Points		B then -
◀ Select First Point		B then Home
◀ Select Previous Point		B then Left
▶ Select Next Point		B then Right
Move Edit Cursor to Point		
Copy Shape		B then Ctrl+C
Paste Shape		B then Ctrl+V
Reset Level to 0 dB		B then _
◀ Reset Selected Points		B then =
Raise Level of Selection with Envelope		B then End
Lower Level of Selection with Envelope by -3 dB		B then 3
Lower Level of Selection with Envelope by -6 dB		B then 6
Lower Level of Selection with Envelope by -9 dB		B then 9
Mute Selection with Envelope		B then Backspace
Duck According to Other Track		B then D

Snapping Envelope Points to Anchors

When you edit envelope points with the mouse, you can set them to snap to active anchors.

PROCEDURE

1. In the **Audio Editor** or in the **Audio Montage** window, select the **Edit** tab.

2. In the **Snapping** section, activate **Snap to Magnets**.

3. Use the mouse to move an envelope point.

RESULT

As you move envelope points with the mouse, they snap to the following anchors:

● Main Ticks of the Time Ruler

● Markers

● Edit Cursor

● Time Selection Edges

Navigating across Envelope Points

In the **Audio Montage** window, you can quickly navigate to specific envelope points and select them.

Navigating across – and to specific – envelope points via the **Envelope** context menu or the **Envelope** tab saves you the time and effort of manually selecting envelope points one by one and allows for quick final reviews of envelope points and levels, for example.

PROCEDURE

- Do one of the following:
  - Right-click on an envelope curve. From the **Envelope** context menu, choose **Select First Point**, **Select Previous Point**, or **Select Next Point** to navigate to the desired envelope point on the envelope curve.
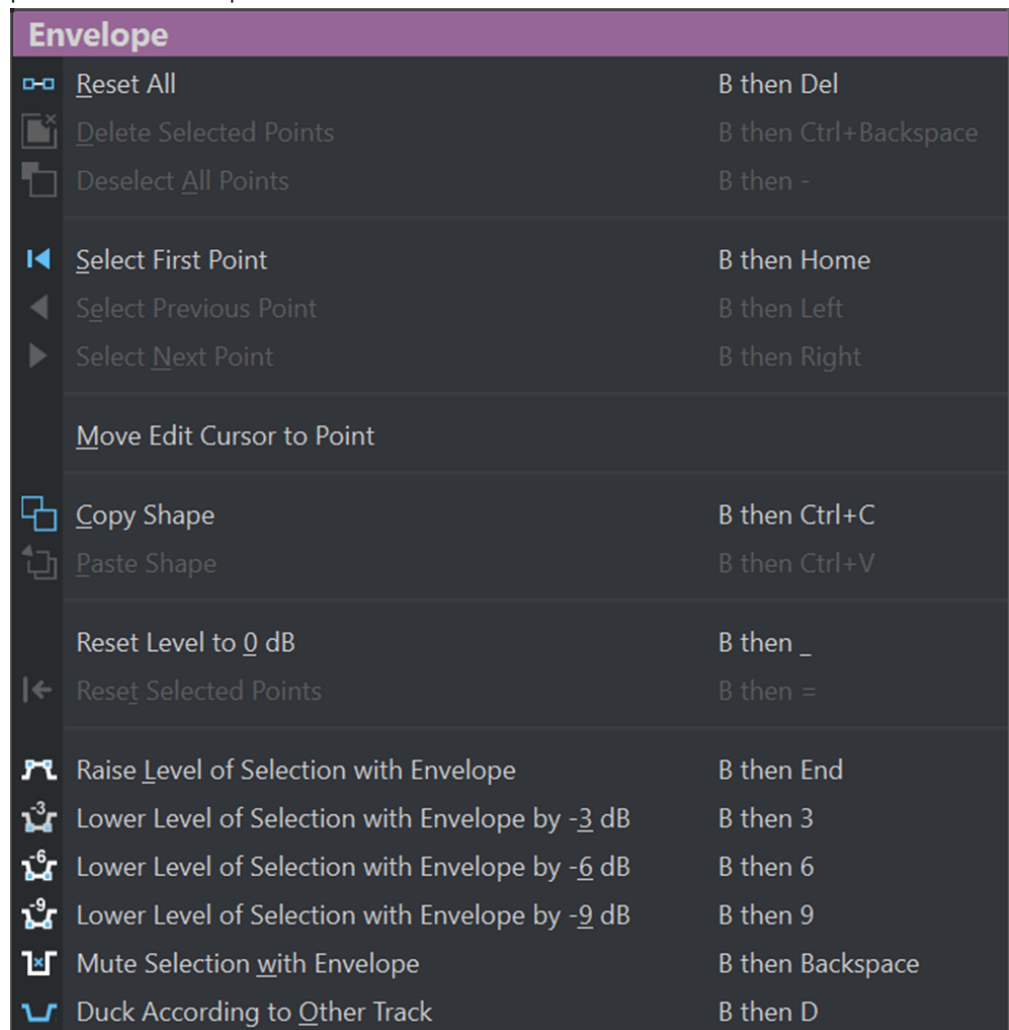
  - Activate the **Envelope** tab. Click to select an envelope point on the envelope curve. From the **Selected Points** section, choose **First** (**1**), **Previous** (**2**), or **Next** (**3**) to navigate to the desired envelope point on the envelope curve.
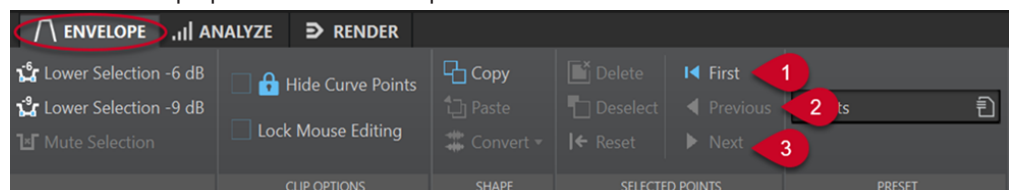
> TIP
>
> You can edit the values of selected envelope points via the **Inspector**.

Copying Envelopes

You can copy envelope curves from other clips.

PROCEDURE

1. In the montage window, right-click an envelope curve, and select **Copy Shape**.

2. Right-click the envelope curve of the destination clip, and select **Paste Shape**.

Raising Selection Levels

You can raise the audio level with specific fall and rise times (by default 20 ms) and then adjust the level.

PROCEDURE

1. In the montage window, in a clip, select the range for the section that you want to raise in level.

2. Right-click the envelope curve, and select **Raise Level of Selection with Envelope**.

   The level of the selection range is raised.

3. Click the envelope of the selection range and drag up or down to adjust the level.

Muting Selected Ranges of Clips

You can mute a selected range by lowering the volume to -144 dB.

Muted sections are not affected when you drag the envelope curve up or down.

PROCEDURE

1. In the montage window, in a clip, make a selection range for the section that you want to mute.
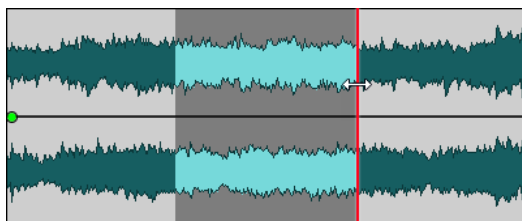
2. Right-click the envelope curve, and select **Mute Selection with Envelope**.

RESULT

The section is muted. A fade in and fade out of 20 ms is applied to the muted section.
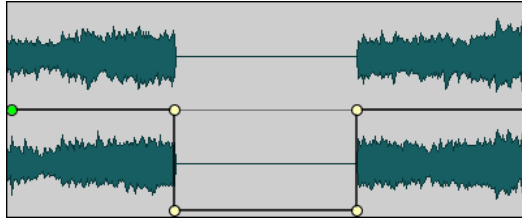
Creating Envelope Presets

You can create envelope presets that you can later recall and apply to other clips. There are separate presets for the sustain parts (envelope presets) and the fade parts.

PROCEDURE

1. In the montage window, activate the clip with the envelope curve that you want to save as a preset.

2. Select the **Envelope** tab.

3. In the **Preset** section, open the **Presets** pop-up menu.

4. Select **Save As**.

5. In the **Save Preset As** dialog, enter a name for the preset, and click **Save**.

RELATED LINKS
Envelope Tab (Audio Montage) on page 349

Applying Envelope Presets

PROCEDURE

1. In the montage window, activate the clip to which you want to apply the envelope preset.

2. Select the **Envelope** tab.

3. In the **Preset** section, open the **Presets** pop-up menu.

4. Select a preset from the list.

RESULT

The envelope curve is applied.

NOTE

Level envelope presets can only be applied to level envelopes. Other envelope presets such as pan and effect presets can be applied to any other non-level envelope, but not to level envelopes.

RELATED LINKS
Envelope Tab (Audio Montage) on page 349

Locking an Envelope Curve

When an envelope curve is locked, the level envelope curve points are hidden and cannot be edited with the mouse. However, you can drag the whole curve up or down.

PROCEDURE

1. In the montage window, activate the clip that you want to lock.

2. Select the **Envelope** tab.

3. In the **Clip Options** section, activate **Hide Curve Points**.

RELATED LINKS
Locking All Envelope Curves on page 469
Envelope Tab (Audio Montage) on page 349

Locking All Envelope Curves

You can lock all envelope curves to prevent them from inadvertent editing.

PROCEDURE

1. In the **Audio Montage** window, select the **Envelope** tab.

2. In the **Visibility** section, activate **Lock Mouse Editing**.

RESULT

The envelopes and the envelope points are still displayed, but they cannot be selected or edited.

RELATED LINKS
Locking an Envelope Curve on page 469
Envelope Tab (Audio Montage) on page 349

Parameter Automation with Clip Envelopes

You can use clip envelopes for parameter automation. You can add clip envelopes for VST 3 plug-in parameters, volume/fades, and pan.

RELATED LINKS
Automating Plug-in Parameters with Clip Envelopes on page 469
Automating Pan Envelopes on page 470
Automating Volume/Fades Envelopes on page 471

Automating Plug-in Parameters with Clip Envelopes

You can automate each plug-in parameter individually via clip envelopes.

PROCEDURE

1. In the montage window, select the clip for which you want to apply plug-in parameter automation.

2. In the **Inspector** window, add a plug-in in the **Montage Effects** pane.
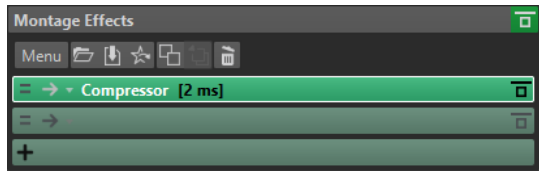
3. To create an automation envelope parameter, do one of the following:

- In the plug-in window, right-click the parameter that you want to automate and select **Create Clip Automation Envelope**.
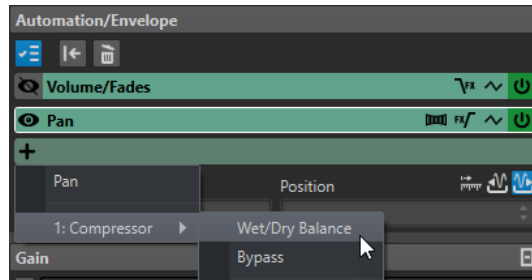
NOTE

Some third-party plug-ins do not support selecting parameters via right-click. In this case, use the next method to select the parameter.

- In the **Automation/Envelope** pane, click **Add Automation Envelope** and select the plug-in parameter that you want to automate. For example, **Wet/Dry Balance** or **Bypass**.
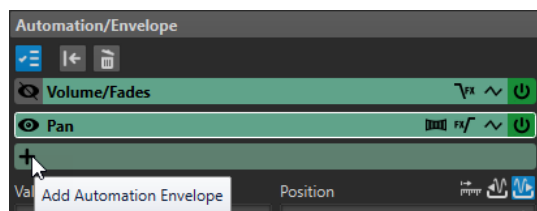
4. In the clip, edit the envelope of the plug-in parameter.
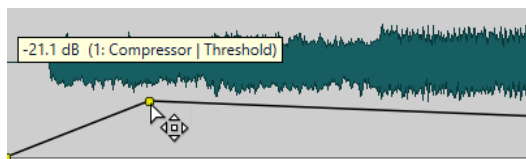
To have a better overview, you can hide the envelopes of other parameters. Click **Show/Hide Automation Envelope** in the **Automation/Envelope** pane.

RELATED LINKS
Parameter Automation with Clip Envelopes on page 469
Inspector Window on page 490

Automating Pan Envelopes

You can automate pan envelopes individually via clip envelopes.

PROCEDURE

1. In the montage window, select the clip for which you want to apply pan automation.

2. In the **Automation/Envelope** pane of the **Inspector** window, click **Add Automation Envelope**.
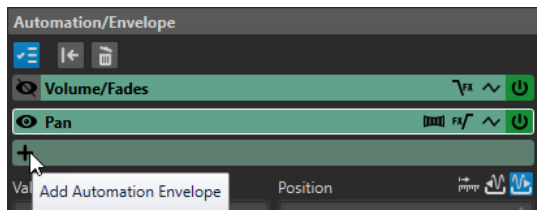
3. In the pop-up menu, select **Pan**.
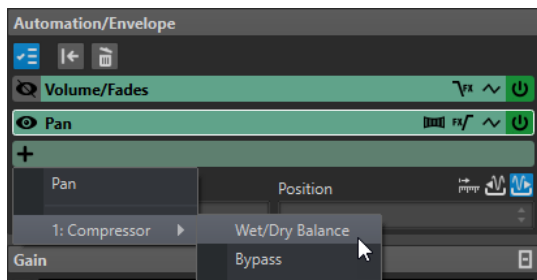
4. Optional: By default, the pan envelope is applied after the effects. If you want to apply the pan envelope before the effects, click **Pan Envelope After or Before Effects**.

5. Optional: Click **Pan Law** and select the pan law that you want to use. The following options are available:

   ● **Channel Damp (0 dB | -∞)**

   ● **Constant Power (+3 dB | -∞)**

   ● **Channel Boost (+4,5 dB | -∞)**

   ● **Channel Boost (+6 dB | -∞)**

6. Optional: To have a better overview of the envelope you are editing, you can hide the envelopes of other parameters. To hide envelopes, click **Show/Hide Automation Envelope** in the **Automation/Envelope** pane.

7. In the clip, edit the pan envelope.

   You can also select an envelope point and edit its value in the **Value** and **Position** fields at the bottom of the **Automation/Envelope** pane in the **Inspector** window.

RELATED LINKS

Automating Volume/Fades Envelopes

You can automate volume/fades envelopes individually via clip envelopes.

PROCEDURE

1. In the montage window, select the clip for which you want to apply volume/fades automation.

2. In the **Automation/Envelope** pane of the **Inspector** window, select **Volume/Fades**.

3. Optional: By default, the volume/fades envelope is applied after the effects. If you want to apply the volume/fades envelope before the effects, click **Level/Fade Envelope After or Before Effects**.

4. Optional: To have a better overview of the envelope you are editing, you can hide the envelopes of other parameters. To hide envelopes, click **Show/Hide Automation Envelope** in the **Automation/Envelope** pane.

5. In the clip, edit the volume/fades envelope.
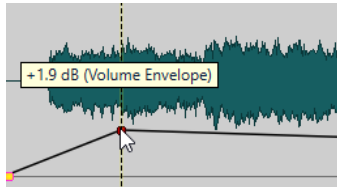
You can also select an envelope point and edit its value in the **Value** and **Position** fields at the bottom of the **Automation/Envelope** pane in the **Inspector** window.

Changing the Overall Level Envelopes of Clips

The default envelope curve contains no level envelope points, but you can use it to change the overall level for a clip.

PROCEDURE

1. In the montage window, place the mouse cursor on the envelope curve.

    The mouse cursor takes the shape of a circle with two arrows that point up and down.
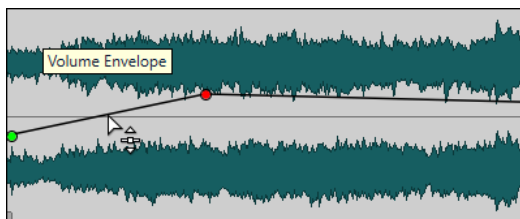
2. Click and drag the curve up or down to change the clip envelope level.

Converting Envelopes to Mono or Stereo

It is possible to display two level envelope curves for stereo clips, allowing you to control the level separately for the left and right channels.

NOTE

Only level envelopes can be converted to stereo.

PROCEDURE

1. In the montage window, select a clip.

2. Select the **Envelope** tab.

3. In the **Shape** section, click **Convert**.

4. Select **Convert to Stereo** or **Convert to Mono**.

RELATED LINKS
Envelope Tab (Audio Montage) on page 349

Pan Laws

The power of the sum of the channels drops by about 3 dB if a signal is panned hard left or right, compared to the same signal being panned center. This can be compensated with pan laws.

Experiment with the laws to hear which fits best. The pan laws can be set for tracks, clips, and the montage output.

- To set the pan laws for clips, use the **Pan Law** pop-up menu in the **Envelope** tab in the **Montage** window, or use the **Pan Law** pop-up menu and knob in the **Inspector** window.

- To set the pan laws for tracks and the montage output, use the **Pan Law** pop-up menu and knob in the **Inspector** window.

The following pan laws are available:

Channel Damp (0 dB/Mute)

This law does not compensate for power loss. If a signal is panned hard left or right, the power of the sum of the channels drops by 3 dB.

Constant Power (+3 dB/Mute)

This is the default law. Regardless of the pan position, the power of the sum of the channels remains constant.

Channel Boost (+4.5 dB/Mute)

If this law is selected and a signal is panned hard left or right, the power of the sum of the channels is higher than with a signal-panned center.

Channel Boost (+6 dB/Mute)

If this law is selected and a signal is panned hard left or right, the power of the sum of the channels is higher than with a signal-panned center. This is the same as the previous option, but with even greater power boost.

RELATED LINKS
Envelope Tab (Audio Montage) on page 349
Inspector Window on page 490

Clip Ducking

In WaveLab Pro, in addition to track ducking, you can also apply ducking to individual clips.

If you use the **Ducking** option, the presence of another clip on an adjacent track causes ducking.
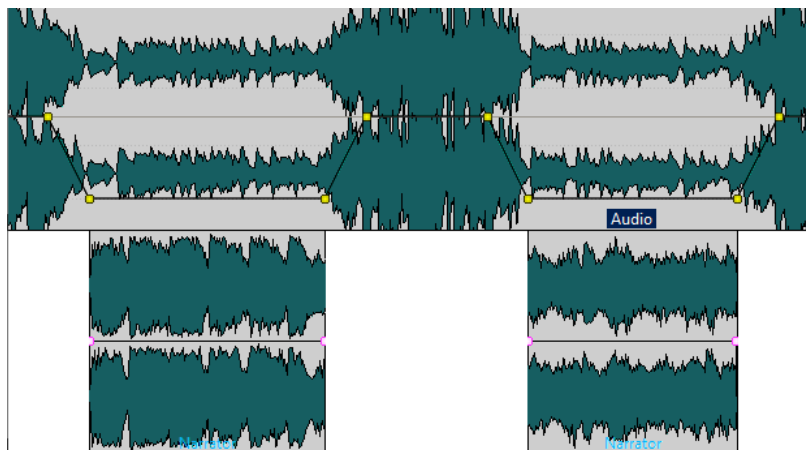
You can create a ducking effect for effect envelopes that are routed to a clip. Each clip plug-in has its independent envelope. When the envelope is all the way down, only the wet signal is applied. When the envelope is all the way up, the processed/wet signal is at its maximum.
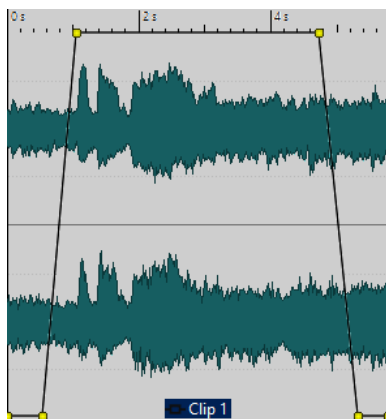
NOTE

- Ducking clips is independent from clip modulation, though they share some concepts. Ducking clips is more flexible but requires more manual adjustments.

- The modulator clip, that is, the clip to be played at a higher level, must be positioned within the time range of the clip to which ducking is applied.

- If the modulator clips contain silent passages, ducking does not work properly. These clips must be edited so that each phrase is a separate clip, without any silence.

- When **Ducking** is performed, it is applied to one clip at a time. For example, if the music consists of several clips that have been spliced together, only one of the music clips is ducked by the voice-over. To solve this issue, you can to repeat the process for each clip or use the **Render** function in the **Master Section** to render the clips to a single audio file, which you can then re-import into the audio montage as a new clip.

RELATED LINKS
Routing a Plug-in to a Clip on page 509
Creating Voice-Over Ducking Effects for Clips on page 475
Ducking Settings Dialog on page 475
Ducking on page 476

Creating Voice-Over Ducking Effects for Clips

The ducking feature enables you to combine spoken content with music in such as way that, while the voice is more prominent and perceived by the listeners as being in the foreground, the music is playing at a lower level (in the background).

PREREQUISITE

You have created an audio montage with a music track and a voice-over track and arranged them so that they are adjacent to each other in the track list on the left side of the Audio Montage window. Make sure that the voice-over clips are located within the time range of the music clip.

PROCEDURE

1. Select a clip on the music track.

2. Select the **Envelope** tab.

3. In the **Visibility** section, open the **Envelope Type** pop-up menu, and select **Volume/Fades**.

4. In the **Level** section, click **Ducking**.

5. In the **Ducking Settings** dialog, choose the **Modulator Clips**, that is, the voice-over track.

   Depending on whether the voice-over track is above or below the music track, you must select **Previous Track** or **Next Track**.

6. Click **OK**.

RESULT

The level of the music is automatically attentuated, in relation to the voice-over clips.

AFTER COMPLETING THIS TASK

Play back the audio to check the result. You can edit the envelope points to fine-tune the ducking effect.

RELATED LINKS

Ducking Settings Dialog

In the **Ducking Settings** dialog, you can create ducking effects for clips.

● To open the **Ducking Settings** dialog, select the **Envelope** tab in the **Audio Montage** window, and click **Ducking** in the **Level** section.
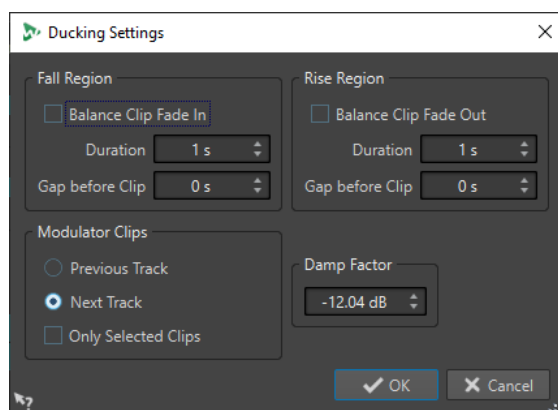
Fall Region

Balance Clip Fade In ignores any duration or gap settings in the **Fall Region** section. Instead, the ducking envelope lowers the volume from the fade in end position of the voice-over clip.

Duration allows you to set the time it takes for the level to fall when ducking starts.

Gap before Clip allows you to set the time between the end of the fall region and the start of the voice clip.

Rise Region

Balance Clip Fade Out ignores any duration or gap settings in the **Rise Region** section. Instead, the ducking envelope raises the volume from the fade out start position of the voice-over clip.

Duration allows you to set the time it takes for the level to rise to the original level after ducking ends.

Gap before Clip allows you to set the time between the end of the voice clip and the start of the Rise region.

Modulator Clips

Previous Track and **Next Track** define whether the modulator track should be the one before (**Previous Track**) or after (**Next Track**) the track that is to be ducked.

If **Only Selected Clips** is activated, only the selected clips on the modulator track cause ducking.

Damp Factor

Sets the amount of ducking, that is, the degree of attenuation that is applied to the affected clip.

Ducking

Ducking allows you to attenuate the level of an audio track so that the audio on another track is more prominent when both tracks are played back simultaneously.

A very common use case for ducking is the creation of two separate tracks, one for music and one for a voice-over, with the goal of the spoken content being accompanied by music on playback. With ducking applied, when the voice-over starts, the level of the music track is lowered by automatically created level envelope curves, so that the spoken content is perceived as in the foreground and the music in the background by the audience.

In this context, the track containing the music is called the carrier track. The track containing the voice recording is called the modulator track.

You can select multiple voice tracks as modulator tracks for a carrier track. You can also apply ducking to modulator tracks; for example, to give one voice track priority over another.

RELATED LINKS

Creating Voice-Over Ducking Effects for Tracks

The ducking feature enables you to combine spoken content with music in such as way that, on playback, while the voice is more prominent and perceived by the listeners as being in the foreground, the music is playing at a lower level (in the background).

PREREQUISITE

You have two audio tracks, a music track and a voice-over track. You want to attenuate the level of one of the tracks (the music) whenever a signal is present on the other track (the voice recording).

PROCEDURE

1. Select the carrier track, that is, the track containing the music.

2. Right-click the track control area of the carrier track, and click **Show Ducking Controls**.

3. In the track control area of the carrier track, activate **Ducker On/Off**.

4. Click **Source** to open the **Modulator Tracks** menu, and select one or multiple modulator tracks, that is, the tracks containing the voice recording.
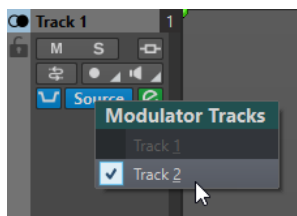
5. Play back the audio montage.

   The volume of the music track is lowered every time the voice track emits a signal.

6. Optional: Click **Ducker Settings** to open the **Ducker** plug-in, and adjust the settings to fine-tune the ducking effect.

7. Optional: If you are using multiple modulator tracks, you can also apply ducking to modulator tracks.

RELATED LINKS
Adding Tracks on page 371
Track Control Area for Stereo and Mono Tracks on page 322
Ducker Settings for Track Ducking on page 477

Ducker Settings for Track Ducking

The **Ducker** settings allow you to specify how to apply the ducking effect to tracks.

● To open the **Ducker** settings, activate **Ducker On/Off** in the track control area, and click **Ducker Settings**.
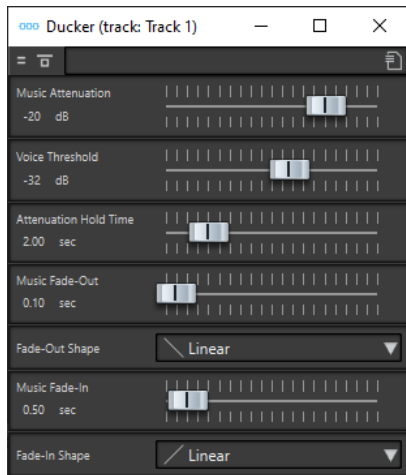
Bypass Effect

If this option is activated, the **Ducker** is bypassed during playback.
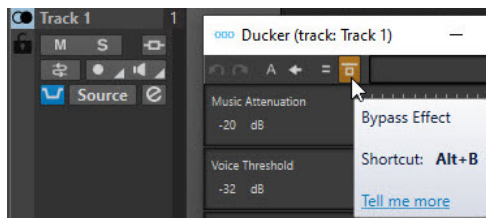
Presets

Allows you to save and load ducking presets.

Music Attenuation

Allows you to specify the level reduction that is applied to the music track (carrier).

Voice Threshold

Allows you to set the level threshold of the voice track (modulator) that triggers ducking. If the level of the voice track exceeds the threshold, the level of the music track (carrier) is lowered.

Attenuation Hold Time

When the level of the voice track falls below the set voice threshold, the **Attenuation Hold Time** determines how long the level of the carrier track stays reduced before it starts rising to its original level again.

Music Fade-Out

Determines the time it takes for the music level to change from 0 dB to the set **Music Attenuation** level.

Fade-In Shape/Fade-Out Shape

Allows you to select the shape of the fade-out/fade-in curve. The following curve shapes are available:

- **Linear** changes the level linearly.
- **Sinus (*)** changes the level according to a sine curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.
- **Square-Root (*)** changes the level according to a square-root curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.
- **Sinusoid** changes the level according to a sine curve.
- **Logarithmic** changes the level according to a logarithmic curve.

478

- **Exponential** changes the level according to an exponential curve.
- **Exponential+** changes the level according to a more pronounced exponential curve.

Music Fade-In

Determines the time after which the level rises to the original level, when the level of the voice track (modulator) falls below the set **Voice Threshold** and after the specified **Attenuation Hold Time**.

RELATED LINKS
Ducking on page 476
Track Control Area for Stereo and Mono Tracks on page 322

Fades and Crossfades in Audio Montages

A fade in is a gradual increase in level and a fade out is a gradual decrease in level. A crossfade is a gradual fade between two sounds, where one is faded in and the other faded out.

RELATED LINKS
Creating Fades in Clips on page 479

Creating Fades in Clips

By default, all clips display fade in and fade out junction points. These can be dragged horizontally to create a fade in or fade out for a clip.

You can add envelope points to a fade just as with level envelopes.

- To create a fade in, click the fade in point at the start of a clip, and drag it to the right.
- To create a fade out, click the fade out point at the end of a clip, and drag it to the left.
- To create a fade in or fade out at a specific time position, use set **Apply Fade Time** option in the **Fade** tab. Enter the time value in the time field and click **Apply Fade Time**.
- To move a fade in/fade out point vertically, press Ctrl/Cmd while dragging.
- To adjust the fade in/fade out points in all selected clips simultaneously, hold down Alt , and drag a fade in/fade out point up or down. This is a quick way to adjust the fades of multiple clips at the same time.

The resulting fade in/fade out curve is displayed in the clip, and the fade is also reflected in the waveform. If you position the mouse over the fade in point, the fade in time is displayed in seconds and milliseconds and the volume in dB.
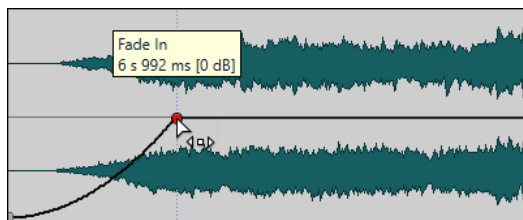
RELATED LINKS
Fades and Crossfades in Audio Montages on page 479
Fade Tab (Audio Montage) on page 346

Fade In and Fade Out Menus

In this menu, you can select various preset fade curves and other fade-related options.

- To open the **Fade In** or **Fade Out** pop-up menu, right-click the fade in or fade out points.

Zoom to Fade In Range/Zoom to Fade Out Range

Adjusts the view to mainly display the fade in/fade out part of the active clip.

Copy

Copies the fade in/fade out shape to the clipboard.

Paste

Replaces the fade in/fade out shape and length with the shape and length that was copied to the clipboard.

Paste Shape Only

Replaces the fade in/fade out shape with the shape that was copied to the clipboard. The original length is preserved.

Paste to Selected Clips

Replaces the fade in/fade out shape of all selected clips with the shape that was copied to the clipboard. The original length is preserved.

Linear

Changes the level linearly.
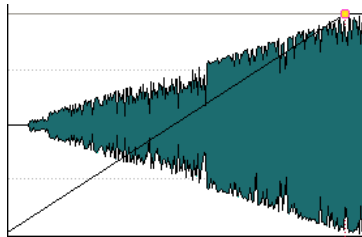
Sinus (*)

Changes the level according to the first quarter period of the sine curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.
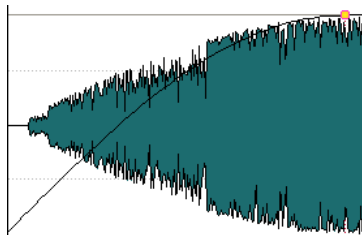
Square-root (*)

Changes the level according to the square-root curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.
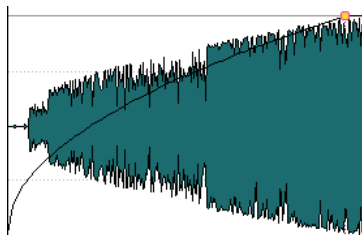
Sinusoid

Changes the level according to a half period part of the sine curve.
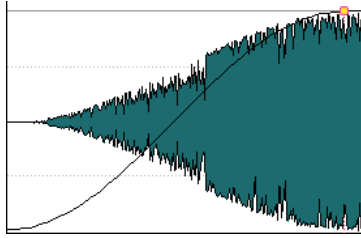
Logarithmic

Changes the level logarithmically.
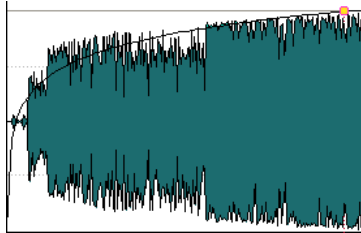
Exponential

Changes the level exponentially.
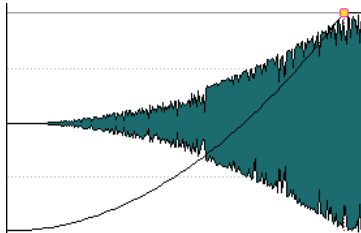
Exponential+

Changes the level strongly exponential.
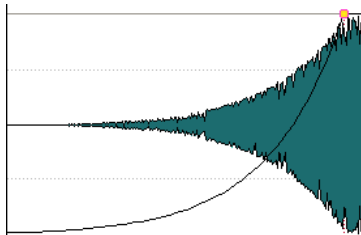
RELATED LINKS
Fades and Crossfades in Audio Montages on page 479

Saving Fade Ins/Fade Outs as Default

The default fade in/fade out curve shape is linear. You can change this setting and define a default shape and/or length separately for fade ins and fade outs.

PROCEDURE

1. In the montage window, drag the fade in/fade out point to the position that you want to set as default.

2. Select the **Fade** tab.

3. In the **Edit** section, activate **Fade In** or **Fade Out**.

4. In the **Preset** section, open the **Presets** pop-up menu.

5. Depending on whether you want to save the current fade as default for fades and/or crossfades, select one of the following options:

   - **Save Current Fade as Default for Automatic Fade Ins**
   - **Save Current Fade as Default for Automatic Fade Outs**
   - **Save as Default for Automatic Crossfades**

RESULT

When you select a clip and click **Apply Default** in the **Fade** tab, the saved fade is applied. In addition, when you create a new clip and **Create Default Fades in New Clips** is activated, the default fade is used.

NOTE

The default fades are saved for each audio montage. If you want to use the same default fade for several audio montages, you should update the audio montage template file.

RELATED LINKS
Fades and Crossfades in Audio Montages on page 479
Fade Tab (Audio Montage) on page 346

Applying Default Fade Ins/Fade Outs

PROCEDURE

1. In the montage window, select the clip for which you want to apply the default fade in/fade out.

2. Select the **Fade** tab.

3. In the **Edit** section, select **Fade In** or **Fade Out**.

4. In the **Preset** section, click **Apply Default**.

RESULT

The fade in/fade out time is set to the defined default value.

RELATED LINKS
Fades and Crossfades in Audio Montages on page 479
Fade Tab (Audio Montage) on page 346

Applying Default Fades to New Clips

All new clips that are imported or recorded in the audio montage get the default fade in and fade out shape and length if **Create Default Fades in New Clips** is active. In this case, the default crossfade shapes are used. This also applies to clips that are created by splitting clips.

PROCEDURE

1. Open an audio montage and select the **Fade** tab.

2. In the **Options** section, open the **Options** pop-up menu.

3. Activate **Create Default Fades in New Clips**.

RELATED LINKS

Locking Fade Times When Adjusting Clip Edges

PROCEDURE

1. Open an audio montage and select the **Fade** tab.

2. In the **Options** section, open the **Options** pop-up menu.

3. Activate **Lock Fade Times When Adjusting Clip Edges**.

RESULT

The defined fade in/fade out length is locked to the clip start or end, even if you adjust the clip edges.

RELATED LINKS

Copying Fades

You can copy a fade in or fade out and paste it in another clip.

PROCEDURE

1. In the montage window, right-click a fade in/fade out point, and select **Copy**.

2. Right-click the fade in/fade out point for which you want to apply the fade, and select **Paste**.

RESULT

The fade is applied to the clip.

RELATED LINKS

Deactivating Automatic Fade Changes for Individual Clips

You can deactivate automatic fade changes for individual clips. This can be used if you have set a fade that you do not want to be altered in any way, even though you may want to overlap the clip with another clip.

PROCEDURE

1. In the **Audio Montage** window, select the clip for which you want to disable automatic fade changes.

2. Select the **Fade** tab.

3. In the **Clip Options** section, activate **Fade-In Lock**.

Creating Automatic Crossfades in Audio Montages

Crossfades in audio montages can be created automatically when clip edges overlap. You can specify the type of crossfade that is performed.

PROCEDURE

1. Open an audio montage and select the **Fade** tab.

2. In the **Options** section, open the **Overlaps** pop-up menu and select one of the following crossfade types:

    - **Free Overlaps**

    - **Fade In Constrains Overlaps**

    - **Fade Out Constrains Overlaps**

3. Move a clip so that it overlaps the edge of another clip.

RESULT

The crossfade is automatically created in the overlap.
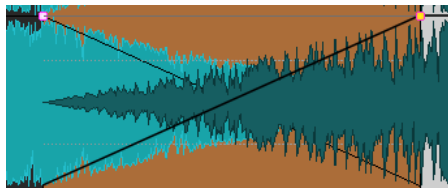
Crossfade Editing

You can create crossfades with independent shapes and lengths for the fade in and fade out curves.

The default automatic crossfade is linear. It uses the same shape and fade lengths for fade in and fade out. The following rules apply:

- A crossfade includes fade in and fade out.

- You can edit the fade in and fade out curves in crossfades in the same way as fades.

- To resize the crossfade time symmetrically, press **Shift**, click the crossfade area, and drag left and right.

- To move the crossfade region while keeping its length, press **Ctrl/Cmd**, click the crossfade area, and drag left and right.

- When you move a clip so that it overlaps another clip to create a crossfade, and neither clip has a defined fade in the overlap, a default crossfade is created if one of the auto crossfade options is activated.

- When moving a clip with a defined fade curve so that it overlaps another clip without a defined fade, the unmoved clip automatically gets the same fade shape as the moved clip,

with amplitude compensation. This only applies if the fade out length of the unmoved clip is set to zero.
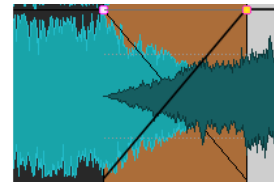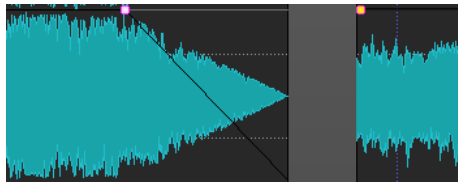
● If both clips have different defined fade curves, an asymmetrical crossfade is created.
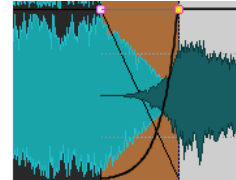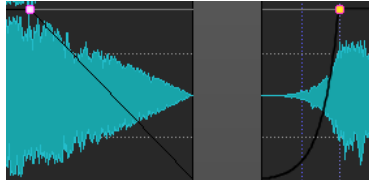
Additionally, other factors govern the result when creating crossfades. In the following example a pre-defined fade out and an undefined fade in are used. What happens depends on the type of fade out curve that is used.

● If the fade out is a preset (except **Sinus (*)** or **Square-Root (*)**) that uses **Pure Shape**, the corresponding fade in gets the same preset with amplitude compensation.

● If the fade out is a preset that uses a compensation attribute, the fade in gets the same preset, but with **Pure Shape** activated, for the compensation to take effect.

● If the fade out uses either the **Sinus (*)** or **Square-Root (*)** presets with the **Pure Shape** setting, the fade in gets the same preset also with the **Pure Shape** setting. In fact, power compensation is used. This is because the **Sinus (*)** and **Square-Root (*)** curves provide constant power crossfades by themselves.

RELATED LINKS

Crossfading with Fade Constrained Overlaps

Crossfading with fade constrained overlaps allows you to keep the fade settings of a clip while crossfading with another clip. For example, you have created a fade in for a clip and now want to crossfade the clip with the previous clip. If **Fade In Constrains Overlaps** is activated and you move the right clip to the left clip, the fade in shape of the clip to the right remains the same and defines the fade out shape of the clip to the left.

PREREQUISITE

To use fade in/fade out constrained overlaps, there must be a defined (not set to zero) fade in/fade out in the overlap. Otherwise, **Free Overlaps** is activated for that crossfade.

The following description applies to fade in constrained overlaps and fade out constrained overlaps. For the latter, however, the defined fade out length constrains the overlap, and accordingly, the left edge of the right clip is adjusted.

PROCEDURE

1. Open an audio montage and select the **Fade** tab.

2. In the **Options** section, open the **Overlaps** pop-up menu.

3. Activate **Fade In Constrains Overlaps**.

4. On a track that contains several clips, create a fade in curve in a clip.

5. Drag the clip to the left so that it overlaps another clip, past the right clip edge.

   A crossfade is created in the overlap.

6. Continue dragging the clip, so that the fade in point of the dragged clip overlaps the right edge of the left clip.

7. Drag the clip to the right again.

   The resized clip is gradually uncovered. The original clip length is memorized, so you can later restore the resized clips.

8. Separate the two clips again without creating an overlap so that they return to the original left/right position relative to each other.

9. Drag the left clip to the right so that it overlaps the other clip, and continue dragging to the right.

   The right edge of the left clip is progressively resized as you drag the clip further to the right.

   Fade constrained overlaps can also be used with the options **Allow Multiple Automatic Crossfades** and **Automatic Crossfades with Clips on Active Track**.

RELATED LINKS

Crossfades Between Clips

The **Wave Matching** window shows a magnified view of the beginning of the selected clip and allows you to adjust the crossfade point for two adjacent clips.

The main purpose of this is to help you splice two consecutive clips together. The zoom view displays the end of the left clip and the start of the right clip. This type of splicing is achieved by applying short crossfades.

There are two main types of crossfades:

Artistic crossfades

   For example, if you want to crossfade two songs to make a nice transition. Usually, these types of crossfades are quite long and can easily be created from the audio montage window.

Patch crossfades

   For example, if you want to replace a section of audio, without audible discontinuity in the resulting audio. In this case, short crossfades should be used. These crossfades are best created in the **Wave Matching** window.

RELATED LINKS

Adjusting Crossfades Between Clips

Adjusting the crossfades between clips is important to avoid clicks at the junction points. WaveLab Pro analyzes the waveforms to automatically find the best crossfade offsets.

PROCEDURE

1. In the montage window, on a track, align the two clips that you want next to each other.

2. Select the clip that is located on the right.

3. Select **Tool Windows** > **Wave Matching**.

   This shows a close-up of the two clips.

4. In the **Wave Matching** window, set the zoom factor using the icons above the zoom view, or select a zoom factor from the **Menu**.

   If you activate **Menu** > **Automatic Level Zooming**, the waveforms are automatically zoomed vertically to fill out the zoom view.

5. If necessary, move or resize the clip located on the right in the zoom view.

6. Set the search range using the icons above the zoom view, or select a search range from the **Menu**.

7. Decide whether you want to move the right clip to the left or to the right.

   - To move the clip to the left, select **Menu** > **Move to Left (Match Waveform)**.

   - To move the clip to the right, select **Menu** > **Move to Right (Match Waveform)**. This is useful if the two clips are already overlapping.

RESULT

WaveLab Pro scans the audio to the left of the splice point and moves the clip on the right to the position which provides the best possible phase match, to avoid harmonic cancellation. When the clip on the right is moved over the clip on the left, a short crossfade is automatically created.

RELATED LINKS
Wave Matching Window on page 487

Wave Matching Window

In the **Wave Matching** window, you can find the best crossfade point for two adjacent clips.

- To open the **Wave Matching** window, open an audio montage and select **Tool Windows** > **Wave Matching**.
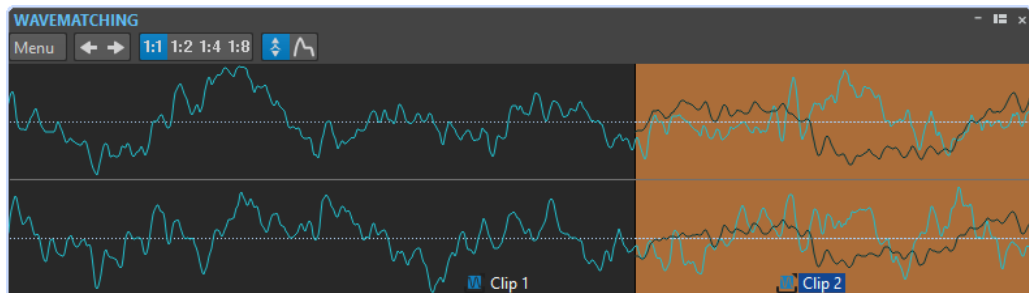
On the **Menu**, you have the following options:

Move to Left (Match Waveform)

   Scans the audio to the left of the splice point and finds the best possible phase match to avoid harmonic cancellation. The clip on the right is moved over the clip on the left. This automatically creates a short crossfade, ensuring the smoothest possible splice.

Move to Right (Match Waveform)

   Scans the audio to the right of the splice point and finds the best possible phase match to avoid harmonic cancellation. The clip on the right is moved further to the right. This automatically creates a short crossfade, ensuring the smoothest possible splice. This function is useful if the two clips already overlap.

Search Range

Determines how WaveLab Pro scans the clips when searching for the best possible phase match. Higher values result in greater accuracy but also longer processing times. If the sounds contain a lot of bass, avoid the shortest search range setting.

Zoom

Sets the zoom factor. For example, 1:4 means that 1 pixel on the screen corresponds to 4 audio samples.

Automatic Level Zooming

Automatically zooms the waveform vertically to fill the view.

Show Envelope

Displays the envelope curves of the clips in the view. Which curves are displayed depends on the settings of each clip.

RELATED LINKS
Crossfades Between Clips on page 486
Adjusting Crossfades Between Clips on page 486

Clip Time Stretching

You can adjust the length of a clip by using time stretching.

The best results are achieved when using small or moderate amounts of time stretch.

NOTE

Avoid time stretching of already time stretched material.

When you perform time stretching on a clip, a copy of the original audio file is created that contains the audio range that is used in the clip. The time stretch is applied to the copy, and the clip now references the copy.

● The copied audio file has the same name as the original, but with the suffix "_#X" where X is a number.

● The copied audio file is saved in the implicit folder that is specified in the **Audio Montages Preferences**.

RELATED LINKS
Time-Stretching Clips on page 488

Time-Stretching Clips

PROCEDURE

1. In the montage window, move the edit cursor to the position where you want the clip to end.

2. Right-click the lower part of the clip that you want to time-stretch, and select **Time-Stretch to Cursor**.

3. In the **Time Stretching** dialog, edit your settings, and click **OK**.

   Only the **Method** section is available for editing, because the other settings are determined by the edit cursor position.

RESULT

The clip is stretched or compressed so that it ends at the edit cursor position.

NOTE

Because the new copied audio file contains exactly the audio range that the clip uses, it is not possible to lengthen the clip by resizing after **Time-Stretch to Cursor** has been applied.

RELATED LINKS
Clip Time Stretching on page 488
Time Stretching Dialog on page 308

Clip Pitch Shifting

You can adjust the pitch of a clip by using pitch shifting.

When you perform pitch shifting on a clip, a copy of the original audio file is created that contains the audio range that is used in the clip. The pitch shift is applied to the copy, and the clip references the copy.

- The copied audio file has the same name as the original, but with the suffix "_#X" where X is a number.

- The cloned audio file is saved in the audio montage subfolder edits.mon.

RELATED LINKS
Active Audio Montage Tab on page 879
Pitch-Shifting Clips on page 489

Pitch-Shifting Clips

PROCEDURE

1. In the montage window, right-click the lower part of a clip for which you want to apply pitch shifting, and select **Pitch Shifting**.

2. In the **Pitch Shifting** dialog, edit your settings, and click **OK**.

RELATED LINKS
Pitch Shifting Dialog on page 310
Clip Pitch Shifting on page 489

Effects for Tracks, Track Groups, Clips, and the Montage Output

You can add VST effect plug-ins to individual clips, tracks, track groups, or the output of an audio montage. Clip effects affect individual clips only, track effects affect all clips on a track, track group effects affect all tracks of the track group, and the montage output affects the whole audio montage.

VST 2 and VST 3 plug-ins can be used in the audio montage. Each clip, track, track group, and the montage output can be independently processed by up to 16 VST effect plug-ins.

Effects are configured as follows:

- As inserts, where the entire audio is processed by the effects.

- As send effects (split mode), where the balance between the unprocessed sound and the effect send level can be controlled by effect envelope curves (clip effects and specific VST 2 plug-ins only).

An icon in front of a clip name indicates that effects are applied to a clip.
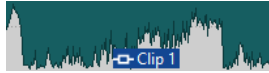
Hovering over a clip name shows the effects that are used for the clip.
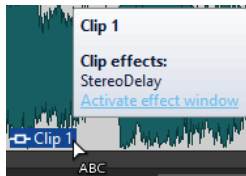
NOTE

- Only clip effects for clips that are active at the current playback position consume CPU power. Track and montage output effects are always active.

- The first time that you play an audio montage after is has been opened or copied, the program has to load all effects into memory. If you have many effects, this can result in a short silence before the playback starts.

- Effects that are used for tracks must support stereo audio, even if the audio track is mono.

RELATED LINKS
Adding Effects to Tracks, Track Groups, Clips, or to the Montage Output on page 500
Montage Output Effects on page 490
Inspector Window on page 490

Montage Output Effects

You can add montage output effects to an audio montage. While the **Master Section** is shared among all audio montages, the montage output effects are local to each montage. This allows you to have a fully embedded project, without needing to use the **Master Section**.

The montage output effects are located at the output of the audio montage.

NOTE

If you want to use a dithering plug-in, place it in the montage output.

RELATED LINKS
Adding Effects to Tracks, Track Groups, Clips, or to the Montage Output on page 500
Inspector Window on page 490

Inspector Window

The **Inspector** window allows you to add effect plug-ins to clips, tracks, track groups, and the audio montage output, import the plug-ins from the **Master Section**, and to make pan and gain settings.

- To open the **Inspector** window, open an audio montage, and select **Tool Windows** > **Inspector**.

Clip/Track/Group/Output

At the top of the **Inspector**, you can select if you want to display and edit the plug-ins for clips, tracks, track groups, or the montage output in the **Inspector** window.

Clip Color/Track Color/Group Color

Allows you to specify a color for the waveform of the selected clip, track, or track group.

Select Clip/Select Track/Select Track Group

Allows you to select a clip, track, or track group.

Edit Clip Name/Edit Track Name

Allows you to specify a name for the selected clip or track.

Pane Visibility

Allows you to show or hide panes in the **Inspector** window.
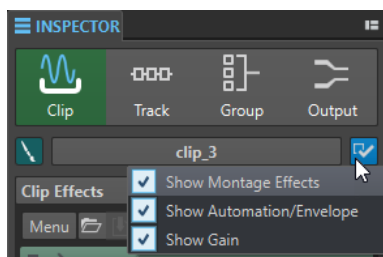
The following options are available:

- If you have selected **Clip**, you can **Show Montage Effects**, **Show Automation/ Envelope**, and **Show Gain**.

- If you have selected **Track**, you can **Show Clean**, **Show Enhance**, **Show Montage Effects**, and **Show Gain**.

- If you have selected **Group**, you can **Show Montage Effects** and **Show Gain**.

- If you have selected **Output**, you can **Show Montage Effects** and **Show Gain**.

Clean (Only for Tracks)

The **Clean** pane contains a **DeHummer**, **DeNoiser**, and **DeEsser** to remove unwanted sounds and noises from your audio in real-time.

Fold/Unfold Clean Pane

Folds or unfolds the **Clean** pane.

Bypass All Effects Displayed Here

Bypasses any effect processing during playback and rendering.

DeHummer

DeHummer allows you to decrease power hum interference that is caused by a bad grounding or unreliable recording equipment. This is done by removing the corresponding frequencies from the audio.

The following parameters are available:

- **Reduction** allows you to specify the amount of the hum reduction.

- **Listen** allows you to listen to the signal that was removed from the audio material. This allows you to verify that you did remove the correct portions of the audio.

- **50 Hz** and **60 Hz** allow you to remove harmonic noise with a fundamental frequency at 50 or 60 Hz. These disturbing frequencies can be caused by electric noise due to badly shielded recording equipment, for example.

DeNoiser

DeNoiser allows you to remove noise from the audio material, for example, ambience sound.

The following parameters are available:

- **Reduction** allows you to specify the amount of the noise reduction.

- **Listen** allows you to listen to the signal that was removed from the original audio material. This allows you to verify that you did remove the correct portions of the audio.

DeEsser

DeEsser is a compressor that reduces excessive sibilance, primarily for vocal recordings.

For example, you can use it when close proximity microphone placement and equalizing lead to situations where the overall sound is just right, but where unwanted sibilants occur.

When recording a voice, the position of **DeEsser** in the signal chain is usually after the microphone pre-amp and before a compressor/limiter. This keeps the compressor/ limiter from unnecessarily limiting the overall signal dynamics.

The following parameters are available:

- **Reduction** allows you to specify the amount of the sibilance reduction.

- **Listen** allows you to listen to the signal that was removed from the original audio material. This allows you to verify that you did remove the correct portions of the audio.

- **Character** allows you to specify the frequency on which the **DeEsser** is applied. A low **Character** setting is generally used for low male voices, for example. Higher **Character** settings generally apply to higher voices of females or children, for example.

- The **Reduction** meter shows how much the **DeEsser** is working.

Enhance (Only for Tracks)

The **Enhance** pane contains the **Voice Exciter**, **Reverb**, **EQ**, and **Maximizer** that allow you to increase the clarity, expression, and deepness of your audio in real-time.

Fold/Unfold Enhance Pane

Folds or unfolds the **Enhance** pane.

Bypass All Effects Displayed Here

Bypasses any effect processing during playback and rendering.

Voice Exciter

Voice Exciter allows you to add upper harmonics and increase clarity and intelligibility of your voice recordings.

The following parameters are available:

- **Amount** allows you to specify the amount of the effect.

- **Clarity** allows you to increase the clarity and intelligibility of your voice recording.

Reverb

Reverb allows you to add more room and space to recordings that sound a bit lifeless.

The following parameters are available:

- **Size** allows you to specify the room size.

- **Mix** allows you to set the level balance between the dry signal and the wet signal.

EQ

The three band **EQ** allows you to tame or boost the **Low**, **Mid** and **High** frequency ranges. An additional **Low Cut** filter allows you to cut the low end below 30 Hz for even more clarity.

The EQ bands have the following specifications:

- **Low**: low-shelf, frequency 250 Hz, 12 dB/octave

- **Mid**: peak, frequency 1500 Hz, Q 1, 12 dB/octave

- **Hi**: high-shelf, frequency 5000 Hz, 12 dB/octave

Maximizer

Maximizer allows you to add loudness and punch to your recording while making sure that the signal does not exceed -1 dB. The **Optimize** dial lets you specify how much compression is applied.

Montage Effects

The **Montage Effects** pane allows you to add and manage effect plug-ins.

Fold/Unfold Effects Pane

Folds/Unfolds the **Effects** pane.

Bypass All Effects Displayed Here

Bypasses any effect processing during playback and rendering.

The following options are available on the **Menu** pop-up menu:

Remove Selected Plug-ins From Active Clip/Track/Track Group/the Output

Removes the selected plug-in from the **Montage Effects** list.

Remove All Plug-ins From Active Clip/Track/Track Group/the Output

Removes all plug-ins from the **Montage Effects** list.

Remove Selected Plug-ins from Selected Clips

Removes the selected plug-in from the selected clips.

Remove All Plug-ins from Selected Clips

Removes all plug-ins from the selected clips.

Copy

Copies the selected plug-in and its settings to the clipboard.

Copy All

Copies all plug-ins and their settings to the clipboard.

Paste (Insert)

Inserts the plug-in that was copied to the clipboard before the first selected slot. If no slot is selected, the plug-in is inserted at the end of the plug-in list.

Paste (Replace)

Replaces the selected plug-in with the plug-in that was copied to the clipboard. If no slot has been added, a new slot is created.

Activate All Effects/Deactivate All Effects

Activates/Deactivates all plug-ins in the audio montage at once.

This option is very useful for the following purposes:

- To help you manage CPU resources on albums with many songs, at higher sample rates, oversampling, and the like.

- To avoid latency issues due to high CPU consumption while recording.

- To identify and eliminate the source of issues in your project, such as unwanted noise or glitches, by deactivating and activating plug-ins.

NOTE

- Deactivated plug-ins do not consume any resources, in contrast to bypassed plug-ins.

- It may take a while for WaveLab Pro to process the request. Unlike bypassing plug-ins, activating or deactivating plug-ins does not take effect instantaneously.

Paste to Selected Clips

Pastes the plug-in that has been copied to the clipboard to the selected clip.

Close All Windows

Closes all plug-in windows related to this audio montage.

Plug-in Map

Opens the **Plug-in Map** dialog that displays all plug-ins that are used in the audio montage and the clips, tracks, and track groups that are using them.

Bypass All Plug-ins in the Montage

> If this option is activated, all plug-ins of the active audio montage are bypassed during playback.

Plug-in Window Handling

> Opens the **Plug-in Window Handling** dialog where you can set up the appearance of plug-in windows.

Add Effect

> Allows you to add an effect.

The following options are available on the toolbar of the **Montage Effects** pane:

Load Plug-in Chain

> Replaces the current plug-ins with a plug-in chain that has been saved on disk. Plug-in chain presets contain the settings you have made in the **Montage Effects** pane, **Clean** pane, and **Enhance** pane.

Save Plug-in Chain

> Saves the current plug-in chain as a preset. Plug-in chain presets contain the settings you have made in the **Montage Effects** pane, **Clean** pane, and **Enhance** pane.

Import Master Section Plug-ins

> Imports the plug-ins that are loaded in the **Master Section**. Existing plug-ins are overwritten.

Copy

> Copies the selected plug-in and its settings to the clipboard.

Paste

> Inserts the plug-in that was copied to the clipboard before the first selected slot. If no slot is selected, the plug-in is inserted at the end of the plug-in list.

Remove Selected Plug-ins

> Removes the selected plug-ins from the **Montage Effects** list. You can `Ctrl/Cmd` -click the plug-ins to select the plug-ins that you want to remove.

Remove All Plug-ins

> Removes all plug-ins from the **Montage Effects** list.

Effects List

The effects list displays the effect plug-ins of the selected clip, track. track group, or montage output. In the list, you can replace effect plug-ins, change the effect order, and edit the **Send Level**, **Fixed Gain**, and **Tail** of effects.
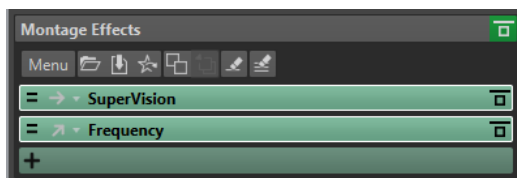
Channel Processing

> Allows you to specify which channel to process. If you select one channel, the other channel is bypassed.

Routing of the Processed Signal (clips only)

Allows you to set the routing of the processed signal for the selected clip. You can control the mix between the dry and the processed signal with an envelope. The following routing options are available:

- **Insert (Standard)**
- **Blend Wet into Dry (Send)**
- **Parallel Processing**

Edit Automation Envelope opens the **Envelope** tab and selects the automation envelope.

Fixed Gain

If you click the arrow to the left of the plug-in name, you can specify a gain value for the plug-in.

Tail

If you click the arrow to the left of the plug-in name, you can specify the tail value for the plug-in.

Some effects, such as reverb and delay, produce audio tails. This means that the effect sound continues after the clip sound ends. For example, if you add echo to a clip without specifying a tail value, the echo effect is muted as soon as the clip ends. Set the tail length so that the effect is allowed to decay naturally. If you add another plug-in to the clip that also produces a tail, there is no need to set a separate tail value for this plug-in, unless you want the decay to sum up. The overall tail length for the clip is the sum of the tail of each plug-in. The maximum tail setting is 30 seconds.

Effect Name

Click the effect name to open the corresponding effects window. Right-clicking an effect name opens the **Plug-ins** menu where you can select a new effect.

Latency

If a plug-in has latency, the latency value is displayed next to the plug-in name.
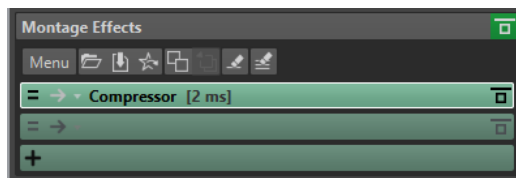
Presets

Allows you to save and restore plug-in presets.

Effect Options

Opens the **Plug-ins** menu where you can select a new plug-in and remove the plug-in.

Bypass Effect

Bypasses the plug-in during playback and optionally during rendering. The signal is still processed by the plug-in, but is not injected in the audible stream.

Automation/Envelope (only for Clips)

In this section, you can add clip envelopes for parameter automation. You can add clip envelopes for plug-in parameters, volume, pan, and wet/dry.
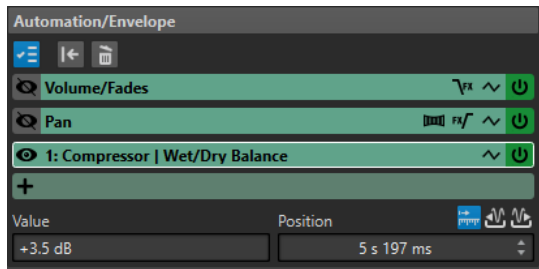
Fold/Unfold Automation/Envelope Pane

> Folds or unfolds the **Automation/Envelope** pane.

Only Show One Envelope

> If this option is activated, only the selected envelope is shown in the montage window.

Reset Selected Envelope

> Resets the selected envelope to its default setting.

Remove Selected Envelope

> Removes the selected envelope. You cannot remove the **Volume/Fades** envelope.

Show/Hide Automation Envelope

> Allows you to show/hide the automation envelope.

Select the Focused Envelope

> Allows you to select the envelope. You can edit the value and position of the selected envelope point in the **Value** and **Position** fields below.

Pan Law

> Allows you to select the pan law for the pan envelope. The following settings are available:

> - **Channel Damp (0 dB/Mute)**
> - **Constant Power (+3 dB/Mute)**
> - **Channel Boost (+4.5 dB/Mute)**
> - **Channel Boost (+6 dB/Mute)**

Level/Fade Envelope After or Before Effects

> If this option is activated, the level/fade envelope is placed after the clip effect slot instead of before. This is useful when using dynamic processors that alter the level of the clip.

Pan Envelope After or Before Effects

> If this option is activated, the pan envelope is placed after the clip effect slot instead of before.

Reset Envelope

> Resets the volume/fades envelope to its default setting.

Smoothing

> Smoothes the resulting envelope curve angles. This produces more natural envelope curves.

Activate/Deactivate Automation Envelope

> Allows you to activate/deactivate the automation slot.

Remove

> Removes the automation slot from the list.

Add Automation Envelope

Allows you to add an automation envelope to the list.

Value

Allows you to edit the value of the selected envelope point. The format of this field depends on the selected parameter.

Position

Allows you to edit the horizontal position of the selected envelope point on the timeline.

The format that you have selected when you right-click the time ruler in the montage window is also used as the format in the **Position** field. That is, **Timecode**, **Clock**, **Samples**, or **Bars and Beats**.

The options **Time Relative to Start of Montage**, **Time Relative to Start of Clip**, and **Time Relative to End of Clip** allow you to choose whether the position should be measured from the start of the montage, start of the clip, or end of the clip.
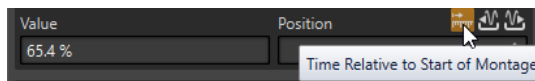
Gain

In this section, you can edit the **Pre-Gain**, **Post-Gain**, and **Pan** settings for clips, tracks, and track groups. You can set the global gain for the audio montage via the **Output** tab.
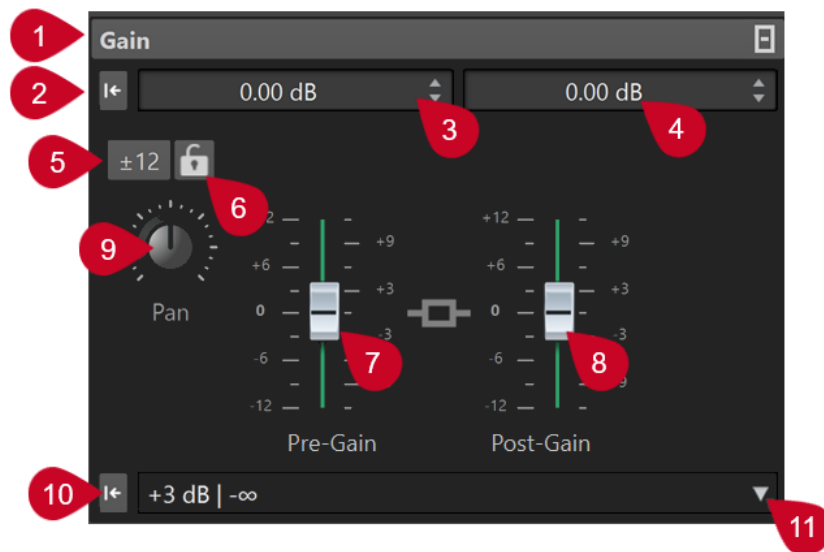
1   Fold/Unfold Gain Pane

Folds or unfolds the **Gain** pane.

2   Reset Gain of Both Faders to 0 dB

Resets the **Pre-Gain** and the **Post-Gain** to 0 dB.

3   Pre-Gain

Allows you to enter the **Pre-Gain** as a numerical value.

4   Post-Gain

Allows you to enter the **Post-Gain** as a numerical value.

5   Gain Range

Allows you to increase the slider precision by setting a gain range that any subsequent slider adjustments are limited to.

6 Lock Fader

With this option activated, it is not possible to adjust the sliders with the mouse.

7 Pre-Gain

Allows you to specify the **Pre-Gain** value by adjusting the left slider in the lower part of the **Gain** pane.

8 Post-Gain

Allows you to specify the **Post-Gain** value by adjusting the right slider in the lower part of the **Gain** pane.

NOTE

The **Loudness Meta Normalizer** can change the global gain to set the audio montage output loudness; for example, to match the EBU R-128 recommendation.

9 Pan Dial (Clip and Track only)

Allows you to set the pan for the clip effects and the track effects.

10 Reset Pan to Center (Clip and Track only)

Resets the pan for the clip effects and the track effects to the center position.

11 Pan Mode (Clip and Track only)

Allows you to select a pan mode different than 0 dB or mute, to compensate for a drop in dB when the signal is panned hard left or right.

Additional options that are exclusively available via the **Output** tab:

Toggle Loudness Matching ◿

When activated, this option adjusts the loudness of the output so that it matches the loudness of a reference track.

Update the Loudness Correction Gains |←

When activated, this option updates the loudness correction gains.

Output Filters

The five buttons allow you to apply monitoring filters for frequency ranges that you set for the audio montage output and the reference tracks.

You can set and customize the filters by clicking the **Filter Settings** button at the bottom left of the window or by selecting **File** > **Preferences** > **Audio Montages** and clicking the **All Audio Montages** tab.

1 Solo LPF (Low-pass Filter) allows you to set a frequency above which frequencies are attenuated, to isolate the low frequencies as an individual frequency range for monitoring.

2 Solo BPF (Band-pass Filter #1) allows you to set an individual frequency range, to isolate it for monitoring.

3 **Solo BPF (Band-pass Filter #2)** allows you to set an individual frequency range, to isolate it for monitoring.

4 **Solo BPF (Band-pass Filter #3)** allows you to set an individual frequency range, to isolate it for monitoring.

5 **Solo HPF (High-pass Filter)** allows you to set a frequency below which frequencies are attenuated, to isolate the high frequencies as an individual frequency range for monitoring.

RELATED LINKS

Showing/Hiding Panes in the Inspector Window

You can show or hide panes in the **Inspector** window to focus on the panes that you need.

PROCEDURE

1. In the **Inspector** window, select the section whose visibility settings you want to edit: **Clip**, **Track**, or **Group**.

2. Click **Pane Visibility**.
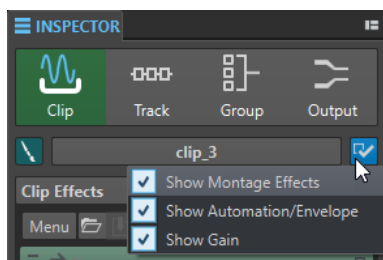
3. Select the panes that you want to show. The following options are available:

    ● **Show Montage Effects** allows you to show/hide the **Effects** pane.

    ● **Show Automation/Envelope** allows you to show/hide the **Automation/Envelope** pane.

    ● **Show Gain** allows you to show/hide the **Gain** pane.

RELATED LINKS

Adding Effects to Tracks, Track Groups, Clips, or to the Montage Output

You can add effect plug-ins to every track and clip of the audio montage, and to the output of the audio montage.

RELATED LINKS

Adding Effects via the Inspector Window

PROCEDURE

1. Open an audio montage.

2. In the **Inspector** window, click **Clip**, **Track**, **Group**, or **Output**.

3. On the **Effects** pane, click an effect slot, and select a plug-in.

> TIP
>
> You can search for a particular plug-in by typing part of its name into the **Search** field. The `Down Arrow` and `Up Arrow` keys allow you to navigate in the list that shows the matches. To select a plug-in, press `Return`. With the focus on the plug-in list, press `Tab` to set the focus back to the **Search** field.

RESULT

The selected plug-in opens in a window.

> NOTE
>
> You can add plug-ins during playback. However, if you add a plug-in with a latency larger than zero, we recommend that you stop and restart playback to avoid timing discrepancies. In addition, a small number of VST plug-ins may change their latency, depending on the parameter settings. If that is the case, stop and restart playback after the latency change.

RELATED LINKS

Additional Ways of Adding Effects

You can add effects not only in the **Inspector** window but also via the track control area and via the wave window.

- To add an effect to a track, click **Add Effects** in the track control area for stereo and mono track and select an effect from the menu.
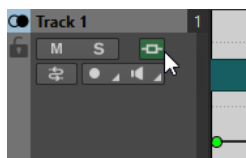
- To add an effect to a clip in the montage window, right-click the clip name, select **Add Effect**, and select an effect from the menu.
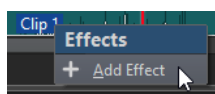
RELATED LINKS

Adding the Master Section Effects to Clips, Tracks, Track Groups, or Montage Output

You can add the **Master Section** effects to a clip, a track, a track group, or the output of an audio montage.

PREREQUISITE

Set up the **Master Section** plug-ins.

PROCEDURE

1. Open an audio montage.

2. Select **Tool Windows** > **Inspector**.

3. In the **Inspector** window, select the track, track group, clip, or montage output to which you want to add the **Master Section** effects.

4. Click **Import Master Section Plug-ins**.
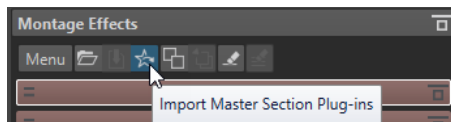
RESULT

The **Master Section** effects are added to the active track, track group, active clip, or montage output.

NOTE

To copy a single **Master Section** effect, drag it from a **Master Section** slot to the effects list of the **Inspector** window.

RELATED LINKS

Color Codes for Effect Plug-ins

Color codes help you to identify and distinguish the effect plug-ins.

You can use the following color codes for the captions bars of the plug-in windows by activating **Use Context-colored Caption Bars** on the **General** tab of the **Preferences** for **Plug-ins**:

Color Codes for Plug-in Caption Bars

Type of Plug-in	Color
Clip	Green
Track	Orange

Type of Plug-in	Color
Track Group	Blue
Montage Output	Red

NOTE

Active windows are highlighted by displaying their caption bar with a higher color intensity.

In addition to this, you can choose to display a colored box on the caption bar of effect plug-in windows by activating **Show Color Section Color in Caption Bar** on the **General** tab of the **Preferences** for **Plug-ins**:

Color Box on the Caption Bar

Type of Plug-in	Color
Clip	The currently assigned clip color. TIP If the same plug-in is applied to multiple clips, this color code helps you to identify all clips that are associated with this particular plug-in and to prevent unintended modifications to individual plug-in instances.
Track	The currently assigned track color. If no color is assigned to the track, the box is empty.
Track Group	The currently assigned track group color. If no color is assigned to the track group, the box is empty.
Montage Output	There is no color box.

NOTE

By default, with the **Rainbow** display selected, the corresponding **Rainbow** colors are displayed for clips. To display custom colors that you assigned to individual clips instead, select **File** > **Preferences** > **Audio Montages** > **All Audio Montages**, and activate **Colored Clips Take Priority Over Rainbow Display**.

Example:
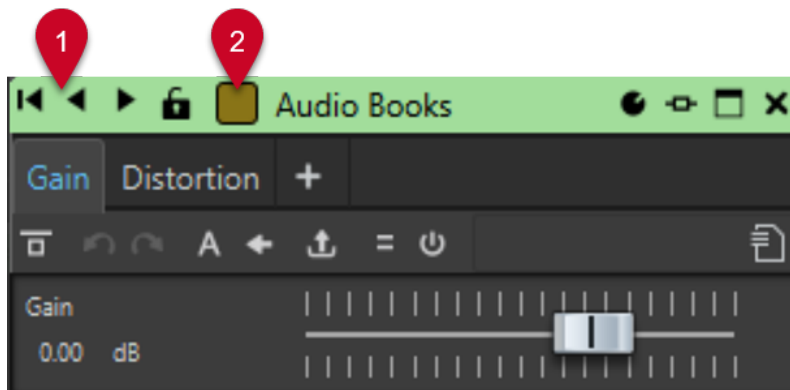
Clip plug-in, as indicated by the green caption bar (**1**), applied to a clip to which you assigned a brownish shade, as indicated by the color of the box on the caption bar (**2**).

RELATED LINKS
Plug-ins Tab (Preferences) on page 852
Inspector Window on page 490
All Audio Montages Tab on page 880

Removing Effects from Tracks, Track Groups, Clips, or the Montage Output

PROCEDURE

1. Open an audio montage.

2. In the **Inspector** window, specify where you want to remove the effects by selecting **Clip**, **Track**, **Group**, or **Output**.

3. In the **Montage Effects** pane, do one of the following:

   - To remove an effect, right-click the effect and select **Remove Plug-in**.
   - To remove all effects, click **Menu** and select **Remove All Plug-ins**.

RESULT

The effect is removed from the effect slot.

RELATED LINKS
Adding Effects to Tracks, Track Groups, Clips, or to the Montage Output on page 500
Inspector Window on page 490
Removing Effects from Selected Clips on page 504

Removing Effects from Selected Clips

You can remove only the selected effects or all effects from the selected clips.

PROCEDURE

1. In the audio montage, select the clips from which you want to remove effects.

2. In the **Inspector** window, click **Clips**.

3. Optional: In the **Montage Effects** pane, `Ctrl/Cmd`-click the effects to select the effects that you want to remove.

4. In the **Montage Effects** pane, click **Menu** and do one of the following:

- To remove the selected effects from the selected clips, select **Remove Selected Plug-ins from Selected Clips**.

- To remove all effects from the selected clips, select **Remove All Plug-ins from Selected Clips**.

RELATED LINKS
Inspector Window on page 490
Removing Effects from Tracks, Track Groups, Clips, or the Montage Output on page 504

Rearranging the Order of Effects

The order of the effects in the list determines the processing order.

PROCEDURE

1. Open an audio montage.

2. In the **Inspector** window, in the effects list, drag the effect that you want to rearrange to another position.

Applying Plug-in Chain Presets to Tracks, Track Groups, Clips, or the Montage Output

You can save the plug-in chain of a track, a clip, or the montage output as a preset and apply it to other clips or tracks, or to the montage output of another audio montage. Plug-in chain presets contain the settings you have made in the **Montage Effects** pane, **Clean** pane, and **Enhance** pane.

PROCEDURE

1. Open an audio montage.

2. In the **Inspector** window, set up your plug-in chain.

3. In the **Montage Effects** pane, click **Save Plug-in Chain**.

4. Enter a name and the file location for the effect chain, and click **Save**.

5. Select the track, track group, clip, or montage output to which you want to apply the effect chain.

6. In the **Effects** pane, click **Load Plug-in Chain**.

7. Select a plug-in chain, and click **Open**.

RELATED LINKS
Effects for Tracks, Track Groups, Clips, and the Montage Output on page 489
Inspector Window on page 490

Copying Effect Settings to Tracks, Track Groups, Clips, or the Montage Output

You can copy the effect and its settings of a track, track group, clip, or the montage output to other tracks, track groups, clips, or the montage output of the same or another audio montage.

PROCEDURE

1. Open an audio montage.

2. In the **Inspector** window, do one of the following:

    - Select the effect from which you want to copy the settings and select **Menu** > **Copy**.

    - Right-click the effect from which you want to copy the settings and select **Copy**.

    - To copy all effects and its settings, click **Menu** > **Copy All**.

3. Do one of the following:

    - To paste the effect settings to a new slot, select **Menu** > **Paste (Insert)**.

    - To replace an existing effect, select the effect, and select **Menu** > **Paste (Replace)**.

    - To copy the effect settings to the selected clip, select **Menu** > **Paste to Selected Clip**.

RELATED LINKS
Effects for Tracks, Track Groups, Clips, and the Montage Output on page 489
Inspector Window on page 490

Undoing Effect Changes

You can undo/redo changes to the effect settings. However, WaveLab Pro only registers the changes when you close the plug-in window or select another tab in the plug-in window.

PROCEDURE

1. In the plug-in window, click another window to lose focus of the plug-in in which you want to undo the settings.

2. Go back to the plug-in in which you want to undo the settings.

3. On the command bar of the **Audio Montage** window, click **Undo** or **Redo**.

Channel Processing

In the **Master Section**, in plug-in windows, and in the **Inspector** window, you can specify for each plug-in which channels to process. This allows you to use each plug-in in mid/side mode, for example.

You can process all channels or only the left, right, mid, or side channel. When you select one channel, the other channel is bypassed.

To use a different plug-in for each channel, use one effect slot for each channel.

Insert

Stereo

All channels are processed by the plug-in.

Mid/Side

Only the mid and side channels are processed by the plug-in.

Left

Only the left channel is processed by the plug-in. The right channel is unchanged.

Right

Only the right channel is processed by the plug-in. The left channel is unchanged.

Mid

Only the mid channel is processed by the plug-in.

Side

Only the side channel is processed by the plug-in.

Send (Return to Stereo)

Left

Only the left channel of the plug-in is processed. The left wet signal of the plug-in is ed to the left/right dry signal.

Right

Only the right channel of the plug-in is processed. The right wet signal of the plug-in is mixed to the left/right dry signal.

Mid

Only the mid channel of the plug-in is processed. The mid wet signal of the plug-in is mixed to the mid/side dry signal.

Side

Only the side channel of the plug-in is processed. The side wet signal of the plug-in is mixed to the mid/side dry signal.

Setting up the Channel Processing

You can set up which channel to process in the **Master Section**, in plug-in windows, and in the **Inspector** window.

Channel Processing in the Master Section

In the **Master Section**, on the **Effects** pane, click **Channel Processing**, and select which channel you want to process.

Channel Processing in Plug-in Windows

In a plug-in window, click **Channel Processing**, and select which channel you want to process.

Channel Processing in the Inspector Window

In the **Inspector** window, open the **Channel Processing** menu for a plug-in, and select which channel you want to process.

Clip Plug-in Routing

You can route clip plug-ins to a clip. This, in conjunction with envelopes, allows you to control which part of the clip the plug-in processes.

Each clip plug-in has an individual independent envelope. When the envelope is all the way down, only the dry signal is applied. When the envelope is all the way up, the processed/wet signal is at its maximum.

The automation envelope can be different for the left and right audio channels.

The following routing options are available:

Insert (Standard)

Replaces the dry signal with the processed signal.

Blend Wet into Dry (Send)

Mixes the wet part of the plug-in output with the dry signal. The amount of mixing is determined by a fixed gain and/or an automation envelope. The corresponding

envelope can be selected in the **Visibility** section of the **Envelope** tab in the **Audio Montage** window.

Parallel Processing

Mixes the processed signal with the dry signal. The level of the dry signal remains unchanged. The amount of mixing is determined by a fixed gain and/or an automation envelope. The corresponding envelope can be selected in the **Visibility** section of the **Envelope** tab in the **Audio Montage** window.

This mode can be used for parallel compression.

The **Edit Automation Envelope** option opens the **Envelope** tab and selects the automation envelope.

RELATED LINKS
Routing a Plug-in to a Clip on page 509
Clip Ducking on page 473

Routing a Plug-in to a Clip

You can route a plug-in to an entire clip or only to parts of the clip.

PROCEDURE

1. In the **Inspector** window, click **Clip**.

2. In the **Montage Effects** pane, click an effect slot and add an effect.

3. In the effects list, click **Routing** for a plug-in, and select one of the following routing options:
   - **Insert (Standard)**
   - **Blend Wet into Dry (Send)**
   - **Parallel Processing**

4. If you have selected **Blend Wet into Dry (Send)** or **Parallel Processing**, you can edit the effect envelope to route the plug-in only to parts of the clip. Click **Routing** and select **Edit Automation Envelope**.

   The **Envelope** tab in the **Audio Montage** window opens, and the plug-in is selected as envelope type.

5. In the montage window, edit the envelope curve.

RELATED LINKS
Adding Effects via the Inspector Window on page 501
Clip Ducking on page 473
Envelopes for Clips on page 460

Using Effect Envelopes

You can automate the effect send level for clip effects that use **Split Mode** by using effect envelope curves.

PREREQUISITE
You have set up a **Split Mode** effect plug-in for a clip.

PROCEDURE

1. Open an audio montage.

2.   Select the **Envelope** tab.

3.   In the **Envelope Type** pop-up menu, select the effect that you want to use for the envelope curve.

4.   Create the envelope curve.

Gain Settings

You can set **Pre-Gain** and **Post-Gain** values; that is, apply volume adjustments to the audio signal before and after effect processing, in the **Inspector** window.

To access the **Pre-Gain** and **Post-Gain** controls, unfold the **Gain** pane in the **Inspector** window.

●   The **Pre-Gain** value adjusts the volume of an audio signal before it is submitted to effect processing.

NOTE

Pre-Gain adjustments can have a profound impact on effect processing, as effects such as overdrive, distortion, and compression are highly sensitive to the input level.

●   The **Post-Gain** value adjusts the volume of an audio signal after it is submitted to effect processing. **Post-Gain** adjustments primarily change the overall volume of the sound, without altering the characteristics of the effects themselves.

NOTE

With the **Clips** tool window open, whenever you change the **Pre-Gain** and **Post-Gain** settings for a clip on the **Gain** pane of the **Inspector** window, the values in the **Pre-Gain** and **Post-Gain** columns of the **Clips** tool window are automatically updated simultaneously.

Setting Pan and Gain for Effects

You can set the **Pre-Gain**, the **Post-Gain**, and the **Pan** of the effects for individual clips, tracks, and track groups.

PROCEDURE

1.   Open an audio montage.

2.   In the **Inspector** window, click **Clip**, **Track**, or **Group**.

3.   Adjust the **Pre-Gain** and the **Post-Gain**, as well as the **Pan** of the effects.
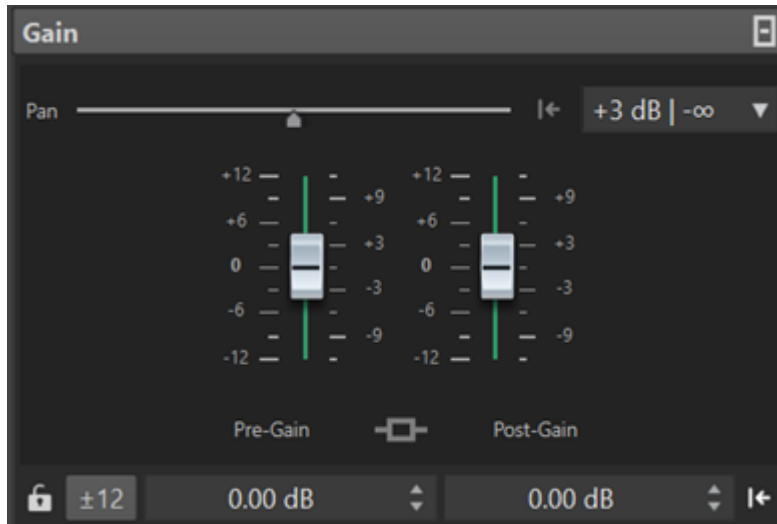
RELATED LINKS
Inspector Window on page 490
Effects for Tracks, Track Groups, Clips, and the Montage Output on page 489
Setting the Global Gain for Effects on page 511

Setting the Global Gain for Effects

You can set a global gain for the output effects of your audio montage via the **Output** tab in the
Inspector window.

PROCEDURE

1. Open an audio montage.

2. In the **Inspector** window, click **Output**.

3. On the **Gain** pane, make adjustments for the global **Pre-Gain** and **Post-Gain**.

RELATED LINKS
Inspector Window on page 490
Output Gain Pane in the Inspector Window on page 512
Effects for Tracks, Track Groups, Clips, and the Montage Output on page 489

Output Gain Pane in the Inspector Window

The **Output** section in the **Inspector** window offers additional controls.
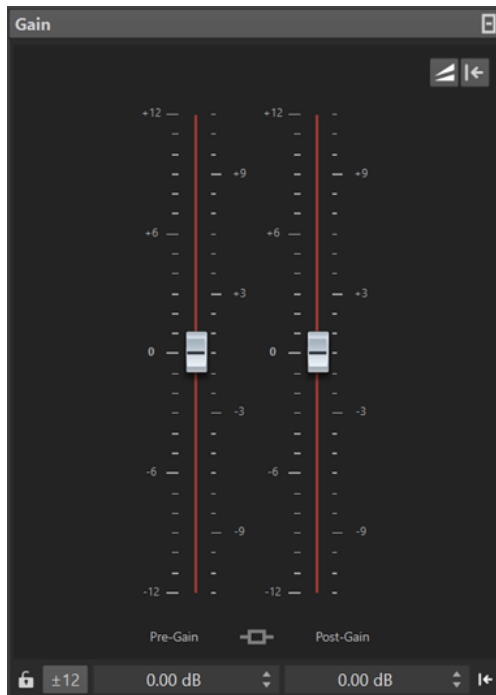
Controls that are exclusively available on the **Gain** pane of the **Output** section in the **Inspector** window:

Toggle Loudness Matching ◢

When this option is activated, the audio montage output serves as the loudness reference, whose loudness is not changed, whereas the loudness of the reference track is adjusted, so that it matches the loudness of the audio montage output.

Update the Loudness Correction Gains ⬅|

When this option is activated, the loudness correction gains are updated.

NOTE

Updating the loudness correction gains takes effect on all reference tracks and/or the audio montage output concerned by adjustments to match the loudness reference.

RELATED LINKS

Plug-in Windows for Audio Montages

In plug-in windows for audio montages, you can display the effect plug-ins that are used for clips, tracks, track groups, or the montage output. You can display all effects in one plug-in window or have separate windows for each effect, for all track effects, all track group effects, all clip effects, or all montage output effects.

Plug-in chain window

Single plug-in window

When you add a new effect plug-in to a track, a track group, a clip, or the montage output, the plug-in window opens automatically. In the plug-in window, the effects are displayed in a plug-in chain by default. To change the processing order of the effects, you can drag each effect to a new position in the chain.

You can adjust the handling of the effects in the plug-in window in the **Plug-in Window Handling** dialog.

Plug-in Chain

If **Use Plug-in Chain Window** is activated on the **Settings** pop-up menu of the **Master Section**, the effects of the active audio file are displayed in a plug-in chain at the top of the plug-in window.

You can right-click a plug-in tab or an empty tab to select a new plug-in for the slot.

Undo/Redo

Allows you to undo/redo the last operation. This undo/redo function is independent from the undo/redo function of WaveLab Pro. Each plug-in window has its independent undo/redo history. The undo/redo function is also independent for the A and B settings of the **Switch between A/B Settings** function.

NOTE

To undo an operation, you can use the shortcut **Alt/Opt**-**Z** and to redo it, you can use the shortcut **Alt/Opt**-**Shift**-**Z**. In order to use the shortcut, the plug-in window must be the active window. If the shortcut does not work, click the caption bar of a plug-in to make it the active window.

Switch between A/B Settings

Switches to setting B when setting A is active, and to setting A when setting B is active.

NOTE

To switch between the A/B settings, you can use the shortcut **Alt/Opt**-**T**. In order to use the shortcut, the plug-in window must be the active window. If the shortcut does not work, click the caption bar of a plug-in to make it the active window.

Copy Settings to A/Copy Settings to B

Copies the plug-in parameter setting A to plug-in parameter setting B, and vice versa.

Bypass Effect

If this option is activated, the plug-in is bypassed during playback and rendering. However, bypassing effects still consumes CPU power during playback.

Listen to Effect Signal Only

If this option is activated, the original signal is bypassed during playback to only hear the wet effect signal.

Switch Effect On/Off

If you deactivate a plug-in, it is excluded from both playback and rendering.

Presets

Opens a menu to save/load presets for this plug-in.

RELATED LINKS
Opening the Plug-in Window on page 514
Plug-in Window Handling Dialog on page 520
Plug-in Windows for the Master Section on page 578
Undoing/Redoing Operations in Plug-in Windows on page 517
Comparing Two Plug-in Settings on page 518
Bypassing Effects vs. Switching Off Effects on page 582

Opening the Plug-in Window

You can open the plug-in window from different locations.

- To open the plug-in window from the **Inspector** window, click the plug-in in the **Effects** list.

- To open the plug-in window from the **Master Section** window, click the plug-in in the **Effects** list.

- To open the plug-in window for a clip from the montage window, right-click the bottom part of a clip, and select **Edit Plug-ins**.
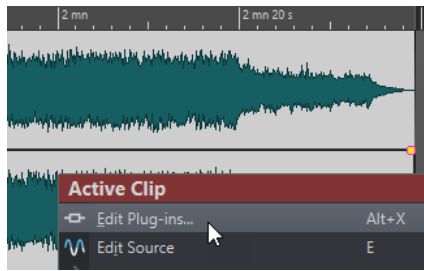
You can also right-click the clip name and select a plug-in.
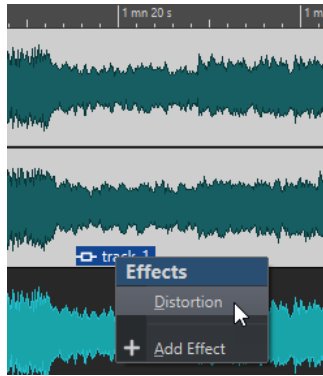
- To open the plug-in window for a track, click the **Track Effects** button in the track control area and select a plug-in.
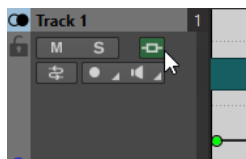
RELATED LINKS
Plug-in Windows for Audio Montages on page 512
Inspector Window on page 490
Master Section Window on page 572
Active Clip Menu on page 418
Track Control Area on page 321

Adding Effects From Within the Plug-in Window

Effects that are added to a clip, track, or the montage output in the **Inspector** window are automatically displayed in the plug-in window. However, you can also add effects to a track or a clip from within the plug-in window.

PROCEDURE

1. In the **Plug-in Window Handling** dialog, activate **Use Plug-in Chain Windows**.

2. Open the plug-in window for the clip, track, or montage output to which you want to add an effect.

3. In the plug-in window, click **Add Plug-in**.
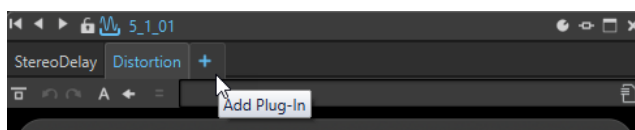
4. Select an effect from the menu.

The effect is added at the end of the plug-in chain.

5. Optional: If you want to move the added effect in the plug-in chain, drag it to another position.

Changing Effects From Within the Plug-in Window

PROCEDURE

1. Open the plug-in window for the clip, track, track group, or montage output for which you want to change an effect.

2. Click the plug-in menu icon, and select a new effect from the menu.
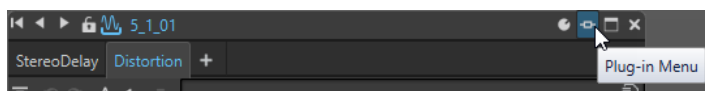
3. Optional: If you want to move the changed effect in a plug-in chain window, drag it to another position.

Switching Between Track, Track Group, Clip, and Montage Output Effects in Plug-in Windows

In the plug-in window, you can switch between the effect chains of clips, tracks, track groups, and the montage output. You can also switch between plug-in windows, when you have opened several plug-in windows.

● To select an effect in the plug-in window, click its name.

● To skip through the clips of the active audio montage and display their effects, use the left and right arrow icons.
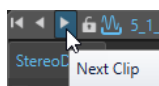
● To skip through the tracks of the active audio montage and display their effects, use the up and down arrow icons.
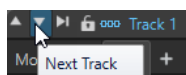
● When using one plug-in window for both clips and tracks of an audio montage, you can switch between the plug-ins of the active clip or the track that contains the active clip by clicking the **Show Clip Plug-ins** or **Show Track Plug-ins** icons.
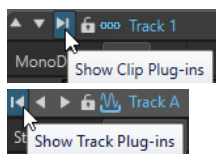
- To lock a plug-in window, activate **Lock Window**. If this option is activated, and you select another track or clip, another plug-in window opens. If this option is deactivated, and you select another track or clip, the effects are displayed in the same plug-in window.

NOTE

The **Lock Window** button is only visible if **Use Plug-in Chain Windows** and **Unlimited Number of Open Windows** are activated in the **Plug-in Window Handling** dialog.

RELATED LINKS

Undoing/Redoing Operations in Plug-in Windows

You can undo/redo operations for each plug-in window.

NOTE

Each plug-in window has its independent undo/redo history. The undo/redo function is also independent for the A and B settings of the **Switch between A/B Settings** function.

PROCEDURE

- In the plug-in window, do one of the following:

  - On the toolbar of the plug-in window, click **Undo Last Parameter Change** or **Redo Last Parameter Change**.

  - To undo click **Alt/Opt**-**Z** and to redo click **Alt/Opt**-**Shift**-**Z**.

    NOTE

    In order to use the shortcut, the plug-in window must be the active window. If the shortcut does not work, click the caption bar of a plug-in to make it the active window.

RELATED LINKS

Safe Mode

The **Safe Mode** option for audio montages helps you to resolve plug-in-related issues.

If you open an audio montage in **Safe Mode**, none of its plug-ins are loaded.

This allows you to continue working on the audio montage, in spite of faulty or outdated plug-ins, which may prevent the audio montage from opening or cause WaveLab to crash. It enables you to identify and remove problematic plug-ins without compromising your work.

While in **Safe Mode**, you can edit and save your audio montage. The changes you make in this mode, including the settings of the temporarily deactivated plug-ins, are saved and available when you open the audio montage in standard mode again.

Opening Audio Montages in Safe Mode to Identify Plug-in Issues

In case you experience any issues regarding plug-ins used by an audio montage, you can try opening it in **Safe Mode**, which means opening it without loading any plug-ins.

PROCEDURE

1. Select the **File** tab.

2. Click **Open** > **Audio Montage** > **Open (Safe Mode)**.

3. Navigate to the audio montage, and click the **Open** button at the bottom right.

RESULT

The audio montage is opened in **Safe Mode**. As a result, all effect slots are grayed out, and it is not possible to access the plug-in controls.

AFTER COMPLETING THIS TASK

● You can now remove the plug-ins that are likely to cause the issues from the audio montage via the **Inspector** window and reopen the audio montage in standard mode. If the problem persists, try again, removing a different plug-in, until you find the faulty or outdated plug-in.

● To load plug-ins again, the following options are available:

  ● You can exit **Safe Mode** with the audio montage still open and reactivate all plug-ins by selecting **Instantiate All Plug-ins** from the **Menu** in the **Inspector** window.

  ● You can close the audio montage and reopen it in standard mode.

Comparing Two Plug-in Settings

You can quickly compare two independent plug-in parameter settings in plug-in windows.

PROCEDURE

1. In the plug-in window, set the parameters as required.

2. Click **Switch between A/B Settings**.
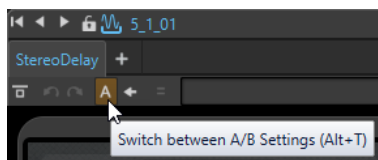
   The button for **A** turns into a **B**, to indicate that you can edit your B settings.
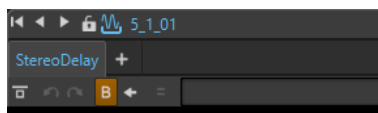
3. Set the plug-in parameter for B, which is to be compared with plug-in parameter A.

4. Start playback, and click **Switch between A/B Settings** to toggle your plug-in settings for comparison.

   You can also press **Alt/Opt**-**T** to quickly switch between **A** and **B**.

   > NOTE
   >
   > In order to use the shortcut, the plug-in window must be the active window. If the shortcut does not work, click the caption bar of a plug-in to make it the active window.

Replicating Plug-in Settings and Applying Them to Other Plug-ins in the Audio Montage

In WaveLab Pro, you can apply settings that you made for a given plug-in to other instances of the same plug-in in the same audio montage, saving you the time and effort to set the parameters for each plug-in individually and enabling you to easily synchronize plug-in settings for several tracks or clips.

PROCEDURE

1. Open the plug-in whose settings you want to copy to other instances of the same plug-in in the audio montage.

2. Click the **Replicate Plug-in Parameters** button 🔼 on the menu bar at the top left of the plug-in.

   The **Replicate Plug-in Parameters** dialog is opened.
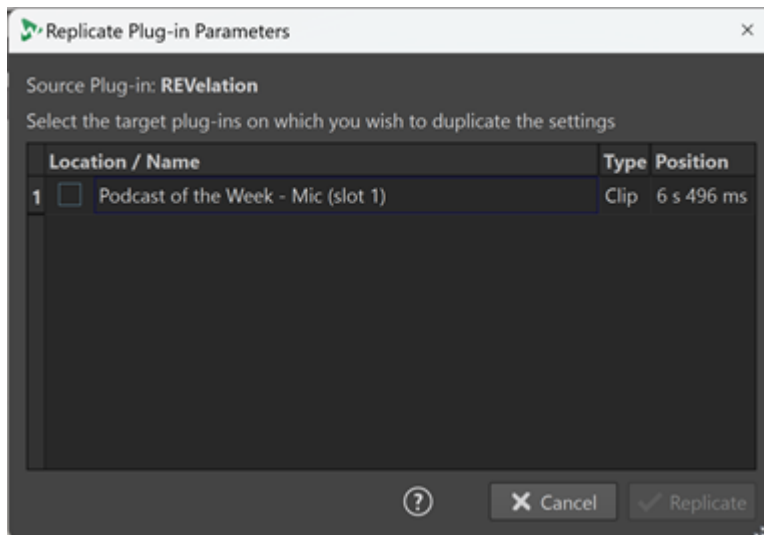
3. Select the target plug-ins from the list.

4. Click **Replicate**.

RESULT

The adjustments that you made for the source plug-in are applied to all plug-ins that you selected in the **Replicate Plug-in Parameters** dialog.

NOTE

WaveLab Pro saves your target plug-in selection, so that the plug-ins are pre-selected when you open the **Replicate Plug-in Parameters** dialog again.

Closing All Plug-in Windows

PROCEDURE

1. Open an audio montage.

2. Select **Tool Windows** > **Inspector**.

3. In the **Inspector** window, select **Menu** > **Close All Windows**.

RELATED LINKS
Inspector Window on page 490

Plug-in Window Handling Dialog

In this dialog, you can set up the appearance and behavior of the plug-in windows.

- To open the **Plug-in Window Handling** dialog, open the **Inspector** window and select **Menu** > **Plug-in Window Handling**.
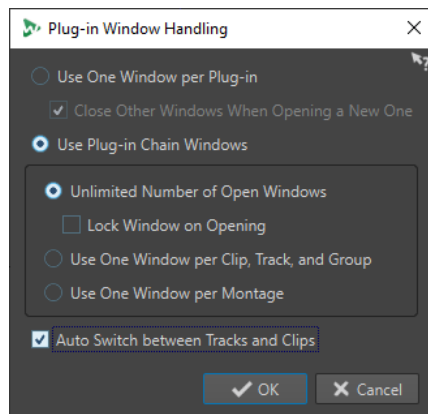
Use One Window Per Plug-in

If this option is activated, each plug-in opens in an individual window.

Close Other Windows When Opening a New One

Closes all open plug-in windows of an audio montage each time that you open a new plug-in window. This means that only one plug-in is displayed at a time for each audio montage.

Use Plug-in Chain Windows

Shows all open plug-ins in the plug-in window as tabs, which allows you to quickly switch between the plug-ins.

Unlimited Number of Open Windows

Allows for an unlimited number of plug-in chain windows to be open at the same time. There can be one window for each track, one for each track group, and one for each clip.

Lock Window on Opening

Automatically locks a plug-in each time that a plug-in chain window is opened.

If a plug-in window is locked, and you select another track, track group, or clip, another plug-in window opens. If this option is deactivated, and you select another track, track group, or clip, the effects are displayed in the same plug-in window.

Use One Window per Clip, Track, and Group

Uses one plug-in window for all clips, one for all tracks, one for all track groups, and one for the montage output.

Use One Window per Montage

Uses one plug-in window for the clips, tracks, track groups, and the montage output of an audio montage.

Auto Switch between Tracks and Clips

If this option is activated and you click the track control area of a track, the plug-in window switches to display the track plug-ins. If you click a clip, the plug-in window switches to display the clip plug-ins.

RELATED LINKS
Plug-in Windows for Audio Montages on page 512

A/B Comparisons of the Audio Montage Output with a Reference Track

In WaveLab Pro, you can perform an A/B comparison of the output of your audio montage with a reference track.

By repeatedly switching back and forth between the output of your audio montage and the reference track while listening to them on playback, you can identify the differences between them.

WaveLab Pro offers the following dedicated features for A/B comparisons:

Loudness Matching

When performing A/B comparisons, you can benefit from using WaveLab Pro's built-in loudness matching: After analyzing the loudness of both the audio montage and the reference track, the gain is automatically adjusted so that the loudness is identical for each reference track and the entire montage output.

This serves to prevent perceptual bias, which can arise when comparing audio tracks with differing loudness levels, as louder audio is commonly perceived as having superior quality, clarity, punch, and detail. Setting all tracks to an equal loudness level provides a more objective basis for the comparison.

Frequency Range Isolation

You can choose from five high-quality linear filters, which you can apply to your audio montage output and to reference tracks, to isolate specific frequency ranges of your audio for A/B comparisons. When listening to your audio material and switching back and forth between the output and the reference track, this allows you to focus on specific frequency ranges, without being affected by latency issues.

This type of monitoring is particularly useful to ensure that your audio montage output is:

Consistent

It helps you to create a uniform sound throughout an entire album.

Balanced

It helps you to avoid the dominance or absence of specific frequencies.

Competitive

It allows you to compare your audio with popular releases by successful competitors.

Error-free

It allows you to analyze and eliminate frequency-related errors and issues.

RELATED LINKS
Setting the Loudness of all Tracks to the Same Level on page 523

Monitoring Individual Frequency Ranges by Isolating Them

You can set and customize filters for monitoring specific frequency ranges while comparing your audio montage output with a reference track, or a reference track with another reference track.

PREREQUISITE

- You have opened an audio montage that contains rendered output and at least one reference track.
- **Optional:** You have made adjustments in the **Monitoring Filters (Output)** section via the **All Audio Montages** tab in the **Preferences** window.

PROCEDURE

1. Open the **Inspector** window.
2. While performing the A/B comparison by switching back and forth between listening to the audio montage output and the reference track, click on a filter button in the **Output Filters** section at the bottom of the **Inspector** window to solo a frequency range.

RELATED LINKS

Loudness Matching for A/B Comparisons

WaveLab Pro can automatically adjust the output of your audio montage to match the loudness of a reference track, to provide an objective basis for A/B comparisons.

With the **Loudness Matching** feature activated, your audio material is continuously analyzed as playback is progressing, according to the R128 Integrated Loudness standard, and the loudness of the audio montage output is set to the same loudness level.

Settings and Color Codes for Loudness Matching

The **Loudness Matching** button ◢ allows you to control and monitor the loudness matching process.

The **Loudness Matching** button ◢ in the track control area of reference tracks in your audio montage and on the **Gain** pane of the **Output** section in the **Inspector** window can be set to different states, which are indicated by its color:

- Blue: The corresponding reference track or the audio montage output serves as the loudness reference.
- Yellow: The corresponding reference track or the audio montage output acts as the recipient of loudness adjustments.
- Red: The corresponding reference track or the audio montage output is impervious to any loudness adjustments.
- Gray: Loudness matching is deactivated for the corresponding reference track or the audio montage output.

> TIP
>
> You can toggle between the "blue" state and the "gray" state by clicking the **Loudness Matching** button.
>
> To deactivate **Loudness Matching**, you can also click the **Loudness Matching** button while it is blue.

- You can re-initiate the analysis by double-clicking a **Loudness Matching** button when it is blue.
- To compensate for any loudness fluctuation over time and to readjust the gain to the current value, you can click the **Update the Loudness Correction Gains** ⟜ button on the **Gain** pane of the **Output** section in the **Inspector** window.
- Clicking the label next to the **Loudness Matching** button while the button is yellow switches between displaying the loudness deviation value and the compensation gain value applied to the corresponding track.

> TIP
>
> With two or more reference tracks in your audio montage, it can be useful to prevent a reference track — or the gain pane, respectively — from being affected by loudness adjustments. When the **Loudness Matching** button is yellow, you can either **Ctrl/Cmd** -click the button or right-click and activate **Ignore Loudness Compensation**. The corresponding button turns red.

Setting the Loudness of all Tracks to the Same Level

WaveLab Pro can automatically set the loudness of all tracks in an audio montage that contains rendered output and at least one reference track to the same level.

By clicking on a **Loudness Matching** button ◢, you designate the element it is assigned to as the loudness reference.

PREREQUISITE

- You have opened an audio montage that contains rendered output and at least one reference track.
- **Optional:** You have adjusted the settings in the **Loudness Equalizer** section via the **All Audio Montages** tab in the **Preferences** window.

Do one of the following:

- To set the loudness of the reference track in the audio montage to the level of the output of your audio montage, click the **Loudness Matching** button ◢ on the **Gain** pane of the **Output** section in the **Inspector** window.
- To set the output of your audio montage to the loudness level of the reference track, click the **Loudness Matching** button ◢ in the track control area of the reference track.

  The **Loudness Matching** button turns blue.

RESULT

Your audio material is analyzed, and the loudness is adjusted.

- The **Loudness Matching** button of the audio material that serves as a reference and whose loudness is not modified turns blue. The loudness is continuously updated and displayed next to the button, in LUFS.

- The buttons of any tracks whose loudness is adjusted turn yellow. Next to each yellow button, the deviation of the active matching from the real-time loudness value is displayed and continuously updated.

The loudness of all tracks in the audio montage is set to the same level.

NOTE

Any effects that you have added in the **Master Section** are not taken into account for loudness matching, so we recommend not using any effects in the **Master Section** when using loudness matching for A/B comparisons.

AFTER COMPLETING THIS TASK

Once you have set the relevant parameters in the **Loudness Matching** section of the **All Audio Montages** tab in the **Preferences**, you can perform the A/B comparison by switching back and forth between listening to the audio montage output and the reference audio.

TIP

Instead of your audio montage output or its unprocessed equivalent, you can use entirely different audio material as the loudness reference. To do so, in addition to your audio montage output and its unprocessed equivalent on the reference track, create a second reference track, with the unrelated reference audio on it. Set the latter as the loudness reference via its **Loudness Matching** button, without enabling it for monitoring during the A/B comparison.

RELATED LINKS

Title Markers

A title in the audio montage, which usually consists of a single clip but can also be a sequence of clips, is defined by title start and end markers or title splice markers.

- Title splice markers indicate the end of one title and the start of the next one.
- If you delete the title markers defining a title, the title is deleted from the **Album** window.
- If you edit a marker position of a title, the change is reflected in the title in the **Album** window.
- The name of a title is the name of the title start marker. Editing the marker name also changes the title name, and vice versa.
- The **Title Navigator** pop-up menu allows you to navigate between title marker pairs.

RELATED LINKS

Album Window

In the **Album** window, you can define parameters for the creation of an album, such as an audio CD.

It displays a list of album titles along with information about each title. You can edit individual titles and the playback properties of the album, check the conformity to the Red Book standards, add and edit CD-Text, add UPC/EAN and ISRC codes, generate an album report, and write an audio CD.

When you select a clip in the **Audio Montage** window, the corresponding title is highlighted in the **Album** window.

A title in the audio montage is defined by title markers. Drag and drop to change the order of the titles in the list of titles.

● To open the **Album** window, open an audio montage, and select **Tool Windows** > **Album**.
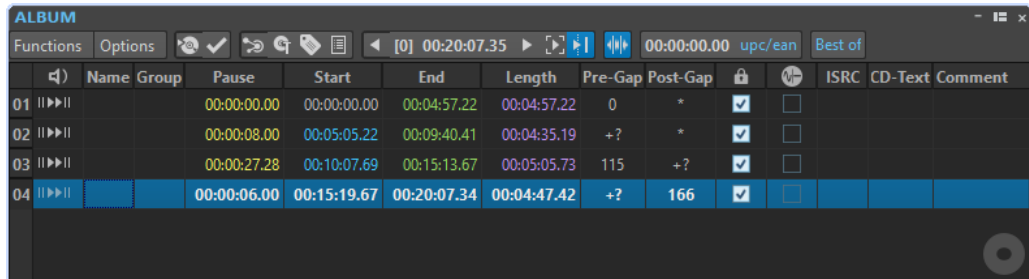
Title List

Play Pre-Roll

Plays back the corresponding title from the start with a pre-roll.

You can also press **Alt** and click **Play Pre-Roll** to play back the corresponding title from the start with a short pre-roll.

Play

Plays back the corresponding title from the start.

You can also hold **Ctrl/Cmd** and double-click a title start marker triangle to start playback from the marker position.

Name

Shows the title name. To change the name, double-click in the corresponding cell, and enter new text.

Group

Allows you to define title groups. If you hover over the group label in the title list, the duration of the title group is displayed.

Pause

Shows the pause between two titles.

Start

Shows the start position of the title.

End

Shows the end position of the title.

Length

Shows the time value from the title start position to the corresponding end or splice marker.

Pre-Gap

Shows the pre-gap of a title.

Post-Gap

Shows the post-gap of a title.

Lock

Indicates a title copy protection flag. CD-ROM drives ignore titles with this flag.

NOTE

Not all CD-R units are capable of handling a title copy protection flag.

NOTE

This option is only available with the mode set to **Stereo** via the **Audio Montage Properties** dialog.

Emphasis

Informs you if the title was recorded with emphasis or not. Activating/Deactivating this option does not apply emphasis to/remove emphasis from the audio. It just serves as an indication of how the file was created.

NOTE

This option is only available with the mode set to **Stereo** via the **Audio Montage Properties** dialog.

ISRC

Allows you to enter an ISRC code. To change the code, double-click the corresponding cell, and enter a new value.

CD-Text

Allows you to specify the CD-Text. To change the CD-Text, double-click the corresponding cell, and enter a new value.

Comment

Allows you to enter a comment by double-clicking a cell.

Functions Menu

Write Audio CD or DDP

Opens the **Write Audio CD or DDP** dialog, which allows you to write a CD or DDP.

Check CD Conformity

Verifies that the settings for the audio montage are in accordance with the Red Book standard.

Album Wizard

Opens the **Album Wizard** dialog, which helps you to generate and adjust title markers.

Edit CD-Text

Opens the **CD-Text Editor** dialog, which allows you to enter descriptive text for the titles that are written on CD.

NOTE

This option is only available with the mode set to **Stereo** via the **Audio Montage Properties** dialog.

Edit CD Metadata

Opens the **CD Metadata** editor, which allows you to associate metadata with each title. When rendering titles via the **Render** function in the **Master Section**, the audio files inherit this metadata.

NOTE

This option is only available with the mode set to **Stereo** via the **Audio Montage Properties** dialog.

Import ISRC Codes from Text File

Allows you to import a text file that contains ISRC codes.

NOTE

This option is only available with the mode set to **Stereo** via the **Audio Montage Properties** dialog.

Rename Titles as CD Text

Replaces the name of each title with the name that is specified in the CD-Text **Title** field.

NOTE

This option is only available with the mode set to **Stereo** via the **Audio Montage Properties** dialog.

Generate Album Report

Opens the **Album Report** dialog, which allows you to create a text report that describes the content of the album.

NOTE

This option is only available with the mode set to **Stereo** via the **Audio Montage Properties** dialog.

Play Previous Title/Play Next Title

Allows you to audition the title before/after the active title, depending on the pre-roll settings.

Play All Title Starts and Ends

Allows you to monitor the transitions between titles. In the **Edit Title Playback Times** dialog of the **Album** window, you can set the playback length for this function.

TIP

Set the edit cursor to the title where you want playback to start.

Follow Playback

If this option is activated and you play back an audio montage, a green bar next to the title name indicates the title that is played back.

Options Menu

Audio in CD Pauses

Usually, when you create a CD, only the sections between title markers are written, and the pauses between titles are replaced by silence. However, if **Audio in CD Pauses** is activated, the exact image of the audio montage is written, including any audio between titles. This makes it possible to hear audio either between titles or before the first title; for example, to create a hidden title.

Preserve Post-Pauses When Reordering

If this option is activated, the pause after a title is preserved when you change the order of the titles. If this option is deactivated, the pause before a title is preserved when you change the order of the titles.

Show Times Relative to Title #1

If this option is activated, the start of title #1 is the timecode reference, excluding any pause before that title.

Show Times Relative to CD's Absolute Zero

If this option is activated, the beginning of the CD, including any pause before title #1, is the timecode reference.

Timecode with CD Frames

If this option is activated, the timecode is displayed in hours, minutes, seconds, and CD frames.

Timecode with Milliseconds

If this option is activated, the timecode is displayed in hours, minutes, seconds, and milliseconds.

Pre-Roll Mode

If this option is activated, all titles start with a pre-roll time when they are played back via the commands of the **Album** window.

Play All Title Starts

With the **Play All Title Starts and Ends** option activated via the **Functions** menu or the **Album** toolbar, this option plays back all title starts, allowing you to monitor the title transitions.

NOTE

To play back title starts and title ends, additionally check **Play All Title Ends**.

To add a pre-roll to the title starts, activate **Pre-Roll Mode**.

Play All Title Ends

With the **Play All Title Starts and Ends** option activated via the **Functions** menu or the **Album** toolbar, this option plays back all title ends, allowing you to monitor the title transitions.

NOTE

To play back title starts and title ends, additionally, check **Play All Title Starts**.

Edit Title Playback Times

Opens the **Edit Title Playback Times** dialog, where you can adjust the time values that are related to title playback.

Customize Command Bar

> Opens the **Customize Commands** dialog, which contains options for hiding or showing specific command bar buttons.

Toolbar

The following indicators are only available on the toolbar of the **Album** window:

Position in Title

> Indicates the position of the playback/edit cursor, relative to the start of the title in which it is located.

UPC/EAN Code

> Opens the **UPC/EAN Code** dialog, where you can specify a UPC/EAN code.

Album Title

> Displays the name of the album. Click the name to open the **CD-Text Editor** window.

RELATED LINKS
Audio Montage Properties on page 366
CD-Text Editor Dialog on page 670

Reordering Titles

You can reorder titles in the **Album** window.

PREREQUISITE
You have created titles to compile an album.

PROCEDURE

● In the **Album** window, click a title name in the **Name** column and drag it to another location.

RELATED LINKS
Album Window on page 524

Grouping Titles

You can render grouped titles simultaneously and create album reports for grouped titles.

PREREQUISITE
In the montage window, you have created titles.

PROCEDURE

1. Select **Tool Windows** > **Album**.

2. In the **Album** window, click in the **Group** column of a title and select a group.

RELATED LINKS
Tracks on page 371
Album Window on page 524
Album Reports on page 671
Render Tab (Audio Montage) on page 352

Edit Title Playback Times Dialog

In the **Edit Title Playback Times** dialog, you can edit time values that are related to the playback of titles when using the playback commands of the **Album** window.

● To open the **Edit Title Playback Times** dialog, open the **Album** window, and select **Options** > **Edit Title Playback Times**.
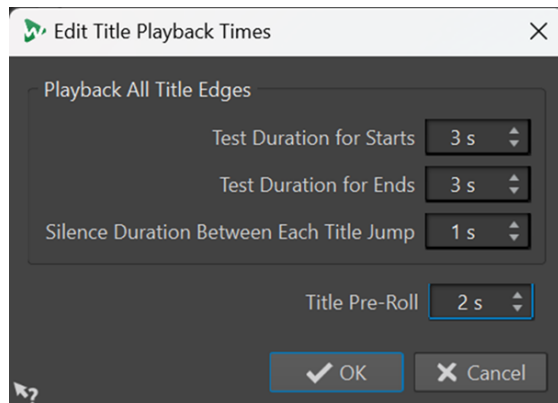
Test Duration for Starts

With **Play All Title Starts** activated in the **Options** menu of the **Album** window, this allows you to set the playback duration for the title starts.

Test Duration for Ends

With **Play All Title Ends** activated in the **Options** menu of the **Album** window, this allows you to set the playback duration for the title ends.

Silence Duration Between Each Title Jump

Inserts silence of the specified duration at the title transitions.

Title Pre-Roll

With **Pre-Roll Mode** checked in the **Options** menu of the **Album** window, this specifies the playback time before the start of a title. The option is exclusively available for the following options in the **Album** window, and only if they are activated:

● **Play Next Title**

● **Play Previous Title**

● **Play All Title Starts** (provided that **Play All Title Ends** is deactivated)

RELATED LINKS

Metadata for Titles

You can associate metadata with individual titles of an album or with an entire album. When rendering titles via the **Render** function in the **Master Section**, the audio files can inherit this metadata.

As standard CD Text is not Unicode, it does not always provide suitable text data. To solve this issue, WaveLab Pro provides variables, which can contain Unicode characters. The variables can then be used in various places instead of CD text variables.

For titles, there are two types of variables:

● Auto variables

- Custom variables

Auto variables are automatically added by WaveLab Pro. For example, ISRC, title names, and CD-Text. Custom variables can be manually edited to add additional metadata for the title.

- To see and edit the title metadata, open the **Album** window, and select **Functions** > **Edit CD Metadata**.
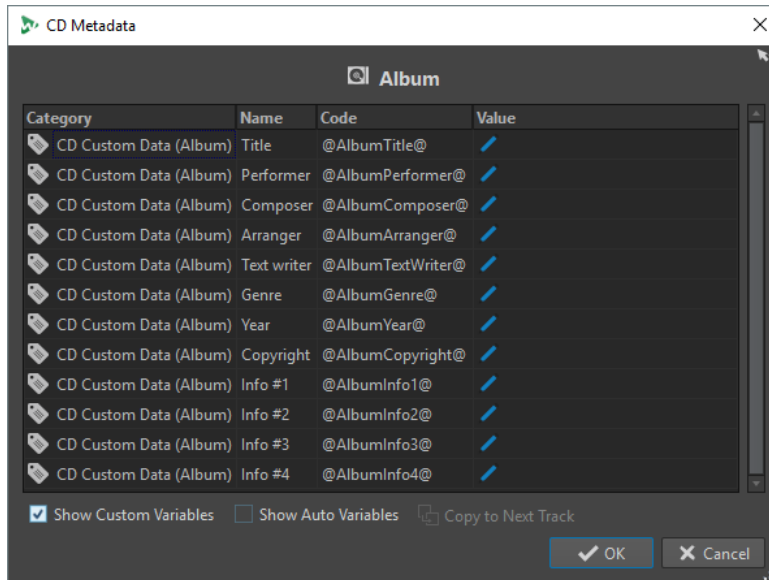
NOTE

In this dialog, you prepare the metadata. How they are saved, is specified in the **Metadata** dialog.

RELATED LINKS

Creating Titles From Clips

The **Album Wizard** dialog allows you to generate title and title splice markers from clip regions and crossfade points. You can use the **Check CD Conformity** option to check whether the audio montage is ready for writing to audio CD.

PREREQUISITE

Make sure that the audio montage contains the material that you want on the audio CD. Titles must have a length of at least four seconds.

PROCEDURE

1. In the **Album** window, select **Functions** > **Album Wizard**.

2. Edit the settings in the **Album Wizard** dialog, and click **Apply**.

3. Audition the titles in the **Album** window, and make corrections if necessary.

4. Optional: In the **Album** window, select **Functions** > **Check CD Conformity**.

   - If a warning message appears, make corrections and check the CD conformity again.

- If no warning message appears, the audio montage is ready to be written to an audio CD.

Album Wizard Dialog

The **Album Wizard** dialog allows you to generate and adjust title markers for audio montages.

- To open the **Album Wizard** dialog, open the **Album** window, and select **Functions** > **Album Wizard**.
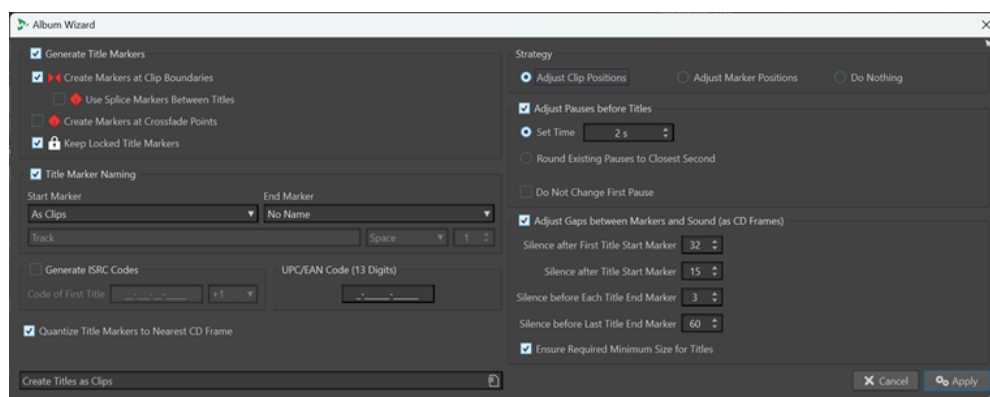
Generate Title Markers

Automatically generates title markers according to the sub-options.

Create Markers at Clip Boundaries

Adds title start and end markers to the beginning and to the end of all non-overlapping clips.

Use Splice Markers Between Titles

Generates single splice markers instead of start/end markers, and pause spaces instead of standard pauses. The pauses are kept within titles. This can be useful for electronic distribution and for compatibility with portable players.

Create Markers at Crossfade Points

Creates title splice markers at all crossfade intersection points.

> TIP
>
> We recommend that you activate this option if you have clips that overlap each other and that you want to become different titles on the CD.

Keep Locked Title Markers

Normally, any previously created title markers in the montage are removed by the **Album Wizard**. With **Keep Locked Title Markers** activated, however, the locked title markers are kept.

Title Marker Naming

Allows you to set up a naming scheme.

Start Marker

Allows you to select a naming scheme for the title start markers. The following options are available:

- **As Clips**: The name of the corresponding clip.

- **Specific Name**: The name specified below.

- **Specific Name + Number X**: The name and a number.

- **Specific Name + Number XX**: The name and a number that is padded with 0 on the left.

- **Specific Name + Number (Auto)**: As **Specific Name + Number XX**, but only if the number of titles is greater than 10.

- **Number X + Specific Name**: A number and a name.

- **Number XX + Specific Name**: A number that is padded with 0 and a name on the left.

- **Number (Auto) + Specific Name**: As **Number XX + Specific Name**, but only if the number of titles is greater than 10.

- **Custom**: Opens the **Rename Markers** dialog, where you can rename multiple markers according to specified settings.

End Marker

Allows you to select the name of the title end marker. The following options are available:

- **No Name**

- **As Start Marker**

- **As Start Marker + "(End)"**

- **Custom**

Generate ISRC Codes

Allows you to create ISRC codes for the titles. Each code is based on the code that you specify. You can choose an increment value (**1**) for the subsequent ISRC codes.

NOTE

Generally, the final digit of the ISRC code is set so that it refers to the order of the titles. However, some European labels use the last digit to denote an alternate title version. By selecting a value of **+10** (**1**), you can preserve the last digit.
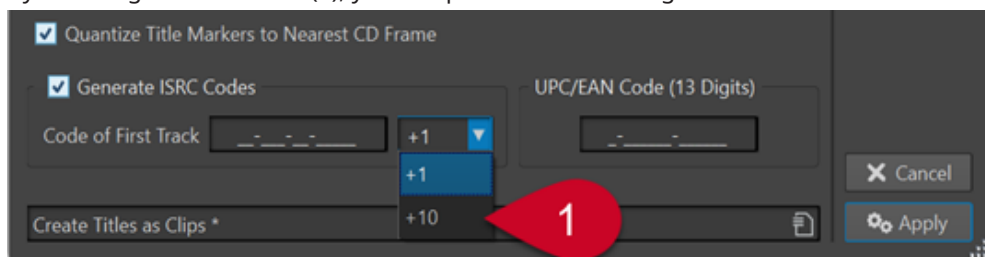
UPC/EAN Code (13 Digits)

Allows you to specify an optional UPC/EAN code for the CD.

Quantize Title Markers to Nearest CD Frame

Quantizes markers to the nearest CD frame.

Strategy

You can choose from three strategies to handle clips and markers.

Adjust Clip Positions

With this option activated, the clips in the titles of your album are re-positioned as markers are inserted by the **Album Wizard**.

- **Adjust Pauses before Titles** automatically adjusts pauses before titles, based on the sub-options.

- **Set Time** allows you to specify the length of the pauses between titles.

- **Round Existing Pauses to Closest Second** rounds the existing pauses between titles to seconds.

- **Do Not Change First Pause** leaves the pause between the start of the audio montage and the first title unchanged.

  NOTE

  If you change the length of the pauses to anything other than two seconds, to adhere to the Red Book standard, you must activate this option.

- **Adjust Gaps between Markers and Sound (as CD Frames)** makes small adjustments to the spacing before and after the title markers, based on the sub-options. This ensures that a low-quality CD player does not miss the start of titles or cuts them off before their actual end.

  NOTE

  In most cases, the default settings are sufficient.

- **Silence after First Title Start Marker** allows you to add a few frames of silence before the first title of the album. Usually, the pause needs to be longer for the first title than for the other titles, to ensure that a low-quality CD player does not miss the start of the first title.

- **Silence after Title Start Marker** allows you to add a few frames of silence before each title on the album, to ensure that a low-quality CD player does not miss the start of titles.

- **Silence before Each Title End Marker** allows you to add a few frames of silence after each title of the album, to ensure that a low-quality CD player does not cut off titles before their actual end.

- **Silence before Last Title End Marker** allows you to add a few frames of silence after the last title of the album, to ensure that a low-quality CD player does not cut off the end of the title, or that the listener is not disturbed by any clicks or motor noise of the player at the end of a CD.

- **Ensure Required Minimum Size for Titles** adjusts markers to ensure that each title has the minimum length that the Red Book standard requires.

Adjust Marker Positions

With this option activated, the locations of the clips in the titles of your album remain fixed as markers are inserted by the **Album Wizard**.

NOTE

We recommend that you activate this option if you consider the positions of the titles of your album as final and only want to add markers.

- **Place First Marker at Position** inserts the first marker at an absolute distance, which you can specify in seconds, from the start of the audio montage.

  NOTE

  This setting has priority over any offset specifications.

- **Start or Splice Marker Offset Before Title** inserts any start and splice markers before the start of the first clip of the title, taking into account the specified offset.

- **End Marker Offset After Title** inserts any end markers after the end of the last clip of the title, taking into account the specified offset.

  NOTE

  This setting does not affect splice markers.

- **Preserve End Marker, if any** maintains the position of an existing end marker after the final clip of the audio montage.

  NOTE

  This setting has priority over any offset specifications.

Do Nothing

With this option activated, no adjustments are made.

NOTE

We recommend choosing this option when using the **Album Wizard** for unrelated tasks, such as ISRC generation.

RELATED LINKS
Batch Renaming Dialog for Markers on page 821

Audio in Pauses

Normally, when you write an audio montage on an audio CD, only the sections between the title markers are written, and the pauses between titles are replaced by silence. However, if **Audio in CD Pauses** is activated, the exact image of the audio montage is written on the CD, including any audio between titles.

You can activate **Audio in CD Pauses** in the **Album** window.

RELATED LINKS
Album Window on page 524
Adjusting Title Markers to Hide Audio Sections on page 535
Placing a Clip Before Title 1 on page 536

Adjusting Title Markers to Hide Audio Sections

If you have a live recording with a section of applause between two songs, you can move the title markers so that the applause section is between the songs and activate **Audio in CD Pauses**.

Thus, the applause cannot be heard if you play any of the two songs on their own, but you can hear it when playing through the titles.

PROCEDURE

1. In the montage window, place the title end marker of the first title at the position where the music ends, but before the applause section.

2. If necessary, place the title start marker of the following title at the position where the music starts.

3. In the **Album** window, select **Options** > **Audio in CD Pauses**.

RELATED LINKS
Audio in Pauses on page 535
Album Window on page 524

Placing a Clip Before Title 1

You can create a hidden title on an album before title 1, for example.

PROCEDURE

1. In the montage window, place a clip without title markers prior to the first title start marker in the audio montage.

   NOTE

   It is recommended that you do not place the hidden title at the very start of the montage but leave a little room between the montage start and the start of the hidden title.

2. In the **Album** window, select **Options** > **Audio in CD Pauses**.

3. Proceed with writing the CD.

   To hear the hidden title after writing the disc, rewind from the start of title 1.

RELATED LINKS
Audio in Pauses on page 535
Album Window on page 524

Mixing Down – The Render Function

The **Render** function allows you to mix down the whole audio montage or sections of it to a single audio file or to several files in case of a multichannel audio montage. It also allows you to render to an audio CD, to a CD image and cue sheet, or to a new audio montage.

A mixdown is necessary to produce an audio file from the audio montage. The **Render** function can be used for the following purposes:

● Writing a CD from a CPU-intensive audio montage, because it allows you to first render all track and clip effect processing to recreate a new audio montage and then write the CD in a second pass.

● Rendering audio files, audio montages, or marker regions in audio montages to multiple file formats at the same time.

● Rendering surround channels as multiple files while retaining the stereo/mono status of the individual surround channels.

- Creating a CD image and cue sheet.
- Rendering audio montages to a single file or rendering various parts of a montage to multiple audio files in one operation. For example, you can render regions, groups, clips, or titles of an album.

RELATED LINKS

Rendering Audio Montages to Audio Files

You can render audio montages to a single audio file format or to multiple audio file formats at the same time.

PREREQUISITE

You have set up your audio montage. If you want to render to multiple file formats, you have created file format presets.

PROCEDURE

1. In the **Audio Montage** window, select the **Render** tab.
2. In the **Source** section, specify which part of the audio file you want to render.
3. In the **Result** section, activate **Named File**.
4. In the **Output** section, click the **Format** field and do one of the following:
   - If you want to render to one audio format, select **Edit Single Format**.
   - If you want to render to multiple file formats, select **Edit Multi Format**.
5. Make the desired adjustments in the **Audio File Format** or **Multi Audio File Format** dialog.
6. Optional: To add multiple file formats in the **Multi Audio File Format** dialog, click **Plus** and select the file format presets that you want to render to.
7. Click **OK**.
8. Optional: Make additional adjustments on the **Render** tab.
9. In the **Render** section, click **Start Rendering**.

RESULT

The audio montage is rendered.

If you render a surround mix to **Multi Stereo/Mono** files, the mono/stereo status of the rendered files reflects the mono/stereo status of the surround channels. If the audio montage uses a 6 channel (5.1) surround mode, two stereo files (Lf/Rf and Ls/Rs) and two mono files (C/Lfe) are rendered. The names of the rendered files reflect the name of the surround channel to which they belong.

If you render an 8-channel configuration using the **Multi Stereo/Mono** option, the channels are grouped as logical pairs (1-2, 3-4, etc.). For tracks that are routed to only one channel in a pair, a mono file is created.

On Windows, you can also render single multi-channel surround files in the WMA 5.1 and 7.1 formats. Use the Windows Media Audio 9 Professional encoder.

RELATED LINKS

Rendering Audio Montages to Audio Files in Real Time

When you render audio montages to audio files in real time, you can listen to the audio file while it is being rendered. Real-time rendering is available for single file formats and multiple file formats.

PREREQUISITE

You have set up your audio montage. If you want to render to multiple file formats, you have created file format presets.

PROCEDURE

1. Select the **Render** tab.

2. In the **Source** section, specify which part of the audio file you want to render.

3. In the **Result** section, activate **Named File**.

4. In the **Output** section, click the **Format** field. Do one of the following:

   - To render to a single audio format, select **Edit Single Format**.

   - To render to multiple file formats, select **Edit Multi Format**.

5. Set the desired parameters in the **Audio File Format** dialog.

   - To add multiple file formats in the **Multi Audio File Format** dialog, click the **+** button, and select the file format presets that you want to render to.

6. Click **OK**.

7. Optional: Make additional adjustments via the **Render** tab.

8. In the **Render** section, right-click **Start Rendering**, and select **Start Rendering (Real Time)**.

9. In the **Real-Time Rendering** dialog, click **Start**.

RESULT

The audio montage is rendered.

If you render a surround mix to **Multi Stereo/Mono** files, the mono/stereo status of the rendered files reflects the mono/stereo status of the surround channels. If the audio montage uses a 6-channel (5.1) surround mode, two stereo files (Lf/Rf and Ls/Rs) and two mono files (C/Lfe) are rendered. The names of the rendered files reflect the name of the surround channel to which they belong.

If you render an 8-channel configuration using the **Multi Stereo/Mono** option, the channels are grouped as logical pairs (1-2, 3-4, etc.). For tracks that are routed to only one channel in a pair, a mono file is created.

On Windows, you can also render single multi-channel surround files in the WMA 5.1 and 7.1 formats. Use the Windows Media Audio 9 Professional encoder.

RELATED LINKS

Real-Time Rendering Dialog

This dialog allows you to listen to the audio file while it is being rendered in real time.

● To open the **Real-Time Rendering** dialog, in the **Audio Montage** window, select the **Render** tab, right-click **Start Rendering**, and click **Start Rendering (Real Time)**.

Gain

Allows you to specify the gain of the monitored audio signal.

Audition

If this option is activated, the rendered audio signal is sent to the audio device output.

Auto Start

If this option is activated, the rendering process starts automatically when the **Real-Time Rendering** dialog opens.

RELATED LINKS
Rendering Audio Montages to Audio Files in Real Time on page 538

Snapshots

You can save a number of snapshots of your audio montage, to capture the current scroll position, zoom factor, cursor position, audio selection, and clip selection status.

You can recall a snapshot at any time and update snapshots.

Selecting a saved snapshot restores all of its view settings. You can also choose to recall only specific view properties by activating the corresponding options for a snapshot.

RELATED LINKS
Snapshots on page 336

Capturing the Current View

Capturing the current view saves the current zoom factor, cursor position, scroll position, clip selection status, and time range.

PROCEDURE

1. Set up the view of the montage window.

2. Select the **View** tab.

3. In the **Snapshots** section, click **Take Snapshot** 📷.
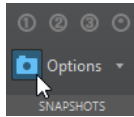
4. Click one of the preset buttons to save the snapshot.

RESULT

The snapshot is saved and can be recalled by clicking the corresponding preset button.

Updating Snapshots

You can update a snapshot with the current view.

PROCEDURE

1. Set up the view of the montage window.

2. Select the **View** tab.

3. In the **Snapshots** section, click **Take Snapshot** .

4. Click the preset button that you want to update.

RESULT

The new snapshot replaces the selected snapshot.

Loudness Meta Normalizer

The **Meta Normalizer** is an essential mastering tool for managing the loudness and peak levels in audio montages. It allows you to adjust the peaks of the clips or their loudness levels before you start mastering, and to fine-tune the output loudness and maximum peaks at the end of the mastering process.

The **Meta Normalizer** allows you to modify clip levels, audio montage output levels, and/or **Master Section** output levels, as required. Each of the three areas can be customized.

By default, clips on reference tracks are not taken into account when using the **Meta Normalizer**. However, with **Listen Alone** activated for a reference track, the **Meta Normalizer** exclusively processes clips on reference tracks and ignores clips on any other tracks.

The **Meta Normalizer** operates by modifying gain values, and it does not apply any audio compression, thus ensuring that the original sound quality is not compromised.

The loudness is calculated based on the EBU R-128 standard.

NOTE

Increasing the loudness of all clips in your audio montage to achieve a consistent loudness level can lead to clipping. For the **Meta Normalizer**, preventing clipping takes precedence over achieving a consistently high loudness level, which is why, whenever the risk of clipping arises, the **Meta Normalizer** reduces the loudness of all clips proportionally. You can keep the **Meta Normalizer** from doing so by selecting **Do not Restrict Peaks** from the **Maximum Peak Level** pop-up menu in the **Loudness Meta Normalizer** dialog.

TIP

To prevent clipping when applying the **Meta Normalizer** in the **Master Section**, you can limit the mixdown output of your audio montage before sending it to the **Master Section**.

Loudness Meta Normalizer Dialog

The **Loudness Meta Normalizer** dialog allows you to adjust the loudness of all clips in your audio montage, so that they are all set to a consistent loudness level. You can also normalize the loudness of the entire audio montage output or **Master Section** output, in accordance with the EBU R-128 standard.

- To open the **Loudness Meta Normalizer** dialog, select the **Process** tab in the **Audio Montage** window, and click **Meta Normalizer** in the **Loudness** section.
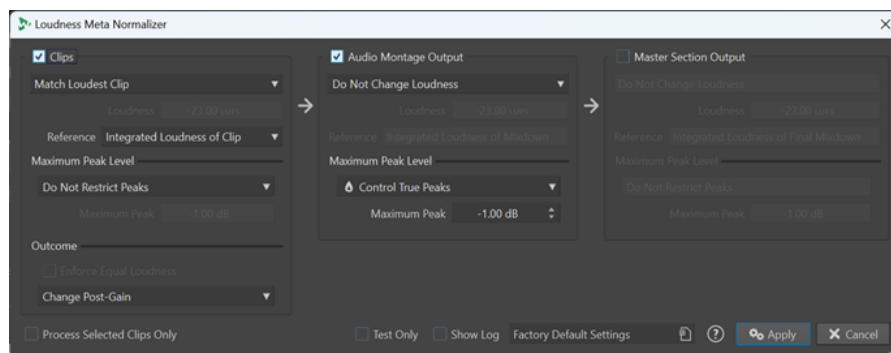
Clips, Audio Montage Output, and Master Section Output

- With **Clips** activated, the gain settings of all clips in your audio montage are adjusted individually.

- With **Audio Montage Output** activated, the post-gain setting of the audio montage is modified, so that the audio montage mixdown matches the specified loudness or peak level.

- With **Master Section Output** activated, the **Master Section** gain fader is adjusted, so that the audio montage mixdown is matched to the specified loudness or peak level before applying the **Final Effects/Dithering** plug-ins. The audio montage itself is not modified by this operation.

Match Loudness menu

Allows you to select the loudness to match. The following options are available:

- **Do Not Change Loudness**

  Limits the peaks as specified, without performing a loudness analysis.

- Clips only:

  Match Loudest Clip

  Automatically identifies the loudest clip and sets all other clips to its loudness level.

- Clips only:

  Match Loudness of Active Clip

  Sets all clips to the loudness level of the active clip.

- **Set Specific Loudness**

  Sets all clips, the audio montage output, or the **Master Section** output, respectively, to the specified loudness level.

- Clips only:

Set Active Clip's Loudness, Shift Others

Sets the loudness of the active clip to the specified loudness and offsets all other clips by the same amount, regardless of their original loudness.

This ensures that the loudness ratio among the clips is maintained.

The option is particularly suited for stem mastering.

Use case example:

You have the following seven files:

- **Main Mix**
- **Drum Stem**
- **Bass Stem**
- **Guitar Stem**
- **Keyboard Stem**
- **Vocal Stem**
- **Backing Vocal Stem**

The option allows you to normalize the **Main Mix** file to a specific value, such as -18 LUFS Integrated Max, before the **Loudness Meta Normalizer** automatically adjusts the level of all stem files, whose individual loudness levels differ, by the same amount.

- Clips only:

Peak Normalize Predominant Clip, Shift Others

Automatically identifies and adjusts the clip with the highest peak level, so that it meets the specified peak limit, before the **Loudness Meta Normalizer** automatically offsets all other clips accordingly.

This ensures that the loudness ratio among the clips is maintained.

NOTE

This option disregards loudness values and only considers peak values.

Use case example:

You receive files for a CD, but there is too much unnecessary headroom. You want to maximize the loudness level of the CD without performing any additional mastering tasks. This option allows you to shift the peak level of all titles by the same amount, in a single step.

- Clips only:

Equalize Peak Levels

Automatically identifies the clip with the highest peak level and sets all other clips to the same peak level.

NOTE

This option disregards loudness values and only considers peak values.

- Audio montage and **Master Section** output only:

Normalize Peak Level

Sets the level of the audio montage or the **Master Section** output, respectively, to the specified peak level value.

> **NOTE**
>
> By default, preventing clipping is the highest priority for the **Meta Normalizer**, which takes precedence over any other settings in this section. As a result, if the need arises, the loudness levels of the clips are automatically reduced proportionally, so that the loudness of the individual clips may still vary after choosing options from the **Match Loudness** menu.

Loudness

Determines the loudness to match; for example, -23 LUFS to adhere to the EBU R-128 standard in this respect.

Reference

Allows you to select the loudness that you want WaveLab Pro to use as a reference.

Clips

For clips, the following options are available:

- **Integrated Loudness of Clip**: the loudness of all clips, using the standard Integrated Loudness value, in accordance with the EBU R-128 standard

- **Top of Loudness Range**: the peak of a loudness range (LRA); that is, the average loudness level of the loudest audio segments

  > **NOTE**
  >
  > The loudest 10% of the audio segments with a duration of less than three seconds are excluded from the calculation, to ensure that exceptionally loud single sounds do not affect the outcome.

- **Maximum Short-Term Loudness**: the highest value resulting from the short-term loudness analysis

Audio Montage Output

For the audio montage output, the following options are available:

- **Integrated Loudness of Mixdown**: the loudness of the entire mixdown, using the standard Integrated Loudness value, in accordance with the EBU R-128 standard

- **Top of Loudness Range**: the peak of a loudness range (LRA); that is, the average loudness level of the loudest audio segments

  > **NOTE**
  >
  > The loudest 10% of the audio segments with a duration of less than three seconds are excluded from the calculation, to ensure that exceptionally loud single sounds do not affect the outcome.

- **Maximum Short-Term Loudness**: the highest value resulting from the short-term loudness analysis

Master Section Output

For the **Master Section** output, the following options are available:

- **Integrated Loudness of Final Mixdown**: the loudness of the entire final mixdown, using the standard Integrated Loudness value, in accordance with the EBU R-128 standard

- **Top of Loudness Range**: the peak of a loudness range (LRA); that is, the average loudness level of the loudest audio segments

NOTE

The loudest 10% of the audio segments with a duration of less than three seconds are excluded from the calculation, to ensure that exceptionally loud single sounds do not affect the outcome.

- **Maximum Short-Term Loudness**: the highest value resulting from the short-term loudness analysis

Maximum Peak Level

You can choose from the following options:

- **Do Not Restrict Peaks**

  Keeps the **Meta Normalizer** from preventing clipping by limiting peaks.

  NOTE

  Activating **Do Not Restrict Peaks** can result in audio levels exceeding 0 dB.

  However, you can remedy problems arising from this by adjusting the peaks via level reduction techniques later on in the signal path. Generally, clipping occurs at the final stage of the audio stream, on playback or when saving to file.

- **Control Digital Peaks**

  Limits the sample values, with the peak measured in the digital domain as the reference.

- **Control True Peaks**

  Limits the reconstructed analog sample values, with the peak measured by simulating an analog signal as the reference.

- **Maximum Peak**

  Determines the maximum peak value not to be exceeded.

Outcome

This section is exclusively available for clips. You can choose from the following options:

Enforce Equal Loudness

NOTE

This option is only available in conjunction with one of the following items selected from the **Match Loudness** menu:

- **Match Loudest Clip**
- **Match Loudness of Active Clip**
- **Set Specific Loudness**

Reduces the target loudness in the event that, with **Control True Peaks** or **Control Digital Peaks** selected, a clip cannot reach the required gain to match the reference loudness. As a result, all clips are set to the same loudness, and clipping is prevented.

For example, if the target loudness is set to -8 LUFS but there is a clip in the audio montage that can only reach -9 LUFS, all clips are set to -9 LUFS.

Change Pre-Gain (Exclude Effects)

Adjusts the **Pre-Gain** level of the clips, without taking any clip effects into account.

NOTE

The current **Pre-Gain** values are displayed in the **Clips** window and on the **Clip** panel of the **Inspector**.

Change Post-Gain

Adjusts the **Post-Gain** level of the clips, which means that clip effects are taken into account.

The current **Post-Gain** values are displayed in the **Clips** window and on the **Clip** panel of the **Inspector**.

Process Selected Clips Only

Applies the settings made in the **Loudness Meta Normalizer** dialog exclusively to selected clips and ignores all other clips. As a consequence, the unselected clips do not contribute to the mixdown of the audio montage that is used to analyze the output loudness.

Additional Options

Test Only

Performs a test run of the analysis, and shows the calculated outcome in a log window.

NOTE

Performing the test analysis does not apply any gain changes to the clips in the audio montage.

Show Log

Opens a log window after the analysis, which provides you with a detailed overview of the results.

Navigator Window

This window displays an overview of the entire active audio montage and allows you to quickly navigate in it.

● To open the **Navigator** window, open an audio montage and select **Tool Windows** > **Navigator**.
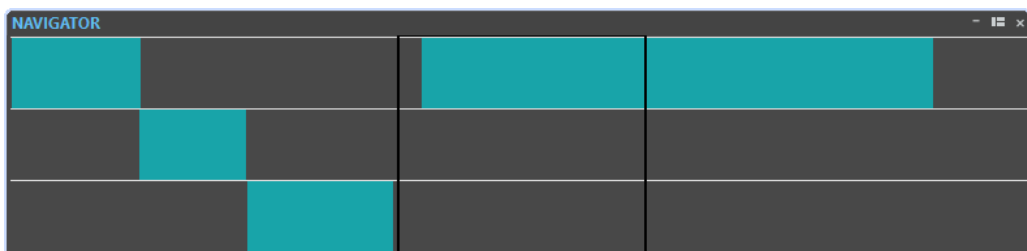
Each clip is represented by a colored block. The visible window content is shown by a black rectangle.

A small version of the **Navigator** window is available in the track control area.

● To open the **Navigator** window in the track control area, click **Navigator** at the top of the track control area.
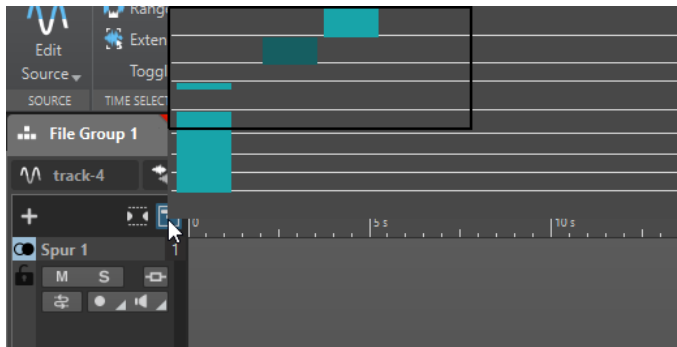
RELATED LINKS
Track Control Area on page 321

Navigating in the Navigator Window

The **Navigator** window allows you to quickly find positions in large audio montages.

Dragging with the mouse in any direction scrolls the main audio montage window, allowing you to navigate to a location in your audio montage.

● To adjust the visible range of the active window, you can resize the rectangle vertically and horizontally by dragging its edges.

● To zoom in on a clip, click its corresponding block. If the clip is inside the rectangle, double-click it.

● To completely zoom out, right-click anywhere in the window.

Notes Window

This window allows you to enter notes about the current audio montage session.

● To open the **Notes** window, open an audio montage and select **Tool Windows** > **Notes**.
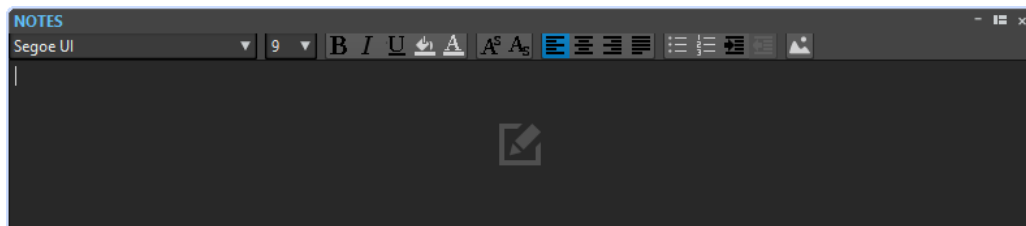
You can enter the text directly in this window and use the standard HTML text editor controls to format the text, and to add images and lists. The notes are saved with the audio montage.

Audio Montage Backups

You can either create backup copies of individual audio montage core files (.mon) or of your entire audio montage data, including all files that are referenced by the audio montage.

The following two methods for saving backup copies of your audio montages are available to you in WaveLab Pro:

Periodic Copy Saving of the Audio Montage Core File

You can set WaveLab Pro to automatically save backup copies of your audio montage files (.mon) at regular intervals. This is a convenient way to prevent losing your work and to retrieve earlier versions of the file, if, at some point, you decide to discard any changes you applied to more recently saved versions.

Backup Copies of the Audio Montage with All Associated Files

To work on an audio montage on multiple computers or to share and exchange your work with other WaveLab Pro users, you can save a backup copy of your entire audio montage data in a single folder, including the .mon file and any file that is referenced by it.

RELATED LINKS
Periodic Copy Saving of Audio Montage Files on page 547
Creating a Backup Copy of the Audio Montage with All Associated Files on page 548

Periodic Copy Saving of Audio Montage Files

You can set WaveLab Pro to automatically save copies of an audio montage file (.mon) at regular intervals, to maintain previous versions as a backup and retrieve them again as required.

Whenever you save an audio montage, the previously saved version is copied to the subfolder Backup.mon, which is located in the same folder as the audio montage file. This backup folder is automatically created by WaveLab Pro. The backup files are named "Montage_#X", with "Montage" as the name of the audio montage and "X" as a placeholder for a digit.

You can specify how many previous versions to keep (with a maximum of 1000). Once the specified number of backups is reached, the oldest file is overwritten.

NOTE

The digits added to the backup file names are not related to the creation or modification date of the backup files. We recommend that you check the creation or modification date of the files to know which backup file is the most recent one.

Unsaved and untitled audio montages are backed up as well. The backup files for untitled audio montages are saved in the temporary folder and use a number as a name, so that the files are called "Y_#X", "Y" being a number identifying the audio montage and "X" the number of the backup file.

RELATED LINKS
Setting Up Periodic Backups for Audio Montage Files on page 547
Opening an Audio Montage Backup File on page 548
Audio Montage Backups on page 546

Setting Up Periodic Backups for Audio Montage Files

You can set the maximum number of audio montage copies to be saved as backups and the backup intervals.

PROCEDURE

1. In the **Audio Montages Preferences**, select the **All Audio Montages** tab.

2. In the **Periodic Copy Saving** section, specify the maximum number of backup copies.

    To deactivate the backup function, set this setting to 0.

3. Choose a backup interval by setting the entry field (**Every**) to a value between 1 and 120 minutes.

4. Optional: Activate **Auto Save**, and specify how often you want the audio montage file to be saved.

Opening an Audio Montage Backup File

You can open the backup file of an audio montage to restore a former version of the audio montage.

PROCEDURE

1. Select **File** > **Open**.

2. Click **Audio Montage**.

3. Do one of the following:

- To close the active, unsaved audio montage and to open the last saved version, click **Revert to Saved File**. This replaces the active audio montage with the most recently saved copy.
- To open the saved version in a new window, without closing the active, unsaved version, click **Revert to Backup**.

NOTE

The option **Revert to Saved File** is always available, regardless of your settings for **Periodic Copy Saving** in the **Preferences**.

Creating a Backup Copy of the Audio Montage with All Associated Files

You can save a backup copy of your entire audio montage data, thereby consolidating and saving it in a single folder.

This facilitates working on an audio montage on multiple computers or sharing and exchanging your work with other WaveLab Pro users.

PROCEDURE

1. With an audio montage open in the **Audio Montage** window, click the **Process** tab.

2. Select **Back Up**.

3. Make the desired adjustments in the **Audio Montage Backup** dialog, and click **Start**.

RESULT

A backup copy of the audio montage data is saved in the destination folder. In addition to the .mon file, it includes any files that are associated with the audio montage, regardless of whether they were previously saved in the original audio montage folder, which remains unaffected by the backup consolidation process, or elsewhere.

RELATED LINKS

Audio Montage Backup Dialog

In the **Audio Montage Backup** dialog, you can make adjustments for saving a backup copy of your audio montage data in a single folder.

Type

- **Self-Contained Copy**

  Creates an exact, independent copy of all the files associated with the active audio montage, and saves them in a single folder.

- **ZIP File**

  Saves the backup copy as a single archive file.

  You can choose from the following compression methods:

  - **None, Just Store (very fast)**
  - **Fast Compression**
  - **Medium Compression**
  - **Best Compression (slow)**

    NOTE

    Many media files cannot be significantly reduced when converting them into a ZIP file, even with **Best Compression (slow)** selected. This is why **None, Just Store (very fast)** is the default setting, which also takes considerably less time to process than the other options.

- **Password**

  Allows you to set a password to protect the backup folder against unauthorized use.

  NOTE

  - Activating this option slows down the backup process.
  - The password is required to open the files in the ZIP folder, so be sure to remember it and to pass it on to any other users that need to access the files.

- **Test Archived Files**

  Verifies that the content of the folder and the original data are identical.

  NOTE

  This constitutes an additional check to ensure that the backup copy is complete; for example, prior to sharing the audio montage with other users.

Destination

Allows you to assign a name to the backup folder and to select the destination folder.

NOTE

If you do not enter a new name into the **Audio Montage Backup Name** field, the name of the original audio montage folder is used, with a version number (such as "_#2") added to the end of the file name as required, to distinguish it from any existing backup copies of the same name.

Options and Preview

Allows you to select the files to include and to preview the result.

- **Copy Unused Files**

  Allows you to choose whether or not to add files that are in the original audio montage folder but are currently not referenced by the audio montage and hence "unused", to the backup folder.

  TIP

  We recommend that you activate this option if the original audio montage folder contains files that you added on purpose, such as alternate versions of titles or notes, which you may want to use for the audio montage again in the future.

- **Preview**

  Gives you an overview of the files that are included in the backup process.

RELATED LINKS
Creating a Backup Copy of the Audio Montage with All Associated Files on page 548
Audio Montage Backups on page 546

Audio Montage Consolidation

The **Consolidate** option helps you to keep track of any changes to the content of the audio montage folder and to manage the files in it, as well as further files that are associated with the audio montage.

For each of your audio montages, WaveLab Pro automatically creates a designated folder. You can choose to save the files associated with the audio montage in this location. However, you can also insert files into the audio montage from elsewhere and keep them in their original location, so that they are not included in the audio montage folder. On the other hand, the audio montage folder can also contain files that are not referenced by the audio montage file itself, such as notes or alternative versions of audio titles that you manually saved in this folder, or files that you imported into the audio montage at one point but that you removed from it again later on.

Typical use cases for the **Consolidate** option:

- You intend to work on your audio montage on another computer or to share it with other users, so that they can continue working on it.

  The **Consolidate** option allows you to create copies of all referenced files that are located outside the audio montage folder and to include them in the folder of the active audio montage. This ensures that no assets are missing when the project is transferred to another machine or user.

- Some files that you imported into the audio montage but removed from it again later on are still included in the audio montage folder and take up unnecessary memory space there.

  The **Consolidate** option allows you to identify and delete files that are currently not referenced by the active audio montage.

RELATED LINKS
Consolidating Audio Montages on page 551
Consolidate Audio Montage Dialog on page 551

Consolidating Audio Montages

The **Consolidate** option allows you to review, edit, and optimize the content of an audio montage folder.

PROCEDURE

1. With an audio montage open in the **Audio Montage** window, click the **Process** tab.

2. Select **Consolidate**.

3. Make the desired adjustments in the **Consolidate Audio Montage** dialog, and click **Consolidate**.

4. Optional: To view the audio montage in the File Explorer, select **Reveal Audio Montage in File Explorer**.

RELATED LINKS

Consolidate Audio Montage Dialog

The **Consolidate Audio Montage** dialog allows you to view and edit the files in the active audio montage folder.

With an audio montage open, you can access the **Consolidate Audio Montage** dialog by clicking the **Process** tab and selecting **Consolidate**.

Audio Montage Folder

Copy External Files Into The Audio Montage Folder

Copies all files that are referenced by the active audio montage but not included in its folder to the audio montage folder.

TIP

We recommend that you choose this option if you intend to continue working on your audio montage on another computer or to share it with other WaveLab users. It ensures that there are no assets missing.

To prevent unnecessary duplicates in your system, you can delete the original external files by activating **Delete External Files After Successful Copy**.

NOTE

Before doing so, verify that the files to be deleted are not referenced by other audio montages or used in other WaveLab Pro projects.

Delete Unused Files From the Audio Montage Folder

Removes any files in the audio montage folder that are currently not associated with the audio montage from the folder and deletes them.

NOTE

Be sure to only delete files that you do not need any more.

As for any currently "unused" but relevant files in the audio montage folder, such as files to be possibly added to the audio montage in the future or required for reference purposes: Either keep them in the folder or copy them to another location before activating this option.

Preview

- The **Preview** display reflects any changes you make to the settings in the **Audio Montage Folder** section of the dialog.

- In addition to displaying the files that are currently referenced in the audio montage, the **Preview** section lists any files saved in the audio montage folder that are not associated with the active audio montage.

Options in the **Preview** section:

Expand

Unfolds the folder tree, so that all list entries are visible.

Collapse

Hides all levels of the folder tree.

Source to Destination

Displays the source files; that is, the files to be copied, in the left column.

The file paths of the copies are shown in the right column.

Destination to Source

Displays the source files; that is, the files to be copied, in the right column.

The file paths of the copies are shown in the left column.

RELATED LINKS

Importing Audio CDs

You can import audio CD files. The imported audio CD opens as an audio montage.

PROCEDURE

1. Select **File** > **Import**.

2. Click **Audio CD**.

3. In the File Explorer/macOS Finder, select the Basic Audio CD file that you want to import and click **Import**.

RESULT

The imported audio CD opens as a new, untitled audio montage that contains all the audio tracks that are saved in the audio CD file.

AES-31 Files Export and Import

The AES-31 standard is an open file interchange format for overcoming format incompatibility issues between different audio hardware and software. It can be used for transferring projects from one workstation to another, retaining time positions of events, fades, etc.

AES-31 uses Broadcast Wave as the default audio file format. AES-31 files can be transferred to and used with any digital audio workstation that supports AES-31, regardless of the used hardware and software, as long as the workstation can read Broadcast Wave files.

The exported files are XML files but with the extension `.adl` (audio decision list).

Exporting AES-31 Files

When exporting audio montages to an AES-31 file, the file contains all audio track data, including audio file references.

PROCEDURE

1. Select **File** > **Export**.

2. Click **Audio Montage to AES-31**.

3. Specify a name and file location, and click **Export**.

4. In the **AES-31 Export Options** dialog, edit the settings and click **OK**.

AES-31 Export Options Dialog

● To open the **AES-31 Export Options** dialog, select **File** > **Export** and select **Audio Montage to AES-31**. Then specify a name and file location, and click **Export**.

Render Linear Fades as Audio Files

If this option is activated, linear fades, which are dynamically computed by WaveLab Pro, are rendered to small audio files while preserving the exact audio effect.

Render Curved Fades as Audio Files

If this option is activated, complex fades, which are dynamically computed by WaveLab Pro, are rendered to small audio files while preserving the exact audio effect.

Render Crossfades as Audio Files

If this option is activated, crossfades, which are dynamically computed by WaveLab Pro, are rendered to small audio files while preserving the exact audio effect.

Skip Muted Clips

If this option is activated, muted clips are not included in the AES-31 file.

After Exporting, Import File

If this option is activated, the exported file is immediately imported. This lets you check the export result.

Importing AES-31 Files

PROCEDURE

1. Select **File** > **Import**.

2. Click **AES-31**.

3. In the File Explorer/macOS Finder, select the AES-31 file that you want to import, and click **Import**.

4. In the **AES-31 Import Options** dialog, edit the settings and click **OK**.

RESULT

The imported AES-31 file opens as a new, untitled audio montage that contains all the audio tracks that are saved in the AES-31 file.

AES-31 Import Options Dialog

● To open the **AES-31 Import Options** dialog, select **File** > **Import** and select **AES-31**. Then select the AES-31 file and click **Import**.

Use Linear Fade Files, If Available (Otherwise, Create Dynamic Fades)

If this option is activated, the available audio files for linear fades are used. If no files are available, dynamic fades are created.

Use Curved Fade Files, If Available (Otherwise, Create Dynamic Fades)

If this option is activated, the available audio files for complex fades are used. If no files are available, dynamic fades are created.

Importing AES-31 Files Created in Nuendo

By importing an AES-31 file, you can import a project that was created in Steinberg's Nuendo into WaveLab Pro, for example.

In this case, it is possible to add specific codes to the marker names in Nuendo to facilitate their conversion into WaveLab Pro-specific markers. For example, if an AES-31 file that was exported in Nuendo is imported into WaveLab Pro, the markers that it contains are interpreted as WaveLab Pro markers upon import.

For the title markers, you can use the following codes:

Marker Type	Marker Code	Example Marker Name
Title start	[t-start]	"So it begins [t-start]"
Title end	[t-end]	"The end [t-end] of the road"
Title splice	[t-splice]	Intermission [t-splice]
Title index	[t-index]	[t-index] Hello

● In Nuendo, a marker track must be created for the specific markers.

● When importing AES-31 projects that contain specific markers, the marker codes are not displayed in WaveLab Pro.

Recording

You can record audio in the **Audio Editor** and in the **Audio Montage** window.

You can use the following recording methods:

- In the **Audio Editor**, you can record files with multiple options via the **Recording** dialog.
- In the **Audio Montage** window, you can record multiple audio montage tracks simultaneously.
- You can record while hearing the effects when monitoring the input signal.

RELATED LINKS
Recording in the Audio Editor on page 555
Recording in the Audio Montage Window on page 561
Recording Dialog on page 555
Input Monitoring on page 566

Recording in the Audio Editor

PROCEDURE

1. In the **Audio Editor**, click the **Record** ● button, or press ***** on the numeric key pad.

   The **Recording** dialog opens.

2. Choose from the options in the **Recording** dialog.

3. Click **Record** ● to start recording.

   If you have selected one of the Auto-start options, the recording is set to **Pause** mode until the specified Auto-start criteria are met.

   The background of the **Recording** dialog changes color (turns red) to indicate that you are recording.

4. Optional: To pause recording, click the **Pause** ❚❚ button.

5. Click **Stop** ■ to finish recording.

6. Optional: To record another take, click **Record** ● again.

RELATED LINKS
Recording Dialog on page 555
Recording in the Audio Montage Window on page 561

Recording Dialog

In the **Recording** dialog, you can set parameters for recording and start recording an audio file.

To open the **Recording** dialog, do one of the following:

- Open the **Audio Editor**, and click **Record** on the transport bar.
- In other workspaces, `Alt/Opt`-click **Record** on the transport bar.
- In the **Audio Montage** window, press `Alt/Opt`-`R`.
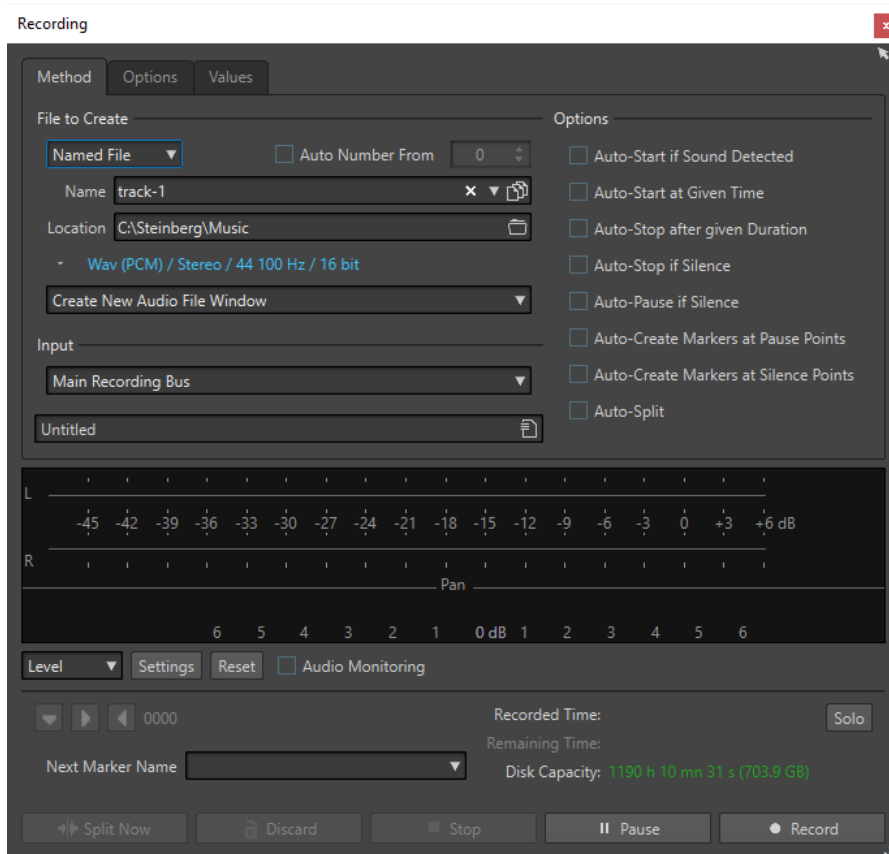
Main Buttons
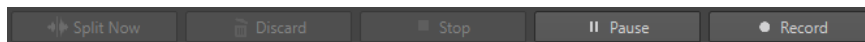
Split Now

Opens the audio already recorded in a new window while recording continues. By clicking this button, you can decide when the file is split. The button is activated if you are recording a named file, you are not pausing, and **Auto-Split** is not activated.

Discard

Stops recording and deletes anything recorded so far.

Stop

Stops recording.

Pause

Pauses recording.

Record

Starts recording. Depending on the recording options, **Pause** mode is activated.

Method Tab

On this tab, you can define options for starting, stopping, and pausing the recording automatically. You can select an input device and choose to start a recording at a specific time or stop if after a specific duration.
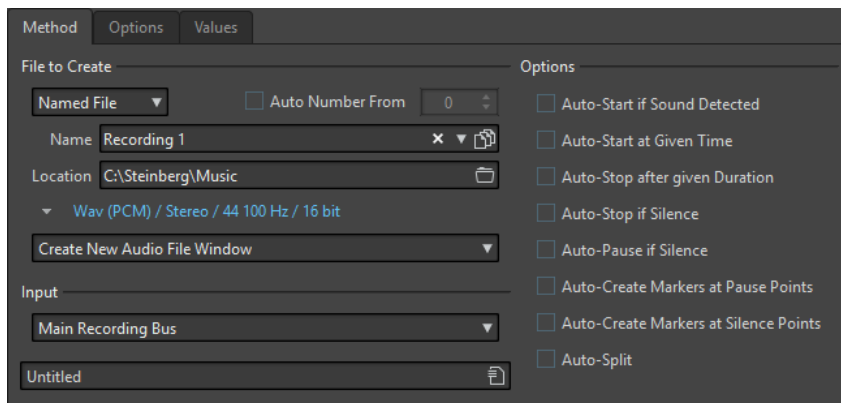
File to Create

Specify whether you want to record a temporary file to be saved later, or record to a file with a specific name and location.

Auto Number From

If this option is activated and you record multiple files, increasing numbers are added to the file names of the files.

Name

The name of the file to be written, without the path. When typing, all files in the selected folder that start with the same letters are displayed. To display all files in the selected folder, click the list icon.

Location

Specifies the folder where you want to save the recording.

Audio File Format

Opens the **Audio File Format** dialog, where you can specify the file format.

Location of the Recording

Allows you to specify where the audio is recorded:

- If **Create New Audio File Window** is selected, the audio is recorded in a new audio file window.

- If **Add to Active Audio File** is selected, the audio is recorded in the active audio file window at the edit cursor position. If no audio file exists, a new one is created.

- If **Add to Active Track of Montage** is selected, the audio is recorded in an existing audio montage at the edit cursor position. If no audio montage exists, a new one is created.

Input

Allows you to select the input buses for recording.

Auto-Start if Sound Detected

If this option is activated, recording starts when the audio input level exceeds the threshold level specified on the **Values** tab.

Auto-Start at Given Time

If this option is activated, recording starts at a specified time. Specify the time on the **Values** tab.

Auto-Stop after Given Duration

If this option is activated, recording stops automatically after the duration specified on the **Values** tab.

Auto-Stop if Silence

If this option is activated, recording automatically stops when the audio input level drops below a specified threshold level and stays there for a specific amount of time. Specify the level and the duration on the **Values** tab.

Auto-Pause if Silence

If this option is activated, recording automatically pauses when the audio input level drops below a specified threshold level and stays there for a specific amount of time. Specify the level and the duration on the **Values** tab.

Auto-Create Markers at Pause Point

If this option is activated, a generic marker is created each time you click **Pause** during recording.

Auto-Create Markers at Silence Points

If this option is activated, a generic marker is created each time the audio input level drops below a specified threshold level and stays there for a specific amount of time. Specify the level and the duration on the **Values** tab.

Auto-Split

If this option is activated, the recording is automatically split into several audio files either after a specific amount of time or at a specific file size. **Auto-Split** is useful if you make long continuous audio recordings, such as live recordings.

The **Auto-Split** option is only available when **Named File** is selected. Selecting **Auto-Split** automatically activates the **Auto Number** option for audio file names. Split files are contiguous, that is, there are no gaps between the files.

- To set the file size after which you want the recording to create a new file, select the **Values** tab and specify the **File Size** in the **Auto-Split Parameters** section.

- To set the duration after which you want the recording to create a new file, select the **Values** tab and specify the **File Duration** in the **Auto-Split Parameters** section.

NOTE

It is recommended to save each **Auto-Split** recording in an empty folder. This prevents the **Auto Number** option from creating files with names that already exist in this location.

Options Tab

On this tab, you can set additional parameters for the recording process.
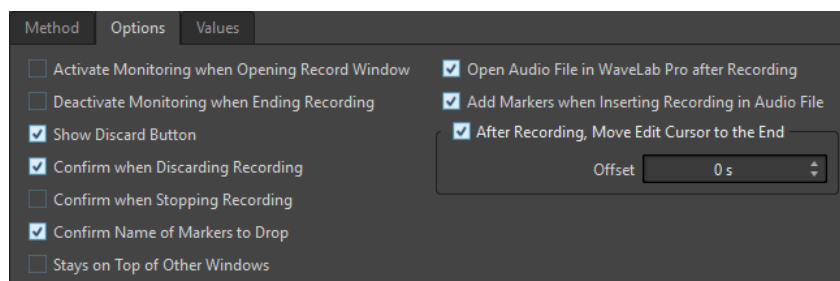
Activate Monitoring When Opening Record Window

If this option is activated, monitoring is active when the **Recording** dialog opens. If this option is deactivated, the meters and the audio thru are displayed when pressing **Record** or activating **Monitor**.

Deactivate Monitoring When Ending Recording

If this option is activated, audio thru is deactivated when recording ends. This releases the audio device input.

Show Discard Button

Determines whether the **Discard** button is visible or hidden.

Confirm when Discarding Recording

If this option is activated, you are asked to confirm before discarding a recording.

Confirm when Stopping Recording

If this option is activated, you are asked to confirm before stopping a recording.

Confirm Name of Markers to Drop

If this option is activated, you are asked to enter a name for the dropped marker.

Open Audio File in WaveLab Pro after Recording

If this option is activated, the audio files are opened in WaveLab Pro after recording.

Add Markers when Inserting Recording in Audio File

If this option is activated and a recording is inserted into an audio file, markers are added encompassing the new samples.

After Recording, Move Edit Cursor at the End

If this option is activated, the edit cursor is moved to the end of the recording.

Values Tab

On this tab, you can define values for the various recording options.
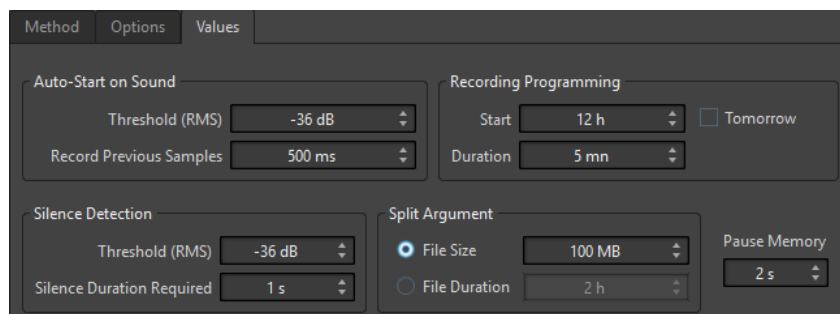
Auto-Start on Sound – Threshold (RMS)

Allows you to specify the sound level that triggers recording.

Auto-Start on Sound – Record Previous Samples

Allows you to include a short section of audio before the start point, to capture attacks, for example. It is only relevant if **Auto-Start if Sound Detected** is activated.

Silence Detection – Threshold (RMS)/Silence Duration Required

The threshold value used for the options **Auto-Stop if Silence** and **Auto-Create Markers at Silence Points**. It is used in conjunction with the **Silence Duration Required** setting, so that recording is stopped or a marker is added if the input level stays below the threshold value for the specified duration.

Recording Programming – Start

Determines the time at which recording starts if **Auto-Start at given Time** is activated.

Recording Programming – Duration

Determines the length of the recording if **Auto-Stop after given Duration** is activated.

Recording Programming – Tomorrow

If this option is activated, you can specify a time on the next day (starting midnight).

Auto-Split Parameters

If **File Size** is activated, a new file is created when the recorded file reaches the size specified in the corresponding value field. This option is only active if **Auto-Split** is activated on the **Method** tab.

If **File Duration** is activated, a new file is created when the recorded file reaches the length specified in the corresponding value field. This option is only active if **Auto-Split** is activated on the **Method** tab.

Pause Memory

This is a safety buffer when you are using the **Pause** button. When you resume recording, this buffer is used to restore the last short section of audio before you deactivated the **Pause** button. This way, you can resume recording even if you deactivated the **Pause** button a bit too late.

Meter Display
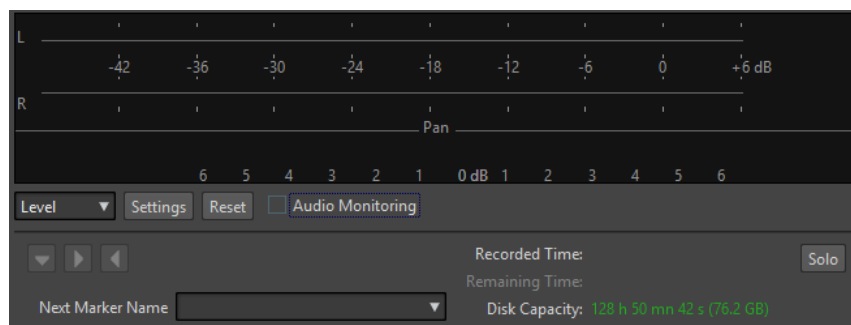
Level/Spectrum

Specifies whether to display the **Level Meter** or the **Spectrometer**.

Settings

If the **Level** display is selected, this button opens the **Level/Pan Meter Settings** dialog, where you can customize the meter settings.

If the **Spectrum** display is selected, a pop-up menu opens, where you can select the audio levels that the meter should display. The following settings are available for the **Spectrum** display:

- **Restrict to High Audio Levels**
- **Include Medium Audio Levels**
- **Include Low Audio Levels**

Reset

Resets the peak values.

Audio Monitoring

If this option is activated, the audio input is also sent to the output ports.

Marker buttons

Allow you to set markers during the recording.

Next Marker Name

Edit the name of the next marker to insert.

Solo

Reduces/Increases the size of the window and hides/shows all other WaveLab Pro windows.

RELATED LINKS
Audio File Format Dialog on page 208
Level Meter and Spectrometer for Recordings on page 561
Level/Pan Meter Settings Dialog on page 651

Level Meter and Spectrometer for Recordings

In the lower part of the **Recording** dialog, you find a meter display. This is useful for checking the input level and the frequency spectrum of the input signal.

You can activate the meters by activating the **Audio Monitoring** checkbox. This is done automatically if **Activate Monitoring when Opening Record Window** is activated on the **Options** tab in the **Recording** dialog.

To reset the meters, click the **Reset** button.

Level Meter

In the **Level Meter**, horizontal bars show the peak level (outer bars) and average loudness (VU, inner bars) of each channel. Values are also shown numerically. When you click the **Settings** button, the **Level/Pan Meter Settings** dialog opens.

Spectrometer

The **Spectrometer** shows a bar diagram, providing a continuous graphical representation of the frequency spectrum. From the **Settings** pop-up menu, you can choose whether to restrict to high audio levels, or to include medium or low audio levels.

RELATED LINKS
Recording Dialog on page 555

Disk Capacity Indicator

This indicator at the bottom of the **Recording** dialog indicates the approximate amount of available disk space on the hard disk specified in the **File to Create** section, or the hard disk that you have selected for temporary files.

NOTE

When there is less than 30 seconds of available hard disk space left, the disk capacity indication is displayed in red.

RELATED LINKS
Recording Dialog on page 555

Recording in the Audio Montage Window

You can record audio as clips in the audio montage.

Depending on your connected ASIO device, WaveLab Pro automatically detects the available input buses and creates the stereo and mono input buses in the **Audio Connections**.

Automatically Assigning Input Buses for Recording (only for ASIO Devices)

Before you can start recording, you must assign input buses. If you are using an ASIO device, for example, a Steinberg UR interface, the input ports are automatically created.

NOTE

If you are not using an ASIO device, you must assign input buses manually.

PROCEDURE

1. Connect your device to your computer and start WaveLab Pro.

2. Select **File** > **Preferences** > **Audio Connections**.

3. Click **Recording**.

4. Make sure that your ASIO device is selected on the **Audio Device** menu.

   The input buses are assigned automatically.

5. Create an audio montage.

6. Create a mono or stereo track.

7. In the track control area, click **IN** and select the input bus for each track.

RESULT

WaveLab Pro is ready for recording.

Assigning Input Buses for Recording Manually

Before you can start recording, you must assign input buses.

NOTE

If you are using an ASIO device, for example, a Steinberg UR interface, the input buses are created automatically.

PROCEDURE

1. Connect your device to your computer and start WaveLab Pro.

2. Select **File** > **Preferences** > **Audio Connections**.

3. Click **Recording**.

4. In the **Buses** list, select the bus that you want to use for recording.

5. Optional: To add more buses, click **Add Bus** and assign more input buses.

6. On the **Channel Configuration** menu, select whether you want to record in **Mono**, **Stereo**, **Surround**, **Ambisonics**, **Multi Mono**, or **Multi Stereo**.

7. In the **Device Port** column, assign the input ports.

RESULT

WaveLab Pro is ready for recording.

RELATED LINKS
Automatically Assigning Input Buses for Recording (only for ASIO Devices) on page 562
Audio Connections Tab on page 33
Recording with Automatic File Properties on page 563
Recording with Custom File Properties on page 564
Recording on Multiple Tracks on page 564

Recording with Automatic File Properties

Recording with automatic file properties is the quickest way to start recording in the **Audio Montage** window.

The file name of the file that you want to record is generated automatically. The recorded file is saved in the data folder of the active audio montage. The bit resolution of the recorded file is the same as the bit resolution that is defined for temporary files.

PROCEDURE

1. In the montage window, select a track and click at the position where you want the recording to start.

2. On the transport bar, click **Record**.

3. To start recording, select an input bus in the **Audio Input** menu.

4. Do one of the following:

   ● To stop recording, click **Stop** on the transport bar.

   ● To stop and discard the recording, **Ctrl/Cmd** -click **Stop** on the transport bar. This deletes the recorded file.

RELATED LINKS
Assigning Input Buses for Recording Manually on page 562
Automatically Assigning Input Buses for Recording (only for ASIO Devices) on page 562
Track Control Area on page 321
File Properties for Recording Dialog on page 565

Recording with Custom File Properties

When recording in the **Audio Montage** window, you can specify the name, location, and bit resolution of the file that you want to record.

PROCEDURE

1. In the **Audio Montage** window, select a track, and click at the position where you want the recording to start.

2. In the track control area, click **Audio Input** and select an input bus.

3. Right-click **Record**, and click **File Properties for Recording**.
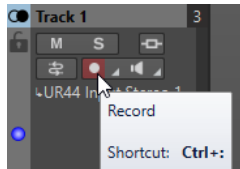
4. In the **File Properties for Recording** dialog, make the desired adjustments, and click **Record Enable Track**.

   The track is now ready for recording.

5. On the transport bar, click **Record**.

6. Do one of the following:

   - To stop recording, click **Stop** on the transport bar.
   - To stop and discard the recording, `Ctrl/Cmd`-click **Stop** on the transport bar. This deletes the recorded file.

RELATED LINKS
Assigning Input Buses for Recording Manually on page 562
Automatically Assigning Input Buses for Recording (only for ASIO Devices) on page 562
Track Control Area on page 321
File Properties for Recording Dialog on page 565

Recording on Multiple Tracks

You can record on multiple audio montage tracks simultaneously.

PREREQUISITE
You have assigned input buses for recording.

PROCEDURE

1. In the **Audio Montage** window, click at the position where you want the recording to start.

2. Optional: Click **Monitor** to monitor your input signal and adjust its level.

3. Do one of the following:

   - If you want to record audio files with automatic file properties, click **Record** in the track control area, and select an input bus.
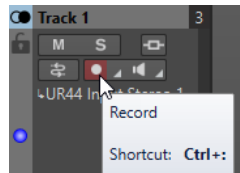
- If you want to specify the file name, location, and bit resolution of the audio files that you want to record, right-click **Record**, and click **File Properties for Recording**. In the **File Properties for Recording** dialog, make the desired adjustments, and click **Record Enable Track**.

  The track is now ready for recording.

4. Optional: Repeat step 3 for all tracks that you want to record on.

5. On the transport bar, click **Record** to start recording.

6. Do one of the following:

   - To stop recording, click **Stop** on the transport bar.

   - To stop recording of a single track while recording several tracks at the same time, click **Record** in the track control area of the track.

   - To stop and discard the recording, Ctrl/Cmd -click **Stop** on the transport bar. This deletes the recorded file.

RELATED LINKS
Assigning Input Buses for Recording Manually on page 562
Automatically Assigning Input Buses for Recording (only for ASIO Devices) on page 562
Track Control Area on page 321
File Properties for Recording Dialog on page 565

File Properties for Recording Dialog

This dialog allows you to specify the file name, location, and bit resolution of the track that you want to record.

- To open the **File Properties for Recording** dialog, in the track control area, right-click **Record** and click **File Properties for Recording**.
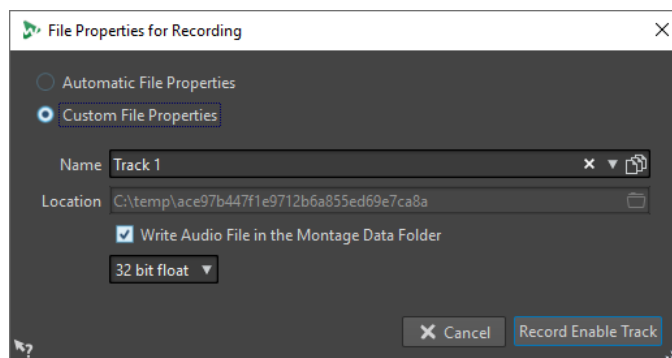
Automatic File Properties

If this option is activated, the file name of the file that you want to record is generated automatically. The recorded file is saved in the data folder of the active audio montage. The bit resolution of the recorded file is the same as the bit resolution that is defined for temporary files.

Custom File Properties

If this option is activated, you can specify the file name and location for the audio file that you want to record.

Write Audio File in the Montage Data Folder

If this option is activated, the recorded audio file is saved in the data folder of the audio montage. To specify a custom folder, deactivate this option.

Bit Resolution

Allows you to specify the bit resolution of the audio file that you want to record.

RELATED LINKS
Recording in the Audio Montage Window on page 561

Input Monitoring

Input monitoring means listening to the input signal after it travels through the effects while preparing to record or while recording. This allows you to listen to the effects that your WaveLab Pro setup has on your input signal.

Depending on your effect chain, audio hardware, and drivers, the monitored signal can have latency.

You can choose to monitor the signal going through the audio montage and its effects, or you can use **Direct Monitoring**, which means listening directly to the input signal before it is sent through WaveLab Pro and its effects. **Direct Monitoring** has a lower latency than monitoring the input signal. **Direct Monitoring** is activated by default.

RELATED LINKS
Monitoring the Input Signal on page 566
Direct Monitoring on page 567

Monitoring the Input Signal

Monitoring the input signal allows you to monitor the signal going through the audio montage and its effects.

PREREQUISITE
You have set up your audio input buses.

PROCEDURE

1. Open an audio montage and set up your effects.

2. In the track control area for the track that you want to monitor, click **Input Bus** and select an input bus.
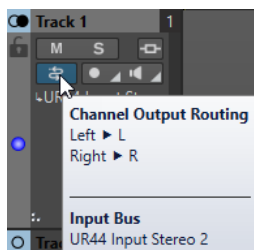
3. Click **Monitor**.

RESULT

You can monitor the input signal.

NOTE

The monitored signal is delayed according to the latency value which depends on your effect chain, audio hardware, and drivers.

RELATED LINKS
Track Control Area on page 321
Recording in the Audio Montage Window on page 561

Direct Monitoring

If **Direct Monitoring** is activated, the input signal is monitored directly without going through the audio montage and its effects. Direct monitoring allows you to monitor the input signal with lower latency.

PREREQUISITE

You have set up your audio input buses.

PROCEDURE

1. Open an audio montage.

2. In the track control area for the track that you want to monitor, click **Input Bus** and select an input bus.
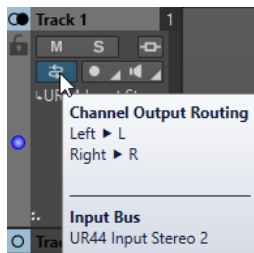
3. Right-click **Monitor** and activate **Direct Monitoring**.

RESULT

You can monitor the input levels of audio tracks.

RELATED LINKS
Recording in the Audio Montage Window on page 561

Dropping Markers While Recording

When you are recording, you can click the marker buttons to add markers to the recorded file.

PROCEDURE

1. Open the **Recording** dialog.

2. Optional: To name the markers that you drop rather than using generic markers, do the following:

    ●   Select the **Options** tab, and activate **Confirm Name of Markers to Drop**.

- In the **Next Marker Name** field, enter the marker name.

3. Make the desired adjustments, and start recording.

4. Select the type of marker that you want to drop.

    - To drop a numbered generic marker, click the yellow marker button, or press `Ctrl/Cmd`-`M`.

    - To drop numbered generic region start and end markers, click the white buttons, or press `Ctrl/Cmd`-`L`/`Ctrl/Cmd`-`R`.
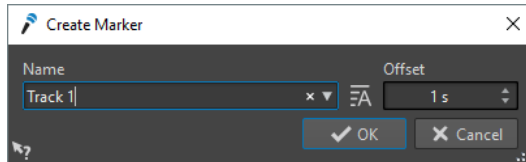
When you chose to confirm marker names to drop, a dialog opens each time that you drop a marker. In this dialog, you can enter a name and specify an offset, which allows you to place a marker at a specific time before you triggered the command.

RESULT

A marker is dropped each time that you click the marker button.

NOTE

If you insert two or more region start markers in a row with no region end markers in between, only the last of these start markers is kept. The same applies for region end markers.

RELATED LINKS
Recording Dialog on page 555

Live Input Rendering

You can monitor and render audio input through the **Master Section**. Optionally, you can add plug-ins to the live input rendering. You can also render multiple live input streams with different plug-ins and output formats in parallel.

NOTE

The maximum number of live input renderings depends on your available audio inputs and your overall system performance.

Setting up Live Input Renderings

You must assign input buses before you can render the live input.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Connections**.

2. Select the **Recording** tab.

3. Assign input buses.

Rendering Live Input Streams

PROCEDURE

1. In the **Master Section**, right-click **Live Input** .
2. In the **Input Bus** section, select an input bus.
3. Optional: In the **Master Section**, add effects for the input bus.
4. In the **Audio Montage** window, select the **Render** tab.
5. In the **Output** section, specify the name, location, and file format of the rendered file.
6. In the **Render** section, click **Start Rendering**.
7. Set the parameters in the **Live Input Rendering** dialog, as required.
8. Click **Render**.

RESULT

The **Live Input Rendering** dialog opens. This allows you to set up both input streams for rendering individually.

NOTE

When rendering, the **Master Section** plug-in settings are copied to the rendering task. This allows you to change the plug-in settings without affecting the ongoing rendering task.

Live Input Rendering Dialog

The **Live Input Rendering** dialog allows you to make adjustments for your live input rendering.

● To open the **Live Input Rendering** dialog, right-click **Live Input** at the top of the **Master Section** and select **Live Input Rendering** from the pop-up menu.
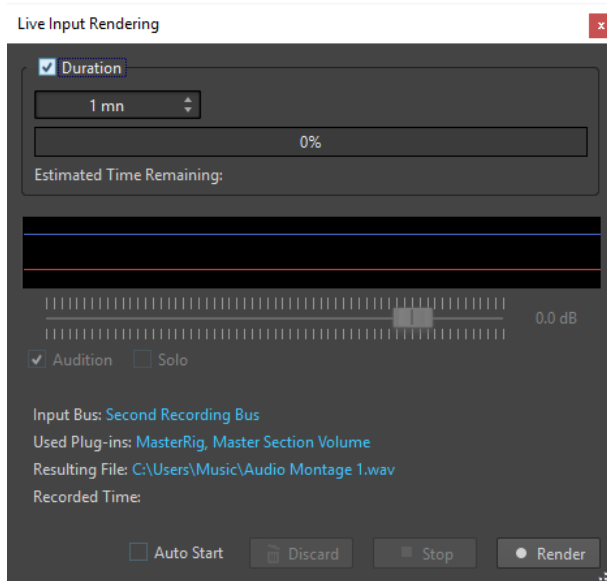
Duration

If this option is activated, you can specify the duration of the rendering.

Gain

Allows you to specify the gain of the rendered file during rendering.

Audition

If this option is activated, the rendered signal is sent to the audio device output after recording has started.

Solo

If this option is activated and several rendering tasks are running simultaneously, only this one is auditioned.

Auto Start

If this option is activated, rendering starts automatically when you open the **Live Input Rendering** dialog.

Discard

Stops rendering and deletes what has been rendered so far.

Stop

Stops rendering to a file.

Render

Starts rendering to a file.

RELATED LINKS

Rendering Multiple Live Input Streams in Parallel

You can render multiple live input streams simultaneously. This allows you to batch record multiple live input streams. The maximum number of live input renderings depends on your available audio inputs and your overall system performance.

PREREQUISITE
You have set up your first live input stream.

PROCEDURE

1. In the **Master Section**, right-click **Live Input**.

2. In the **Input Bus** section, select the second input bus.

3. Optional: In the **Master Section**, add effects for the second input bus.

4. In the **Audio Montage** window, select the **Render** tab.

5. In the **Output** section, define a name, location, and file format for the rendered file.

6. In the **Render** section, click **Start Rendering**.

RESULT

An additional, independent **Live Input Rendering** dialog opens, enabling you to set up both input streams for rendering individually.

NOTE

When rendering, the **Master Section** plug-in settings are copied to the rendering task. This allows you to change the plug-in settings without affecting the ongoing rendering task.

RELATED LINKS

Master Section

The **Master Section** is the final block in the signal path before the audio is sent to the audio hardware, to an audio file, or to the audio meters. This is where you adjust the master levels, add effects, resample, and apply dithering.

The settings and effects in the **Master Section** are taken into account in the following cases:

- When playing back an audio file in the wave window.
- When playing back an audio montage.
  Note that the **Master Section** effects are global for all clips and tracks in an audio montage.
- When using the **Render** function.
- When using the **Audio Input** plug-in.
- When writing a CD from an audio montage.

RELATED LINKS

Master Section Window

In this window, you can apply effect plug-ins, adjust the master level, apply dithering, and render the audio file or audio montage.

- To open the **Master Section** window, select **Tool Windows** > **Master Section**.
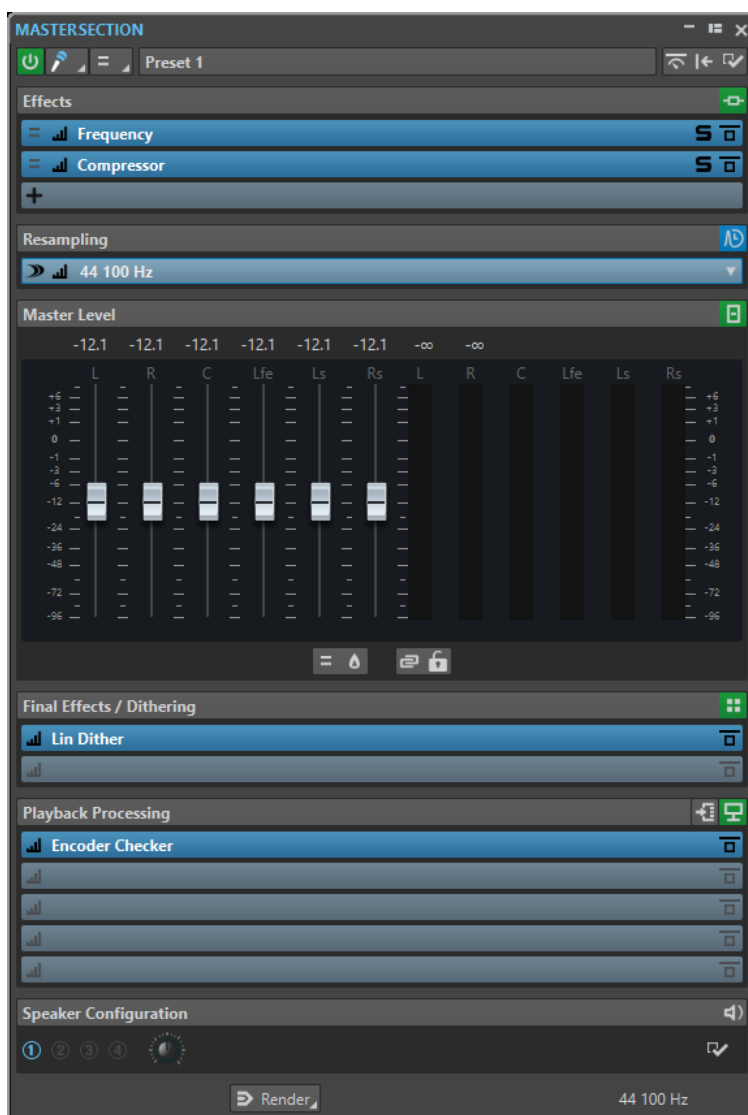
The **Master Section** consists of the following panes:

- **Effects**
- **Resampling**
- **Master Level**
- **Final Effects/Dithering**
- **Playback Processing**
- **Speaker Configuration**

RELATED LINKS

Signal Path

The panes in the **Master Section** window correspond to the processing blocks of the **Master Section**.

The signal passes through these blocks from top to bottom:

1. Audio from WaveLab Pro

2. Effects

   Reordering the effect slots affects the signal path.

3. Resampling

4. Master Level

   The **Master Section** meters monitor the signal between the **Master Level** pane and the **Playback Processing** pane.

5. Final Effects/Dithering

6. Playback Processing

   The meters in the Meter windows monitor the signal between the **Playback Processing** pane and the **Speaker Configuration** pane.

7. Speaker Configuration

8. Audio hardware or file on disk

In the **Master Section**, the signal passes all plug-ins, even if some plug-ins are soloed. However, the sound is not affected by this because the muted plug-ins are bypassed from the playback process stream.

Other meters in WaveLab Pro, for example, **Oscilloscope** or **Wavescope**, monitor the signal directly after the **Final Effects/Dithering** pane, by default. You can also monitor the signal directly after a particular slot if you activate **Monitoring Point** for a slot.
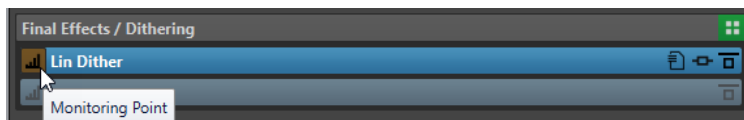
RELATED LINKS
Master Section Window on page 572

Master Section Tools

The tools and options at the top of the **Master Section** window allow you to set various parameters for rendering.

Bypass Master Section

If this option is activated, only the **Playback Processing** pane of the **Master Section** is active during playback. All other **Master Section** panes are bypassed. However, rendering to file still takes into account all plug-ins.

Live Input

If this option is activated, the audio input is monitored and can be rendered. You can render multiple audio inputs in parallel.

Channel Selector

You can select a single channel cluster or all channel clusters of a multichannel audio file. If you select a single channel cluster, you can render it with the **Render in Place** option at the bottom of the **Master Section** or play back the channel cluster via the front left/right audio ports or the mono audio port. You can set up the audio ports in the **Audio Connections** dialog.
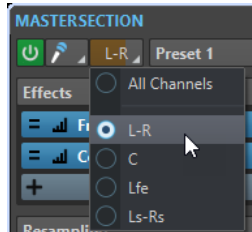
Presets

Allows you to save and recall **Master Section** presets. The **Presets** pop-up menu offers additional options to save and load default banks and effects.

Smart Bypass ⬆

Opens the **Smart Bypass** dialog, where you can make adjustments for bypassing.

Reset Master Section |⬅

Removes all active effects from the slots and sets the master output to 0 dB.

NOTE

By default, the **Playback Processing** section is excluded from this operation. If you want the reset process to include the **Playback Processing** section, press Ctrl/Cmd when clicking the **Reset Master Section** button.

Settings ⚙

Opens the **Settings** pop-up menu, where you can make adjustments for the **Master Section**.

Settings Pop-up Menu

Hide Plug-in Windows when Master Section is not Visible

If this option is activated, plug-in windows are hidden when the **Master Section** is not visible.

Show Plug-in Controls in the Plug-in Window

If this option is activated, the plug-in controls are displayed in plug-in windows.

Use Plug-in Chain Window

Shows all open plug-ins in the plug-in window as tabs, which allows you to quickly switch between the plug-ins.

Plug-in Windows Move with Master Section

If this option is activated, the plug-in windows are also moved when you move the floating **Master Section**.

Restore Last Configuration at Next Start-Up

With this option activated, the next time you start WaveLab Pro again, the plug-in configuration and fader positions in the **Master Section** are restored, with the exception of the **Playback Processing** section.

> **NOTE**
>
> If the most recently used speaker configuration is linked to a playback plug-in preset, this configuration takes precedence and is loaded, regardless of the setting for **Restore Last Configuration at Next Start-Up**.

Section Visibility

Allows you to show or hide the **Master Section** sections.

Monitor 16 bit Dithering

Allows you to hear what the effect of the dither plug-in sounds like during playback. You can try different dither plug-ins to find out which one has the best dither effect on the audio.

Rearrange

Rearranges the **Master Section** according to the sample rate and channel configuration of the active audio file. The internal bus of the **Master Section** and any active plug-ins are configured accordingly.

This operation is performed automatically before playback or rendering. It is sometimes helpful to manually rearrange the **Master Section**, because some plug-ins do not accept a mono or stereo signal as input, or a given sample rate. In that case, clicking the button informs you about any problems, before playback or rendering.

This operation has no effect if playback is already in progress or if there is no active audio file.

RELATED LINKS

Effects Pane

This pane in the **Master Section** allows you to add up to 16 effect plug-ins in series, and manage them.

You can fold/unfold or completely show/hide the **Effects** pane.

- To fold/unfold the **Effects** pane, click it.
- To show/hide the **Effects** pane, right-click a pane header, and activate/deactivate **Show Effects**.
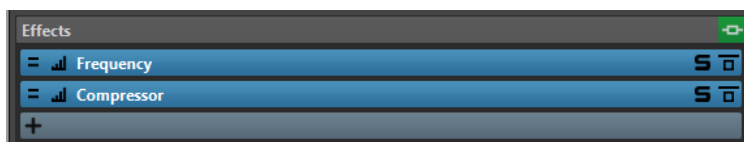
Fold/Unfold Pane

Expands or collapses the pane.

Bypass All Effects

Bypasses any effect processing during playback and when rendering.

Add Effect

Allows you to add an effect to an empty effect slot.

Channel Processing

Allows you to specify how a VST plug-in processes the stereo stream. You can process all channels or only the left, right, mid, or side channel. This allows any VST plug-in to become mid/side capable.

Monitoring Point

Lets other meters in WaveLab Pro, for example, **Oscilloscope** or **Wavescope**, monitor the signal directly after this plug-in.

If no monitoring point is specified, the monitoring point is after the **Final Effects/ Dithering** section and before the **Playback Processing** section.

The **Master Level** meter of the **Master Section** always monitors the level after the faders.

Effect plug-in name

Once you have added a plug-in to a slot, you can click the plug-in name to open and close the corresponding plug-in window.

Presets pop-up menu

Allows you to you save and recall preset settings. The **Presets** pop-up menu offers additional options to save and load default banks and effects.

Effect Options context menu

Allows you to load another effect to the effect slot. Furthermore, the following options are available:

- **Remove Plug-in** removes the effect from the slot.

- With **Insert Mode** activated, all plug-ins below the selected slot are automatically moved one step down when you add a new plug-in either by copying and pasting or by selecting it from the menu.

  NOTE

  With this option deactivated, when you add a plug-in, it is added to the selected slot without causing any other plug-ins to shift; that is, the new plug-in replaces any existing plug-ins in this slot.

- **Shift All Plug-ins Down**/**Shift All Plug-ins Up** allows you to move the effects to another position.

- If **Active** is activated, the effect is active. If **Active** is deactivated, the effect is excluded from playback and rendering.

- If **Lock** is activated, the effect slot is locked. The plug-in in the slot remains as is when a **Master Section** preset is loaded, or when **Reset Master Section** is used.

Solo (Bypass)

Soloes the plug-in.

Bypass Effect

Bypasses the plug-in during playback and optionally during rendering. The signal is still processed by the plug-in, but is not injected in the audible stream.

RELATED LINKS

Supported Effect Plug-in Formats

WaveLab Pro supports WaveLab Pro-specific plug-ins, VST 2 plug-ins, and VST 3 plug-ins.

WaveLab Pro-specific Plug-ins

Some specific plug-ins are included in WaveLab Pro, for example, the **Audio Input** and **External FX** plug-ins. These are only available if you are using an ASIO driver.

VST Plug-ins

Steinberg's VST plug-in format is supported by a lot of programs and plug-in manufacturers. You find a number of VST plug-ins included with WaveLab Pro. Other plug-ins can be purchased separately from Steinberg or other manufacturers.

Setting Up Effects

You can select and apply the effect plug-ins that you have installed via the **Effects** pane of the **Master Section**. provided that their formats are supported by WaveLab Pro.
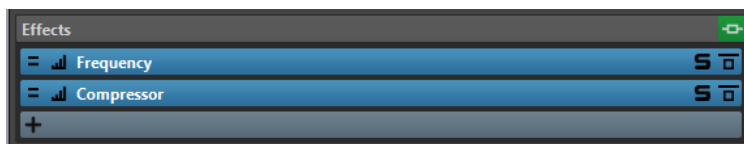
- To insert an effect plug-in into a slot in the **Effects** pane, click the slot, and select an effect from the pop-up menu. Once you have selected an effect, it is automatically activated, and its control panel opens.

  TIP

  You can search for a particular plug-in by typing part of its name into the **Search** field. The `Down Arrow` and `Up Arrow` keys allow you to navigate in the list that shows the matches. To select a plug-in, press `Return`. With the focus on the plug-in list, press `Tab` to set the focus back to the **Search** field.

- To deactivate an effect, right-click the slot, and deselect **Active** in the menu. To activate the effect, select **Active** again.
- To remove an effect plug-in, right-click the slot, and select **Remove Plug-in** in the menu.
- To show/hide a plug-in window, click the effect slot.
- To solo an effect, click its **Solo (Bypass)** button. This allows you to exclusively check the sound of this particular effect. You can also bypass effects via their control panels.
- To change the order of the slots, that is, the order in which the signal passes through the effects, click a slot, and drag it to a new position.

RELATED LINKS

Plug-in Windows for the Master Section

In the plug-in windows of the **Master Section**, you can make adjustments for the effect plug-ins in the **Master Section**.

- To show a plug-in window, click the effect slot in the **Effects** pane of the **Master Section** window.

Plug-in Chain

If **Use Plug-in Chain Window** is activated on the **Settings** pop-up menu of the **Master Section**, the effects of the active audio file are displayed in a plug-in chain at the top of the plug-in window.

You can right-click a plug-in tab or an empty tab to select a new plug-in for the slot.

Undo/Redo

Allows you to undo/redo the last operation. This undo/redo function is independent from the undo/redo function of WaveLab Pro. Each plug-in window has its independent undo/redo history. The undo/redo function is also independent for the A and B settings of the **Switch between A/B Settings** function.

> NOTE
>
> To undo, you can use the shortcut **Alt/Opt** - **Z** and to redo, you can use the shortcut **Alt/Opt** - **Shift** - **Z**. In order to use the shortcut, the plug-in window must be the active window. If the shortcut does not work, click the caption bar of a plug-in to make it the active window.

Switch between A/B Settings

Switches to setting B when setting A is active, and to setting A when setting B is active.

> NOTE
>
> To switch between A/B settings, you can use the shortcut **Alt/Opt** - **T**. In order to use the shortcut, the plug-in window must be the active window. If the shortcut does not work, click the caption bar of a plug-in to make it the active window.

Copy Settings to B

Copies the plug-in parameter setting A to plug-in parameter setting B, and vice versa.

Bypass Effect

If this option is activated, the plug-in is bypassed during playback and rendering. However, bypassing effects still consumes CPU power during playback. See also: Bypassing Effects vs. Switching Off Effects

Listen to Effect Signal Only

If this option is activated, the original signal is bypassed during playback to only hear the wet effect signal.

Channel Processing

Allows you to specify how a VST plug-in processes the stereo stream. You can process all channels or only the left, right, mid, or side channel. This allows any VST plug-in to become mid/side capable.

Solo (Bypass)

Soloes the plug-in.

Render in Place

Processes the audio in place. Bypassed plug-ins are excluded and the rendered audio is crossfaded at boundaries.

Monitoring Point

Lets other meters in WaveLab Pro, for example, **Oscilloscope** or **Wavescope**, monitor the signal directly after this plug-in.

If no monitoring point is specified, the monitoring point is after the **Final Effects/Dithering** section and before the **Playback Processing** section.

The **Master Level** meter of the **Master Section** always monitors the level after the faders.

Switch Effect On/Off

If you deactivate a plug-in, it is excluded from both playback and rendering. See also: Bypassing Effects vs. Switching Off Effects

Presets

Opens a menu to save/load presets for this plug-in.

RELATED LINKS

Color Codes for Master Section Effect Plug-ins

You can use color codes for **Master Section** plug-ins.

To do so, activate **Use Context-colored Caption Bars** on the **General** tab of the **Preferences** for **Plug-ins**:

As a result, **Master Section** plug-ins can be identified by the dark blue background color of their caption bar.

In addition to this, to indicate where particular **Master Section** effect plug-ins are applied, you can choose to display a colored box on the caption bar by activating **Show Color Section Color in Caption Bar** on the **General** tab of the **Preferences** for **Plug-ins**.

The following colors are automatically assigned for the different sections:

Box on the Caption Bar

Section	Color
Effects	Dark Blue
Resampling	Cyan
Final Effects/Dithering	Dark Red
Playback Processing	Purple

Example:
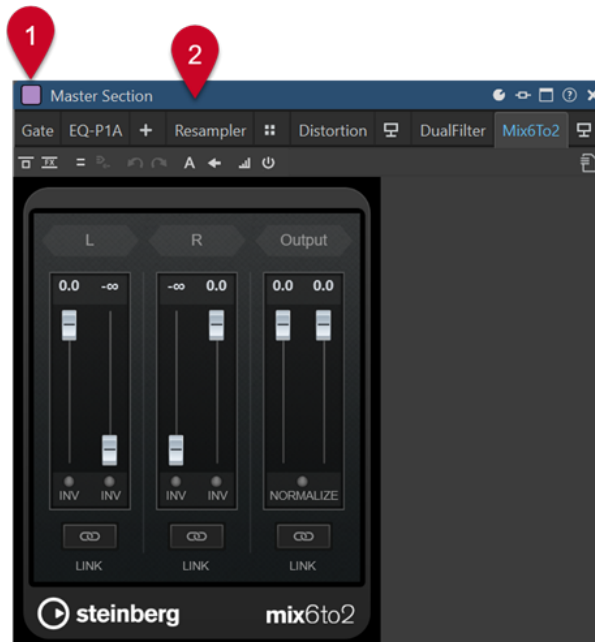
Master Section plug-in, as indicated by the dark blue caption bar (**2**), which is applied in the **Playback Processing** section, as indicated by the purple box (**1**).

RELATED LINKS
Plug-ins Tab (Preferences) on page 852

Bypassing Effects vs. Switching Off Effects

In order to deactivate effects, you can bypass them or switch them off. However, there is a difference between bypassing effects and switching effects off when it comes to real-time processing, rendering, and playback behavior.

	Bypassing Effects	Switching Effects Off
What happens to real-time processing when you bypass an effect vs. when you switch an effect off?	You cannot hear the effect, but processing continues in the background and consumes CPU power.	The effect is not loaded and does not consume CPU power.
What happens to the rendering process when you bypass an effect vs. when you switch an effect off?	The effect is not loaded and does not consume CPU power.	The effect is not loaded and does not consume CPU power.
What happens when you switch bypass on/off vs. when you switch effects on/off during playback?	Playback continues without glitches or interruptions.	Small interruptions can occur.

RELATED LINKS

Effect Plug-in Presets

WaveLab Pro comes with a number of factory presets for the included effect plug-ins. You can use them as they are or as a starting point for your own settings.

Third-party plug-ins can provide their own factory presets. To access the presets for an effect, click the **Presets** button in its control panel window or the **Presets** button for its effect slot. The available functions depend on the type of plug-in.
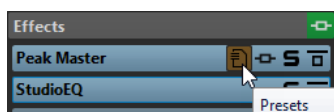
RELATED LINKS

Presets for VST 2 Plug-ins

VST 2 plug-ins have their own preset handling.

When you click the **Presets** button for this type of effect, a pop-up menu with the following options opens:

Load Bank/Save Bank

Loads and saves complete sets of presets. The file format is compatible with Cubase.

Load Default Bank/Save Default Bank

Loads the default set of presets or saves the current set of presets as the default bank.

Load Effect/Save Effect

Loads or saves a preset. This is also compatible with Cubase.

Edit Name of Current Program

Allows you to define a name for the preset.

Preset List

Allows you to select one of the loaded presets.

RELATED LINKS

Channel Processing

In the **Master Section**, in plug-in windows, and in the **Inspector** window, you can specify for each plug-in which channels to process. This allows you to use each plug-in in mid/side mode, for example.

You can process all channels or only the left, right, mid, or side channel. When you select one channel, the other channel is bypassed.

To use a different plug-in for each channel, use one effect slot for each channel.

Insert

Stereo

All channels are processed by the plug-in.

Mid/Side

Only the mid and side channels are processed by the plug-in.

Left

Only the left channel is processed by the plug-in. The right channel is unchanged.

Right

Only the right channel is processed by the plug-in. The left channel is unchanged.

Mid

Only the mid channel is processed by the plug-in.

Side

Only the side channel is processed by the plug-in.

Send (Return to Stereo)

Left

Only the left channel of the plug-in is processed. The left wet signal of the plug-in is ed to the left/right dry signal.

Right

Only the right channel of the plug-in is processed. The right wet signal of the plug-in is mixed to the left/right dry signal.

Mid

Only the mid channel of the plug-in is processed. The mid wet signal of the plug-in is mixed to the mid/side dry signal.

Side

> Only the side channel of the plug-in is processed. The side wet signal of the plug-in is mixed to the mid/side dry signal.

Setting up the Channel Processing

You can set up which channel to process in the **Master Section**, in plug-in windows, and in the **Inspector** window.

Channel Processing in the Master Section

In the **Master Section**, on the **Effects** pane, click **Channel Processing**, and select which channel you want to process.

Channel Processing in Plug-in Windows

In a plug-in window, click **Channel Processing**, and select which channel you want to process.

Channel Processing in the Inspector Window

In the **Inspector** window, open the **Channel Processing** menu for a plug-in, and select which channel you want to process.

Resampling Pane

This pane in the **Master Section** allows you to resample the signal. With the **Resampling** plug-in, you can check the peaks before the master gain and meters, and before limiting and dithering.

You can fold/unfold or completely show/hide the **Resampling** pane.

- To fold/unfold the **Resampling** pane, click it.
- To show/hide the **Resampling** pane, right-click a pane header, and activate/deactivate **Show Resampling**.

You can select one of the common sample rate values or create custom sample rate values via the **Customize Sample Rate Menu** dialog.
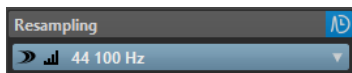
Fold/Unfold Pane

Expands or collapses the pane.

On/Off

Activates/Deactivates the resampling effect.

Use Preferred Sample Rate

If this option is activated, resampling matches the sample rate that is specified as the preferred sample rate on the **Audio Connections** tab.

NOTE

The sample rate is used for playback only. This allows you to play back sample rates that your audio device does not support.

Monitoring Point

Lets other meters in WaveLab Pro, for example, **Oscilloscope** or **Wavescope**, monitor the signal directly after this plug-in.

If no monitoring point is specified, the monitoring point is after the **Final Effects/Dithering** section and before the **Playback Processing** section.

The **Master Level** meter of the **Master Section** always monitors the level after the faders.

Sample Rate menu

Allows you to select a sample rate.

You can select one of the common sample rates or click **Customize** to open the **Customize Sample Rate Menu** dialog, where you can specify custom sample rates. The selected sample rate is used for playback and rendering.

RELATED LINKS
Audio Connections Tab on page 33
Customize Sample Rate Menu Dialog on page 586
Master Section Window on page 572

Customize Sample Rate Menu Dialog

The **Customize Sample Rate Menu** dialog allows you to customize the available sample rate values for the sample rate pop-up menu of the **Resampling** pane. You can add common sample rate values to the menu or create custom sample rates.

- To open the **Customize Sample Rate Menu** dialog, open the **Resampling** pane in the **Master Section** window, click the sample rate, and select **Customize**.
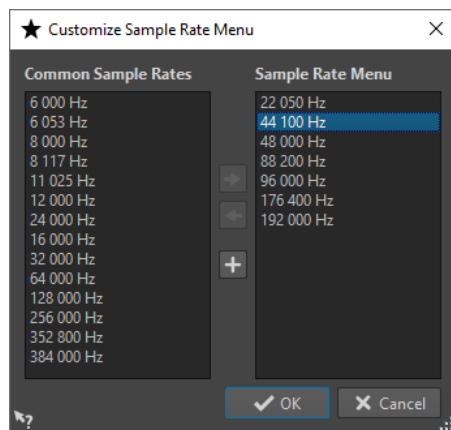
Add Common Sample Rate to Menu

Adds the selected sample rate to the sample rate pop-up menu.

Remove Sample Rate from Menu

Removes the selected sample rate from the sample rate pop-up menu.

Add Custom Sample Rate

Opens the **Custom Sample Rate** dialog, where you can specify custom sample rate values.

RELATED LINKS
Resampling Pane on page 585

Audio Driver Sample Rate

The sample rate of the audio driver is displayed at the bottom right of the **Master Section** window. The sample rate is displayed once you start playback or recording.

The value is either the sample rate of the audio file or audio montage that is played back or the sample rate that is set in the **Resampling** pane in the **Master Section**.

Master Level Pane

This pane in the **Master Section** allows you to control the master level of the active audio file.
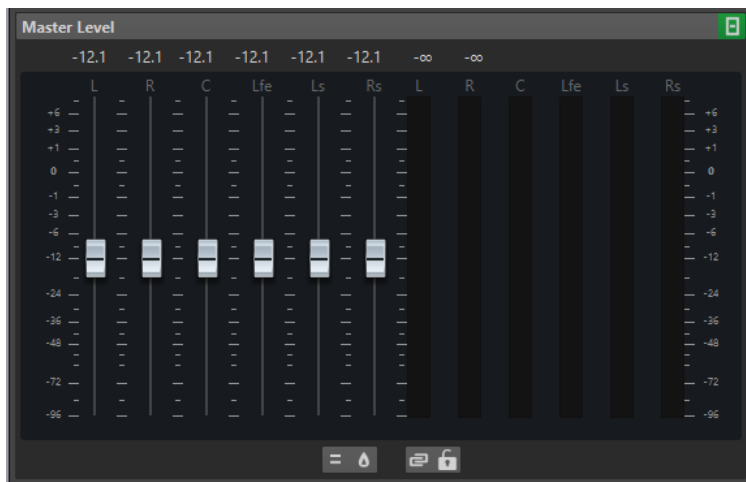
Faders

The faders in the **Master Level** pane govern the final output level. Use the faders to optimize the level of the signal that is sent to the audio hardware.

You can specify whether to display the fader gain values with one decimal or two decimals after the separator.

● To select the number of decimals after the separator, right-click the fader gain values and select **One Decimal after Separator** or **Up to Two Decimals after Separator**.
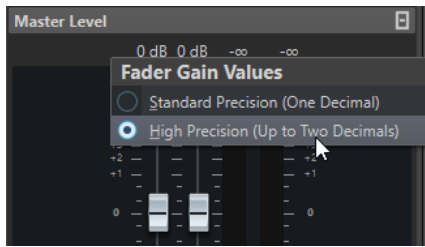
NOTE

It is important to avoid clipping, especially when mastering. Clipping is indicated by the clip indicators of the **Master Section**.

Meters

The **Master Section** meters show the signal level of the signal before dithering or any other plug-in that you have applied post-master fader.

Use these meters to get an overview of the signal levels. The numeric fields above the faders show the peak levels for each channel. The peak indicators turn red whenever the signal clips. If this happens, you should do the following:

● Lower the faders.

● Right-click the clip indicators and select **Reset Peaks** to reset the clip indicators.

● Play back the section again until no clipping occurs.

NOTE

For critical level metering, we recommend using the **Level Meter**. It is more precise, and it is applied after the whole **Master Section** (after dithering) and therefore shows the actual signal level that is sent to the audio hardware.

Settings

Audio Channel Processing

Allows you to mix or filter audio channels. The following options are available:

● If **Default Channels** is selected, the audio stream is not modified.

● **Mix to Mono** mixes the stereo channels into mono channels.

● **Mix to Mono (L-R)** mixes the stereo channels into mono channels and removes the right channel from the left channel. If both channels are the same, you hear silence. This allows you to check if the audio is true mono.

● **Left Channel Only** mixes the left stereo channel into two mono channels.

● **Right Channel Only** mixes the right stereo channel into two mono channels.

● **Mid Channel Only** mixes the mid stereo channel into two mono channels.

● **Side Channel Only** mixes the side stereo channel into two mono channels.

● If you have a surround setup with more than two channels, **Mix to Stereo** allows you to mix the surround channels to stereo.

True Peak Analyzer

If **True Peak Analyzer** is activated, the analog reconstructed peaks (true peaks) are displayed in the **Master Level** meter. If this button is deactivated, the sample values (digital peaks) are displayed.

Unlink Faders

Determines whether you can adjust the faders individually or together.

If **Unlink Faders** is deactivated, moving one fader also moves the other by the same amount. Activating **Unlink Faders** allows you to correct improper stereo balancing by adjusting the level of the channels individually.

If you offset the faders with **Unlink Faders** activated and then deactivate **Unlink Faders**, you can adjust the overall level without changing the level offset between the channels.

Fader offsets are not preserved at the end of the range of movement or once the mouse button is released.

Lock Faders

Locks the faders. Locked faders cannot be changed with the mouse. Other editing methods, for example via remote control or shortcut, are still possible.

RELATED LINKS
Master Section Window on page 572

Mixing Stereo Channels into Mono Channels

In the **Master Section**, you mix the left and right channels of a stereo track into two mono channels. The **Mix to Mono** option is useful for checking the mono compatibility of stereo mixes, etc. In this case, the output level is automatically reduced by -6 dB to avoid clipping.

PROCEDURE

1. In the **Master Level** pane of the **Master Section**, click **Audio Channel Processing**.
2. Select **Mix to Mono**.

   NOTE

   If another option than **Default Channels** is selected on the **Audio Channel Processing** pop-up menu, the indicator for the **Master Level** pane is lit, even if the master level is not adjusted. This helps you avoid accidentally using audio channel processing.

3. To apply the setting, render the file.

RELATED LINKS
Master Level Pane on page 587

Mixing Multichannel into Stereo or Mono

In the **Master Section**, you mix surround channels to stereo channels or mono channels. This is useful for checking the mono or stereo compatibility of surround mixes. In this case, the output level is automatically reduced by -6 dB to avoid clipping.

PROCEDURE

1. In the **Master Level** pane of the **Master Section**, click **Audio Channel Processing**.
2. Select **Mix to Stereo** or **Mix to Mono**.

> **NOTE**
>
> If another option than **Default Channels** is selected on the **Audio Channel Processing** pop-up menu, the indicator for the **Master Level** pane is lit, even if the master level is not adjusted. This helps you avoid accidentally using audio channel processing.

3. To apply the setting, render the file.

RELATED LINKS

Final Effects/Dithering Pane

This pane in the **Master Section** allows you to add final effects and dithering to the signal before it is sent to the audio hardware or saved as a file on disk.

You can fold/unfold or completely show/hide the **Final Effects / Dithering** pane.

- To fold/unfold the **Final Effects / Dithering** pane, click it.
- To show/hide the **Final Effects / Dithering** pane, right-click a pane header, and activate/deactivate **Show Final Effects / Dithering**.
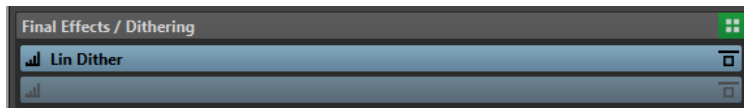
Fold/Unfold Pane

Expands or collapses the pane.

Bypass All Effects

Bypasses the effects in the **Final Effects/Dithering** pane.

Monitoring Point

Lets other meters in WaveLab Pro, for example, **Oscilloscope** or **Wavescope**, monitor the signal directly after this plug-in.

If no monitoring point is specified, the monitoring point is after the **Final Effects/ Dithering** section and before the **Playback Processing** section.

The **Master Level** meter of the **Master Section** always monitors the level after the faders.

Presets pop-up menu

Allows you to you save and recall preset settings. The **Presets** pop-up menu offers additional options to save and load default banks and effects.

Effect Options context menu

Allows you to load another effect to the effect slot. Furthermore, the following options are available:

- **Remove Plug-in** removes the effect from the slot.
- With **Insert Mode** activated, all plug-ins below the selected slot are automatically moved one step down when you add a new plug-in either by copying and pasting or by selecting it from the menu.

NOTE

With this option deactivated, **Replace Mode** is active, which means that when you add a plug-in, it is added to the selected slot without causing any other plug-ins to shift, thereby replacing any existing plug-in in this slot.

- **Shift Plug-in Down/Shift Plug-in Up** allows you to move the effects to another position.
- **Internal Dithering** allows you to add internal dithering to the effect slot.
- If **Active** is activated, the effect is active. If **Active** is deactivated, the effect is excluded from playback and rendering.
- If **Lock** is activated, the effect slot is locked. The plug-in in the slot remains as is when a **Master Section** preset is loaded, or when **Reset Master Section** is used.

Bypass Effect

Bypasses the plug-in during playback and optionally during rendering. The signal is still processed by the plug-in, but is not injected in the audible stream.

RELATED LINKS
Master Section Window on page 572

Dithering

Dithering is the technique of adding small quantities of noise to a signal to reduce the audibility of low level distortion in a digital recording. A small amount of random noise is added to the analog signal before the sampling stage, reducing the effect of quantization errors.

By adding a special kind of noise at an extremely low level, the quantization errors are minimized. The added noise can be perceived as a very low-level quiescent hiss added to the recording. However, this is hardly noticeable and preferred to the distortion that occurs otherwise. The **Noise Shaping** options of the **Internal Dithering** plug-ins allow you to filter this noise to a frequency area less sensitive to the human ear.

In WaveLab Pro, dithering is applied when reducing the number of bits in a recording, for example, when moving from 24 to 16 bits, and when applying processing. You can choose between WaveLab Pro's internal dithering algorithm, the Lin Dither algorithm, or any external dithering plug-in.

NOTE

Dithering should always be applied after the output bus fader stage and after any kind of audio process.

RELATED LINKS
Dithering Plug-ins on page 591

Dithering Plug-ins

WaveLab Pro comes with two dithering plug-ins: Internal dithering and the **Lin Pro Dither** dithering. However, you can also add other dithering plug-ins.

- To select and activate a dithering plug-in in the **Master Section**, click the plug-in slot in the **Final Effects/Dithering** pane, and select one of the options from the pop-up menu.
- To deactivate the dithering plug-in, open the **Final Effects/Dithering** pop-up menu, and select **Remove Plug-in**.

Adding Other Plug-ins to the Final Effects/Dithering Pane

If you want to use another dithering plug-in than the internal or UV22HR dithering, you can add it to the **Final Effects/Dithering** pane.

NOTE

The meters in the **Master Section** monitor the signal before the **Final Effects/Dithering** pane. To avoid clipping, check the level/pan meter and adjust the output level of the plug-in, if available.

PROCEDURE

1. Select **File** > **Preferences** > **Plug-ins**.

2. Select the **Organize** tab.

3. Locate the plug-in that you want to add to the **Final Effects/Dithering** pane in the list, and activate the checkbox in the **Final** column for the plug-in.

RESULT

The plug-in is available via the pop-up menu in the **Final Effects/Dithering** pane, and can be inserted after the **Master Level** faders. The plug-in is still available for selection as a regular pre-master effect if the corresponding entry in the **Effect** column in the **Plug-ins Preferences** is activated.

When to Apply Dithering

The basic rule is that you should apply dithering when converting an audio file to a lower precision. For example, preparing a 24-bit file for mastering to CD, that uses 16-bit format.

However, even if you are playing back or rendering a 16-bit or 24-bit file to the same precision, you need to apply dithering if you are using any real-time processing in WaveLab Pro. The reason for this is that WaveLab Pro works with an internal precision of 64 bit (floating point) for supreme audio quality. This means that as soon as you perform any kind of processing, the audio data is treated at this high precision instead of the original 16 bit or 24 bit, thus making dithering necessary.

Examples of real-time processing include level adjustments, effects, mixing of two or more clips in an audio montage, etc. The only time when a 16-bit file is played back at 16-bit precision is if you play it without any fades or effects, and with the **Master Level** faders set to 0.00 (no level adjustment – master level indicator turned off).

NOTE

To check whether you need to apply dithering, use the **Bit Meter** to see the actual precision of your audio signals.

RELATED LINKS
Bit Meter on page 661

Testing the Quality of the Dithering Plug-ins

In the **Master Section**, you can compare the quality of different dithering plug-ins, by making the quantization noise and the dithering signal more audible.

● To activate this option, click **Settings** at the top of the **Master Section**, and activate **Monitor 16 Bit Dithering**.

Now, when you activate a dither plug-in and play back an audio section, you can hear what the effect of the dither plug-in sounds like. You can try out different dithering plug-ins, to find out which one has the best effect on the audio.

IMPORTANT

Make sure to deactivate **Monitor 16 Bit Dithering** when you are done testing the dithering quality.

NOTE

Only dither to 16 bit, otherwise the result does not have any meaning.

Playback Processing Pane

This pane in the **Master Section** contains the **Encoder Checker** that allows you to compare audio encoders. You can also add your own plug-ins to the **Playback Processing** slots.

NOTE

The plug-ins in the **Playback Processing** pane are only part of the playback processing. It is not applied when rendering files or CDs.

You can fold/unfold or completely show/hide the **Playback Processing** pane.

● To fold/unfold the **Playback Processing** pane, click it.

● To show/hide the **Playback Processing** pane, right-click a pane header, and activate/ deactivate **Show Playback Processing**.
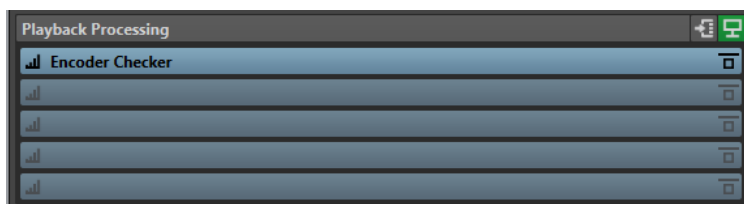
Fold/Unfold Pane

Expands or collapses the pane.

Bypass All Effects

Bypasses the effects in the **Playback Processing** pane.

Output Buses Before Playback Processing

Allows you to select output buses to which your audio is sent. This allows you to listen to your mix without the **Playback Processing** effects. You can set up the output buses in the **Audio Connections** on the **Playback** tab.

If you assign the **Before Playback Processing** category to a bus, you can select this bus in the **Output Buses Before Playback Processing** menu in the **Playback Processing** pane.

Monitoring Point

Lets other meters in WaveLab Pro, for example, **Oscilloscope** or **Wavescope**, monitor the signal directly after this plug-in.

If no monitoring point is specified, the monitoring point is after the **Final Effects/ Dithering** section and before the **Playback Processing** section.

The **Master Level** meter of the **Master Section** always monitors the level after the faders.

Effect Options pop-up menu

Allows you to add an effect to the effect slot. You can load your own plug-ins or use the included **Encoder Checker**. Furthermore, the following options are available:

- **Remove Plug-in** removes the effect from the slot.

- With **Insert Mode** activated, all plug-ins below the selected slot are automatically moved one step down when you add a new plug-in either by copying and pasting or by selecting it from the menu.

  NOTE

  With this option deactivated, when you add a plug-in, it is added to the selected slot without causing any other plug-ins to shift; that is, the new plug-in replaces any existing plug-ins in this slot.

- **Shift All Plug-ins Down**/**Shift All Plug-ins Up** allows you to move the effects to another position.

- If **Active** is activated, the effect is active. If **Active** is deactivated, the effect is excluded from playback and rendering.

- If **Lock** is activated, the effect slot is locked. The plug-in in the slot remains as is when a **Master Section** preset is loaded, or when **Reset Master Section** is used.

Presets pop-up menu

Allows you to you save and recall preset settings. The **Presets** pop-up menu offers additional options to save and load default banks and effects.

Bypass Effect

Bypasses the plug-in during playback and optionally during rendering. The signal is still processed by the plug-in, but is not injected in the audible stream.

RELATED LINKS
Plug-ins Tab (Preferences) on page 852
Master Section Window on page 572

Encoder Checker

The **Encoder Checker** plug-in allows you to compare the quality between different audio encoders. It is applied in the **Playback Processing** pane of the **Master Section**.

With the **Encoder Checker**, you can find the best settings for your encoders and test the effect of other plug-ins on the compression. The **Encoder Checker** is only used for playback and is bypassed during audio file rendering.

IMPORTANT

The **Encoder Checker** does not support multichannel audio montages.

NOTE

The more encoders are selected in the **Encoder Checker** dialog, the more CPU power is used. Also, the more audio compression is applied to the audio file, the higher the latency. The latency is determined by the encoder with the highest latency.

Checking the Quality of Encoded Audio Files

PROCEDURE

1. Open the audio file that you want to check in different encoding qualities.
2. In the **Master Section**, right-click the effect slot in the **Playback Processing** pane, and select **Steinberg** > **Encoder Checker**.
3. In the **Encoder Checker**, click in the first numbered field and select a factory preset or select **Edit** to specify a custom audio file format.
4. Optional: Specify more audio file formats.
5. Play back the audio file.
6. Click **Original Sound** and the number icons to compare the sound of the original audio with the sound of the encoders.

   If the **Encoder Checker** window is active, you can also press the `1`, `2`, and `3` keys on your keyboard to switch between the encoders and click `.` to select the original sound.

   NOTE

   If you select or edit an encoder, the plug-in synchronizes the new encoder settings with the other active encoders and the original sound. This can result in short audio artifacts.

AFTER COMPLETING THIS TASK

If you have found the best encoder, click **Render** to render the audio file to the selected audio file format. You can also click **Batch Processor** to open the **Batch Processor** window with an audio file format preset that corresponds to the selected encoder.

Checking the Quality of Encoded Audio Files Using the Blind Modes

To make sure that you only rely on your ears when checking the encoder quality, you can use the **Blind** modes to compare the encoders without knowing which encoder is playing.

PROCEDURE

1. Open the audio file that you want to check in different encoding qualities.
2. In the **Master Section**, right-click the effect slot in the **Playback Processing** pane, and select **Steinberg** > **Encoder Checker**.
3. In the **Encoder Checker**, click in the first field and select a factory preset or select **Edit** to specify a custom audio file format.
4. Optional: Specify more audio file formats.
5. Do one of the following:

   - To compare only the encoders, activate **Blind (Encoders)**. For this function, at least 2 encoders must be selected.
   - To compare the encoders and the original sound, activate **Blind (Encoders + Original Sound)**.

6. Play back the audio file.

7. Use the up/down or left/right arrow keys to switch between the encoders.

8. Use the **+** and **-** keys to rate the encoder that you are listening to.

9. Deactivate **Blind** mode.

RESULT

The encoder that you have heard last is highlighted and you can see the ratings of the encoders.

AFTER COMPLETING THIS TASK

If you have found the best encoder for your needs, click **Render** to render the audio file to the selected audio file format.

Encoder Checker Dialog

In this dialog, you can compare the quality of different audio encoders.

● To open the **Encoder Checker** dialog, right-click the effect slot in the **Playback Processing** pane, and select **Steinberg** > **Encoder Checker**.
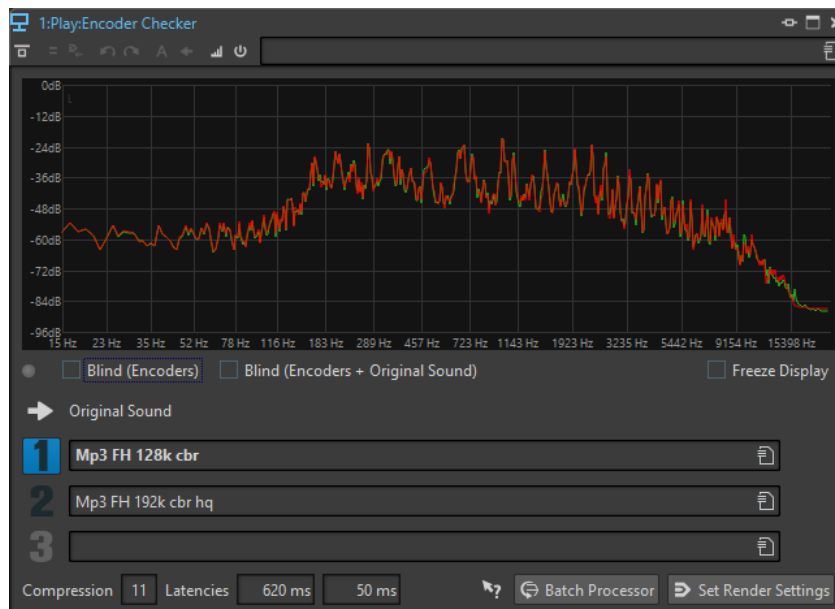
Display

Displays the spectrum (FFT) of the original sound (green) and of the selected encoder (red). This gives you a rough estimation of the effects that the encoder has on the audio spectrum.

Switch indicator LED

In the **Blind** modes, this LED lights up each time that a new encoder is selected via the arrow keys.

Blind (Encoders)

If this option is activated, the original sound is selected. When you use an arrow key, a random encoder is used. You can use **Up Arrow** and **Down Arrow** to switch between the selected encoders without being able to see which encoder is selected.

You can use **+** and **-** to rate the encoder that you are listening to. The rating results are displayed when you deactivate **Blind** mode.

Blind (Encoders + Original Sound)

If this option is activated, a random encoder or the original sound is selected. You can use the arrow keys to switch between the selected encoders and the original sound without being able to see which one is selected.

You can use the + and - keys to rate the encoder that you are listening to. The rating results are displayed when you deactivate **Blind** mode.

Freeze Display

If this option is activated, the FFT display freezes.

Original Sound

Lets you hear the original audio file during playback.

Presets

Lets you select different audio encoders and switch between them during playback.

Rating

Shows the number of plus and minus marks that were set during the **Blind** modes.

Compression

The real-time estimation of the audio compression ratio with a 16-bit file size as reference.

Latencies

The first latency value indicates how long you have to wait until you hear the new encoder when you select another encoder. The second latency value indicates the delay when switching between encoders.

Batch Processor

Opens the **Batch Processor** window with an audio file format preset that corresponds to the audio file format that is being monitored.

Open Render Tab

Opens the **Render** tab with the selected **Encoder Checker** settings defined as the output file format.

Speaker Configuration Pane

The **Speaker Configuration** pane in the **Master Section** allows you to select speaker configurations, which are set up via the **Audio Connections** tab.

You can fold/unfold or completely show/hide the **Speaker Configuration** pane.

● To fold/unfold the **Speaker Configuration** pane, click the pane header.

● To show/hide the **Speaker Configuration** pane, right-click the pane header, and activate/deactivate **Show Speaker Configuration**.
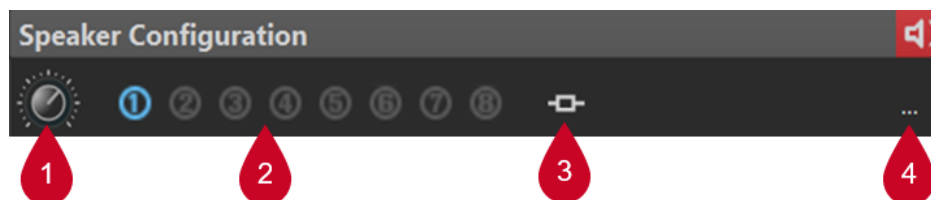
1   Speaker Configuration Gain

Allows you to edit the gain of the speaker configuration.

Positive gains are indicated by a red LED 🔊 in the upper right corner of the **Speaker Configuration** pane; negative gains are indicated by an orange LED. When the gain is zero, the LED is dark green (off). The gain is not rendered to file.

2   Speaker Configuration (#1 to #8)

Allows you to choose from up to eight different speaker configurations.

3   Plug-in association

Allows you to choose from the following menu options:

- **Bind With Current Playback Plug-ins**

  Saves the current playback plug-in chain as a preset and links it to the active speaker configuration.

  > NOTE
  >
  > The current visibility state of each individual plug-in is saved with the playback plug-in preset and automatically set when selecting the speaker configuration associated with the preset.

  With this option applied, selecting the speaker configuration automatically loads the associated plug-in chain and replaces any currently loaded playback plug-ins.

  > NOTE
  >
  > If there are no existing playback plug-ins, WaveLab saves an empty preset. As a result, when you select the speaker configuration, any currently loaded plug-ins are removed, as the empty playback plug-in chain preset is applied.

- **Remove Binding**

  Disconnects the active speaker configuration from any associated playback plug-in chain. As a result, when you select the speaker configuration, no playback plug-in preset is loaded, and any existing playback plug-ins remain in place.

4   Audio Connections

Opens the **Audio Connections** dialog, where you can assign speakers to the individual speaker configurations.

RELATED LINKS

Speaker Configuration LED Colors

The speaker configuration LEDs indicate if gain is applied to the audio. The LEDs are located on the **Speaker Configuration** pane, at the bottom of the **Master Section**.

Dark green

No gain is applied, and dithering is preserved.

Red

Positive gain is applied, dithering is canceled, and there is a risk of clipping.

Orange

Negative gain is applied without the risk of clipping, but dithering is canceled.

Bypassing the Master Section

By default, the **Master Section** is active. You can bypass it for each file individually or globally. If the **Master Section** is bypassed, only the **Playback Processing** pane of the **Master Section** is active during playback.

- To bypass the **Master Section** for individual audio files or audio montages, activate the **Bypass Master Section** button at the bottom of the wave/montage window.
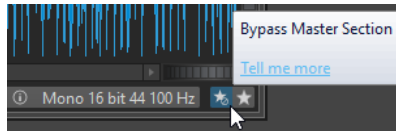
- To bypass the **Master Section** globally, activate the **Bypass Master Section** button at the top left of the **Master Section**. All other **Master Section** panes are bypassed. However, rendering to file still takes into account all plug-ins.
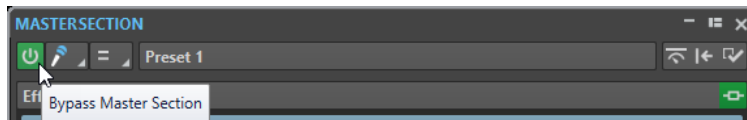
Rendering in the Master Section

By rendering the effects using the **Render** function in the **Master Section**, they become a permanent part of a file. So instead of performing all processing in real time during playback, you can save the audio output to a file on disk.

You can render to a single file format or to multiple audio file formats.

Writing the output of the **Master Section** to a file on disk allows you to apply **Master Section** processing to an audio file, or mix down an audio montage to an audio file. In case of a multichannel audio montage, several files can be created, one for each channel in the selected configuration.

There are several uses for rendering:

- Mix down a complete audio montage to an audio file.
- Process a file and save a file to a new audio file, including **Master Section** effects, dithering, and other settings. You can choose the format of the new audio file, which allows you to create an MP3 file and add effects at the same time, for example.
- Process one or more regions of an audio file in place or to new files.

Multiple File Format Rendering

You can render to multiple audio file formats simultaneously. To do so, you must first create file format presets for these formats.

You can also create multiple audio file format presets. These are a list of single file format presets.

Rendering Files

You can render to a single file format or to multiple file formats.

PREREQUISITE

You have set up your audio file or audio montage. If you want to render to multiple file formats, create the necessary audio file format presets.

PROCEDURE

1. In the **Master Section**, make the required adjustments.

2. On the bottom of the **Master Section**, click **Render**.

3. Do one of the following:

   - To render a single file, click **Single**.

   - To render multiple files, click **Multi**.

4. Set the desired parameters for rendering.

5. In the **Result** section, activate **Named File**.

6. Click the **Format** field and do one of the following:

   - To render to one audio format, select **Edit Single Format**, and edit the settings in the **Audio File Format** dialog.

   - To render to multiple file formats, select **Edit Multi Format**, and in the **Multi Audio File Format** dialog, click **Add**, and select the file format presets that you want to render to.

7. Click **OK**.

8. When you have set up the rendering process, click **Start**.

RESULT

The file is rendered. You can see the progress in the **Tasks** window.

NOTE

Several rendering operations can be performed at the same time when using different files.

In-Place Rendering

In the **Audio Editor**, you can either process particular sections of an audio file or the entire audio file, to exclusively apply plug-ins to specific audio ranges or test the effect of different plug-ins on the entire audio file, for example.

You can access the **Render in Place** function:

- via the **Render** tab of the **Audio Editor**.

  To start in-place rendering, click **Start Rendering**.
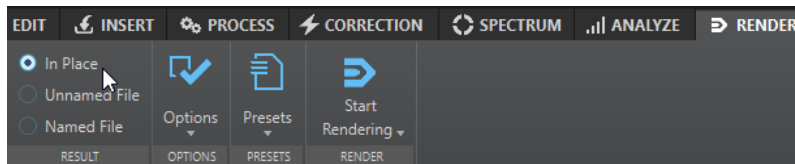
- via the **Master Section**.

  Right-click **Render**, and select **Render in Place**

- via the command bar of a plug-in window

Selecting **Render in Place** via the **Render** tab allows you to make additional adjustments in the **Options** pop-up menu. If you select **Render in Place** in the **Master Section** or a plug-in window, the following render settings are activated by default:

- Fade in/out at boundaries

- Exclude bypassed plug-ins

NOTE

Once an audio section has been processed, there is no automatic bypass of plug-ins or the **Master Section**.

EXAMPLE

Common use case:

You intend to use a De-Clicker plug-in on an audio file, but you are not sure which of the three De-Clicker plug-ins that are available to you is most suited to obtain the desired results.

1. Load the three plug-ins in the **Master Section**.

2. Select an audio range, solo plug-in #1, and play back the audio range.

3. Solo plug-in #2, and play back the audio range.

4. Solo plug-in #3, and play back the audio range.

5. Solo the plug-in that you like best, and click **Render in Place**, or press **Alt** - **A**.

RELATED LINKS
Render Tab for the Master Section on page 603
Rendering Audio Selections "In Place" on page 601

Rendering Audio Selections "In Place"

You can render particular audio ranges or entire audio files, with plug-ins applied to them.

PREREQUISITE

In the **Audio Editor**, you have opened the audio file that you want to render, and the **Master Section**.

PROCEDURE

1. Optional: To use only particular plug-ins of the **Master Section**, solo the plug-ins.

2. In the **Audio Editor**, select the audio range that you want to process.

3. Select the **Render** tab.

4. In the **Source** section, open the **Source** pop-up menu, and select **Selected Audio Range**.

5. In the **Result** section, activate **In Place**.

6. In the **Options** section, open the pop-up menu, and make adjustments as required.

7. In the **Render** section, click **Start**.

RESULT

The audio range or audio file is processed.

RELATED LINKS
In-Place Rendering on page 600

Using the Master Section Settings in a Batch Process

You can set up a **Batch Processor** with the same plug-in configuration as in the **Master Section**. This allows you to process more files in a batch or to add offline processors to the audio processing chain.

PROCEDURE

1. At the bottom of the **Master Section**, click the down arrow to the right of the **Batch** button.

2. Do one of the following:
   ● To open a new batch processor, select **Create Batch Processor from Settings**.

   NOTE

   Alternatively, you can click the **Batch** button.

   ● To apply the **Master Section** plug-ins to an open batch processor, select **Add Plug-Ins to Current Batch Processor**.

   NOTE

   If no batch processor is open, the option **Add Plug-Ins to Current Batch Processor** is not available.

RESULT

The plug-in setup in the **Batch Processor** window corresponds to the one used in the **Master Section**.

AFTER COMPLETING THIS TASK

You can add further files to the batch process and/or make additional configurations in the plug-in chain.

RELATED LINKS
Batch Processing on page 781

Render Tab for the Master Section

This tab allows you to select which parts of an audio file to render, into which format, and what to do with the result.

- To open the **Render** tab, click **Render** at the bottom of the **Master Section**. If you want to render to a single file format, select **Single**. If you want to render to multiple file formats, select **Multi**.
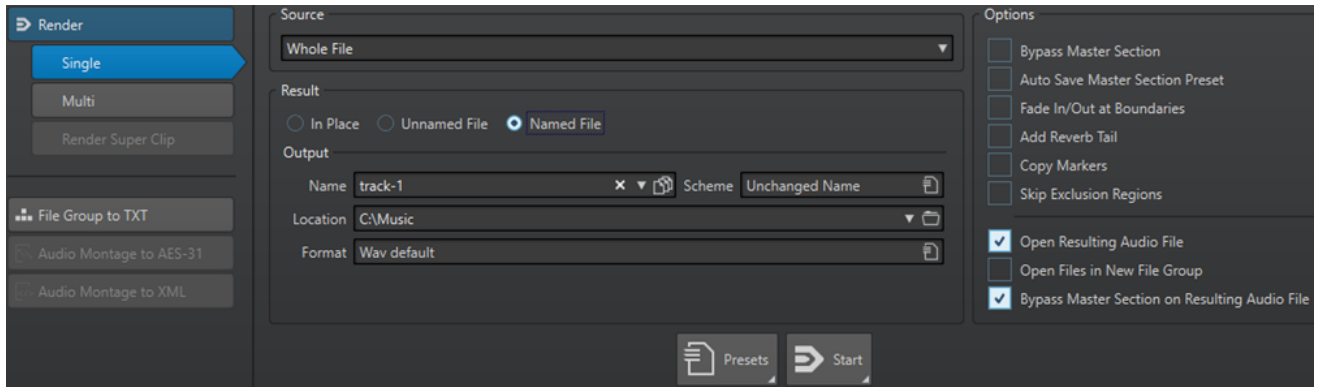
The following options are available for rendering audio files and audio montages:

Source

- **Selected Audio Range** processes and renders the selected audio range.

- **Specific Region** processes and renders an audio range that is specified using region markers. In the pop-up menu next to this option, select the region that you want to render. For example, a title of an album.

- **All Regions** processes and renders each marked audio range to an independent file, or renders in place, according to the settings. By defining multiple isolated regions in an audio file, you can process them in place in one operation. In the pop-up menu next to this option, select the type of marked regions you want to render.

In Place

If this option is activated, the rendered audio range replaces the source audio range. This option is only available for audio files.

Unnamed File

If this option is activated, the file is named untitled.

Named File

If this option is activated, you can specify a name for the rendered file.

Name

Enter a name for the rendered file. Clicking the arrow icon opens a menu that offers you several automatic naming options.

Scheme

Allows you to automatically create file names according to custom variables, text snippets, or auto variables. For example, when rendering multiple sources, you can activate this option to add a numeric prefix to all rendered files.

Location

Select a folder for the rendered file.

Format

Opens a menu, where you can select the file format.

Bypass Master Section

If this option is activated, the plug-ins and gain of the **Master Section** are bypassed when rendering.

Auto Save Master Section Preset

If this option is activated, the **Master Section** preset is automatically saved in the audio file or audio montage when you render the file. You can load the **Master Section** preset via the **Load Master Section Preset** option in the **Master Section Presets** settings in the lower right corner of the wave window or the montage window.
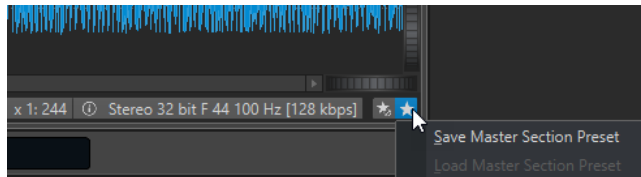
Fade In/Out at Boundaries

If this option is activated, a fade is performed at the audio range boundaries when a new file is created, or a crossfade with the adjacent audio is created if the audio range is processed in place.

Crossfades allow a smooth transition between the processed and the non-processed parts. The crossfade time and shape are set in the **Audio Files Preferences**. If the fade time is longer than half the length of the processed file, it is not performed.

Add Reverb Tail

If this option is activated, the audio tail that is produced by effects such as reverb is included in the rendered file.

Some plug-ins do not provide a tail duration to WaveLab Pro. In this case, this option has no effect. For such plug-ins, you could add the **Silence** plug-in to add extra samples at the end of the file.

Copy Markers

If this option is activated, markers that are included in the range to process are copied to the rendered file.

Skip Exclusion Regions

If this option is activated, audio ranges that are marked as muted are skipped and not included in the result.

Open Resulting Audio File

If this option is activated, each rendered file is opened in a new window.

Open Files in New File Group

If this option is activated, the rendered files are opened in a new file group.

Bypass Master Section on Resulting Audio File

If this option is activated, playback of the resulting audio file bypasses the entire **Master Section** after rendering. This setting can be toggled by clicking on the button at the bottom right of the wave window or montage window.

NOTE

It is recommended to activate this option, because you do not need to monitor this new file through the effects again when the effects have been applied to a file.

Render Tab for Audio Files

The following options on the **Render** tab are exclusive to rendering audio files.

Source

> **Whole File** processes and renders the whole file.

In Place

> If this option is activated, the rendered audio range replaces the source audio range.

Render Tab for Audio Montages

The following options on the **Render** tab are exclusive to rendering audio montages.

Source

- **Whole Montage** processes and renders the whole audio montage.
- **Union of Selected Clips** processes and renders the audio range that starts from the first selected clip and ends with the last selected clip. Only the selected clips are included in the process.
- **Selected Title** processes and renders the selected title in the **Album** window.
- **All Clip Groups** processes and renders each clip group to an independent file. The group names are used for the output file names.
- **All Selected Clips** processes and renders each clip to an independent file. The clip names are used as output file names.
- **Title Group** processes and renders the selected title group.
- **All Titles in Group** processes and renders all titles in the selected title group.

Depending on the **Source** setting, different additional options are available.

Create CD Image and Cue Sheet

> If this option is activated, the audio montage is exported as a CD image with an accompanying cue sheet, that is, a text file identifying the titles in the image file. The cue sheet and the image file it describes can then be imported into any CD recording application that supports this function, including WaveLab Pro, and written onto a CD. The CD image is a wave file. You can use this option with any sample rate.

Create Audio Montage from Result

> If this option is activated, the rendered audio file is imported in a new audio montage.

Render Audio File, Do Not Change Audio Montage

> If this option is activated, the rendered audio file is saved at the specified location and the audio montage is not changed.

Replace on Same Audio Montage Track

> If this option is activated, the rendered audio file replaces the audio montage track.

Add to Next Empty Audio Montage Track

> If this option is activated, the rendered audio file is added to the next empty audio montage track.

Add to New Audio Montage Track

> If this option is activated, the rendered audio file is added to a new audio montage track.

Bypass Audio Montage Processing

> If this option is activated, clips are rendered without effects and track gain.

Bypass Volume/Pan Envelopes

If this option is activated, volume/pan envelopes are bypassed when rendering.

Replace Clips with Rendered Audio Files

If this option is activated, the rendered audio files replace the selected clips.

Include Pause before Title

If this option is activated and you render titles of an album, a pause is included before each title in the rendered file.

Include Pause after Title

If this option is activated and you render titles of an album, a pause is included after each title in the rendered file.

Render Multi Tab

The **Multi** tab in the **Render** tab allows you to render multiple audio files and audio montages at once.

● To open the **Render** tab for multiple file formats, click **Render** at the bottom of the **Master Section**. Then select **Multi**.
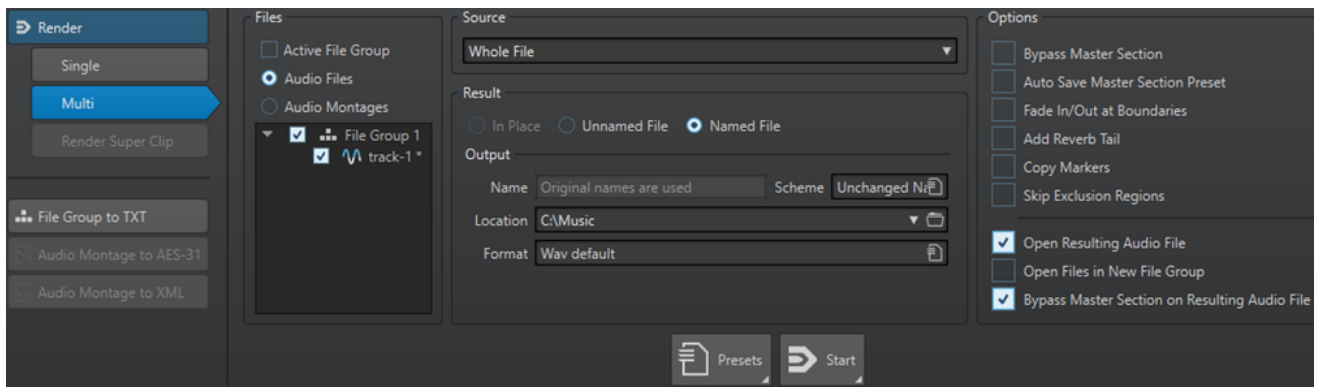
The file list displays all open file groups and their included files. You can filter the file list to only display the active file group, and only audio files or audio montages.

In the file list, select the files that you want to render.

You can also select multiple file tabs and render the files via the **Render** tab.

RELATED LINKS
Check Tab/Uncheck Tab on page 92

Smart Bypass

Smart bypass allows you to compare the original signal to the processed signal with a level correction applied to it. This function is particularly useful when you are making final level adjustments to a recording, for example, during mastering.

Smart bypass compares the signal at the input of the **Master Section** to the signal at the output of the **Master Section**, and adjusts the level accordingly.

The main reason for smart bypass is that processing audio often changes the level or loudness of the signal. When comparing the processed signal with the original signal, your ears are sensitive to this loudness change. If you need to compare the sound of the effect independently from the loudness change, a level correction is required.

Using Smart Bypass

PROCEDURE

1. At the top of the **Master Section**, click **Smart Bypass**.

2. In the **Smart Bypass** dialog, select one of the play modes.

   You can also use key commands to select a **Play** option. Press **A** for **Original Audio**, **B** for **Processed Audio + Level Correction**, and **C** for **Processed Audio**.

3. Select one of the **Level Correction** modes.

4. Depending on your selection, you have the following options:

   - If you have selected **Match Loudness (RMS)** or **Match Peaks**, specify the time range that you want to analyze in the **Analysis Time** field, and proceed with step 5.

   - If you have selected **Custom Correction**, specify a value, start playback, and proceed with step 7.

5. Play back the audio and wait for the analysis to complete.

   Wait as long as the time specified in the **Analysis Time** field.

6. Click **Update Gains**.

   Depending on the selected correction method, the level correction that is applied is shown below the corresponding button.

   You can also press **U** to update the gains.

7. Switch between the three play mode options to compare the processed audio with level correction, the processed audio without level correction, and the original audio (unprocessed).

   If you change the analysis time or start playback from another position you have to wait for the set time, and then click **Update Gains** again to update the analysis.

Smart Bypass Dialog

The **Smart Bypass** dialog allows you to choose whether to bypass all the active effects in the **Effects** slots, including faders. This allows you to compensate for any level differences introduced by the **Master Section**.

- To open the **Smart Bypass** dialog, click **Smart Bypass** at the top of the **Master Section**.

NOTE

This applies to playback only, not to file rendering.

Play – Original Audio

Monitors the unprocessed signal at the **Master Section** input.

Play – Processed Audio + Level Correction

Monitors the signal at the **Master Section** output plus the applied level correction. To be able to listen to the corrected level, click **Update Gains** first.

Play – Processed Audio

Monitors the signal at the **Master Section** output without level correction.

Level Correction – Match Loudness (RMS)

If this option is activated, the output is adjusted so that the loudness of the processed signal corresponds to that of the original signal.

Level Correction – Match Peaks

If this option is activated, the output is adjusted so that the peak levels of the processed signal correspond to those of the original signal.

Level Correction – Custom Correction

Allows you to set a custom level compensation (no analysis).

Level Correction – Analysis Time

Determines how many samples are used to calculate the reference loudness.

Level Correction – Update Gains

Updates the volume analysis.

Master Section Presets

You can save any settings that you apply in the **Master Section** as a preset, which can be loaded again at a later point in time.

RELATED LINKS

Saving Master Section Presets

You can save all settings that you apply in the **Master Section** as a preset. This includes the processors to be used, their individual settings, and the dithering options.

PROCEDURE

1. Open the **Master Section**.

2. Click **Presets** at the top of the **Master Section**, and select **Save As**.

3. Optional: In the **Save Master Section Preset** dialog, click the path name, enter a name, and click **OK** to create a new subfolder in the **Master Section** preset folder.

4. Enter a name for the preset in the **Name** field.

5. Select the options that you want to save in the preset.

6. Optional: Activate **Create Shortcut for Selecting the Preset**, to assign a shortcut to open the preset, after you clicked **Save**.

7. Click **Save**.

RELATED LINKS

Save Master Section Preset Dialog

In this dialog, you can save a **Master Section** setup as preset and define which parts of the current **Master Section** you want to include in the preset.

● To open the **Save Master Section Preset** dialog, click **Presets** at the top of the **Master Section**, and select **Save As**.
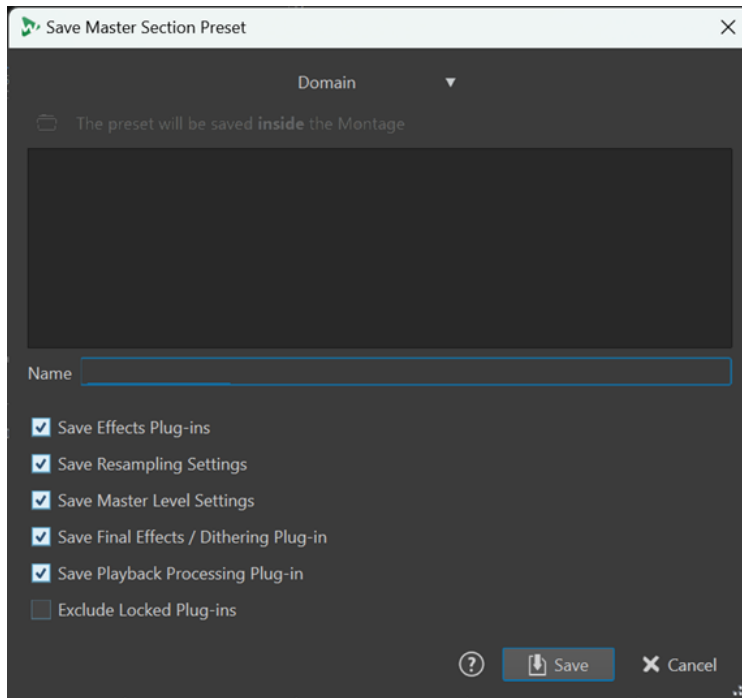
Domain

> Allows you to choose whether to save presets globally, so that they are available at all times, or locally, so that they are only available for the current project or audio montage.

Location

> Opens the root folder of the preset in the File Explorer/macOS Finder. Here, you can create subfolders in which presets can be saved.

Presets list

> Lists all existing presets.

Name

> Allows you to specify the name of the preset to save.

Save Effects Plug-ins

> If this option is activated, the effect plug-ins are saved with the preset.

Save Resampling Settings

> If this option is activated, the resampling settings are saved with the preset.

Save Master Level Settings

> If this option is activated, the master level settings are saved with the preset.

Save Final Effects/Dithering Plug-in

> If this option is activated, the final effects/dithering plug-in is saved with the preset.

Save Playback Processing Plug-in

> If this option is activated, the playback processing plug-ins are saved with the preset.

Exclude Locked Plug-ins

> If this option is activated, locked plug-ins are not saved as part of the **Master Section** preset.

RELATED LINKS

Loading Master Section Presets

You can load a previously saved **Master Section** preset and a temporarily saved **Master Section** preset.

Open the **Presets** pop-up menu at the top of the **Master Section** window.

- To load a preset that has been previously saved in the `Presets\Master Section` folder, select a preset from the **Presets** pop-up menu.
- To load a preset from any location, select **Load Preset**, select a preset, and click **Open**.
- To load a temporarily saved preset, open the **Restore** submenu, and select a preset.

NOTE

Master Section presets in WaveLab Pro 12 are saved as part of a project, as opposed to earlier WaveLab Pro versions, which saved them as separate .vs files. To make sure that WaveLab Pro 12 properly identifies and handles any **Master Section** presets that you created in earlier versions, we recommend that you use WaveLab Pro 11 to open the corresponding audio files, load the **Master Section** presets associated with them, and save them as individual presets. The presets can then be loaded and saved in WaveLab Pro 12, which ensures that they are associated with the corresponding project and audio file and hence, not as prone to being lost or accidentally deleted as .vs files.

RELATED LINKS

Load Master Section Preset Dialog

In this dialog, you can specify which parts of a saved **Master Section** preset to load when opening it.

- To open the **Load Master Section Preset** dialog, click **Presets** at the top of the **Master Section**, and select **Load Preset**.

This dialog only opens if it is activated on the **Presets** pop-up menu of the **Master Section**. Open the **Presets** pop-up menu at the top of the **Master Section**, and activate **Open Options Dialog when Selecting Preset**.
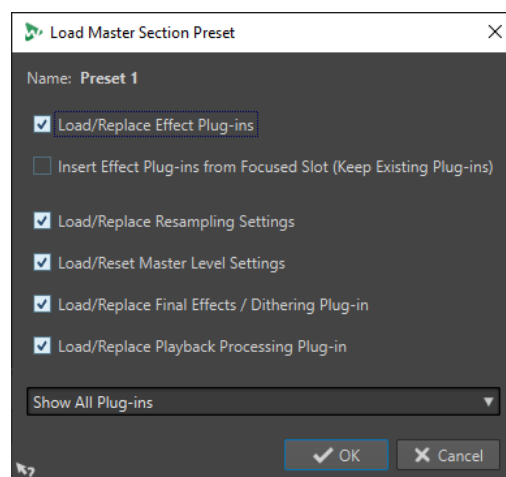
Now, when restoring a temporarily saved preset or opening a saved preset a dialog with the following options opens:

Name

Displays the name of the preset.

Load/Replace Effect Plug-ins

If this option is activated, the active effect plug-ins are removed, and any new plug-ins are inserted from the top slot.

Insert Effect Plug-ins from Focused Slot (Keep Existing Plug-ins)

If this option is activated, the current effect plug-ins are kept, and any new plug-ins are inserted from the top slot.

Load/Replace Resampling Settings

If this option is activated, the current resampling settings are reset, and any new settings are loaded.

Load/Reset Master Level Settings

If this option is activated, the current **Master Level** settings are reset, and any new settings are loaded.

Load/Replace Final Effects/Dithering Plug-in

If this option is activated, the current final effects/dithering plug-in is removed, and the new plug-in is loaded.

Load/Replace Playback Processing Plug-in

If this option is activated, the current post-processing plug-in is removed, and the new plug-in is loaded.

Plug-in Visibility Options

Allows you to select whether you want to show all plug-ins, hide all plug-ins, or only restore the plug-ins that were visible when you saved the preset. The following options are available:

- **Show All Plug-ins**
- **Hide All Plug-ins**
- **Restore Saved Plug-in Visibility**

RELATED LINKS

Saving a Master Section Preset in an Audio File or Audio Montage

You can save the current settings of the **Master Section** in conjunction with an audio file or inside an audio montage.

- To save the current settings of the **Master Section** in conjunction with an audio file, open the **Master Section Preset Settings** pop-up menu on the lower right of the **Audio Editor**, and select **Save Master Section Preset**. In the **Save Master Section Preset** dialog, make the desired adjustments, and click **Save**.

  The preset is saved in ancillary files.

- To save the current settings of the **Master Section** as part of an audio montage, open the **Master Section Preset Settings** pop-up menu on the lower right of the montage window, and select **Save Master Section Preset**. In the **Save Master Section Preset** dialog, make the desired adjustments, and click **Save**.

Loading a Master Section Preset to an Audio File or Audio Montage

You can apply the **Master Section** settings that have been saved along with an audio file or inside an audio montage to the project.

If the option **Open Options Dialog when Selecting Preset** is activated on the **Presets** pop-up menu of the **Master Section**, the **Load Master Section Preset** dialog opens when applying a **Master Section** preset. In this dialog, you can specify which parts of a saved **Master Section** preset to load when opening it.

● To load a **Master Section** preset that is saved along with the opened audio file, open the **Master Section Preset Settings** pop-up menu on the lower right of the wave window, and select **Load Master Section Preset**.

● To load a **Master Section** preset that is saved inside the opened audio montage, open the **Master Section Preset Settings** pop-up menu on the lower right of the montage window, and select **Load Master Section Preset**.

Including a Master Section Preset When Rendering

You can include the **Master Section** preset that is saved with the audio montage in the rendering process of super clips' audio montages.

This means that if this option is activated for an audio montage, anytime this audio montage is rendered so that its image is used in a parent montage, its associated **Master Section** preset is used in the rendering process.

● To include the **Master Section** preset when rendering a super clip, open the **Master Section Preset Settings** pop-up menu on the lower right of the montage window, and select **Include Master Section Preset when Rendering as Super Clip**.

Master Section Presets Pop-up Menu

This pop-up menu offers several options for saving, managing, and restoring **Master Section** presets.

● To open the **Presets** pop-up menu, click the presets pane at the top of the **Master Section**.
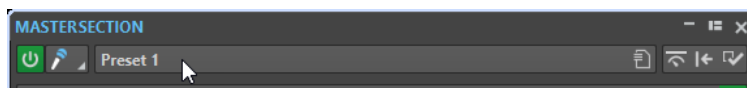
Save

Saves the changes you have made to an existing preset.

Save As

Opens a dialog where you can specify a name and a location for the preset.

Organize Presets

Opens the **Master Section** folder in the File Explorer/macOS Finder, where you can rename or delete presets.

Define Shortcut for Current Preset

Opens the **Shortcut Definitions** dialog, where you can define key sequences and keywords.

Load Preset

Allows you to load a **Master Section** preset via the File Explorer/macOS Finder. For example, this is useful if you want to load a preset that is provided by another source and not located in your default root folder.

Open Options Dialog when Selecting Preset

If this option is activated, when you select a preset, a dialog opens that allows you to choose how to load the preset you select.

Store Temporarily

Lets you select one of the slots to temporarily save a preset.

Restore

Lets you restore a previously saved preset.

List of saved presets

Lists the presets that are saved in the **Presets** folder of the **Master Section**.

RELATED LINKS
Master Section Presets on page 608

Monitoring Background Tasks

When rendering, you can monitor the process, and you can pause or cancel tasks.

You can pause or cancel tasks. This is useful if you have a number of lengthy processes underway and want to free up some processing power to focus on editing.

To automatically open the **Tasks** window when a task starts, select **File** > **Preferences** > **Global**. Select the **Options** tab, and activate **Make Tasks Monitor Visible When Task Starts**.

A status bar below the **Audio Editor** window and the **Audio Montage** window shows the progress of the current rendering process and allows you to cancel and pause the rendering, without opening the **Tasks** window.

RELATED LINKS
Global Preferences on page 863
Tasks Window on page 614

Canceling Background Tasks

You can cancel rendering processes that run in the background.

PROCEDURE

● Do one of the following:

  ● On the status bar, click **Cancel**.

  ● In the **Tasks** window, click **Cancel**.

  ● Press **Alt/Opt** - **.** on your keyboard.

RELATED LINKS
Monitoring Background Tasks on page 613
Tasks Window on page 614

Tasks Window

This window allows you to view all background rendering processes that are in progress.

● To open the **Tasks** window, select **Tool Windows** > **Tasks**.
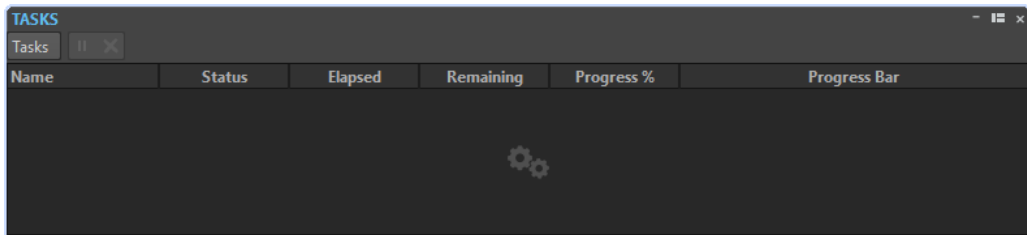
The list of background tasks shows the following information about the rendered file during the rendering process:

● Name

● Status

● Elapsed Time

● Remaining Time

● Progress in %

● Progress bar

With the **Pause** and **Cancel** buttons, you can pause and cancel the rendering process.

From the **Tasks** menu, you can select the following options:

Suspend

Pauses the selected task.

Suspend All

Pauses all tasks.

Resume

Resumes the selected paused task.

Resume All

Resumes all paused tasks.

Cancel

Cancels the selected task.

Dropouts

A dropout most likely occurs when your computer does not have the processing power to handle all used effect processors.

To avoid dropouts, try the following:

● Use fewer effects.

● Consider rendering the processing rather than running it in real time. Then master from the processed file without applying effects. Dropouts never occur when rendering to a file.

● Do not process any files in the background.

If neither of the above helps, check the audio card preference settings. You might need to adjust the audio buffer settings. If a dropout occurs during a real-time mastering process we

recommend that you re-master. Stop playback, click the dropout indicator to reset it, and try again.

Ambisonics Mixes

WaveLab Pro can read and write multi mono audio files in the formats .wav, .amb, and .ambix. You can play back Ambisonics audio files in stereo or surround via the **VST AmbiDecoder** plug-in in the **Master Section**.

You can process the individual audio channels of Ambisonics audio files before decoding them. This allows you to prepare your audio material in WaveLab Pro for further authoring in Nuendo, for example.

You can assign an Ambisonics channel configuration as the output channel layout of an audio file or audio montage.

NOTE

We recommend that you use VST 3 plug-ins and not VST 2 plug-ins when processing Ambisonics audio input because VST 3 plug-ins are more suitable for multichannel processing.

Playing Back Ambisonics Audio

WaveLab Pro allows you to decode Ambisonics audio for monitoring via headphones or speakers. For decoding, you can use **VST AmbiDecoder** or suitable third-party decoder plug-ins.

PREREQUISITE

In the **Audio Connections** tab, specify the input and output buses and which device you want to use for audio playback.

PROCEDURE

1. Open an Ambisonics audio file in the **Audio Editor** or **Audio Montage** window.

2. In the **Master Section**, add the **VST AmbiDecoder** plug-in to the **Effects** pane.

3. In the **Plug-in Output Channel Layout** dialog, select the **Channel Configuration** of your Ambisonics audio file and click **OK**.
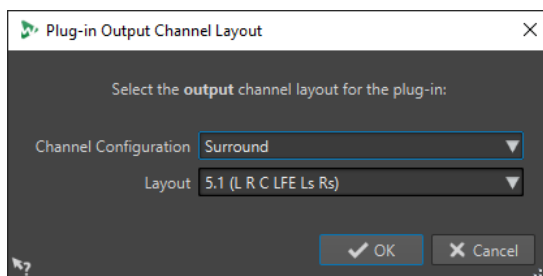
4. In the **VST AmbiDecoder** window, adjust the settings.

5. Play back your audio file.

RELATED LINKS

VST AmbiDecoder

The **VST AmbiDecoder** plug-in converts Ambisonics audio for playback on headphones or stereo and multi-channel speaker setups.

●   To open the **VST AmbiDecoder** plug-in, add it to an effect slot in the **Master Section**.

Input Format > Output Format

Shows the audio formats of the input and output signals.

Output

Allows you to select between **Headphones** mode for binaural playback via headphones or **Speakers** mode for playback via a stereo speaker setup.

HRTF Mode

Allows you to set the head-related transfer function (HRTF) mode for binaural playback. This option is only available in Headphones mode.

The following HRTF modes are available:

●   **Standard** mode uses the standard HRTF algorithm.

●   **Facebook** mode uses the HRTF algorithm that is used for VR video playback at facebook.com.

    The availability of this mode depends on the Ambisonics order of the **Main Mix** bus.

●   **YouTube** mode uses the HRTF algorithm that is used for VR video playback at youtube.com.

    The availability of this mode depends on the Ambisonics order of the **Main Mix** bus.

●   **SOFA** mode allows you to use an HRTF saved in SOFA file format.

    This mode is only available if you have loaded a SOFA file. To select a SOFA file, click the triangle on the right of the **SOFA** button.

●   **IMMERSE** mode allows you to use HRTF profiles with the **IMMERSE with VST AmbiDecoder** application.

To select an IMMERSE profile or check for profile updates, click the triangle on the right of the **IMMERSE** button.

This mode requires a valid license of **IMMERSE with VST AmbiDecoder**. For details on how to get a license and use the application, visit steinberg.net.

Head Tracking

If this button is activated, **VST AmbiDecoder** receives head-tracking data from the **Head Tracking** window. If this button is deactivated, you can use the **Yaw**, **Pitch**, and **Roll** controls on the **VST AmbiDecoder** panel for setting the rotation angles.

Yaw

Sets the yaw rotation angle.

Pitch

Sets the pitch rotation angle.

Roll

Sets the roll rotation angle.

Head-Locked Signal

Sets the gain of the head-locked signal that is sent into the side-chain input of **VST AmbiDecoder**.

Front Focus

Activates/Deactivates the emphasis of a defined sector of the Ambisonics sphere.

Off-Focus

Sets the attenuation of sound that is located out of the **Front Focus** sector.

Size

Sets the **Front Focus** angle, that is, the sector of the Ambisonics sphere that is not attenuated by the amount of the **Off-Focus** value.

Follow Head

If this option is activated, **Front Focus** follows the settings in the Head Tracking section above. This allows you, for example, to emphasize the sound that comes from the viewing direction when using a VR controller with head-tracking. If deactivated, you can control **Azimuth** and **Elevation** manually. This allows you, for example, to re-balance the sound field of premixed Ambisonics audio.

Azimuth

Sets the azimuth angle of the **Front Focus** range. This parameter is only available if **Follow Head** is deactivated.

Elevation

Sets the elevation angle of the **Front Focus** range. This parameter is only available if **Follow Head** is deactivated.

RELATED LINKS

MixConvert V6

MixConvert V6 is a plug-in that converts one multi-channel audio source into another multi-channel destination. It is most frequently used to downmix a multi-channel surround mix into a format with fewer channels, for example, a 5.1 surround mix into a stereo mix.

When you add the **MixConvert V6** plug-in to the **Master Section**, the **Plug-in Output Channel Layout** dialog opens. Here, you can select the output channel layout for the plug-in. You can also change this channel layout in the **MixConvert V6** plug-in window.

MixConvert V6 Plug-in Panel

The **MixConvert V6** plug-in panel allows you to set the levels of the surround channels, and to solo or mute channels for input and output channels.

● To open the **MixConvert V6** plug-in, add it to an effect slot in the **Master Section**.
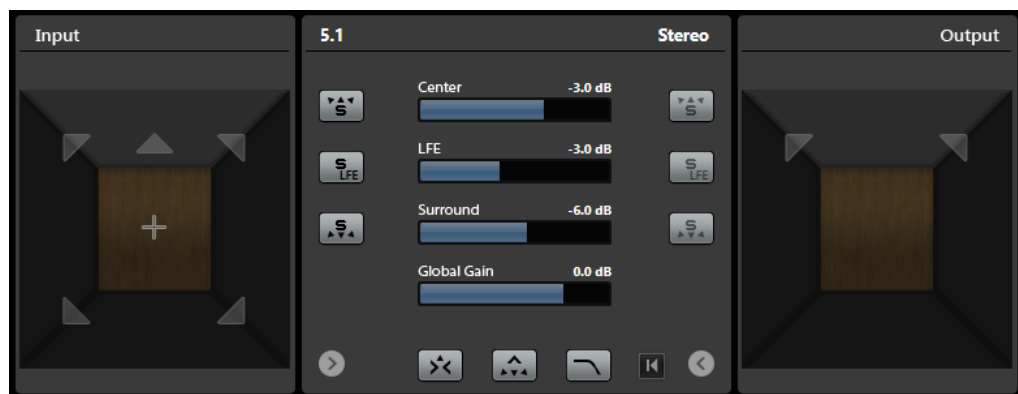
The plug-in panel is divided into three sections: the **Input** section, the **Output** section, and the center section. The **Input** and **Output** sections are hidden by default.

● To show/hide the **Input** or **Output** sections, click the corresponding arrow button.
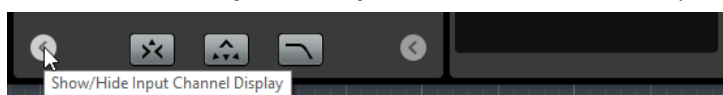
Input section

Shows all input channels and allows you to solo or mute channels.

Output section

Shows all output channels and allows you to solo or mute channels.

The center section contains the main plug-in parameters as well as buttons for soloing several speaker channels in one go.

Input Channel Configuration

Shows the input channel configuration.

Output Channel Configuration/Select Output Channel Configuration

Shows the output channel configuration.

If **MixConvert V6** is used as an insert effect, the pop-up menu allows you to set the output channel configuration.

Solo Channel buttons

Solos all front channels, the LFE channel, or all surround channels in the input or output display. All other channels are muted.

Listen to Solo Channels on Center Channel

Routes all soloed channels to the center channel. If no center channel is present, the signal from the soloed channels is distributed equally to the left and right speakers.

Listen to Surround Channels on Front Channels

Solos all surround channels, including the side channels, and routes or downmixes them to the front speakers.

Center Level

Sets the level of the front center channel.

LFE Fader Level

Sets the level of the LFE channel.

Surround Level

Sets the level of the surround channels. The level of the surround channels cannot be adjusted individually.

Global Gain Level

Sets the level of all output channels.

Activate/Deactivate Low-Pass Filter

Activates/Deactivates the low-pass filter that is applied to the LFE channel.

Reset Parameters

Alt/Opt -click this button to reset all panner parameters to their default values.

RELATED LINKS
MixConvert V6 on page 618

Soloing Channels in MixConvert V6

You can click the speaker icons in the input and output channel displays or the solo channel buttons in the center section to solo or mute channels.

Soloing an input channel allows you to hear the influence of the soloed channel on the downmix. Soloing an output channel allows you to hear only the soloed channel in the downmix.

PROCEDURE

- To solo channels in **MixConvert V6**, do one of the following:

    - To solo a channel, click the corresponding speaker icon.

        You can solo several channels at the same time. All other channels are muted.

        To deactivate the solo state of a channel, click the corresponding speaker icon again.

    - To solo a channel exclusively, **Ctrl/Cmd** -click the corresponding speaker icon.

    - To solo all front channels or all surround channels, click the corresponding button in the center section.

    - To solo the LFE channel, click the corresponding cross-hair icon in the center of the channel display.

> **NOTE**
>
> Alternatively, click the **Solo Input/Output LFE Channel** button in the center section.

- To mute a channel, **Shift** -click the corresponding speaker icon.

Plug-in Output Channel Layout Dialog

You can specify the output channel layout for plug-ins when you insert the plug-ins to the **Effects** pane of the **Master Section**.

The settings that you applied in the **Plug-in Output Channel Layout** dialog are included in the Master Section presets.

- To open the **Plug-in Output Channel Layout** dialog, add the **VST AmbiDecoder**or **MixConvert V6** plug-ins to the **Effects** pane in the **Master Section**.

- To open the **Plug-in Output Channel Layout** dialog for other plug-ins, you must specify those plug-ins in the **Organize** tab of the **Plug-ins** tab of the **Preferences**. In the **Out** column, activate the checkbox.

    The next time that you add these plug-ins to the **Master Section**, the **Plug-in Output Channel Layout** dialog opens.
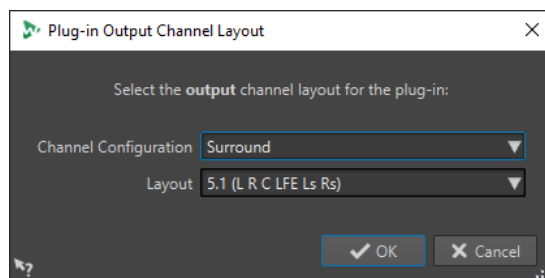
Channel Configuration

Allows you to select the channel configuration. The following options are available:

- **Stereo**
- **Surround**
- **Ambisonics**
- **Multi Mono**

Layout

Allows you to select the layout of the surround, Ambisonics, or multi mono channel configuration.

Markers

Markers allow you to save and name specific positions in a file. Markers are useful for editing and playback.

For example, markers can be used for the following:

- Indicate cue points or absolute time locations.
- Highlight problem sections.
- Visually separate tracks.
- Set the wave cursor to a specific position.
- Select all audio between two positions.
- Define titles of an album.
- Loop sections in an audio file.

There is no limit to the amount of markers that you can have in a file.

The following marker types come in pairs: title, loop, mute, region, error and correction. When you delete a marker of a marker pair, the other marker is also deleted.

Because you cannot have a title that starts but never ends, a loop end point without a start, etc., special rules exist for creating, deleting, and moving these types of markers. Title markers must always be balanced. For example, if you delete a title start, the corresponding end marker is also deleted.

Loop, mute, correction, error, title and region markers only have a functionality when balanced.

NOTE

The functions in the **Markers** window are the same for audio files and audio montages. However, the **Markers** window for audio montages offers additional options regarding clips.

RELATED LINKS

Marker Types

You can use different marker types to locate certain positions quickly.

The following marker types are available:

Generic markers

Allow you to locate positions and select all the audio between two points, for example. Generic markers can be created during recording.

Temporary markers

Can be used for any purpose. Temporary markers are deleted when the corresponding file is closed.

Playback start markers

Define a playback start point.

Title start and end markers

Denote where a title begins and ends. Title markers are used in pairs.

Title splice markers

Are used when a title starts exactly where another ends.

Title index markers

Are used to create index points in titles.

Region start and end markers

Define start and end points for generic regions. Region start and end markers can be created during recording and are used in pairs.

Loop start and end markers

Are used to define loop points and are required to access loop editing functions on the **Process** tab of the **Audio Editor**. Loop start and end markers are connected to the **Loop** mode when playing back audio. These markers are useful for editing and creating loops before transferring a sound to a sampler. Loop markers are used in pairs.

Exclusion start and end markers

Let you temporarily silence a section. Sections between exclusion regions are skipped if **Skip Range** is activated on the transport bar. The **Render** function in the **Master Section** also allows you to exclude regions from being rendered. Exclusion markers are used in pairs.

Error start and end markers

Are used to highlight errors, such as clicks. Error start and end markers are saved in audio files if **Save Error and Correction Markers** is activated in the **Audio Files Preferences**, on the **File** tab. Error start and end markers can be placed manually, but their main use is in combination with the **Error Correction** tool.
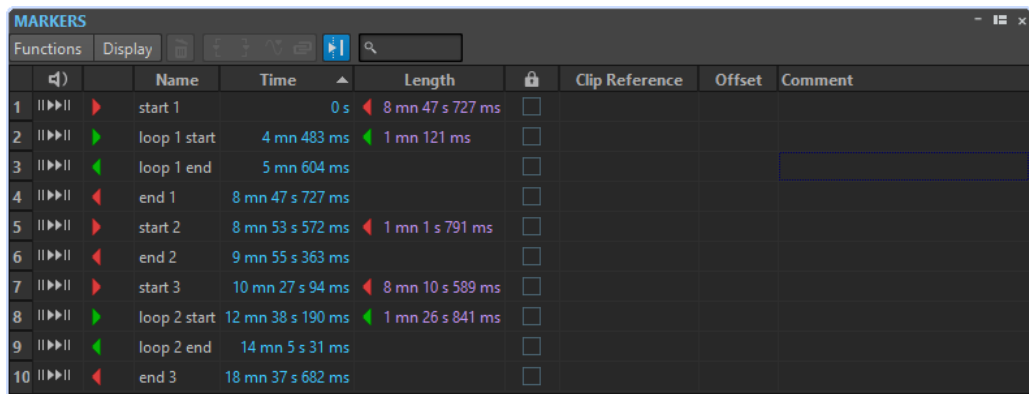
Correction start and end markers

Are used to highlight corrections performed on regions previously marked as errors. Correction start and end markers are saved in audio files if **Save Error and Correction Markers** is activated in the **Audio Files Preferences** on the **File** tab. The correction markers can be placed manually, but their main use is in combination with the **Error Correction** tool.

Markers Window

In the **Markers** window, you can create, edit, and use markers while working on an audio file or an audio montage.

- To open the **Markers** window, open an audio file or an audio montage. Select **Tool Windows** > **Markers**.

Markers window for audio montages

Markers List

The **Markers** window contains a list of all markers of the active file, along with their details and controls. You can create and edit indicators in the markers list.

Marker numbers

Clicking the number of a marker scrolls the waveform to reveal the corresponding marker.

Perform Pre-Roll

Plays back the audio from the marker position with a pre-roll.

You can also press **Alt** and click **Play Pre-Roll** to play back from the marker position with a short pre-roll.

Play

Plays back the audio from the marker position.

Marker type

Shows the marker type. To change the marker type, click the marker icon, and select another marker type from the pop-up list.

> NOTE
>
> In the **Markers** window for audio montages, title markers (start, splice, end, index) that are quantized at CD boundaries are displayed with a green font color, which allows you to see at a glance whether they are quantized or not.

Name

Shows the marker name. To change the name, double-click in the corresponding cell, and enter a new name.

Time

Shows the marker position on the time ruler. To change the position, double-click in the corresponding cell, and enter a new value.

Channels

Shows the channels on which the markers are located. You can click the channel to specify another channel for the marker or select **Set for All Channels** to set the marker for all channels.

Length

Shows the time between the marker start position and the corresponding end or splice marker.

- To zoom in on the region between a start and an end marker, click the corresponding cell in the **Length** column.

- To select the region between a start and end marker, double-click the corresponding cell in the **Length** column.

Lock

Allows you to lock markers. Locking markers prevents them from being accidentally dragged to a new position in the wave window or the montage window. To lock a marker, activate the corresponding checkbox.

Clip Reference (only available for markers in the Audio Montage window)

A marker can be attached to the left or right edge of a clip, and to its waveform. When you move a clip, the corresponding marker moves along. The clip reference column shows the name of the clip.

Offset (only available for markers in the Audio Montage window)

Shows the distance between the marker and the reference point.

Comment

Allows you to enter a comment after double-clicking a cell.

Functions Menu

Depending on whether the **Audio Editor** or the **Audio Montage** window is open, different options are available. The following options are available both for audio files and audio montages:

Select All

Selects all markers in the markers list.

Select in Time Range

Selects the markers located in the selection range.

Invert Selection States

Inverts the selection status of all markers.

Deselect All

Deselects all markers.

Delete Selected Markers

Deletes all markers that are selected.

Select Markers to Delete

Opens the **Delete Markers** dialog, where you can select the markers to delete according to various criteria.

Copy

Opens a submenu with the following options:

- **Copy All Markers** copies all markers to the clipboard. When pasting these markers, the marker positions are relative to the file start.

- **Copy Markers in Selected Range** copies all markers that are located in the selected range to the clipboard. When pasting these markers, the marker positions are relative to the first copied marker.

Paste Markers

Pastes the markers that were copied to the clipboard to the edit cursor position. Sample rate differences between the source and destination file are taken into account.

Convert Marker Types

Opens the **Convert Marker Types** dialog, where you can convert markers to another type.

Move Multiple Markers

Opens the **Move Multiple Markers** dialog, where you can select markers to move them by a specified amount.

Default Marker Names

Opens the **Default Marker Names** dialog, where you can select default marker names for each marker type.

Batch Renaming

Opens the **Batch Renaming** dialog, where you can rename several markers in one go.

Generate Chapters

Allows you to generate a text file that lists the chapters in your audio material, based on the markers you set, for use on YouTube or Spotify.

Export Markers List as Text

Opens the **Export Markers List as Text** dialog, where you can export the markers list in various file formats, or as a printout. You can decide which information about the markers to include in the exported file.

Import Markers from XML File

Allows you to import markers from an XML file. The XML files must be in the same format as the file that is created when you export markers.

Generate Markers

Opens the **Generate Markers** dialog, where you can specify a sequence of markers to create.

Customize Command Bar

Opens a dialog where you can customize marker-related menus and shortcuts.

The following options of the **Functions** menu are only available for audio montages:

Import Markers from Active Clip's Audio File to Audio Montage

Automatically adds all markers of the source audio file of a clip to the audio montage.

TIP

You can display the markers by activating **Ruler** in the **Clip** section of the **View** tab.

Bind Selected Markers to Start of Active Clip

Makes the marker position relative to the start of the active clip. When the start of this clip moves, the marker moves, too.

Bind Selected Markers to End of Active Clip

Makes the marker position relative to the end of the active clip. When the end of this clip moves, the marker moves, too.

Bind Selected Markers to Audio Samples of Active Clip

Locks the selected marker in relation to the audio samples referenced by the active clip. The marker moves when the audio samples move, relative to the start of the montage.

Detach Selected Markers from Their Associated Clip

Makes the marker position relative to the start of the audio montage.

Follow Playback

If this option is activated and you play back audio, a green bar next to the marker name indicates the marker that was last played back.

Lock Selected Marker

Locks the selected marker. If this option is activated, the marker cannot be moved or deleted.

Automatically Attach New Marker to the Most Suitable Clip

Links all newly created markers to a clip, provided that WaveLab can detect a pattern; for example, an end marker at the end of a clip or slightly beyond, or any marker inside a clip. The marker type and its position relative to the closest clip determine the type of bond.

Full Clip Attachment

Attaches markers to a clip so that they are copied or deleted when the clip is copied or deleted.

Customize Command Bar

Opens the **Customize Commands** dialog, which contains options for hiding or showing specific command bar buttons.

Display Menu

The **Display** menu allows you to specify which types of markers to display in the markers list and on the timeline.

RELATED LINKS
Import and Export of Markers on page 639
Chapter Generator Dialog on page 646

Filtering Markers

The search field allows you to filter the markers list by names.

You can search for text in the **Name** and **Comment** columns. The search only happens in the sorted columns. The function **Select All** only selects the filtered items.

- On the toolbar of the **Markers** window, click in the search field, and enter the text that you want to search for. You can use wildcard characters. "*" substitutes for zero or more characters, and "?" substitutes for any character.

- To switch the focus from the search field to the markers list, press **Down Arrow**.

- To switch the focus from the markers list to the search field, press **Ctrl/Cmd** - **F**.

- To view all markers again, cancel the search.

RELATED LINKS
Markers Window on page 622

Creating Markers

You can create markers in the wave window and in the montage window, in stop mode or during playback. You can generate a sequence of markers or mark a selection range, for example. You can create specific markers if you already know what you want to mark, or create generic markers.

PROCEDURE

1. Do one of the following:

    -   Start playback.

    -   In the wave window or the montage window, set the cursor to the position where you want to insert the marker.

2. Do one of the following:

    -   In the **Audio Editor** or **Audio Montage** window, select the **Insert** tab, and click a marker icon in the **Markers** section.

    -   In the **Audio Editor** or **Audio Montage** window, select the **Insert** tab, and click **Create/Name Marker** in the lower right corner of the **Markers** section. This opens the **Create Marker** dialog, which allows you to create different types of markers and marker pairs at the edit cursor position or at the selection range.
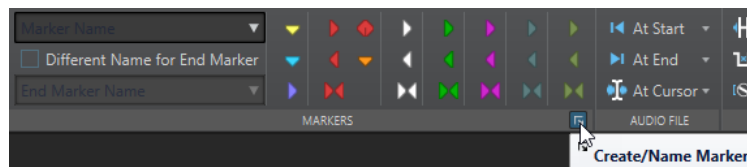
    -   Right-click the upper part of the time ruler, and select a marker from the context menu.

    -   Press **Insert**. This creates a generic marker.

        To see the key commands for other marker types, right-click above the timeline of the wave window or montage window.

    -   To create title start/end markers for audio montages, open the **Album** window and use the **Album Wizard**. This only works in stop mode.

3. Optional: To set a marker for an individual channel, click the channel name in the **Channel** column of the **Markers** window, and select the channel for which you want to set the marker.

RELATED LINKS

Create Marker Dialog

This dialog allows you to create different types of markers and marker pairs at the edit cursor position or at the selection range.

-   To open the **Create Marker** dialog, click **Create/Name Marker** in the lower right corner of the **Markers** section of the **Insert** tab in the **Audio Editor** or **Audio Montage** window.
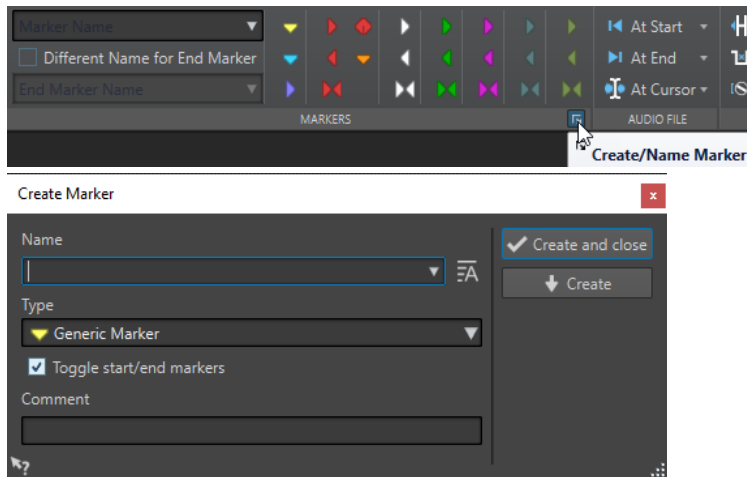
Name

> Allows you to enter the name of the marker. If you leave this field empty, a generic name is created.

Default Name

> If this option to the right of the **Name** field is activated, WaveLab Pro suggests a generic name.

Type

> Specifies the type of marker to be generated.

Toggle Start/End Markers

> If this option is activated and you create a start marker, the corresponding end marker is selected, and vice versa.

Comment

> Allows you to enter a comment. You can read and edit the comment in the **Markers** window.

Create and Close

> Creates the marker and closes the **Create Marker** dialog.

Create

> Creates the marker without closing the **Create Marker** dialog.

RELATED LINKS
Creating Markers on page 627
Markers Window on page 622
Insert Tab (Audio Editor) on page 195

Creating Markers at Selection Start and End

You can mark a selection for looping or review, for example.

PROCEDURE

1. In the wave window or the montage window, create a selection range.

2. Do one of the following:

- In the **Audio Editor** or the **Audio Montage** window, select the **Insert** tab and select a marker pair in the **Markers** section.

- In the wave window, create a selection range, right-click it, and select the marker pair.

- In the wave window or the montage window, create a selection range, right-click above the time ruler, and select the marker pair.

RELATED LINKS
Audio Editor Window on page 176
Audio Montage Window on page 320
Insert Tab (Audio Montage) on page 343
Insert Tab (Audio Editor) on page 195

Duplicating Markers

Duplicating markers is a quick way to create a marker from an existing marker.

PROCEDURE

- In the **Audio Editor** or in the **Audio Montage** window, hold down `Shift`, click a marker, and drag.

RELATED LINKS
Audio Editor Window on page 176
Audio Montage Window on page 320

Generating a Sequence of Markers

You can generate several markers at once in a specified time range. This allows you to create markers at every beat, or create markers as guidelines for inserting silence, to distribute demo sounds, for example.

PROCEDURE

1. To decide where you want to insert the generated markers, do one of the following:

   - To generate markers within a specific time range, create a selection range in the wave window or the montage window.

   - To generate markers from the cursor position to the end of the audio, or to generate a fixed number of markers from the cursor position, set the cursor position where you want the first marker to be created.

2. In the **Markers** window, select **Functions** > **Generate Markers**.

3. Select the type of marker and specify the gap between markers. If you have selected a marker pair, define the region length.

4. Optional: Activate **Naming** and select a naming scheme.

5. Select a numbering scheme.

6. Click **OK** to generate the markers.

RELATED LINKS
Markers Window on page 622
Generate Markers Dialog on page 630

Generate Markers Dialog

This dialog allows you to generate markers at regular intervals in a specified time range. You can fill a selected time range, the region between the cursor position and the end of the audio, or specify a fixed number of markers to be generated.

●   To open the **Generate Markers** dialog, open the **Markers** window and select **Functions** > **Generate Markers**.
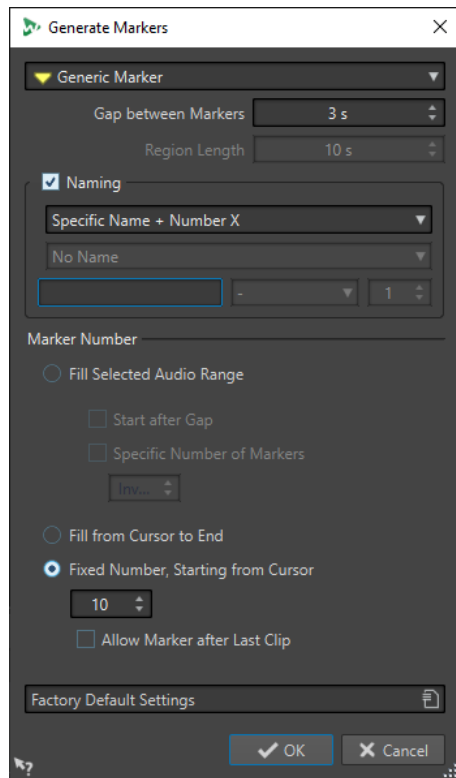
Marker type

Specifies the type of marker to be generated.
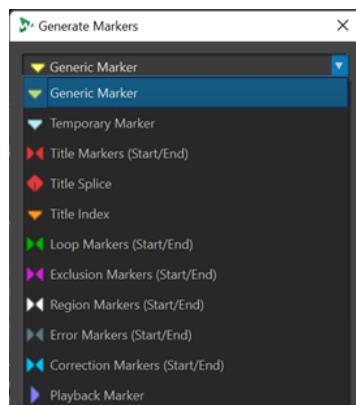
Gap between Markers/Gap between Regions

Sets the time between two markers or two regions.

Region Length

Sets the length for the region to be generated.

Naming

Allows you to set up a naming scheme.

Depending on whether you have selected a single marker or a start/end marker, you can specify the naming scheme for a single marker or one naming scheme for the start marker and one for the end marker.

If you select **Custom**, the **Rename Markers** dialog opens, where you can specify a custom naming scheme for batch renaming markers.

Naming fields

Allow you to specify a base name for the markers, an optional separator between name and marker number, and the start value of the marker index.

The base name is also used as a basis for the **Custom** naming scheme.

Fill Selected Audio Range

Generates markers in the selected audio range.

Start after Gap

If this option is activated, the first generated marker is inserted after the gap time specified at the top of the dialog.

Specific Number of Markers

If this option is activated, you can specify the number of markers that you want to generate.

Fill from Cursor to End

Generates markers between the edit cursor position and the end of the audio.

Fixed Number, Starting from Cursor

Generates a specified number of markers or regions, starting at the edit cursor position.

Allow Marker after Last Clip (audio montage only)

Determines whether markers can be generated beyond the end of the last clip, with **Fixed Number, Starting from Cursor** activated.

RELATED LINKS
Markers Window on page 622
Batch Renaming Dialog for Markers on page 821

Deleting Markers

Markers can be deleted in the wave window or the montage window, in the **Markers** window, and in the **Delete Markers** dialog.

RELATED LINKS
Deleting Markers in the Audio Editor or in the Audio Montage Window on page 631
Deleting Markers in the Markers Window on page 632
Deleting Markers by Type on page 632
Delete Markers Dialog on page 633

Deleting Markers in the Audio Editor or in the Audio Montage Window

PROCEDURE

● To delete markers in the **Audio Editor** or in the **Audio Montage** window, do one of the following:

- In the **Audio Editor** or in the **Audio Montage** window, right-click a marker, and select **Delete**.

- Drag and drop a marker icon upwards, outside the time ruler.

RELATED LINKS
Deleting Markers on page 631
Audio Editor Window on page 176
Audio Montage Window on page 320

Deleting Markers in the Markers Window

This is useful if your project has many markers or if the marker that you want to delete is not visible in the **Audio Editor** or in the **Audio Montage** window.

PROCEDURE

1. In the **Markers** window, select one or several markers.

    You can also select **Functions** > **Select All**.

2. Click **Delete Selected Markers** or select **Functions** > **Delete Selected Markers**.

RELATED LINKS
Markers Window on page 622
Deleting Markers on page 631

Deleting Markers by Type

This is useful to delete markers of a specific type in the whole wave/montage window or in a selection range.

PROCEDURE

1. Optional: If you only want to delete markers within a specific time range, create a selection range in the wave/montage window.

2. In the **Markers** window, select **Functions** > **Select Markers to Delete**.

3. In the **Delete Markers** dialog, select the marker types that you want to delete.

4. Optional: Define conditions that have to be met for markers to be deleted.

5. In the **Range** section, select in which range you want to delete markers.

    If you have selected an audio range and want to use it, activate **In Selected Audio Range**.

6. Click **Delete**.

RELATED LINKS
Markers Window on page 622
Deleting Markers on page 631
Delete Markers Dialog on page 633

Delete Markers Dialog

In this dialog, you can define which markers to delete by selecting marker types and conditions.

- To open the **Delete Markers** dialog, open the **Markers** window and select **Functions** > **Select Markers to Delete**.
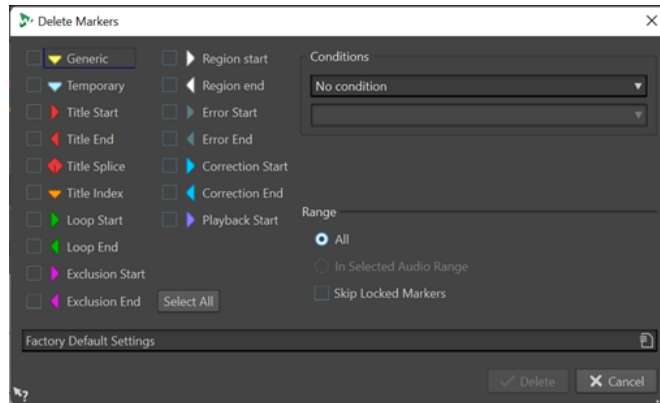
Marker types

Allow you to select the marker types to delete.

Conditions

Allows you to select a condition that has to be met for markers to be deleted. For example, **Marker name must contain this text**.

Select All

Selects/deselects all marker types.

Range – All

Select this if you want to delete all markers.

Range – In Selected Audio Range

Select this if you want to delete all markers in the selected time range.

Range – Skip Locked Markers

If this option is activated, locked markers are not deleted.

RELATED LINKS
Markers Window on page 622
Deleting Markers by Type on page 632

Moving Markers

You can adjust marker positions in the **Audio Editor** or in the **Audio Montage** window.

PROCEDURE

- In the **Audio Editor** or in the **Audio Montage**window, drag a marker to a new position on the time ruler.

  If **Snap to Magnets** is activated, the marker snaps to the cursor position or the beginning/end of a selection or waveform.

RELATED LINKS
Audio Editor Window on page 176

Moving Multiple Markers

You can move multiple markers simultaneously whilst maintaining the relative distances between the markers.

PROCEDURE

1. Optional: If you only want to move markers within a specific time range, create a selection range in the wave window or the montage window.

2. In the **Markers** window, select **Functions** > **Move Multiple Markers**.

3. Specify the amount of time by which you want to move the markers.

4. Select the marker types that you want to move.

5. Optional: Define conditions with or without regular expressions.

6. Optional: If you have selected an audio range and want to use it, activate **In Selected Audio Range**.

7. Click **OK**.

RELATED LINKS

Move Multiple Markers Dialog

In this dialog, you can specify which markers you want to move by a specific amount.

●   To open the **Move Multiple Markers** dialog, open the **Markers** window and select **Functions** > **Move Multiple Markers**.
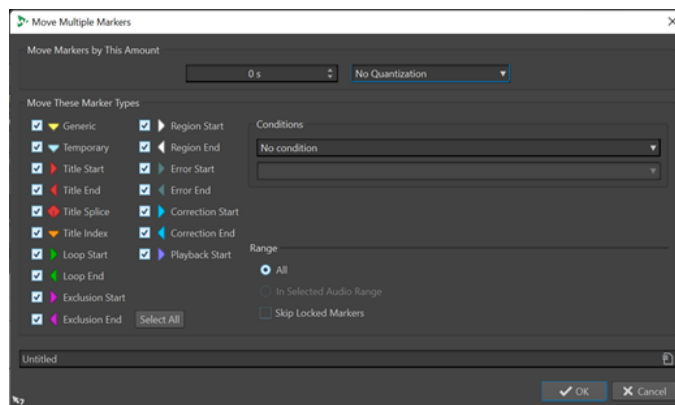
Move Markers by This Amount

> Defines the distance by which the markers are moved. Negative values move markers to the left.

> The **Quantize** menu allows you to apply quantization after the markers have been moved. The following options are available:

> ●   **No Quantization**

- **Snap to Zero Crossing**

- **Quantize to 24 FPS**

- **Quantize to 25 FPS**

- **Quantize to 30 FPS**

- **Quantize to CD Frames (75 FPS)**

- **Quantize to 1 second**

Move These Marker Types

Allows you to select the marker types that are moved.

Conditions

Allows you to select a condition that has to be met for markers to be moved. For example, **Marker name must contain this text**.

Select All

Selects/Deselects all marker types.

Range – All

Select this if you want to move all markers.

Range – In Selected Audio Range

Select this if you want to move all markers in the selected time range.

Range – Skip Locked Markers

If this option is activated, locked markers are not moved.

RELATED LINKS
Markers Window on page 622
Moving Multiple Markers on page 634

Navigating to Markers

You can jump to the previous or next marker using the corresponding marker buttons.

- To jump to the previous/next marker, select the **View** tab, and in the **Cursor** section, click **Move Cursor to Previous Marker**/**Move Cursor to Next Marker**.

- To set the wave cursor to a marker position, in the wave window or the montage window, double-click a marker triangle.

RELATED LINKS
Markers on page 621

Hiding Markers of a Specific Type

For a better overview, you can hide marker types.

PROCEDURE

1. In the **Markers** window, select **Display**.

2. Deactivate the marker types that you want to hide.

   You can make the markers visible again by activating the corresponding marker type.

Converting the Type of a Single Marker

You can convert markers of a specific type to another type.

PROCEDURE

1. In the **Markers** window, click the marker icon that you want to convert.

2. Select a new marker type from the list.

Converting All Markers of a Specific Type

WaveLab Pro allows you to convert all markers of a specific type into another marker type in a single operation.

You can convert all loop markers to title markers, for example.

PROCEDURE

1. Optional: If you only want to convert markers within a specific time range, create a selection range in the wave window or the montage window.

2. In the **Markers** window, select **Functions** > **Convert Marker Types**.

3. In the **Convert Marker Types** dialog, use the **From** and **To** pop-up menus to specify the source and target marker types.

4. Optional: Specify a condition.

5. Select whether you want to convert all markers or only the markers in the selected range.

6. Click **OK**.

Convert Marker Types Dialog

In this dialog, you can convert marker types.

● To open the **Convert Marker Types** dialog, open the **Markers** window and select **Functions** > **Convert Marker Types**.
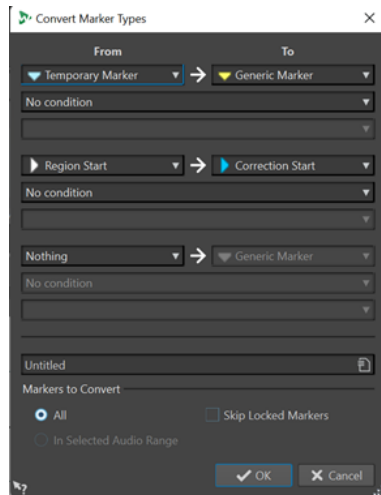
From

Specifies the source marker type.

To

Specifies the target marker type.

Conditions pop-up menu

Allows you to specify conditions for the conversion. Select an option and enter a text in the text field below.

Markers to Convert – All

Converts all markers.

Markers to Convert – In Selected Audio Range

Converts only markers of the selected audio range.

Markers to Convert – Skip Locked Markers

Excludes locked markers from the conversion.

RELATED LINKS
Markers Window on page 622
Converting All Markers of a Specific Type on page 636

Renaming Markers

You can change the names of markers.

● To rename a marker in the wave window or the montage window, right-click a marker, select **Rename**, and enter a new name.

● To rename a marker in the **Markers** window, double-click a marker name in the **Name** column, and enter a new name.

● To batch rename multiple markers according to specified settings, in the **Markers** window, select **Functions** > **Batch Renaming**.

● To edit the default names, in the **Markers** window, select **Functions** > **Default Marker Names**.

RELATED LINKS
Batch Renaming on page 819
Markers Window on page 622

Default Marker Names Dialog

In this dialog, you can specify the default marker names.

- To open the **Default Marker Names** dialog, open the **Markers** window, and select **Functions** > **Default Marker Names**.
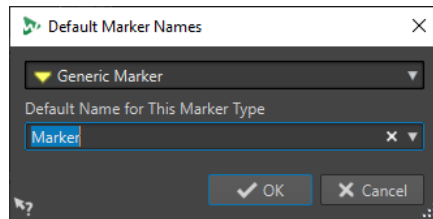
Marker type

Allows you to select the type of marker for which you want to specify a default name.

Default Name for This Marker Type

Allows you to specify the default name for the selected marker type.

RELATED LINKS

Selecting Markers

There are several ways to select markers.

- In the wave window or the montage window, click a marker.
- In the **Markers** window, click in a cell. The corresponding marker is selected.
- Use **Ctrl/Cmd** or **Shift** to select multiple markers.

The marker icon changes its background to indicate the selection.

RELATED LINKS

Selecting the Audio Between Markers

You can select the audio between two adjacent markers or between any two markers. This allows you to select a section that has been marked.

- To select the audio between two adjacent markers, double-click between two adjacent markers in the **Audio Editor** or in the **Audio Montage** window.
- To select several regions between two adjacent markers, double-click between two adjacent markers, and after the second click, drag to select the adjacent regions.

- To select the audio between a region marker pair, hold down **Shift**, and double-click a region marker.

- To extend the selection until the end of a marker region, in the **Audio Editor** or in the **Audio Montage** window, hold down **Shift**, and double-click in the marker region that you want to select.

- To open the **Markers** window and display further information about a specific marker, hold down **Alt**, and double-click a marker.

RELATED LINKS
Audio Editor Window on page 176
Audio Montage Window on page 320
Markers Window on page 622

Binding Markers to Clips in the Audio Montage

In the **Audio Montage** window, you can bind markers to clips. By doing this, the marker remains in the same position, relative to the clip start/end, even if the clip is moved or resized in the audio montage.

You can find the options regarding binding clips and markers on the **Functions** menu of the **Markers** window, and when right-clicking a marker in the **Audio Montage** window.

When a marker is bound to a clip element, its name is preceded by a blue character.
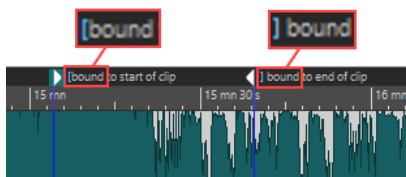
RELATED LINKS
Markers Window on page 622

Import and Export of Markers

Markers can be exported into different output formats and imported from XML and CSV files, both into audio files and audio montages.

Exported marker files can contain the following information:

- Marker types

- Marker names

- Region lengths

- Comments

- Sample rate of the file that contains the markers (XML files only)

- Position of each marker on the timeline

NOTE

In the **Audio Editor**, markers that are located beyond the end of an audio file are not imported.

RELATED LINKS
Markers Window on page 622

Importing Markers from XML Files

You can import markers from XML files.

To import markers from XML files, make sure that the formatting of the XML files corresponds to the formatting of files created on exporting markers. To create a custom XML marker file via a text editor or a script, we recommend using an exported marker file as a reference. Marker files must at least include the marker position in sample position units.

TIP

You can also import XML marker files to your batch process to apply a marker structure to multiple files.

PROCEDURE

1. Open the **Markers** window.

2. Select **Functions** > **Import Markers from XML File**.

3. Select the XML file that you want to open.

4. Click **Open**.

    NOTE

    If the XML file to be imported contains a sample rate and the marker position in samples and the sample rate of the imported markers differs from the sample rate of the target file, the marker positions are automatically adapted to the target sample rate.

RELATED LINKS

Importing Markers from CSV Files

You can import markers from CSV files.

CSV marker files are commonly used by quality assurance teams to mark specific points in audio recordings.

NOTE

In WaveLab Pro, importing CSV marker files is primarily intended for retrieving information from external applications. To transfer marker information internally; that is, within WaveLab Pro, we recommend using the XML import feature instead.

PREREQUISITE

- You have exported a CSV marker file from an external audio application that supports this format; for example, Nuendo, or generated a CSV marker file via a spreadsheet application.

NOTE

Although the CSV format is clearly defined, there is no standard for CSV files in connection with audio. WaveLab Pro accommodates standard separators, such as tab, comma, and semicolon. For time-related fields, WaveLab Pro supports either:

- a timecode with frames in milliseconds or

- a timecode with a specific frame rate aligning with the time ruler of the active file or

- a sample position, with the active file sharing the same sample rate as the audio application that was used to generate the CSV file

- You have created and opened an audio file or an audio montage in WaveLab Pro.

PROCEDURE

1. Open the **Markers** window.

2. Select **Functions** > **Import Markers from CSV File**.

3. Select the CSV file that you want to open.

4. Click **Open**.

5. Make the required adjustments in the **Import Markers from CSV File** dialog, and click **OK**.

Import Markers from CSV File Dialog

The **Import Markers from CSV File** dialog allows you to enter information so that WaveLab Pro can clearly identify the columns to be considered for importing data.

When you click the down arrow on the right side of an entry field, WaveLab Pro displays suggestions for the information to be entered into the fields.
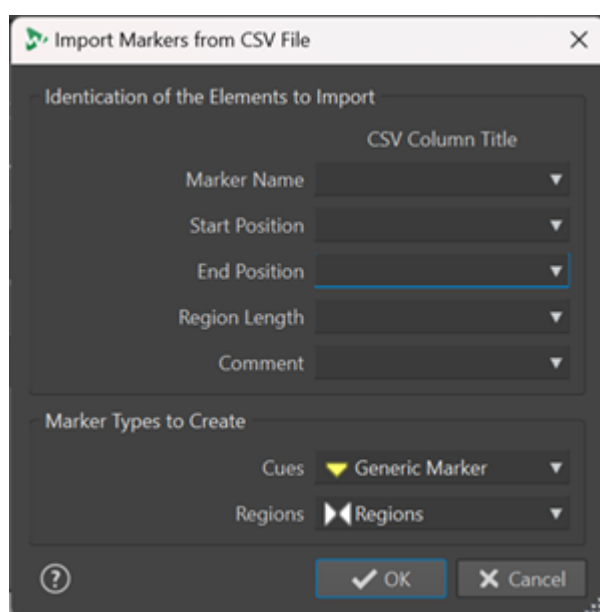
Marker Name

Allows you to select the CSV column where the marker name is defined.

Start Position

Allows you to select the CSV column where the start position of the marker is defined.

NOTE

This is a mandatory field.

End Position

Allows you to select the CSV column where the end position of the marker is defined.

Region Length

Allows you to select the CSV column where the duration of the audio region is defined.

NOTE

If the CSV file only contains cues and no regions, there is no need to specify **End Position** and **Region Length**. You can choose **Ignore** instead.

Comment

Allows you to select the CSV column where a comment has been added.

Marker Types to Create

Allows you to select the type of markers to be created for **Cues** and **Regions**.

RELATED LINKS
Markers Window on page 622
Import and Export of Markers on page 639
Importing Markers from CSV Files on page 640
Importing Markers from XML Files on page 640

Exporting the Markers List as Text

You can export the markers list as text. The markers list contains the marker names, positions, region lengths, types, and comments.

PROCEDURE

1. Open the **Markers** window.

2. Select **Functions** > **Export Markers List as Text**.

3. Make the desired adjustments in the **Export Markers List as Text** dialog.

4. Click **OK**.

RELATED LINKS
Specifying Folders for Opening and Saving Files on page 138
Markers Window on page 622
Export Markers List as Text Dialog on page 643

Export Markers List as Text Dialog

This dialog allows you to export the markers list in various file formats, or as a printout. You can decide what marker information to include in the exported file.

- To open the **Export Markers List as Text** dialog, open the **Markers** window and select **Functions** > **Export Markers List as Text**.
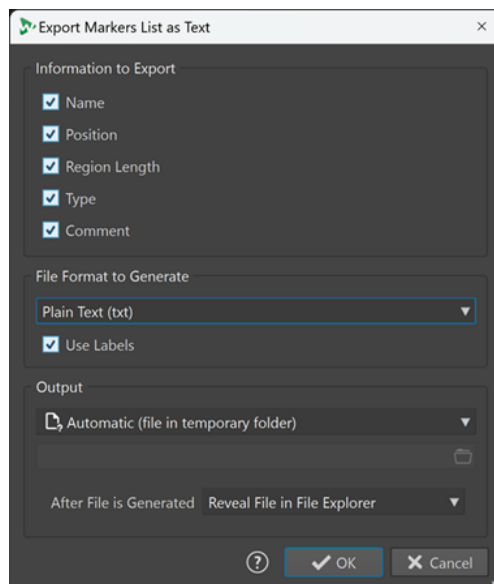
Information to Export

Allows you to specify which information you want to include in the output text. The following information is available:

- Name
- Position
- Region Length
- Type
- Comment

File Format to Generate

Allows you to select the output format for the exported markers list. The following output formats are available:

- **Plain Text (txt)** generates a text file with the extension TXT. The character format is UTF-8.
- **Spreadsheet (csv)** generates a text file with the extension CSV. Text items are separated by a character, as specified in the **Preferences**. This type of file can be imported by spreadsheets. The character format is UTF-8.
- **Markdown (md)** generates a file with the extension MD. The character format is UTF-8.
- **XML** generates a file with the extension XML. The character format is UTF-8.
- **HTML** generates a web browser file with the extension HTML. The character format is UTF-8.
- **Adobe PDF** generates a file with the extension PDF.
- **Open Office (odf)** generates a file with the extension ODF.

Use Labels

With this option activated, a descriptive label is added to each chunk of text.

Output

Allows you to define which of the following types of output to generate:

- **Specific File** allows you to indicate a file path in the entry field below.
- **Automatic (file in temporary folder)** causes WaveLab Pro to automatically create a file in a temporary folder.
- **Print Preview** opens a preview dialog, which allows you to make adjustments for printing the text.
- **Copy Text to Clipboard** copies the text to the clipboard.

After File is Generated

Allows you to specify what you want WaveLab Pro to do after generating the file:

- **Do Nothing** creates the file without opening it.
- **Reveal File in File Explorer** displays the file in the File Explorer/macOS Finder.
- **Open File in Associated Application** launches the application that you have specified for opening the generated file format, if any.
- **Copy File Path to Clipboard** copies the file path to the clipboard.

RELATED LINKS
Markers Window on page 622
Exporting the Markers List as Text on page 642

How Marker Information is Saved

WaveLab Pro can optionally use MRK files as a way to save marker information that is independent of the file format.

However, to make marker information exchangeable between applications, WaveLab Pro also saves some information in the Wave headers.

NOTE

By default, no MRK files are created, and information is saved in the Wave headers.

RELATED LINKS
Markers on page 621
File Tab (Audio Files Preferences) on page 875

Generating Chapters for YouTube and Spotify via Markers

If you intend to upload your audio material to YouTube or Spotify, you can divide it into chapters so that your audience can select and play particular parts of the content.

Based on marker pairs, WaveLab can generate a text file that is compatible with YouTube and Spotify and that indicates the chapters in your audio material.

PROCEDURE

1. To define the chapters, set and name a minimum of three marker pairs in your active audio file or audio montage.

   NOTE

   - The minimum length for a chapter is ten seconds.

   - A marker is required at the very beginning of your audio material. If no marker is available, WaveLab automatically creates a chapter called "Introduction".

2. Open the **Markers** window by selecting **Tool Windows** > **Markers**. From the **Functions** menu, choose **Generate Chapters** 🔲.

   The **Chapter Generator** dialog opens.

3. Make the desired adjustments in the **Chapter Generator** dialog, and click **OK**.

RESULT

A text file is created, which lists the chapters of your audio material.

EXAMPLE
Text file listing the chapters:
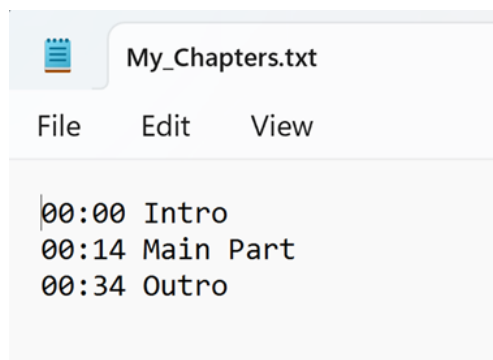
IMPORTANT

- If the text file does not list your chapters as intended, verify the following:

   - You have assigned a name to each marker pair that defines a chapter.

      WaveLab ignores unnamed marker pairs and does not include them in the text file.

   - The name of every marker pair starts with a letter.

      WaveLab ignores marker pairs whose names start with a digit and does not include them in the text file.

   - You have not used any region end markers to define the chapters.

      WaveLab does not recognize region end markers as chapter identifiers and does not include them in the text file.

RELATED LINKS
Chapter Generator Dialog on page 646
Markers Window on page 622

Chapter Generator Dialog

The **Chapter Generator** dialog allows you to define the chapters in your audio material, for use on YouTube or Spotify.

● To open the **Chapter Generator** dialog, open the **Markers** window, and select **Functions** > **Generate Chapters** 🔳.
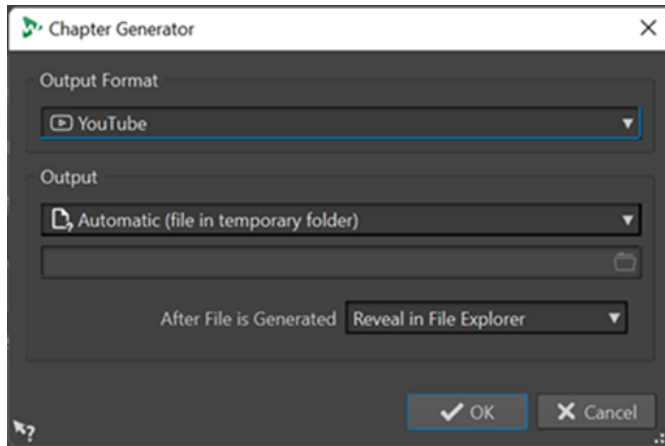
Output Format

Allows you to select **YouTube** or **Spotify** as the output format.

Output

Allows you to specify the destination of the text file. You can choose from the following options:

● **Automatic (file in temporary folder)**: Saves the text file in a temporary folder.

● **Specific file**: Allows you to navigate to and select a particular file by clicking the folder symbol in the line below.

● **Printer**: Allows you to send the text file to a printer.

● **Clipboard**: Sends the text file to the clipboard.

After File is generated

Allows you to specify what you want WaveLab to do after creating the text file listing the chapters. You can choose from the following options:

● **Reveal in File Explorer**: Displays the text file in the File Explorer/macOS Finder. Opening it from there allows you to verify that the chapters are listed correctly.

● **Do Nothing**: Creates the text file without opening it.

● **Launch Associated Application**: Launches the application you have specified for opening `.txt` files, if any. This allows you to verify that the chapters are listed correctly.

RELATED LINKS
Generating Chapters for YouTube and Spotify via Markers on page 644
Markers Window on page 622

Metering

WaveLab Pro contains a variety of audio meters that you can use for monitoring and analyzing audio. Meters can be used to monitor audio during playback, rendering, and recording. Furthermore, you can use them to analyze audio sections when playback is stopped.

RELATED LINKS

Meter Windows

WaveLab Pro contains a variety of audio meters that you can use for monitoring and analyzing audio. Meters can be used to monitor audio during playback, rendering, and recording. Furthermore, you can use them to analyze audio sections when playback is stopped.

The meter windows can be accessed via the **Meters** menu. There can only be one instance of each audio meter.

Audio meters can be used in the WaveLab Pro window and in the **Control Window**.

The axis of most audio meters can be rotated, to view the graphics horizontally or vertically. For some meters, you can also style and customize parameters via a settings dialog.

RELATED LINKS

Opening and Closing Meter Windows

You can close all meter windows you do not need for your project.

- To open a meter window, select **Meters** and select a meter window.

- To close a docked meter window, right-click the meter window tab and select **Hide**.

- To close an undocked meter window, click its **X** button.

RELATED LINKS

Real-Time vs. Non-Real-Time Metering

Metering can be used to measure audio in real time, that is, while the audio is being played back, or in non-real-time, that is, in stop mode.

Metering Monitor Modes

You can choose which audio source to monitor and select a mode for displaying information in the meters.

The following metering modes are available on the **Analyze** tab in the **Monitoring** section of the **Audio Editor**.

Playback

This is the standard metering mode, in which the meters reflect the audio that is played back. Metering occurs after the **Master Section**, which means that effects, dithering, and master faders are taken into account. You can monitor audio files, audio montages, title lists, etc.

Audio Input

In this mode, the meters reflect the audio input. Typically, this is the mode to use when recording. The **Master Section** settings are not taken into account.

Freeze Meters

This mode freezes the values for all open meters. The meters remain frozen until you select another monitor mode.

File Rendering

In this mode, you can monitor what is being written to disk during file rendering or when recording. Like **Audio Selection**, average and min/max peak values are calculated. After rendering, the meters freeze until you refresh or change monitor mode.

Edit Cursor

In this mode, the meters are static, showing the levels and other values for the audio at the position of the edit cursor in stop mode. This allows you to analyze a specific position in an audio file in non-real-time. The **Master Section** settings are not taken into account.

Audio Selection

In this mode, the meters display the average values calculated for the selected range. The **Master Section** settings are not taken into account.

When you change the selection, you have to update the meter displays by clicking **Update Selection Analysis**.

Update Selection Analysis

Analyzes the audio selection again and updates the meters.

Meter Settings

You can set up most meters in the corresponding settings dialogs. For example, you can adjust the behavior, scale, and color of the meters.

- To open the settings dialog for a meter, select **Functions** > **Settings**.
- To check the results after changing the settings without closing the settings dialog, click **Apply**.

- To close the settings dialog and discard any changes that you have made, even if you have clicked the **Apply** button before, click **Cancel**.

RELATED LINKS
Meter Windows on page 647

Multichannel Metering

WaveLab Pro features 8 audio channels that can be routed to inputs and outputs on a multi i/o audio card. The audio montage supports various surround channel configurations using up to 8 channels.

WaveLab Pro can display multiple meters. When working with multiple channels in an audio montage, each channel has its own meter. This applies to all meters (up to 8 real-time FFTs, 8 level meters, 4 pan meters, 4 phase scopes, etc.). If a surround configuration is selected, each meter indicates the corresponding surround channel (Lf, Rf, LFE, etc.).

When working with more than two channels, it is recommended to use floating meter windows, because they can be resized more easily.

Resetting the Meters

You can reset the display of some meters, for example, the **Level Meter**.

PROCEDURE

- In the meter window, click **Reset**, or select **Functions** > **Reset**.

RESULT

All values and numerical indicators of the meter are reset.

RELATED LINKS
Meter Windows on page 647

Using Presets in the Meter Windows

You can save any settings you applied to a meter window as a preset. By assigning presets to preset buttons, you can quickly switch between different level scales and display modes, for example.

- To save your settings as a preset, select **Functions** > **Settings**, click **Presets**, and select **Save As**.

- To assign a preset to one of the preset buttons, select **Functions** > **Settings**, click **Presets**, and from the **Assign to Preset Button** submenu, select a preset button.

- To apply a preset, select it from the **Functions** menu, or click the corresponding preset button.
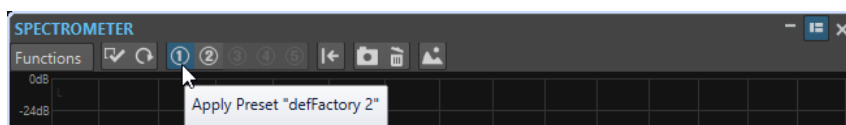
Preset buttons 1-5

Level Meter

The **Level Meter** displays the peak and average loudness/decibel levels of your audio file, and the balance between the left and right channels in a stereo file.

● To open the **Level Meter**, select **Meters** > **Level Meter**.
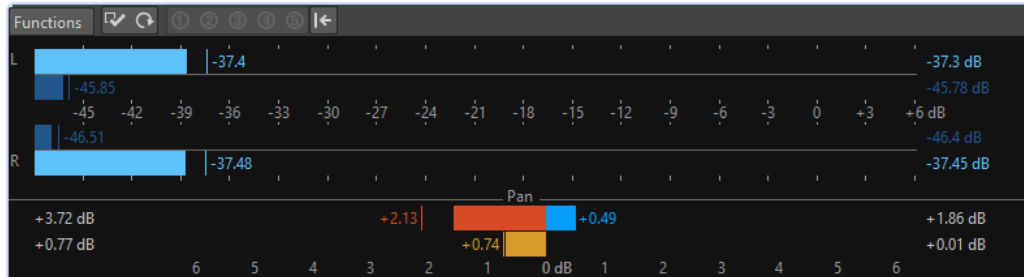
Level Meters

The upper part of the window shows the peak level and the average loudness in the following way:

● The peak level meters display the peak levels of each channel, graphically and numerically.

● The VU meters measure the average loudness (RMS) of each channel. These meters have a built-in inertia, evening out loudness variations over a user-defined time span. If you are monitoring playback or the audio input, you can see two vertical lines following each VU meter bar. These lines indicate the average of the most recent minimum RMS values (left line) and the average of the most recent maximum RMS values (right line). To the left, the difference between the minimum and maximum average values is displayed. This gives you an overview of the dynamic range of the audio material.

● If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed to the right of the meter bars. The numbers in brackets to the right of the maximum peak values indicate the number of times that clipping occurs (0 dB signal peaks). Values between 1 and 2 are acceptable, but if you get a larger number, you should lower the master level to avoid digital distortion.

● Recording levels should be set so that they only rarely clip. If the master level is set too high, the sound quality and frequency response are compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels can be high relative to the main sound being recorded.

Pan Meters

The lower part of the window shows the difference in level between the left and right channel of a stereo audio file.

● The upper pan meters show the peak level difference between the channels. The level bars can go to the left or right, indicating which channel is loudest.

● The lower pan meters show the average difference in loudness between the channels. This gives you a visual indication of whether a stereo recording is properly centered, for example.

● If you are monitoring real-time audio (playback or input), the maximum balance difference values (peak and loudness) for each channel are displayed numerically to the left and right of the meter bars.

Level/Pan Meter Settings Dialog

In the **Level/Pan Meter Settings** dialog, you can adjust the behavior, scale, and color of the meters.

● To open the **Level/Pan Meter Settings** dialog, open the **Level Meter** window, and select **Functions** > **Settings**.

Peak Meter Section

Peaks pop-up menu

On this pop-up menu, select **Digital Peaks** if you want WaveLab Pro to use sample values and **True Peaks** if you want WaveLab Pro to use analog reconstructed values.

Ballistics – Release Rate

Determines how fast the peak level meter falls after a peak.

Ballistics – Peak Hold Time

Determines how long a peak value is displayed. The peak can be displayed as a line or a number. If the meter is too short, only the line is displayed.

Top Zone/Middle Zone/Low Zone

The color buttons allow you to select colors for the low, middle, and top zones of the level meter. You can define the range for the top and middle zones by changing the corresponding values.

Cursor Mode – Unit

Allows you to specify which unit is used to display the peak value.

Cursor Mode – Show Value of Single Sample

If this option is activated, the value of the single sample is displayed at the cursor position. If this option is deactivated, several samples are scanned around the cursor to determine the peak value. Generally, this is best activated when you have zoomed in on the waveform to see the details.

VU Meter (Loudness) Section

VU Meter (Loudness)

Activates/Deactivates the VU meter.

Modes pop-up menu

On this pop-up menu, you can choose between the standard mode and three K-System modes. The settings for K-System modes are shown in the **Zones** section.

Ballistics – Resolution

Sets the time that is used to determine the loudness. The smaller this value, the more the VU meter behaves like the peak meter.

Ballistics – Range Inertia

Sets the time that is used to determine the recent minimum and maximum value lines, and therefore determines how quickly these respond to changes in loudness.

Top Zone/Middle Zone/Low Zone

The color buttons allow you to select colors for the low, middle, and top zones of the VU level meter. You can define the range for the top and middle zones by changing the corresponding values.

Cursor Mode – Samples to Scan

Determines how many samples are scanned when calculating the VU meter value at the edit cursor position. For this, the **Edit Cursor** monitoring mode must be activated on the **Analyze** tab of the **Audio Editor**.

Panning Meter Section

Panning Meter

Shows/Hides the panning meter in the **Level Meter** window.

Range

Determines the dB range of the panning meter.

Peak and Loudness Left/Right

Lets you specify the colors for the different elements.

Global Colors Section

In this section, you select colors for the meter background, marks (scale units), and grid lines.

Global Range (Peak and VU Meter) Section

In this section, you specify the minimum and maximum values of the displayed level range.

RELATED LINKS

K-System VU Meter Modes

K-System integrates standardized metering, monitor calibration, and level practices.

In WaveLab Pro, you can choose from three metering modes which all set the 0 dB VU point below the standard level meter. To fully utilize the K-System, you have to calibrate your monitor level, so that 0 VU equals 83 dB.

We recommend using a pink noise reference signal and a SPL level meter. Use C weighting (slow response), and adjust your playback level, so that your noise meter indicates 83 dB SPL per channel or 86 dB SPL when played on the two channels simultaneously.

The K-System has three meter operating modes (selectable from the VU-Meter pop-up in the **Level/Pan Meter Settings** dialog). These are intended for different uses:

- K-System 20: This places 0 VU 20 dB lower than standard VU mode, and is intended for music with a very wide dynamic range, such as classical music.

- K-System 14: This places 0 VU 14 dB lower than standard VU mode, and is intended for music with a slightly more compressed dynamic range, such as pop, R&B, and rock music.

- K-System 12: This places 0 VU 12 dB lower than standard VU mode, and is intended for broadcasting applications.

Loudness Meter

The **Loudness Meter** is an audio meter for monitoring loudness, according to the EBU R-128 standard.

- To open the **Loudness Meter**, select **Meters** > **Loudness Meter**.
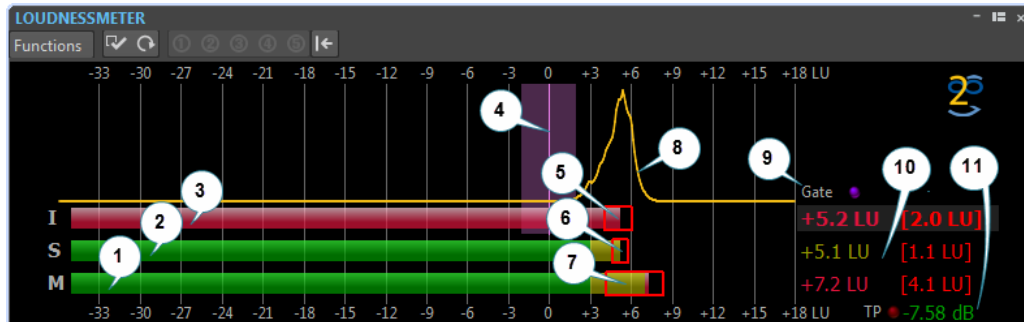
1. **Momentary loudness bar**

   Displays the loudness of a 400 milliseconds slice that is evaluated every 100 milliseconds.

2. **Short-term loudness bar**

   Displays the loudness of a 3 seconds slice that is evaluated every second.

3. **Integrated loudness bar**

   Displays the average loudness. This bar is evolving over time, because it makes an average of the loudness by measuring 400 millisecond slices every 100 milliseconds.

4. **Target loudness**

   The purple vertical line corresponds to the target loudness defined in the **Loudness Meter Settings** dialog. The purple shadow around it corresponds to the acceptable deviation.

5. **EBU R-128 Loudness Range (LRA)**

   This loudness range displays the difference between the estimates of the 10th and the 95th percentiles of the loudness distribution. The lower percentile of 10% can, for example, prevent the fade out of a music track from dominating the loudness range. The upper percentile of 95% ensures that an unusually loud sound, such as a gunshot in a movie, is not responsible for a large loudness range.

   The EBU R-128 loudness range, the dynamics range of the short-term loudness, and the dynamics range of the momentary loudness help to decide if dynamic compression is necessary, by giving instant feedback about the dynamics (too low, good, too much).

6. **Dynamics range of the short-term loudness**

   This loudness range monitors the recent minimum/maximum loudness measurements to provide a hint about the short-term dynamics.

7. **Dynamics range of the momentary loudness**

   This loudness range monitors the recent minimum/maximum loudness measurements to provide a hint about the momentary dynamics.

8. **Loudness curve**

   This curve shows how the loudness is distributed in a song. The audio signal is divided into small blocks, and the loudness of each block is computed. The curve informs about how often audio events with a given loudness appear in the file in comparison to all other events. If the curve has a peak, the given loudness often appears in the song.

   The curve is always normalized. The peak shows which loudness is the most represented in a song. The curve is related to the LRA as the LRA starts at the left part of the curve and ends at the right part, with a 10%/95% tolerance.

9. **Gate LED**

   The **Gate** LED lights up when audio is discarded from measurement. The EBU standard discards audio below a specific level, relative to the average loudness.

10. **Numerical values of the bars**

    This section shows the numerical values of the bars. The values in brackets are the loudness ranges.

11. **True Peak LED**

    The **True Peak** LED is based on a true peak analysis and lights up when clipping is detected.

RELATED LINKS
Loudness Meter Settings on page 654
EBU Loudness Standard R-128 on page 69

Loudness Meter Settings

In the **Loudness Meter Settings** dialog, you can set up the appearance of the **Loudness Meter** window.

● To open the **Loudness Meter Settings** dialog, open the **Loudness Meter** window, and select **Functions** > **Settings**.

Short-term Loudness/Momentary Loudness

Top Zone/Middle Zone/Low Zone

Allows you to specify the colors for the top, middle, and low zones of the meter.

From

Allows you to specify the starting point for the middle and top zones.

Show Maximum Values

If this option is activated, the maximum short-term and momentary values are displayed instead of the loudness range values.

Loudness Range

If this option is activated, a moving rectangle is displayed, which symbolizes the short-term loudness range/momentary loudness.

Ballistics

Determines the inertia of the loudness range for the short-term loudness/momentary loudness, that is, how fast the range edges meet each other after a new minimum or maximum loudness is reported.

Integrated Loudness

Target Loudness

Allows you to specify the ideal loudness to match. The EBU R-128 recommendation for broadcast is -23 dB.

Acceptable Deviation

Allows you to specify the loudness range that is considered to be an acceptable deviation from the target loudness.

Outside the Acceptable Deviation

Allows you to specify a color for the range that is outside the acceptable deviation.

Loudness Range

Range Color

Lets you specify the range colors if the range size is above the associated value (**Too Much**), exactly as the associated value (**Good**), or below the associated value (**Not Enough**).

Below/From

A loudness range that you consider to be not enough (**Below**) and too much (**From**).

Transition

Lets you specify how fast the color changes from **Good** to **Too Much**, and from **Good** to **Not Enough**. 0% means that the color changes abruptly when a threshold is reached. 100% means that the color changes gradually.

Additional Settings

Background/Marks/Grid/Curve

Allows you to set the colors for the meter background, marks, grid lines, and the loudness distribution curve of the **Loudness Meter**.

Peak Hold Time

Determines how long the peak LED remains lit after a true peak.

Show Loudness Histogram

If this option is activated, a loudness histogram is displayed in the **Loudness Meter**.

Scale

In this section, you can specify the low and high end of the displayed level range.

The EBU +9 scale and the EBU +18 scale are EBU recommendations. Both of these scales are centered around 0 LU, which represents -23 LUFS, the recommended EBU loudness.

RELATED LINKS
Loudness Meter on page 653

Phasescope

The **Phasescope** indicates the phase and amplitude relationship between two stereo channels.

● To open the **Phasescope**, select **Meters** > **Phasescope**.
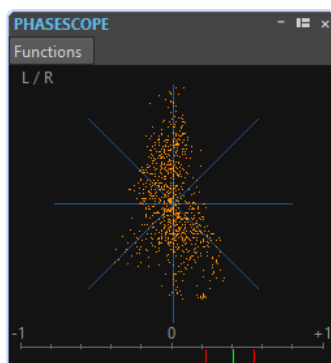
Reading the Phasescope

The **Phasescope** works as follows:

- A vertical line indicates a perfect mono signal (the left and right channels are the same).

- A horizontal line indicates that the left channel is the same as the right, but with an inverse phase.

- A fairly round shape indicates a well-balanced stereo signal. If the shape leans to one side, there is more energy in the corresponding channel.

- A perfect circle indicates a sine wave on one channel, and the same sine wave shifted by 45° on the other.

- Generally, the more you can see a thread, the more bass is in the signal, and the more spray-like the display, the more high frequencies are in the signal.

Phase Correlation Meter

The phase correlation meter at the bottom of the display works as follows:

- The green line shows the current phase correlation, and the two red lines show the recent minimum and maximum values.

- With a mono signal, the meter shows +1, indicating that both channels are perfectly in phase.

- If the meter shows –1, the two channels are the same, but one is inverted.

- Generally, for a good mix, the meter should show a value between 0 and +1.

The phase correlation meter is also available in **Analyze Audio Selection** mode, showing an average value for the selected range.

Phasescope Settings

In the **Phasescope Settings** dialog, you can adjust the behavior, scale, and color of the meters.

- To open the **Phasescope Settings** dialog, open the **Phasescope** window, and select **Functions** > **Settings**.

Background

Click this to change the background color.

2D Display

Allows you to adjust the color for the grid and the signal of the 2D display.

Auto-Size (Maximize)

If this option is activated, the display is optimized to fit in the window.

Correlation Display

This is where you select colors for the elements in the phase correlation meter display, and adjust the peak hold time for the maximum and the minimum indicator.

Number of Samples to Display

This setting affects the length of the phase coil and the density of the display. For audio with high sample rates, you might want to raise this value.

Spectroscope

The **Spectroscope** shows a graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars.

- To open the **Spectroscope**, select **Meters** > **Spectroscope**.
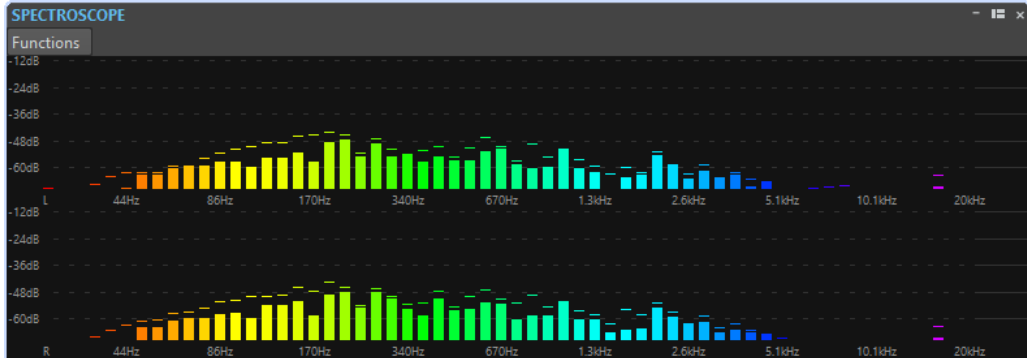
Peak levels are shown as horizontal lines above the corresponding bands, indicating recent peak/maximum values. The **Spectroscope** offers a quick spectrum overview. For a more detailed analysis of the audio spectrum, use the **Spectrometer**.

On the **Functions** menu, you can specify whether only high audio levels are displayed, or whether medium and low levels are also shown.

The following settings are available:

- **Restrict to High Audio Levels**
- **Include Medium Audio Levels**
- **Include Low Audio Levels**

Spectrometer

The **Spectrometer** uses FFT (Fast Fourier Transform) techniques to display a frequency graph, providing a precise and detailed real-time frequency analysis.

- To open the **Spectrometer**, select **Meters** > **Spectrometer**.

The current frequency spectrum is shown as a linear graph. Spectrum peaks are shown as short horizontal lines.

Zooming in the Spectrometer Window

In the **Spectrometer** window, you can zoom in on a frequency area.

- To zoom in on a frequency area, click and drag a rectangle in the spectrum. The display is zoomed in so that the selected frequency range fills the window.

- To return to full-scale display, select **Functions** > **Zoom out Fully**, or double-click in the spectrum.

Spectrometer Snapshots

You can take snapshots of the current spectrum, to check the effects of adding EQ, for example.

The snapshots are displayed on the spectrum graph. Up to five snapshots can be displayed. The sixth snapshot replaces the earliest snapshot.
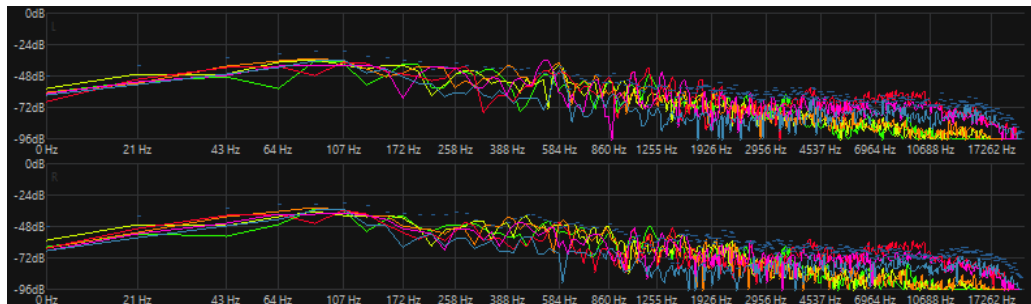
- To take a snapshot, select **Functions** > **Add Snapshot**.
- To erase the last snapshot, select **Functions** > **Erase Last Snapshot**.

Exporting FFT Data as ASCII Text

FFT (Fast Fourier Transform) analysis is a method to convert a waveform from the time domain to the frequency domain. You can export the displayed FFT data as a text file.

PROCEDURE

1. In the **Audio Editor**, select the **Analysis** tab.

2. In the **Monitoring** section, activate **Edit Cursor** or **Audio Selection**.

3. In the **Spectrometer** window, select **Functions** > **Export FFT Data as ASCII**.

4. Specify a file name and location.

5. Click **Save**.

RESULT

The resulting text file can be imported into Microsoft Excel, or other applications that allow graph plotting from text files.

Creating Spectrometer Settings Presets

You can save up to five **Spectrometer Settings** as presets and assign them to the **Presets** buttons. This allows you to quickly compare different **Spectrometer** settings.

PROCEDURE

1. In the **Spectrometer** window, select **Functions** > **Settings**.

2. In the **Spectrometer Settings** dialog, make adjustments as required.

3. Click the **Presets** menu, and select **Assign to Preset Button**.

4. Select the button to which you want to apply the preset.

5. Click **OK** to close the **Spectrometer Settings** dialog.

6. Start playback, and click the **Apply Preset** buttons to switch between the presets.
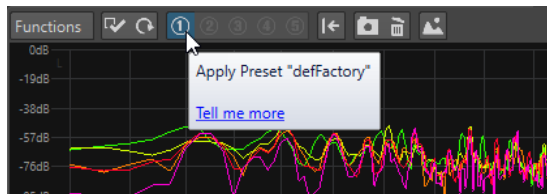
Spectrometer Settings

In the **Spectrometer Settings** dialog, you can adjust the behavior and display of the meters, and assign up to five sets of spectrometer settings to the preset buttons.

● To open the **Spectrometer Settings** dialog, open the **Spectrometer** window, and select **Functions** > **Settings**.

Process Tab

Analysis Block Size

The higher this value, the higher the accuracy in the frequency domain, that is, the spectrum is divided into more bands. At the same time, the time localization is reduced. This means that the higher the value, the less easy to know where a given frequency starts and ends in time.

NOTE

Raising the block size value also requires more CPU power and introduces a higher latency. Therefore, high values should only be used for offline monitoring.

Analysis Overlapping

To get more accurate results, the program can analyze overlapping blocks. This setting determines the amount of overlap between these blocks – the higher the value, the more accurate the results.

NOTE

Raising this value is very CPU-intensive. A setting of 50% requires twice the amount of CPU power, a setting of 75% requires four times the CPU power, etc.

Smoothing Window

Allows you to choose which method to use for pre-processing the samples in order to optimize the **Spectrogram**.

Display Tab

Frequency Ruler

Determines the frequency range to be shown, at full-scale display. The lowest frequency to be shown depends on the **Analysis Block Size** setting and the highest actual frequency depends on the sample rate.

Logarithmic Scale

When this option is activated, each octave occupies the same horizontal space in the display. If you need more resolution in the high frequency range, you may want to turn this off.

Level Ruler

Determines the range of the vertical level ruler in dB.

Normalize Display to 0 dB

If this option is activated, the level display is offset, so that the highest point on the curve is displayed as 0 dB. This is only possible in non-real-time mode.

Optimize Scale

Optimizes the level scale so that only the relevant level range is shown. This is only possible in non-real-time mode.

Display Type

Allows you to toggle the display between curve and bar graph.

Peak Hold Time

Determines for how long the peak level graph remains displayed when the levels drop.

Colors

This is where you select colors for the curves, grid, background, etc.

Presets

You can save up to 5 **Spectrometer Settings** as presets. This allows you to quickly switch between different **Spectrometer** settings during playback.

RELATED LINKS
Creating Spectrometer Settings Presets on page 658

Live Spectrogram

The **Live Spectrogram** shows the last seconds of the audio stream. This allows you to detect disturbances in the spectrogram, and monitor the noise level and frequencies, for example.

● To open the **Live Spectrogram**, select **Meters** > **Live Spectrogram**.
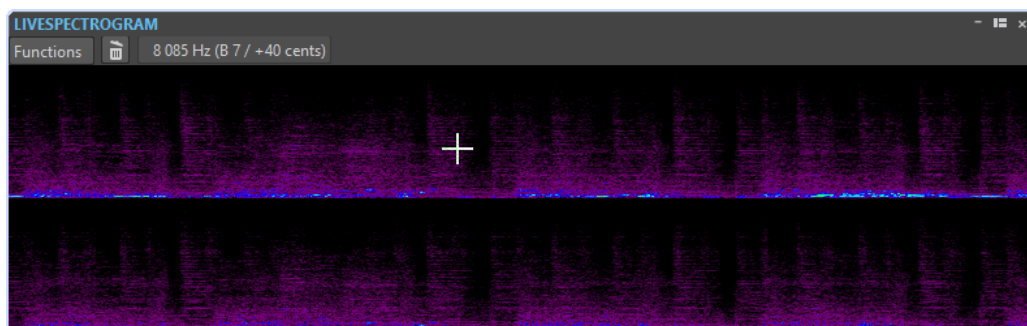
Live Spectrogram Settings

The **Live Spectrogram** settings allow you to adjust the behavior and display of the **Live Spectrogram**.

● To open the **Live Spectrogram** settings, open the **Live Spectrogram** window, and open the **Functions** menu.

Clear

Clears the spectrogram.

Clear on Playback

Clears the spectrogram when you start playback.

Start Scrolling from Left

If this option is activated, the spectrogram starts scrolling from the left edge of the **Live Spectrogram** window.

Start Scrolling from Right

If this option is activated, the spectrogram starts scrolling from the right edge of the **Live Spectrogram** window.

Wrap

If this option is activated, the spectrogram restarts from the left when it reaches the right edge of the **Live Spectrogram** window.

Slow Scroll Speed/Medium Scroll Speed/Fast Scroll Speed

Allows you to select the scroll speed of the spectrogram.

Default Style

The spectrogram uses the style that is defined as default in the **Spectrogram Options** dialog.

Style of Current Audio File

The spectrogram uses the style of the active audio file.

Custom Style

Opens the **Spectrogram Options** dialog that allows you to customize the style of the spectrogram.

Rotate

Allows you to rotate the axis of the spectrogram to view the graphics horizontally or vertically.

Bit Meter

The **Bit Meter** shows how many bits are used.

● To open the **Bit Meter**, select **Meters** > **Bit Meter**.
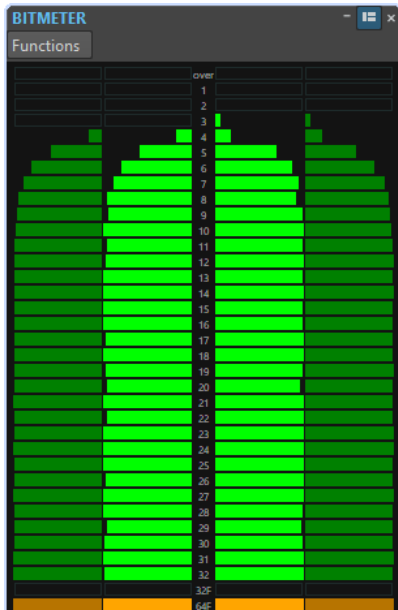
While you may expect the maximum number of bits to be the same as the precision of the audio file, this is not necessarily the case.

As soon as you perform any kind of real-time processing on an audio file, the audio data is treated at a much higher precision (64-bit floating point) to allow for pristine audio quality. The only time when a 16-bit file is played back at 16-bit precision is, for example, if you play it without any fades or effects, and with the master faders set to 0.00.

How to Read the Bit Meter

- The inner meters show how many bits are used.

- The outer meters show how many bits were recently in use.

- The **Over** segment indicates clipping.

- The **32F** segment indicates samples with 32-bit float precision.

- The **64F** segment indicates samples with 64-bit float precision.

When to Use the Bit Meter

The **Bit Meter** is useful in the following situations:

- To check whether dithering is necessary. If you are playing back or mixing down to 16 bits, and the **Bit Meter** shows that more than 16 bits are used, you should apply dithering.

- To see the actual precision of an audio file. For example, even though a file is in 24-bit format, only 16 bits may be used, or a 32-bit file may only use 24 bits.

- To see the bit depth output of a plug-in.

- To see whether samples are 32-bit float, 64-bit float, or any PCM precision between 8 bit and 32 bit at the monitoring point.

RELATED LINKS
Bit Meter Settings on page 663

Bit Meter Settings

In the **Bit Meter Settings** dialog, you can adjust the behavior and display of the **Bit Meter**.

● To open the **Bit Meter Settings** dialog, open the **Bit Meter** window, and select **Functions** > **Settings**.

Colors

You can adjust the colors of the meter segments, grids, background, etc. by clicking the corresponding color buttons.

Bit Hold Time

Determines for how long peak values are held by the outer meters.

Bit Display

Determines how the bits are displayed. In **Intuitive Mode (Proportional to Signal Level)**, the absolute value of the signal is shown. The bar graph goes higher with higher signal levels, similar to a common level meter.

In **True Mode (Signed Samples)**, the meter shows the direct mapping of the bits. However, because the actual values may be negative, there is no intuitive relationship with the level. This mode is useful if you want to check the full range, because all bits are displayed, regardless of the audio signal level.

RELATED LINKS
Bit Meter on page 661

Oscilloscope

The **Oscilloscope** offers a highly magnified view of the waveform around the playback cursor position.

● To open the **Oscilloscope**, select **Meters** > **Oscilloscope**.
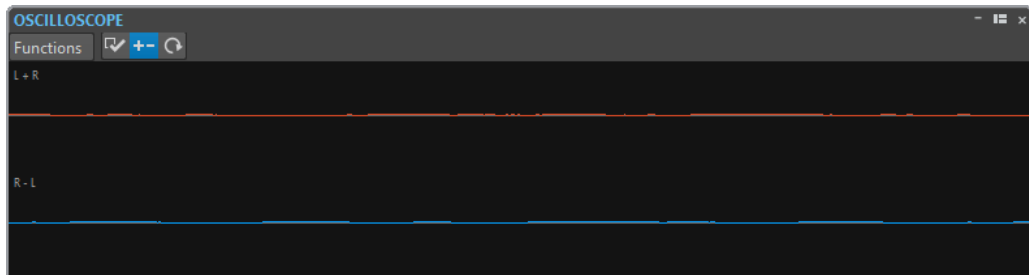
If you are analyzing stereo audio, the **Oscilloscope** normally shows the separate levels of the two channels. However, if you activate **Show Sum and Subtraction** on the **Functions** menu, the upper half of the **Oscilloscope** shows the mix of the two channels and the lower half shows the subtraction.

Oscilloscope Settings

In the **Oscilloscope Settings** dialog, you can adjust the display colors, and activate/deactivate **Auto-Zoom**. When **Auto-Zoom** is activated, the display is optimized so that the highest level reaches the top of the display at all times and even small signals are visible.

● To open the **Oscilloscope Settings** dialog, open the **Oscilloscope** window, and select **Functions** > **Settings**.

Wavescope

The **Wavescope** meter displays a real-time waveform drawing of the audio signal being monitored. It can be useful when recording or rendering a file if **File Rendering** metering monitoring mode is active.

● To open the **Wavescope**, select **Meters** > **Wavescope**.
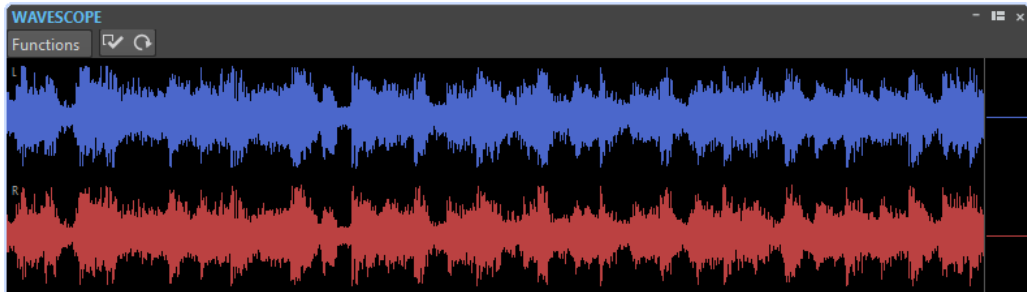
RELATED LINKS
Metering Monitor Modes on page 648
Wavescope Settings on page 664

Wavescope Settings

In the **Wavescope Settings** dialog, you can edit various color settings for the background, grid, and waveform display, and set the waveform rendering speed and vertical zoom.

● To open the **Wavescope Settings** dialog, open the **Wavescope** window, and select **Functions** > **Settings**.

Colors

Lets you select colors for the waveform graphics.

Waveform Rendering Speed

Determines how much the waveform display is compressed.

If **Same As Live Spectrogram** is activated, the rendering speed of the **Wavescope** display has the same speed as the **Live Spectrogram** display.

Level Zoom

Determines the level zoom. Set a high value if the waveform has a low amplitude.

Clear Waveform when Reaching Right of Pane

If this option is activated, the waveform display is cleared each time the cursor reaches the right end of the display. If this option is deactivated, the new waveform overwrites the previous waveform.

RELATED LINKS
Wavescope on page 664

Writing Operations

To start the CD writing process, you must have completed all CD writing preparations. Refer to the section about the **Album** window for a description of the preparations before following the instructions here.

RELATED LINKS
Album Window on page 524
Write Audio Montages on page 667
Write Audio CD or DDP Dialog on page 665

Write Audio CD or DDP Dialog

In this dialog, you can write your audio CD project and audio montage to audio CD or DDP image.

- To write audio montages to an audio CD or a DDP image, open the **Album** window, and select **Functions** > **Write Audio CD or DDP**.
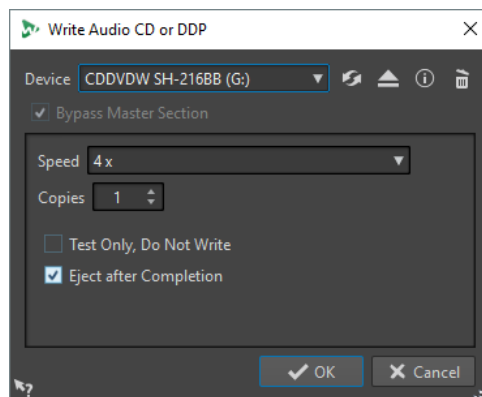
The following options are the same for writing both audio files and audio montages to audio CD or DDP image:

Device

Allows you to select the disc writer that you want to use or select **DDP Image** to write a set of DDP files on the hard drive.

> NOTE
>
> On the Mac, insert a disc in the drive after opening WaveLab Pro. Otherwise, the drive is under the control of the operating system and is not available for WaveLab Pro.

Refresh

Scans the system for connected optical devices. This is done automatically when this dialog opens. Click the refresh icon after you insert a new blank disc to update the **Speed** pop-up menu.

Eject Optical Medium

Ejects the optical medium present in the selected drive.

Device Information

Opens the **Device Information** dialog that shows information about the selected device.

Erase Optical Media

Erases the optical disc present in the selected drive, provided it is a rewritable disc.

If **DDP Image** is selected, clicking the button erases the existing DDP files.

Bypass Master Section

If this option is activated, the audio signal is not processed through the **Master Section** before being written to the disc.

Destination Folder (DDP image must be selected)

Allows you to specify the destination path. If you type a non-existing path, it is automatically created.

Write Table of Contents and Customer Information (DDP image must be selected)

If this option is activated, a file called IDENT.TXT is written in the DDP folder. It contains a table of contents of the tracks and some customer information. This file is not officially part of the DDP specification, but it can be used by the recipient of the DDP image to identify the files.

Speed

Allows you to select the writing speed. The highest speed depends on the capabilities of your writing device and the disc present in the device.

Copies

Allows you to define the number of copies that you want to write.

Test Only, Do Not Write

If this option is activated, clicking **OK** initiates a simulation of writing the CD. If this test is passed, the real write operation will succeed. If the test fails, try again at a lower writing speed.

Render to Temporary File before Writing (only available for writing audio montages)

If this option is activated, a disk image is created before writing, which eliminates the risk of buffer underruns. This is useful if your project uses many audio plug-ins while writing. It is activated automatically when writing multiple copies. While this option makes the writing operation longer, it allows you to select a higher writing speed.

Eject after Completion

If this option is activated, the disc is ejected after the writing operation.

RELATED LINKS
Writing Operations on page 665
Album Window on page 524

Erase Optical Media Dialog

In this dialog, you can quickly or fully erase an optical disc before writing.

- To open the **Erase Optical Media** dialog, open the **Write Audio CD or DDP** dialog, and click the garbage icon.
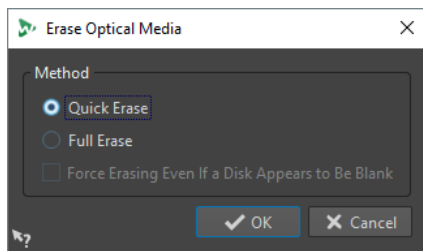
Quick Erase

Erases the table of contents of the disc.

Full Erase

Erases all parts of the disc.

Force Erasing Even If a Disk Appears to Be Blank

If this option is activated, the disc is erased, even if it is declared as blank. Use this option to make sure that discs that were partially or minimally erased are fully erased.

RELATED LINKS
Write Audio CD or DDP Dialog on page 665

Write Audio Montages

You can write audio montages to an audio CD or a DDP image.

RELATED LINKS
Writing an Audio Montage to an Audio CD on page 667
Writing an Audio Montage to a DDP Image on page 668

Writing an Audio Montage to an Audio CD

PREREQUISITE

Set up your audio montage, and make the desired adjustments in the **Global Preferences**.

NOTE

On macOS, insert a disc in the drive after opening WaveLab Pro. Otherwise, the drive is controlled by the operating system and is not available for WaveLab Pro.

PROCEDURE

1. Optional: In the **Album** window, select **Functions** > **Check CD Conformity** to check that all settings conform to the Red Book standard.

2. Insert an empty CD into your drive.

3. In the **Album** window, select **Functions** > **Write Audio CD or DDP**.

4. From the **Device** pop-up menu, select the writing device that you want to use.

5. If you want to bypass the **Master Section**, activate **Bypass Master Section**.

6. Select the writing speed from the **Speed** pop-up menu.

7. Select the number of copies that you want to write.

    When you want to write more than one copy, it is recommended to activate **Render to Temporary File before Writing**.

8. Optional: Activate one or several of the following options:

- Activate **Test Only, Do Not Write** if you want to test if the writing operation would be successful.

- Activate **Render to Temporary File before Writing** if your audio montage uses many plug-ins. This way, the audio data is sent to the CD writer fast enough.

- Activate **Eject after Completion** if you want the disc to be automatically ejected after the writing operation.

9. Click **OK**.

RESULT

The writing operation starts.

RELATED LINKS
Album Window on page 524
Write Audio CD or DDP Dialog on page 665

Writing an Audio Montage to a DDP Image

PREREQUISITE

Set up your audio montage and make the desired adjustments in the **Global Preferences**.

PROCEDURE

1. Optional: In the **Album** window, select **Functions** > **Check CD Conformity** to check that all settings conform to the Red Book standard.

2. In the **Album** window, select **Functions** > **Write Audio CD or DDP**.

3. From the **Device** pop-up menu, select **DDP Image**.

4. If you want to bypass the **Master Section**, activate **Bypass Master Section**.

5. Specify the destination folder.

6. Optional: Activate **Write Table of Contents and Customer Information** to create a text file, containing information about the DDP file.

7. Click **OK** to start the writing operation.

RELATED LINKS
Album Window on page 524
Write Audio CD or DDP Dialog on page 665

Writing Audio Montages With Any Sample Rate

You can write audio montages to CD/DDP even if they are not at 44.1 kHz. To be able to do this, set up the **Resampler** plug-in in the **Master Section**. This procedure is not automated so that you can customize the resampling quality, limiting, and dithering.

PREREQUISITE

Set up your audio montage.

PROCEDURE

1. In the **Master Section**, add the **Resampler** plug-in to an **Effects** slot.

2. In the **Resampler**, set the **Output Sample Rate** to **44100 Hz**.

3. Optional: Add a **Peak Master** and a **Dithering** plug-in at the end of the **Master Section**.

4. Write the audio montage as you would write any other audio montage.

RELATED LINKS
Writing an Audio Montage to an Audio CD on page 667
Writing an Audio Montage to a DDP Image on page 668

Checking the Transition Between Titles

You can set up a pre-roll time before titles start and then play back all titles. This allows you to check the transition between titles.

PREREQUISITE
Set up your audio montage.

PROCEDURE

1. In the **Album** window, select **Options** > **Edit Playback Times**.

2. Make the desired adjustments, and click **OK**.

3. In the **Album** window, select **Functions** > **Play All Title Starts**.

RESULT

Each title start point and end point is played back according to the values set in the **Edit Playback Times** dialog.

RELATED LINKS
Album Window on page 524

CD-Text

CD-Text is an extension of the Red Book Compact Disc standard and allows you to save text information such as the name of the album and the titles, the songwriter, the composer, and the disc ID on an audio CD.

The text data is then displayed by CD players that support the CD-Text format. The CD-Text can also be included in the audio CD report.

NOTE

The CD-Text functionality is only available if you have selected the mode **Stereo** in the **Audio Montage Properties**.

RELATED LINKS
Audio Montage Properties on page 366
CD-Text Editor Dialog on page 670
Importing CD-Text on page 671

CD-Text Editor Dialog

In this dialog, you can specify information such as the name of a CD and its titles, the performer and the songwriter, to be included on the CD as CD-Text.

You can add information about the disc itself and each individual track. This information is entered in the text fields that scroll horizontally. There is one pane of fields for the disc itself and a pane for each track.

NOTE

The CD-Text functionality is only available if you have selected the mode **Stereo** in the **Audio Montage Properties**.

- To open the **CD-Text Editor** dialog, in the **Album** window, select the title for which you want to edit the CD-Text, and select **Functions** > **Edit CD-Text**.
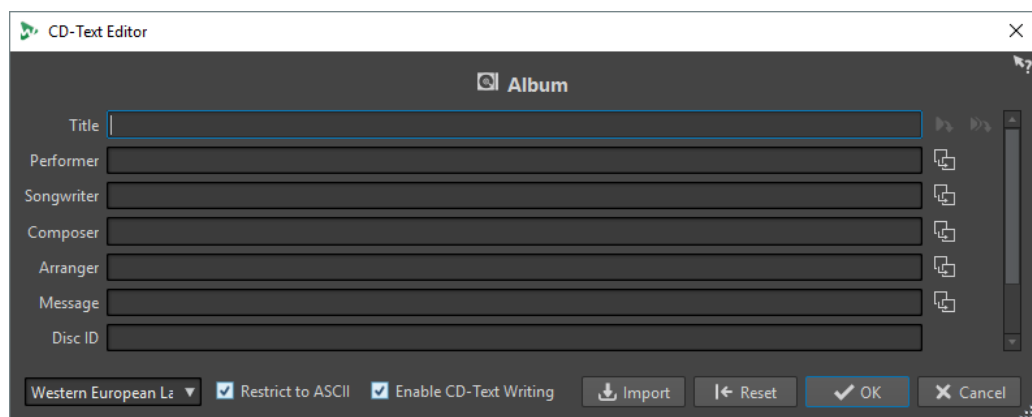
Copy Title Marker Name

Copies the name of the title marker to this field.

Copy Title Start Marker Name to All Titles

Copies the name of each title start marker to the title field of each title.

Copy Text to All Following Titles

Copies the text to all titles that are located after the current one.

Scrollbar

Allows you to navigate across all CD-Texts. The first position corresponds to the whole album, other positions to individual titles.

Language

Allows you to select how characters should be encoded on the CD.

NOTE

If a character is not CD-Text compatible, it is displayed as a **?** character.

Restrict to ASCII

To ensure maximum compatibility with CD players, it is recommended to restrict the characters to ASCII when using the **Western European** option. If this option is activated, and you type a non-compatible character, a **?** character is displayed.

Enable CD-Text Writing

If this option is activated, the CD-Text is written onto the CD.

Import

Allows you to import a text file that contains CD-Text.

Reset

Resets the settings to their default value.

RELATED LINKS
CD-Text on page 669
Album Window on page 524
Audio Montage Properties on page 366
Metadata for Titles on page 530

Importing CD-Text

You can import CD-Text that has been written in a standard CSV text file in UTF-8 format.

● To import CD-Text, click **Import** in the **CD-Text Editor** dialog and select the text file that you want to import.

Importing CD-Text replaces the content of the **CD-Text Editor** dialog.

You can specify the CSV delimiter in the **Global Preferences** on the **Formats** tab. The CSV file must only contain the text and between 1 and 7 fields per line. The text must be in the following order:

1. Title
2. Performer
3. Songwriter
4. Composer
5. Arranger
6. Message
7. Disc ID

RELATED LINKS
CD-Text on page 669
CD-Text Editor Dialog on page 670
Formats Tab (Global Preferences) on page 869

Album Reports

An album report is a detailed report about the active album. This report includes a full title listing with ISRC codes, title times, and CD-Text.

The album report can be output in HTML, Adobe PDF, XML, simple text format, CSV format, or as a paper copy. You can choose the details of what is displayed and include your custom logo. You can send the album report to your client, an album artwork designer, or to the distributor when presenting them with a master copy, for example.

There are two types of variables:

● Factory variables provide automatically generated information about a project, such as number of titles, title times, title names, etc., based on the actual contents of the project.

- User defined variables contain personal data such as company name and copyright information, etc.

Along with the variables, the album report can also include any CD-Text that you have specified, for example, composers or performers.

NOTE

Album reports are only available if you have selected the mode **Stereo** in the **Audio Montage Properties**.

RELATED LINKS

Generating an Album Report

As soon as work on your audio montage is completed and the audio montage is ready to be written to a CD, you can generate an album report.

PROCEDURE

1. Open the audio montage that you want to create an album report for.

   NOTE

   The audio montage must be in stereo mode.

2. Select **Tool Windows** > **Album**.

3. In the **Album** window, select **Functions** > **Generate Album Report**.

4. On the **Rich Text** tab, in the **Output format** section, specify one of the following output formats:

   - HTML

   - Adobe PDF

   - Print

   - XML

   - CSV

5. Make the desired adjustments.

6. Optional: On the **Raw Text** tab, select a cue sheet template or enter cue sheet information.

7. Optional: If you want to save the album report to a specific location, activate **Specify File Name and Location**, and specify a file name and location.

8. Click **Apply**.

RELATED LINKS

Album Report Dialog

In this dialog, you can generate an album report and specify which information to include in this report.

- To open the **Album Report** dialog, in the **Album** window, select **Functions** > **Generate Album Report**.

Global Options

The following option is available on the **Rich Text** tab and the **Raw Text** tab.

Specify File Name and Location

Lets you specify a name and location for the report. The file is created when you click **Apply**.
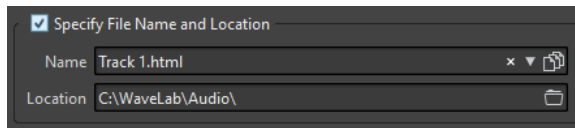
Rich Text Tab

Titles

Allows you to select whether you want to create an album report for all titles or for a specific title group.

Font

Allows you to specify the font to use in the report.

Font Size

Allows you to specify the font size to use in the report.

Header Image

Allows you to select an image to be inserted at the top of the report. WaveLab Pro supports many different image formats, including SVG.

Center Image

Centers the header image horizontally. If deactivated, the image is placed on the left.

Image Width

Allows you to specify the header image width. The width/height ratio is preserved automatically.

Header

Adds general information at the start of the report.

Custom Text

Lets you enter text to be inserted at the top of the report. To insert custom variables, right-click the text field.

Extra Lines

Lets you select which of the following information you want to add to the header:

- **Date**
- **Audio Montage Name**
- **UPC/EAN Code**
- **Number of Tracks**

● **Disc Duration**

Skip Lines with Empty Values

If this option is activated, a line is not added to the report if the line contains an empty variable.

Ignore CD Pre-Gap

If this option is activated, the default 2 second gap at the start of a red-book CD is ignored.

ISRC

Adds a column to the report to display the ISRC code.

Pre-Emphasis Status

Adds a column to the report to display the track pre-emphasis status.

Copy Status

Adds a column to the report to display the copy status of the track.

Time Details

Adds a description of the pause, track start, and possible sub-indexes to the report.

Pause

If this option is activated, the pause information is included in the report.

Sub-Indexes

If this option is activated, title sub-indexes are described in the report.

Sub-Indexes Relative to Title

Sets the sub-index values to be relative to the start of the corresponding title. If deactivated, they are relative to the start of the album.

Start Time (in Audio Montage)

Adds a column to the report to display the event times from the start of the audio montage.

Start Time (on CD)

Adds a column to the report to display the event times from the start of the CD.

CD-Text

If this option is activated, the CD-Text is included in the report. You can specify which CD-Text information you want to include in the report.

Output Format

Lets you select the output format for the report.

● **HTML** generates an HTML file with a UTF-8 character format.

● **Adobe PDF** generates a PDF file.

● **Print** generates a preview of the report, allowing you to print the report. If no printer is connected, the preview is empty.

● **XML** generates an XML file that includes the CD information.

● **CSV** generates a CSV file that can be imported in a spreadsheet. The CSV file can only save the main properties of the album report. You can set the type CSV delimiter in the **Global Preferences** dialog on the **Formats** tab.

● If **Use English for Report** is activated, the report is in English instead of the set program language.

Value Format

Opens the **Value Formats** dialog, where you can edit the format of the auto-generated values. These variables are part of any presets saved for this dialog.

Raw Text Tab
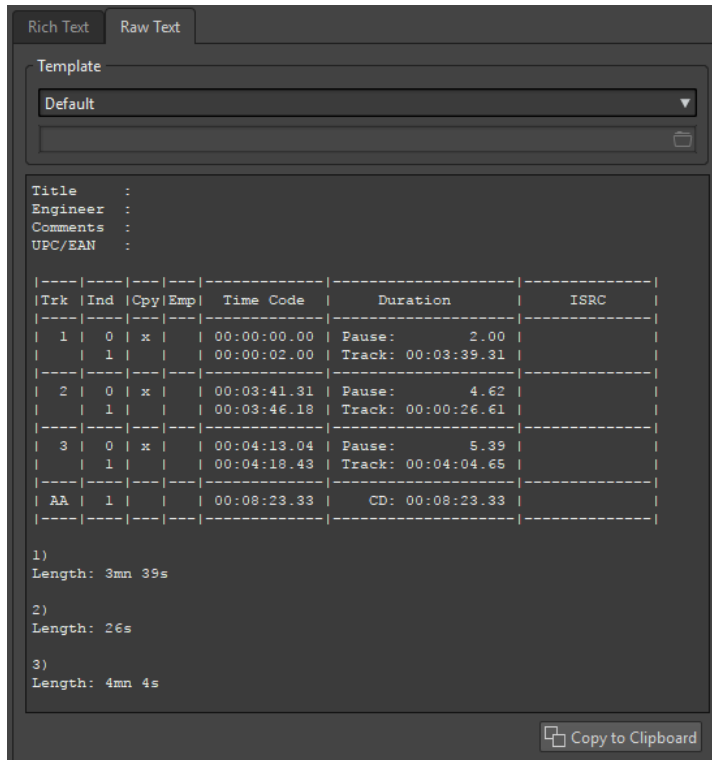
Template

Lets you select a template for the report layout. When selecting **Custom**, you can also create your own cue sheet template.

Cue sheet field

Lets you write a cue sheet.

Copy to Clipboard

Copies the text to the clipboard.

RELATED LINKS

Cue Sheet Templates

A cue sheet is an alternate form of the album report, based on raw UTF-8 text, and can be customized in several ways. Creating a cue sheet requires an understanding of computers and some knowledge about programming, because it makes use of the commands and variables concept.

TIP

You can make a copy of a factory cue sheet template to create a custom cue sheet template. The factory templates are located in the following locations:

- Windows: `C:\Program Files\Steinberg\WaveLab Pro 9.5\Factory Presets\Presets\AudioCdCueSheetTemplates\`

- macOS: `/Applications/WaveLab Pro 9.5.app/Contents/Factory Presets/ Presets/AudioCdCueSheetTemplates/`

Cue sheets are organized in the following way: There are a number of codes, commands, and variables, which you place in a text file – the template. If you ask the program to generate a cue sheet, it creates the text file based on the codes it finds in the template.

If the program encounters a variable, it replaces this with some information about the CD. For example, there is a variable called "NUM_TRACKS". When the program finds this, it replaces it with the actual number of titles on the CD.

Commands, on the other hand, are instructions for the program to do something. For example, the command "TIMECODE SEPARATOR =" followed by a few special characters, instructs the program what characters should be inserted between timecode values, so that you can get timecode values printed out in the format 00:00:00.00, "00 00 00 00", or anything else you prefer.

The following codes can be entered for specific purposes:

$

A variable. The text that follows right after the "$" is the command name, for example, "$TITLE". A variable can occur anywhere on a line, and there can be any number of variables on a line.

#

A command. The text that follows after the "#" is the command name, for example, "#FOR EACH TRACK". There can only be one command per line and there should not be anything else on that line.

;

If a line starts with a semi-colon ";", the line is interpreted as a comment. Nothing on such a line is used in the cue sheet. This is useful for making notes, for example.

All other text characters can be entered on their own lines or among the variables, and are used as they are. For example, if you type "Title: $TITLE" and the title you have entered is "My Greatest Hits", the text "Title: My Greatest Hits" appears in the cue sheet.

To find out more about the available commands and how they are used, you can open the included templates and study them. The following variables are available:

Title Number

T0

As decimal number "1" or "22"

T1

Blank Justified Two Digit Number " 1" or "22"

T2

Zero Justified Two Digit Number "01" or "22"

Title Index

I0

As decimal number "1" or "22"

I1

Blank Justified Two Digit Number " 1" or "22"

I2

Zero Justified Two Digit Number "01" or "22"

Copy Protection Status

C1

"x" or " "

C2

"Y" or "N"

Emphasis Status

E1

"x" or " "

E2

"Y" or "N"

Absolute Time of Index

TIME_IA_0

As decimal number

TIME_IA_1

Blank justified 7 digit decimal number

TIME_IA_2

Time as "hh:mm:ss:ff"

TIME_IA_3

Time as "hh:mm:ss:ff" blank justified, leading zero not displayed

TIME_IA_4

Time as "hh:mm:ss:ff" compressed if there are no hours, none are displayed

TIME_IA_5

Time as "mm:ss:ff" no hours displayed

TIME_IA_6

Time as "mm:ss:ff" blank justified, leading zero not shown, no hours displayed

TIME_IA_7

Time as "mm:ss:ff" no minutes displayed if not required, no hours displayed

TIME_IA_8

Time format as "1h 2mn 3s 4f"

TIME_IA_9

Time format as "1h 2mn 3s"

Index Time Relative to Start of CD

TIME_IR_0

As decimal number

TIME_IR_1

Blank justified 7 digit decimal number

TIME_IR_2

Time as "hh:mm:ss:ff"

TIME_IR_3

Time as "hh:mm:ss:ff" blank justified, leading zero not displayed

TIME_IR_4

Time as "hh:mm:ss:ff" compressed if there are no hours, none are displayed

TIME_IR_5

Time as "mm:ss:ff" no hours displayed

TIME_IR_6

Time as "mm:ss:ff" blank justified, leading zero not shown, no hours displayed

TIME_IR_7

Time as "mm:ss:ff" no minutes displayed if not required, no hours displayed

TIME_IR_8

Time format as "1h 2mn 3s 4f"

TIME_IR_9

Time format as "1h 2mn 3s"

Index Time Relative to Start of Title

TIME_IT_0

As decimal number

TIME_IT_1

Blank justified 7 digit decimal number

TIME_IT_2

Time as "hh:mm:ss:ff"

TIME_IT_3

Time as "hh:mm:ss:ff" blank justified, leading zero not displayed

TIME_IT_4

Time as "hh:mm:ss:ff" compressed if there are no hours, none are displayed

TIME_IT_5

Time as "mm:ss:ff" no hours displayed

TIME_IT_6

Time as "mm:ss:ff" blank justified, leading zero not shown, no hours displayed

TIME_IT_7

Time as "mm:ss:ff" no minutes displayed if not required, no hours displayed

TIME_IT_8

Time format as "1h 2mn 3s 4f"

TIME_IT_9

Time format as "1h 2mn 3s"

Pause Length

TIME_PA_0

As decimal number

TIME_PA_1

Blank justified 7 digit decimal number

TIME_PA_2

Time as "hh:mm:ss:ff"

TIME_PA_3

Time as "hh:mm:ss:ff" blank justified, leading zero not displayed

TIME_PA_4

Time as "hh:mm:ss:ff" compressed if there are no hours, none are displayed

TIME_PA_5

Time as "mm:ss:ff" no hours displayed

TIME_PA_6

Time as "mm:ss:ff" blank justified, leading zero not shown, no hours displayed

TIME_PA_7

Time as "mm:ss:ff" no minutes displayed if not required, no hours displayed

TIME_PA_8

Time format as "1h 2mn 3s 4f"

TIME_PA_9

Time format as "1h 2mn 3s"

Title Length

TIME_TR_0

As decimal number

TIME_TR_1

Blank justified 7 digit decimal number

TIME_TR_2

Time as "hh:mm:ss:ff"

TIME_TR_3

Time as "hh:mm:ss:ff" blank justified, leading zero not displayed

TIME_TR_4

Time as "hh:mm:ss:ff" compressed if there are no hours, none are displayed

TIME_TR_5

Time as "mm:ss:ff" no hours displayed

TIME_TR_6

Time as "mm:ss:ff" blank justified, leading zero not shown, no hours displayed

TIME_TR_7

Time as "mm:ss:ff" no minutes displayed if not required, no hours displayed

TIME_TR_8

Time format as "1h 2mn 3s 4f"

TIME_TR_9

> Time format as "1h 2mn 3s"

Album Length

TIME_CD_0

> As decimal number

TIME_CD_1

> Blank justified 7 digit decimal number

TIME_CD_2

> Time as "hh:mm:ss:ff"

TIME_CD_3

> Time as "hh:mm:ss:ff" blank justified, leading zero not displayed

TIME_CD_4

> Time as "hh:mm:ss:ff" compressed if there are no hours, none are displayed

TIME_CD_5

> Time as "mm:ss:ff" no hours displayed

TIME_CD_6

> Time as "mm:ss:ff" blank justified, leading zero not shown, no hours displayed

TIME_CD_7

> Time as "mm:ss:ff" no minutes displayed if not required, no hours displayed

TIME_CD_8

> Time format as "1h 2mn 3s 4f"

TIME_CD_9

> Time format as "1h 2mn 3s"

Various

NUM_TRACKS

> Total number of tracks as decimal number

UPC

> UPC/EAN code

ISRC

> ISRC code

FILE

> File name (no path)

PFILE

> File name (with path)

TRACK_NAME

> Track name

TRACK_COMMENT

> Track comment

Creating a Cue Sheet Template

You can create a cue sheet template and load it each time you want to create an album report.

PROCEDURE

1. Open an audio montage that contains titles for an album.

   The audio montage must be in stereo mode.

2. Select **Tool Windows** > **Album**.

3. In the **Album** window, select **Functions** > **Generate Album Report**.

4. Select the **Raw Text** tab.

5. In the **Template** section, open the template menu and do one of the following:

   - To start with an empty cue sheet, select **Custom**.

   - To start with a cue sheet template that you can then modify, select one of the available cue sheets.

   - To start with a custom template, select **Custom**, click the folder icon and select the text tile that you want to open.

     TIP

     You can make a copy of a factory cue sheet template to create a custom cue sheet template. The factory templates are located in the following locations:

     - Windows: `C:\Program Files\Steinberg\WaveLab Pro 11\Factory Presets\Presets\AudioCdCueSheetTemplates\`

     - macOS: `/Applications/WaveLab Pro 11.app/Contents/Factory Presets/Presets/AudioCdCueSheetTemplates/`

6. Enter the cue sheet information.

7. Activate **Specify File Name and Location**, and specify a file name and location.

8. Click **Apply** to save the cue sheet template.

Writing an Audio CD from a DDP Image

You can write a CD from a DDP image that you have previously created with WaveLab Pro or another application.

PROCEDURE

1. Select **File** > **Tools** > **Write Audio CD from DDP Image**.

2. In the **Write Audio CD from DDP Image** dialog, open the **Device** pop-up menu, and select the writing device that you want to use.

3. Select the writing speed from the **Speed** pop-up menu.

4. Select the DDP image folder.

5. Optional: Activate one or several of the following options:

    -   Activate **Test Only, Do Not Write** if you want to test if the writing operation would be successful.

    -   Activate **Eject after Completion** if you want the disc to be automatically ejected after the writing operation.

6. Click **OK** to start the writing operation.

RELATED LINKS

Write Audio CD from DDP Image Dialog

This dialog allows you to write a CD from a DDP image that you have previously created with WaveLab Pro or another application.

-   To open the **Write Audio CD from DDP Image** dialog, select **File** > **Tools** > **Write Audio CD from DDP Image**.
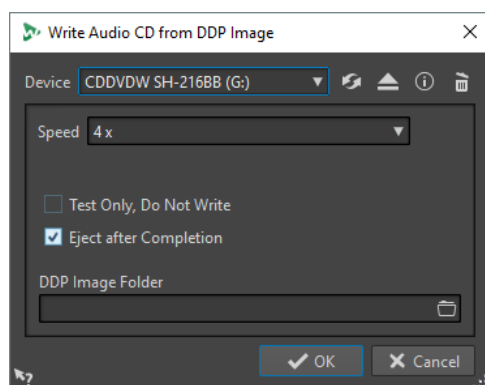
Device

Allows you to select the disc writer that you want to use.

> NOTE
>
> On the Mac, insert a disc in the drive after opening WaveLab Pro. Otherwise, the drive is under the control of the operating system and is not available for WaveLab Pro.

Refresh

Scans the system for connected optical devices. This is done automatically when this dialog opens. Click the update icon after you insert a new blank disc to update the **Speed** menu.

Eject Optical Medium

Ejects the optical medium present in the selected drive.

Device Information

Opens the **Device Information** dialog that shows information about the selected device.

Erase Optical Disc

Erases the optical disc present in the selected drive, provided it is a rewritable disc. If **DDP Image** is selected, clicking the button erases the existing DDP files.

Speed

Allows you to select the writing speed. The highest speed depends on the capabilities of your writing device and the disc present in the device. Writing at maximum speed is only possible if your computer system, the speed of the hard disk, etc. meet the requirements.

Test Only, Do Not Write

If this option is activated, clicking **OK** initiates a simulation of writing the CD. If this test is passed, the real write operation will succeed. If the test fails, try again at a lower writing speed.

Eject after Completion

If this option is activated, the disc is ejected after the writing operation.

DDP Image Folder

Lets you specify the source path of the DDP image.

RELATED LINKS

Audio CD Formats

Knowing background information on the CD format helps you better understand how to create your own CDs.

RELATED LINKS

Basic CD Formats

There are a number of different formats for the contents of a CD disc. For example, audio CDs, CD-ROMS, and CD-I. These are all slightly different.

The audio CD specification is called Red Book. It is this standard to which WaveLab Pro conforms.

NOTE

Red Book CD is not a real file format. All the audio on the CD is saved in one big file. This is different from hard disks, for example, where each file is saved separately. Keep in mind that all the audio is in fact one long stream of digital data.

RELATED LINKS

Types of Events on an Audio CD

There are three types of events that can be used to specify various sections of audio on the CD.

Title start

There can be up to 99 titles on one CD. Each is identified by its start point only.

Title sub-index

On advanced CD players, a title can be divided into sub-indexes (sometimes called only indexes). These are used to identify important positions within a title. There can be 98 sub-indexes in each title. However, because it is difficult and time-consuming to search for and locate to a sub-index, many CD players ignore this information.

Pause

A pause is added before each title. Pauses can be of variable lengths. Some CD players indicate the pauses between titles on their displays.

RELATED LINKS
Audio CD Formats on page 683

Frames, Positions, Small Frames, and Bits

The data on an audio CD is divided into frames.

A frame consists of 588 stereo samples. 75 frames make up one second of audio. This is because 75 x 588 = 44100, and because the sampling frequency of the CD format is 44100 Hz (samples per second), this equals one second of audio. When you specify positions on the CD, in WaveLab Pro, you do it in the format mm:ss:ff (minutes:seconds:frames). The frame values go from 0 to 74, because there are 75 frames to a second.

Technically, there is no way to specify something smaller than a frame on a CD. One effect of this is that if the sample length of a track on the CD does not equal a perfect number of frames, some blank audio must be added at the end. Another effect of this is that when you play the CD, you can never locate to anything closer than a frame. If you need some data in the middle of a frame, you still have to read the whole frame. Again, this is unlike a hard disk, where you can retrieve any byte on the disk, without reading the surrounding data.

But frames are not the smallest block of data on a CD. There is also something called "small frames". A small frame is a container of 588 bits. 98 small frames together make up one regular frame. In each small frame, there is only room for six stereo samples, which means that a lot of space is left for data other than the actual audio. There is information for encoding, laser synchronization, error correction, and the PQ data to identify the track boundaries. This PQ data is of major importance to anyone who wants to create their own CD, and handled effortless in WaveLab Pro.

RELATED LINKS
Audio CD Formats on page 683

PQ Codes Handling

The PQ codes convey information about title start, sub-indexes, and pauses.

However, when creating a CD, there are a number of rules you must take into account. For example, there should be some silent frames before each title, sub-indexes should be slightly early, there should be pauses at the beginning and end of the entire CD, etc.

When creating CDs from an audio montage, these rules and settings are handled by the **Album Wizard**. If you do not change these settings, you obtain default values that ensure your CD works properly. However, you can still adjust the PQ codes to your liking. We recommend that you leave the settings as they are.

WaveLab Pro only exposes intuitive title markers and automatically generates the corresponding PQ codes to be written to CD.

ISRC Codes

International Standard Recording Code (ISRC) is an identification that is only used on CDs intended for commercial distribution. WaveLab Pro allows you to specify an ISRC code for each audio track. These codes are provided by your publisher or clients.

The ISRC code is structured as follows:

- Country Code (2 ASCII characters)

- Owner Code (3 ASCII characters or digits)

- Recording Year (2 digits or ASCII characters)

- Serial Number (5 digits or ASCII characters)

The groups of characters are often presented with hyphens to make them easier to read, but hyphens are not part of the code.

Importing ISRC Codes

You can import ISRC codes that has been written in a standard text file. The ISRC text file must have one ISRC code per line.

- To import ISRC codes, select **Functions** > **Import ISRC Codes from Text File** in the **Album** window, select the text file that you want to import, and click **Open**.

UPC/EAN Codes

UPC/EAN code – the Universal Product Code/European Article Number, is a catalog number for an item (such as a CD) intended for commercial distribution. On a CD, the code is also called the Media Catalog Number and there is one such code per disc. These codes are provided by your publisher or clients.

UPC is a 12-digit barcode widely used in the USA and Canada. EAN-13 is a 13-digit barcoding standard (12 + a checksum digit) defined by the GS1 standards organization. EAN is now renamed as International Article Number, but the abbreviation has been retained.

Pre-Emphasis

CD pre-emphasis refers to process designed to increase, within a band of frequencies, the magnitude of some (usually higher) frequencies compared to the magnitude of other (usually

lower) frequencies in order to improve the overall signal-to-noise ratio by lowering the frequencies during reproduction.

Pre-emphasis is commonly used in telecommunications, digital audio recording, record cutting and in FM broadcasting transmissions. The presence of pre-emphasis on a track is sometimes indicated by a checkmark in the **Pre-Emphasis** ⬤ column on the **Import Audio CD** dialog.

RELATED LINKS
Audio CD Formats on page 683
Import Audio CD Dialog on page 751

Disc-At-Once – Writing CD-Rs for Duplication Into Real CDs

WaveLab Pro only writes audio CDs in Disc-at-Once mode.

- If you want to create a CD-R to use as a master for a real CD production, you must write the CD-R in Disc-At-Once mode. In this mode, the entire disc is written in one pass. There are other ways of writing a CD, namely Track-At-Once and Multi-Session. If you use these writing formats, the link blocks created to link the various recording passes together will be recognized as uncorrectable errors when you try to master from the CD-R. These links can also result in clicks when playing back the CD.
- Disc-At-Once mode provides more flexibility when specifying pause lengths between tracks.
- Disc-At-Once is the only mode that supports sub-indexes.

RELATED LINKS
Audio CD Formats on page 683

Writing On The Fly vs. CD Images

WaveLab Pro writes a CD on the fly, that is, it does not create a CD image before writing. This method makes writing CDs/DVDs faster and requires less disc space. However, you can also create an image prior to writing a CD/DVD.

RELATED LINKS
Writing an Audio CD from a DDP Image on page 681

Spectral Editing

Spectral editing allows you to edit and process individual frequency ranges instead of the full frequency spectrum.

Spectral editing is intended for audio restoration. You can also process an individual frequency range via the **Master Section**. Spectral editing operates on a spectrum region, which is defined using one of the spectrum selection tools. The selected region is defined by a time and a frequency range. This allows you to edit and process audio both in the time domain and in the frequency domain of the selected region.

Spectral editing can consist of many different types of processing. Although it is developed for audio restoration, it can also be used for artistic purposes or special effects.

You can perform spectral editing on the left and right channels or on the mid and side channels of a stereo file.

Spectral editing comprises the following steps:

- Defining the region that you want to edit.
- Editing the region with the **Spectrum** tab by applying filter operations, by copying regions, or by sending it to the **Master Section** to apply effects.

RELATED LINKS
Spectrogram on page 690
Wavelet Display on page 691
Spectrum Tab on page 694
Spectrum Processing on page 701
Master Section on page 572

Rainbow Display

In the **Audio Editor** or in the **Audio Montage** window, the **Rainbow** display assigns colors to the waveform, based on the frequency content.

- To see the **Rainbow** view of an audio file in the **Audio Editor** or the **Audio Montage** window, click **Rainbow** (**1**) at the bottom of the window.
- To customize the display, click the **Settings** button (**2**).

  As a result, the **Rainbow Waveform Settings** dialog is opened, where you can set the corresponding parameters.

Rainbow display in the Audio Montage window

Rainbow Waveform Settings Dialog

The **Rainbow Waveform Settings** dialog allows you to customize the **Rainbow** display in the **Audio Editor** and in the **Audio Montage** window.
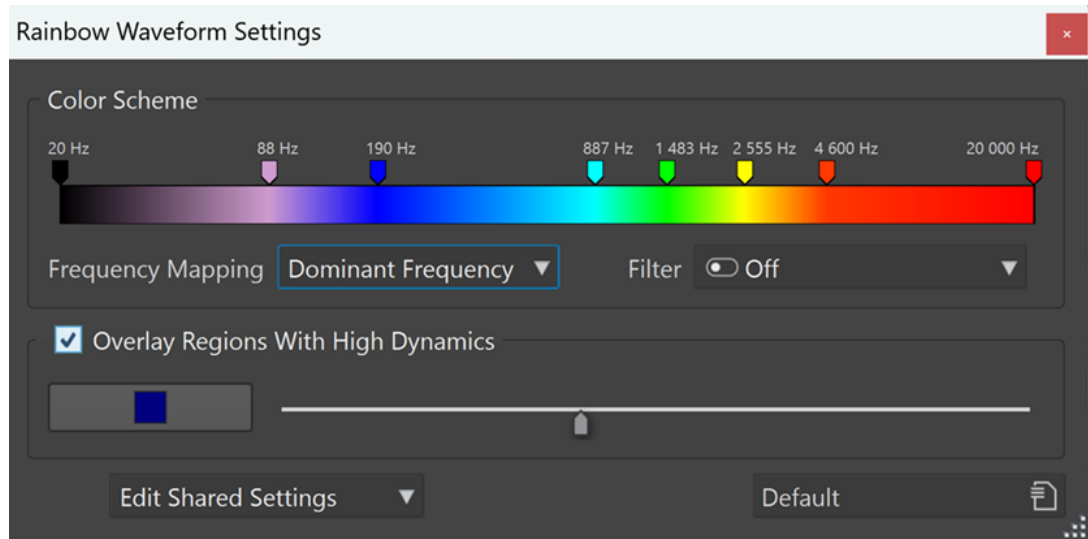
Color Scheme

Allows you to customize the colors for specific frequencies:

- To add a color, right-click on the color bar, and select **Create Color Handle Here**.
- To modify the color gradient, click and drag a color handle.
- To edit the color of a color handle, right-click on the color handle, and select **Edit Color**, which opens the **Color Selection** window.
- To edit the frequency, right-click on a color handle, select **Edit Frequency**, and enter a numeric value for the frequency.
- To delete a color handle, right-click on it, and select **Delete**.
- To delete all color handles, right-click on the color bar, and select **Remove All Color Handles**.
- To choose from a selection of color maps and apply a color map to the color bar, right click on the color bar, and select **Apply Color Map**.

NOTE

  With more than three color handles on the color bar, the color map is applied to the range between the second and the second-to-last handle. With two or three color handles, the color map is applied across all handles.

  The more color handles there are, the better the color map is rendered.

- To create multiple color handles with specific frequency-related properties in one go, right-click the color bar, and select **Generate Color Handles**. This allows you to choose from a menu listing options for equally distributed frequencies, female voice formants, and male voice formats.

> NOTE
>
> When you choose to generate color handles that are equally distributed across frequencies, if there are more than three existing color handles, new handles are created between the second and the second-to-last handle. This allows you to focus on the handles within a specific frequency range. With two or three existing handles, all handles are replaced.
>
> When you choose to generate formant handles, all existing color handles are replaced.

> TIP
>
> If color handles are very close to each other and their labels overlap, hover over them to see their frequencies displayed in a tooltip.

Frequency Mapping

Allows you to choose from the following options:

- **Average Frequency** maps the colors based on the average frequency on the timeline.
- **Dominant Frequency** maps the colors to the most prominent frequency on the timeline.

> NOTE
>
> As the dominant frequencies are generally lower than the average frequencies, you may need to use different color schemes to inspect multiple spectral aspects of your audio material.

Filter

Applies frequency filtering before analyzing the audio.

It allows you to choose from multiple options to reduce low frequencies or high frequencies.

Example: To focus on transients, we recommend applying a filter that reduces low frequencies.

> NOTE
>
> - The default setting of this option is **Off**.
> - Choosing any of the other settings or modifying them automatically triggers a new analysis process.

Overlay Regions With High Dynamics

Allows you to display sections in your audio material with high dynamics in a specific color. You can choose the color via the color selector button on the left. The slider on the right serves to adjust the sensitivity: The further you move it to the right, the lower the threshold; that is, the more audio sections are taken into account.

Edit Shared Settings/Edit Private Settings

- **Audio Editor**: Allows you to choose whether to edit settings and share them with all files (**Edit Shared Settings**) or to apply them to a particular file only (**Edit Private Settings**).
- **Audio Montage** window: Allows you to edit settings and share them with all files (**Edit Shared Settings**).

This enables you to adapt individual color schemes to different audio materials and editing purposes.

Any subsequent editing of shared settings does not affect files that were assigned "private " settings.

To save and retrieve customized settings for a "private" file (or in an audio montage clip that refers to the file) for future WaveLab sessions, activate **Ancillary Files** via **File** > **Preferences** > **Folders**.

Presets

Allows you to save, organize, and load presets.

RELATED LINKS
Ancillary Files on page 66

Spectrogram

The **Spectrogram** in the **Audio Editor** shows the frequency spectrum in relation to the time.

- To see the spectrum view of an audio file in the **Audio Editor**, click **Spectrogram** at the bottom of the **Main View** or the **Overview**.
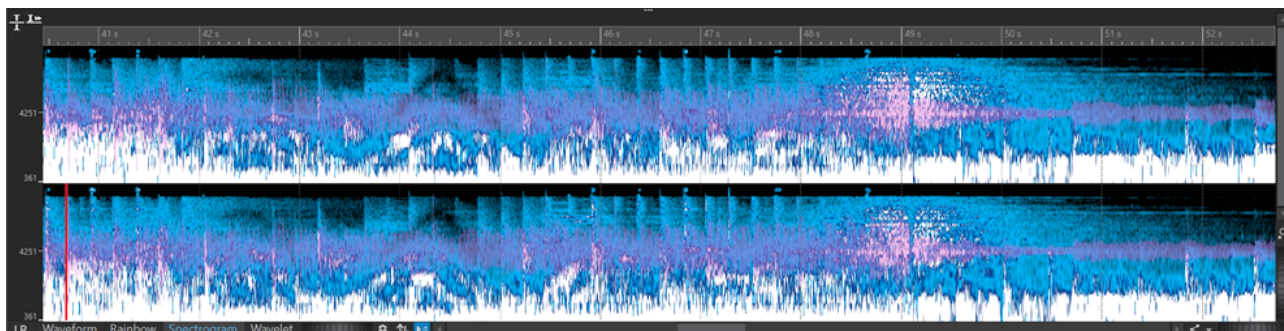
Spectrogram Display

- You can overlay the **Spectrogram** view with the **Waveform** view via the scroll wheel (**1**). The farther you turn the scroll wheel to the right, the higher the opacity of the waveform overlay; that is, the more prominent it becomes. The farther you turn the scroll wheel to the left, the more transparent the waveform overlay. Turning the scroll wheel all the way to the left sets the transparency to 100%, so that the waveform overlay is not visible.
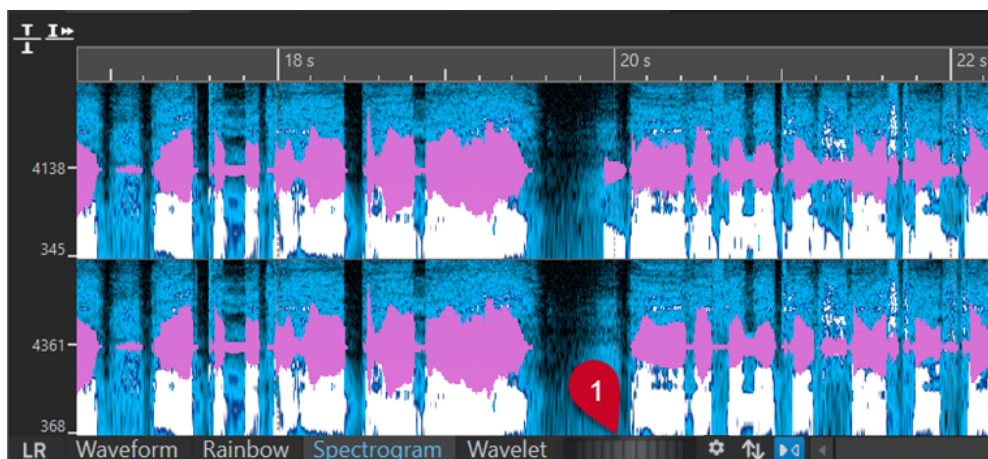
Waveform Overlay in the Spectrogram View

- To see the spectrum view of the audio file and activate spectral editing mode, select the **Spectrum** tab in the **Audio Editor**.

- To switch between the spectrum view for the left/right channels and the mid/side channels, click the **LR/MS** button at the bottom left of the spectrogram.

Each vertical line in the **Spectrogram** represents the frequency spectrum at a particular time position.

- You can make time selections and frequency selections in the **Spectrogram**.

  If you make frequency selections in the **Spectrogram**, you can use the WaveLab Pro spectrum editing tools on the **Spectrum** tab to edit the spectrogram. If you point the mouse cursor at a defined frequency selection, a tooltip displays the frequency range and the time range for the current selection.

  You can also use the WaveLab Pro editing tools on the **Edit** tab to edit the spectrogram.

- Low frequencies are shown at the bottom of the display and high frequencies at the top.

- In the **Spectrogram Options** dialog, you can specify how to display the frequency spectrum and the waveform overlay.

- The vertical ruler on the left shows the frequency range in Hz.

- The status bar shows the time/frequency position of the mouse cursor.

- If you are in spectrum editing mode, you can right-click in the spectrogram to open a context menu with additional options.

RELATED LINKS
Spectral Editing on page 687
Audio Editor on page 71
Edit Tab (Audio Editor) on page 190
Spectrogram Options Dialog on page 693

Wavelet Display

The **Wavelet** display shows a higher time resolution in high frequencies and a higher frequency resolution in lower frequencies.

- To see the **Wavelet** display of an audio file in the **Audio Editor**, click **Wavelet** at the bottom of the **Main View** or the **Overview**.
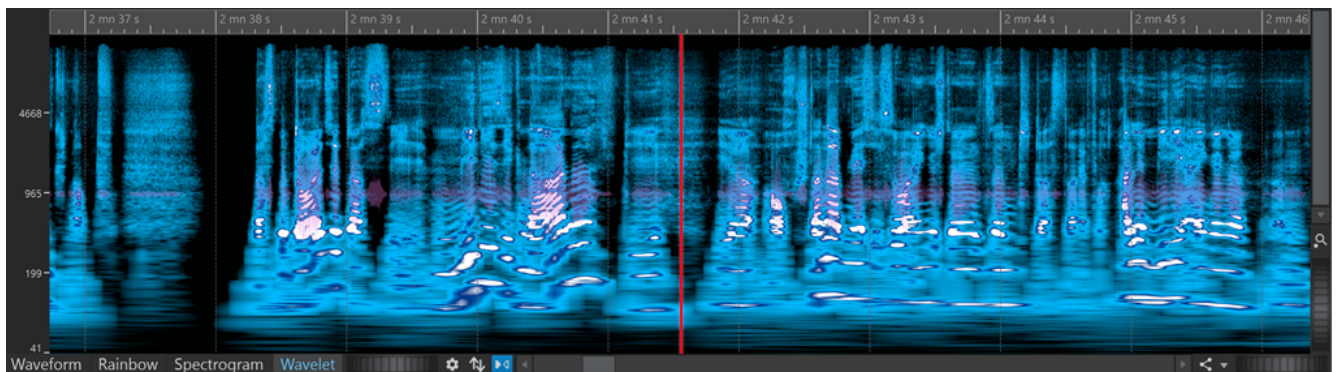
Wavelet Display

- You can overlay the **Wavelet** view with the **Waveform** view via the scroll wheel (**1**). The farther you turn the scroll wheel to the right, the higher the opacity of the waveform overlay; that is, the more prominent it becomes. The farther you turn the scroll wheel to the left, the more transparent the waveform overlay. Turning the scroll wheel all the way to the left sets the transparency to 100%, so that the waveform overlay is not visible.
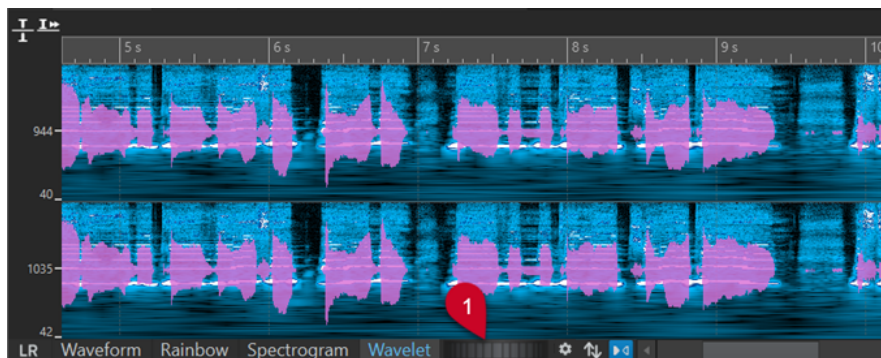
Waveform Overlay in the Wavelet View

- To switch between the **Wavelet** display for the left/right channels and the mid/side channels, click the **LR/MS** button at the bottom left of the **Wavelet** display.

Each vertical line represents the frequency spectrum at a particular time position.

- You can make time selections and frequency selections in the **Wavelet** display.

  If you make frequency selections in the **Wavelet** display, you can use the WaveLab Pro spectrum editing tools on the **Spectrum** tab to edit the wavelet. If you point the mouse cursor at a defined frequency selection, a tooltip displays the frequency range and the time range for the current selection.

  You can also use the WaveLab Pro editing tools on the **Edit** tab to edit the wavelet.

- Low frequencies are shown at the bottom of the display and high frequencies at the top.

- In the **Spectrogram Options** dialog, you can specify how to display the frequency spectrum and the waveform overlay.

- The vertical ruler on the left shows the frequency range in Hz.

- The status bar shows the time/frequency position of the mouse cursor.

- If you are in spectrum editing mode, you can right-click in the **Wavelet** display to open a context menu with additional options.

NOTE

In the **Wavelet** display, you cannot zoom in and out as far as in the **Spectrogram** due to performance constraints.

Spectrogram Options Dialog

The **Spectrogram Options** dialog allows you to set parameters for displaying the frequency spectrum in the **Spectrogram** and in the **Wavelet** view.

●   To open the **Spectrogram Options** dialog, click **Spectrogram** in the **Options** section of the **Spectrum** tab.
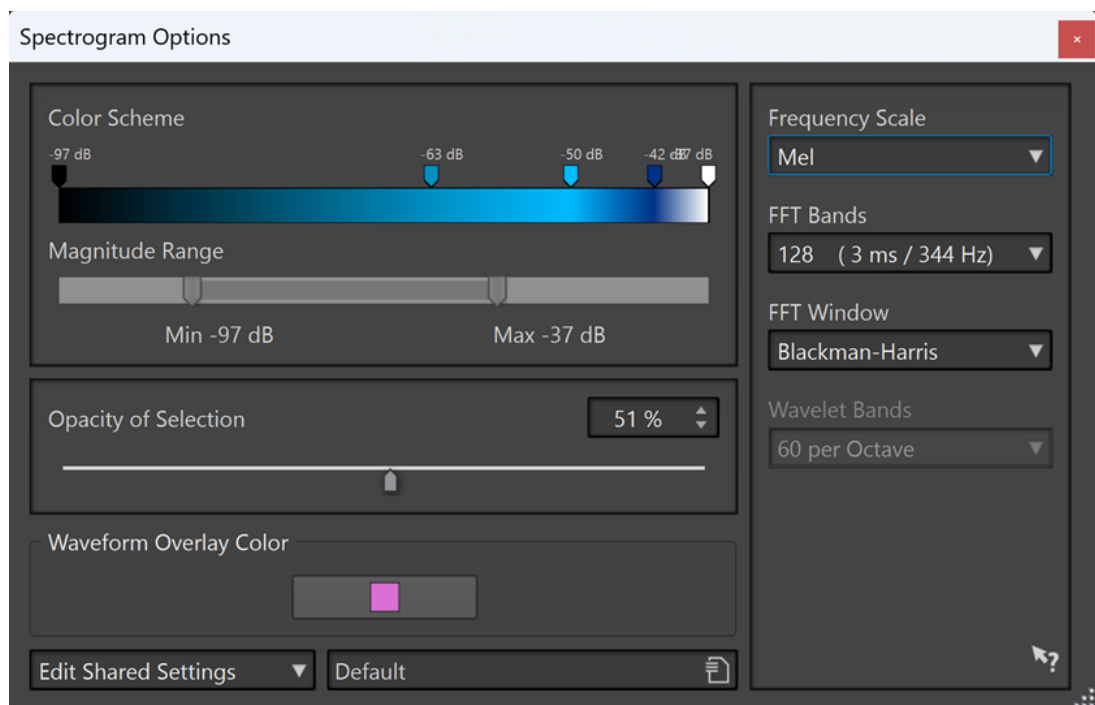
The following options are available:

Color Scheme

Allows you to customize the color scheme for the frequency levels in the **Spectrogram** and the **Wavelet** view.

●   To change the color scheme for different frequency levels, move the color handles with the mouse.

●   To change the color of a color handle, right-click it, and select a new color.

●   To create a new color handle, double-click on the color bar.

Magnitude Range

Allows you to specify the spectral amplitude range for the **Spectrogram** and the **Wavelet** view.

Opacity of Selection

Allows you to specify the opacity of the selection in the **Spectrogram** or the **Wavelet** view.

Waveform Overlay Color

Allows you to specify the color of the waveform overlay in the **Spectrogram** or the **Wavelet** view.

Edit Shared Settings/Edit Private Settings

Allows you to choose whether to edit settings and share them with all files (**Edit Shared Settings**) or to apply them to a particular file only (**Edit Private Settings**).

This enables you to adapt individual color schemes to different audio materials and editing purposes.

NOTE

Any subsequent editing of shared settings does not affect files that are set to "private".

Frequency Scale

Allows you to select the scale on which the frequency spectrum is displayed in the **Spectrogram**. If **Log** is selected, the frequency spectrum is displayed on a logarithmic scale, thus spacing the octaves equally. This comes closest to the perception of pitch of the human ear. **Mel**, **Bark**, and **ERB** are psycho-acoustic scales.

FFT Bands

Allows you to adjust the trade-off between temporal resolution and frequency resolution in the **Spectrogram**. The higher the value, the more frequencies are analyzed, but the less accurately they are located in the time domain.

FFT Window

Allows you to select the shape that most effectively reduces the artifacts of the audio analysis.

Wavelet Bands

Allows you to set the number of bands per octave for the **Wavelet** view.

Presets

Allows you to save and restore presets for spectrum processing.

RELATED LINKS

Spectrum Tab

The **Spectrum** tab allows you to use high-quality linear-phase filters to process a spectrum range selection for audio restoration and processing.

● In the **Audio Editor**, click **Spectrum**.
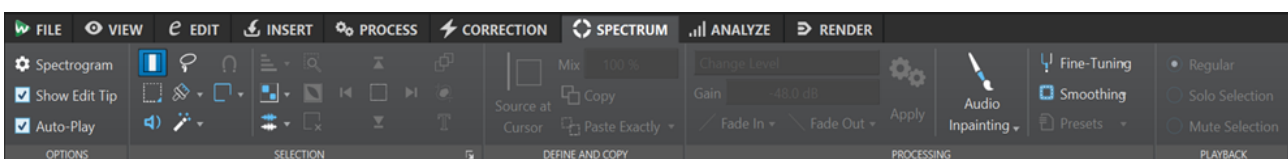
Options

The **Options** section allows you to customize the **Spectrogram** and the **Wavelet** display.

Spectrogram

Allows you to define how to display the frequency spectrum.

Show Edit Tip

With this option activated, a tooltip is displayed next to the mouse pointer when you edit the audio material.

Auto-Play

With this option activated, the selected audio range is played back automatically, each time you edit the audio material, taking the current pre-roll and post-roll settings into account.

Selection

The **Selection** section allows you to select the spectrum that you want to process. You can undo/redo all selection operations.

Time Selection

This tool allows you to select a time range. This deactivates the spectrum editing functions.

Rectangle Selection

This tool allows you to select a frequency range with fixed bottom and top frequencies.

Play

This tool allows you to play back the audio file at the position where you click.

Lasso Selection

This tool allows you to draw a free shape to make a spectrum selection.

Brush Selection

This tool allows you to paint a spectrum selection with a round brush. You can change the size of the brush.
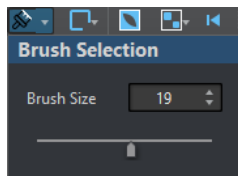
Magic Wand

This tool allows you to click on the spectrogram and automatically select the surrounding spectral content that has a similar dB magnitude, according to the **Time Expansion** and **Frequency Expansion** values.
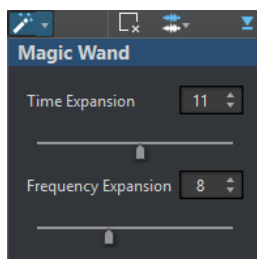
Snap Mode

If this option is activated, the mouse cursor snaps to the spectral hot points when creating a selection with the **Lasso Selection** or the **Rectangle Selection**.

Selection Modes

The selection options allow you to add and remove spectrum selections.

- **New Selection** allows you to create a new selection in the spectrum while removing the old selection.

- **Add Selection** allows you to add another selection to the spectrum while also keeping the old selections. You can also press `Shift` and click with the mouse to add a selection.

- **Remove From Selection** allows you to remove parts of existing selections. You can also press `Ctrl/Cmd` - `Shift` and click with the mouse to remove parts of an existing selection.

You can click on a selection and move it. To only allow horizontal movement, `Shift` - click the selection and move the mouse. To only allow vertical movement, press `Alt` - `Shift`, click the selection, and move the mouse.

Deselect All Regions

Deselects all frequency selections.

Harmonics

Allows you to add harmonics to the spectrum selection while keeping the shape of the selection. By default, no harmonics are added.
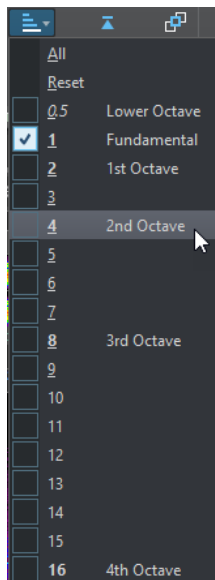
Edit Settings

Allows you to choose from a range of options for the **Spectrum** and the **Wavelet** display.

- If **Group Editing** is activated and more than one region is selected, you can move and resize all selected regions simultaneously. You can also double-click a region to activate or deactivate group editing for this selection.

  To remove a region from a group, right-click a region and select **Deselect This Region**.

  To deselect all selected regions, double-click in the **Spectrogram** or the **Wavelet** display or press `Esc`.

  When **Group Editing** is deactivated, you can individually group regions. Press `Shift` and click the regions that you want to group. You can then move or resize regions without changing other regions.

- If **Show Resizing Frame** is activated, a frame encompasses the selected regions. This allows you to resize the selected regions.

Channel Selection

Allows you to select if the spectrum selection should be on either the a **Single Channel**, the **Channel Cluster**, or on **All Channels**. The **Channel Cluster** option is only available for multichannel audio files.

NOTE

If there is no spectrum selection, you can also press Shift and use one of the spectrum selection tools to make a selection on either the left or the right channel. If there is a spectrum selection, you can press Shift to add another selection.

Zoom Selection

Zooms in on the selected region on both the time and frequency domain.

Invert Selection

Inverts the frequency selection inside the selected time range.

Clear All Selections

Removes all selections.

Select until Start of File/Select until End of File

Extends the selection to the start/end of the audio file.

Select until Top/Select until Bottom

Extends the selection to the top/bottom of the frequency axis.

Share Selection

If this option is activated, you can share a selection among audio files of the same file group. This allows you to use the same selection in all audio files of a stem, for example. The selection must fit in the other audio file.

To share a selection in another audio file of the same file group, activate **Share Selection**, make a selection, and select another audio file tab.

NOTE

You have to apply the processing to each audio file individually.

Crop

Removes all audio outside of the selection.

Text Selection

Use the **Rectangle Selection** tool to select a rectangle that you want to replace with a selection that outlines text. This allows you to create a watermark in your spectrum to protect your audio, for example.
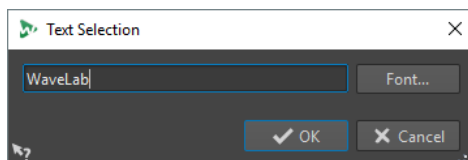
Range Selection

Opens the **Range Selection** dialog. This dialog allows you to define selection ranges and frequency ranges very accurately.

Define and Copy

Source at Cursor

Duplicates the selection rectangle at the current cursor position and defines it as source region for copy operations. This ensures that the selection to copy and the selected region that you want to edit have the same size. This allows you to quickly find the best source region to replace the destination region.

Mix

Allows you to mix the source frequency with the target frequency. 100 % means all of the source region is copied to the target region.

Copy

Copies the selected audio spectrum to the clipboard. If you close the audio file from which you copied the audio spectrum, the clipboard content is deleted. If you modify the audio spectrum in the source audio file, the clipboard is updated accordingly.

Paste Exactly

If **Source at Cursor** is activated, **Paste Exactly** pastes the defined source region exactly.

If **Source at Cursor** is deactivated, **Paste Exactly** pastes the clipboard content.

Paste Ambience

Pastes an average of the frequencies of the source region, blurring the original dynamics and pitches, and making the copied region appear less identifiable. Depending on the audio material, this may avoid a repetition effect.

Processing

Processing Algorithm

The **Processing Algorithm** menu allows you to select the type of processing algorithm that is applied to the selected audio spectrum. The following options are available:

- **Change Level** attenuates or boosts the level of the selected region according to the set gain.

- **Blur Peaks** attenuates or boosts the level of the frequencies with the highest level in the selection according to the set gain. If the gain is set to a negative value, these frequencies are blurred. This is useful for removing acoustic feedback, for example.

- **Dispersion** blurs the dynamics and frequency phases of the selected region according to the set gain without changing the frequency content.

- **Master Section** allows you to render **Master Section** plug-ins to the selection.

- **Fade Out** gradually filters out the frequencies in the region along the time axis, creating a fade out. The **Fade Out Shape** option in the **Processing** section allows you to select a fade out shape.
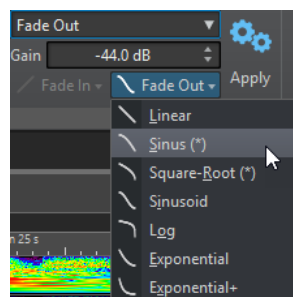
- **Fade In** gradually lets pass frequencies in the region along the time axis, creating a fade in. The **Fade In Shape** option in the **Processing** section allows you to select a fade in shape.

- **Fade Out then Fade In** lets the frequencies fade out and fade in again. The **Fade In Shape** and **Fade Out Shape** options in the **Processing** section allow you to select the shapes of the fades.

- **Fade In then Fade Out** lets the frequencies fade in and fade out again. The **Fade In Shape** and **Fade Out Shape** options in the **Processing** section allow you to select the shapes of the fades.

- The **Noise Mixing** options allow you to mix in different types of noise to the spectrum selection according to the set gain.

- **Transcode Picture** allows you to insert a picture into your spectrogram to add a watermark, for example.

  NOTE

  It is recommended to display the spectrum with a linear scale, because the picture scaling is frequency-linear based. You can activate the linear frequency scale in the **Spectrogram Options** dialog.

Gain

Determines the level of the filter processing. Negative gain settings attenuate the effect, positive gain settings boost the effect.

Fade In

Allows you to select a fade in shape for the fade processing algorithms.

Fade Out

Allows you to select a fade out shape for the fade processing algorithms.

Apply

Applies the selected processing algorithm.

Audio Inpainting

The **Audio Inpainting** algorithm allows you to remove or attenuate sounds in the spectrum. Audio inpainting restores a spectrum selection based on the content to the left and to the right of the selection rectangle.

The following options are available:

- If **Show Surrounding Region** is activated, you can customize the length of the surrounding regions that the **Audio Inpainting** function takes into account. You can resize the surrounding region with the mouse cursor. Only the active region is customized.

- **Bands** allows you to define the number of frequency bands that the algorithm works on. If you work on rhythmic content or modify high frequencies, use low values. If you work on harmonic content or modify low frequencies, use high values.

- **Precision** allows you to specify the precision of the audio inpainting. Low precision results in a blurrier spectrum. High precision results in a more detailed spectrum. Higher precision settings increase the processing time.

- **Persistence of Original** allows you to specify how much of the original spectrum is kept when audio inpainting is applied to the content inside the selection rectangle. To ignore the content inside the selection rectangle, set the value to

0%. To attenuate the original spectrum inside the selection rectangle, set the value to 100%.

Fine-Tuning

Allows you to control the quality of the audio processing.

- **Window** allows you to select the smoothing shape that reduces the artifacts of the audio processing most effectively.

- **Bands** allows you to define the number of frequency bands that the algorithm will work on. If you work on rhythmic content, use low values. If you work on harmonic content, use high values. Use low values if you modify high frequencies and bigger values if you modify low frequencies.

- If **Multiresolution** is activated, multiple band settings are used at the same time. This option increases the processing time.
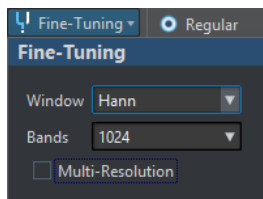
Smoothing

The **Smoothing** options allow you to create a crossfade between the processed and the unprocessed signal in the time and in the frequency domain.

The following options are available:

- **Time** allows you to set the duration of the crossfade between the processed and the unprocessed signal in the time domain.

- **Frequencies** allows you to create a crossfade in the frequency domain between the processed and the unprocessed section. If the value is high, the selected region contains much of the unprocessed signal near the frequency edges.

- If **Outside** is activated, the smoothing effect is applied to the area outside of the selection.

- If **Inside** is activated, the smoothing effect is applied to the area inside of the selection.

Presets

Allows you to save and restore spectrum processing presets.

Playback

Regular

If this option is activated, all frequencies play back without any kind of filtering when you press **Play**.

Solo Selection

If this option is activated, only the selected spectrum is played back when you press **Play**.

Mute Selection

If this option is activated, the selected spectrum is muted when you press **Play**.

RELATED LINKS

Spectrum Processing

Spectrum processing can be used to process audio regions of up to 20 minutes offline. This type of processing can be used to reduce, remove, or replace unwanted sound artifacts in the audio material with great precision.

NOTE

For longer audio regions, you can also apply **Master Section** processing. To do so, use the **Rectangle Selection** tool, and activate **Master Section** in the **Processing Algorithm** menu on the **Spectrum** tab.

For example, you can replace parts of a live recording that contain unwanted noise, such as a mobile phone ringing, with a copy of a similar region of the spectrum that contains a clean signal.

NOTE

In general, the spectral copy/paste combination delivers the best results, provided that you have chosen the appropriate source and destination regions.

After defining a time/frequency region, you can use the spectrum processing functions.

Filtering operations allow you to filter the selected region in various ways.

Copying operations allow you to copy spectrum regions and to apply them to other regions.

RELATED LINKS

Defining a Region for Spectral Editing

All spectral editing functions are applied to a selected region, or from a selection region if **Master Section** processing is used. A region that is set in the **Spectrogram** or the **Wavelet** display contains a time range and a frequency range.

PROCEDURE

1. In the **Audio Editor**, zoom in on the time range where you want to perform spectral editing.

2. Select the **Spectrum** tab.

3. In the **Selection** section, select one of the spectrum selection tools.

4. With the display set to **Spectrogram** or **Wavelet**, drag the selection around the region that you want to edit.

    When defining a region in a stereo file, a corresponding region is automatically created in the other channel.

    To define a region only on the right or the left channel, **Shift** -click while dragging with the spectrum selection tool.

    The selection range is also displayed in the overview display. This allows you to see both the time domain and the frequency domain of the selection range. You can also resize the time range for the frequency selection by adjusting the selection edges on the waveform display.
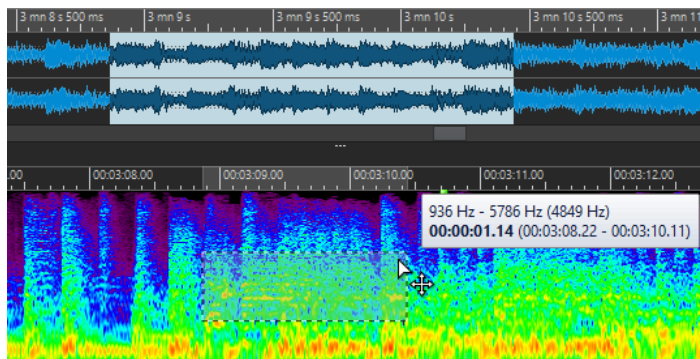
5. Optional: Click and drag the defined region to move it.

6. Optional: Move the cursor over a region edge, and click and drag to resize the defined region.

AFTER COMPLETING THIS TASK

Process the selected region in the **Spectrum** tab.

RELATED LINKS
Wavelet Display on page 691
Spectrogram on page 690
Spectrum Tab on page 694

Filtering Individual Frequencies

Filtering individual frequencies is useful for audio restoration purposes.

PROCEDURE

1. On the **Spectrum** tab, select one of the spectrum selection tools from the **Selection** section.

2. With the display set to **Spectrogram** or **Wavelet**, make a spectrum selection.
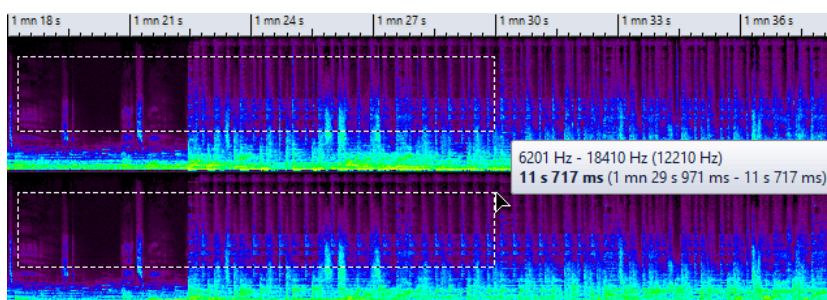
3. In the **Processing** section, select a processing type.

4. Click **Apply**.

RELATED LINKS
Wavelet Display on page 691
Spectrogram on page 690
Spectrum Tab on page 694

Spectral Editing by Copying Regions

Spectral editing by copying regions is useful for removing unwanted sounds from audio material.

PROCEDURE

1. In the **Audio Editor**, select the **Spectrum** tab.

2. In the **Selection** section, select one of the selection tools.

3. With the display set to **Spectrogram** or **Wavelet**, define a source region.

4. In the **Define and Copy** section, click **Copy**.

   To copy the source region to another audio file, use **Ctrl/Cmd - C** .

5. Place the playback cursor at the position that you want to define as the target region.

6. In the **Define and Copy** section, use the **Mix** option to specify how much of the source region you want to copy to the target region.

7. Right-click the **Paste Exactly/Paste Ambience** pop-up menu, and select the paste method that you want to apply. The following options are available:

   - To copy the defined source region to the target region, select **Paste Exactly**.

   - To copy an average of the frequencies of the source region, blurring the original dynamics and pitches and making the copied region appear less identifiable, select **Paste Ambience**.

     The paste method that you select via the menu is saved as the default.

   To paste the source region to another audio file, you can also use **Ctrl/Cmd - V** .

   The audio is pasted and, if **Smoothing** is activated, crossfaded both in the time domain and in the frequency domain.

8. Play back the audio file to check the result.

RELATED LINKS
Wavelet Display on page 691
Spectrogram on page 690
Spectrum Tab on page 694

Copying Spectral Regions by First Defining a Target Region

To use spectral editing by copying regions, you must define a target region and a source region before copying the audio from the source region to the target region, using the same frequency range and duration for both of them.

PROCEDURE

1. In the **Audio Editor**, select the **Spectrum** tab.

2. In the **Selection** section, select one of the selection tools.

3. With the display set to **Spectrogram** or **Wavelet**, define a target region.

4. In the **Define and Copy** section, click **Source at Cursor**.

5. Place the playback cursor at the position that you want to define as the source region.
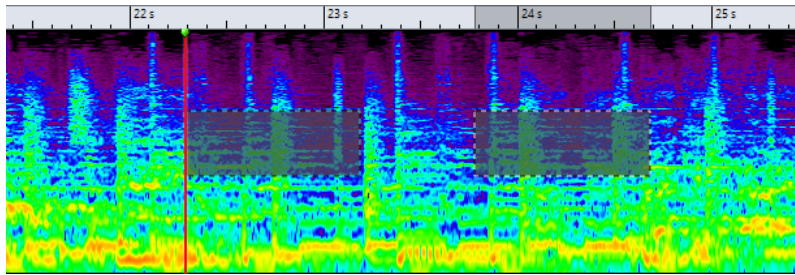
The left rectangle defines the source region at the edit cursor position and the right rectangle defines the target region.

When you have defined a source region on a single channel of a stereo file, you can click in the upper part of the left channel or the lower part of the right channel to define the source region on the other channel. The source region must be in the same audio file.

6. In the **Define and Copy** section, use the **Mix** option to specify how much of the source region you want to copy to the target region.

7. Right-click the **Paste Exactly/Paste Ambience** pop-up menu and select the paste method that you want to apply. The following options are available:

   - To copy the defined source region to the target region, select **Paste Exactly**.

   - To copy an average of the frequencies of the source region, blurring the original dynamics and pitches, and making the copied region appear less identifiable, select **Paste Ambience**.

     The paste method that you select via the menu is saved as the default.

   The audio is pasted and, if **Smoothing** is activated, crossfaded both in the time domain and in the frequency domain.

8. Play back the audio file to check the result.

   If **Source at Cursor** is activated, press **F6** to play back the source. If **Source at Cursor** is deactivated, **F6** plays back the selection.

RELATED LINKS
Wavelet Display on page 691
Spectrogram on page 690
Spectrum Tab on page 694
Rules and Tips for Spectral Editing by Copying Operations on page 704

Rules and Tips for Spectral Editing by Copying Operations

The **Source at Cursor** function is recommended for copy operations in the **Spectrogram** and **Wavelet** display that are intended for audio restoration. You first define a source region and a destination region, and then you copy audio from the source region to the destination region.

- Setting the source region just before or after the sound to remove can produce very accurate results, as this region probably contains a similar frequency spectrum as the target region containing the artifact.

- In the low to low-mid frequency range, the masking or removal of unwanted artifacts is difficult to achieve without audible interruptions. Finding a limited frequency area is important to not interrupt the flow of the audio when removing artifacts.

RELATED LINKS
Copying Spectral Regions by First Defining a Target Region on page 703

Copying Spectral Selections to a New Window

PROCEDURE

1. With the display set to **Spectrogram** or **Wavelet**, make a spectrum selection.

2. Right-click the selection, and select **Copy Selection to New Window**.

RESULT

The spectral selection is opened in a new window.

RELATED LINKS

Creating New Audio Files from Spectral Selections

You can render a spectrum selection to a new audio file that only contains the selected frequencies.

PROCEDURE

1. With the display set to **Spectrogram** or **Wavelet**, make a spectrum selection.

2. In the **Selection** section of the **Spectrum** tab, click **Invert Selection**.

3. In the **Processing** section, open the **Processing Algorithm** pop-up menu and select **Master Section**.

4. In the **Master Section**, drag the **Master Level** faders to the bottom.

   This reduces unwanted frequencies.

5. Select the **Render** tab.

6. In the **Source** section, open the pop-up menu and select **Selected Audio Range**.

7. In the **Result** section, select **Unnamed File** or **Named File**.

8. In the **Render** section, click **Start**.

RESULT

The rendered audio file is opened in a new tab.

RELATED LINKS

Audio Inpainting

The **Audio Inpainting** algorithm allows you to remove or attenuate sounds in the spectrum. Audio inpainting restores a spectrum selection based on the content of the surrounding region.

RELATED LINKS
Applying Audio Inpainting on page 706

Applying Audio Inpainting

PROCEDURE

1. In the **Audio Editor**, select the **Spectrum** tab.

2. In the **Selection** section, select one of the spectrum selection tools.

3. Click in the **Spectrogram** or in the **Wavelet** display and make a spectrum selection around the region that you want to correct.

4. Optional: If **Show Surrounding Region** is activated, you can resize the surrounding region with the mouse cursor.

   The surrounding area of the spectrum selection determines the spectrum that audio inpainting uses as a source to correct the spectrum selection.
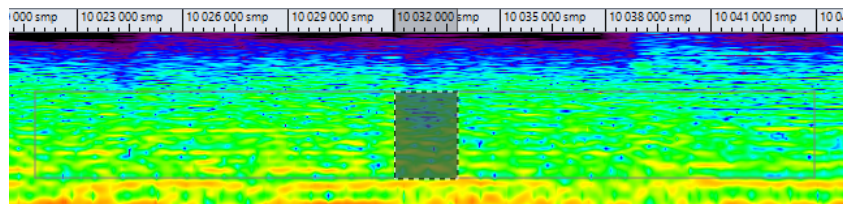
5. In the **Processing** section, right-click **Audio Inpainting**, and make adjustments as required.

6. Click **Audio Inpainting**.

RELATED LINKS
Audio Inpainting on page 706
Wavelet Display on page 691
Spectrogram on page 690
Spectrum Tab on page 694

Spectrum Watermark

You can transcode text and pictures in the spectrum and thereby define a watermark. Other spectrogram applications are able to display the watermarks. The watermarks are compatible with lossy encodings.

You can create a watermark file and use the **Audio Mixer** batch plug-in or the **Audio Injector** batch plug-in to apply a watermark to multiple files.

RELATED LINKS

Transcoding a Text in the Spectrogram

You can transcode text in the spectrogram and thereby define a watermark. The transcoding is audible in the audio file.

PROCEDURE

1. In the **Audio Editor**, select the **Spectrum** tab.

2. In the **Selection** section, select the **Rectangle Selection** tool.

3. In the **Spectrogram** or in the **Wavelet** display, define the region in which you want to apply the text.

   NOTE

   It is recommended to display the spectrum with a linear scale, because the text scaling is frequency-linear based. You can activate the linear frequency scale in the **Spectrogram Options** dialog.

4. In the **Selection** section, click **Text Selection**.

5. In the **Text Selection** dialog, enter the text and click **OK**.

   You can resize and move the text frame.
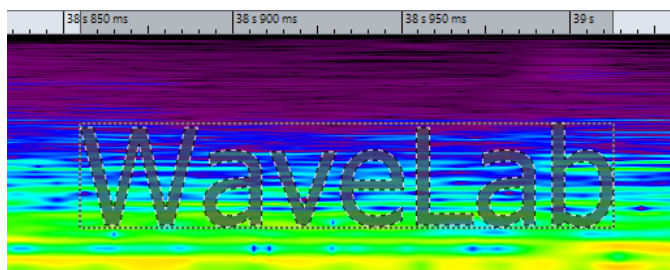
6. In the **Processing** section, open the **Processing Algorithm** menu and select **Change Level** or one of the **Noise Mixing** options.

7. Specify the **Gain** level.

   For example, if you place the text in the high frequencies and set the **Gain** to -120 dB, the text is visible in the spectrum but not audible.

8. Click **Apply**.

RESULT

The text is written into the spectrogram.

RELATED LINKS

Spectrum Watermark on page 707
Wavelet Display on page 691
Spectrogram on page 690
Spectrum Tab on page 694
Spectrogram Options Dialog on page 693

Transcoding a Picture in the Spectrogram

You can transcode pictures in the spectrogram and thereby define a watermark. The transcoding is audible in the audio file.

PROCEDURE

1. In the **Audio Editor**, select the **Spectrum** tab.

2. In the **Selection** section, select the **Rectangle Selection** tool.

3. In the **Spectrogram** or in the **Wavelet** display, define the region in which you want to apply the picture.

   NOTE

   It is recommended to display the spectrum with a linear scale, because the text scaling is frequency-linear based. You can activate the linear frequency scale in the **Spectrogram Options** dialog.

4. Specify the **Gain** level.

5. In the **Processing** section, open the **Processing Algorithm** menu and select **Transcode Picture**.

6. In the File Explorer/macOS Finder, select the picture that you want to transcode and click **Open**.

7. Click **Apply**.

RESULT

The picture is written into the spectrogram.
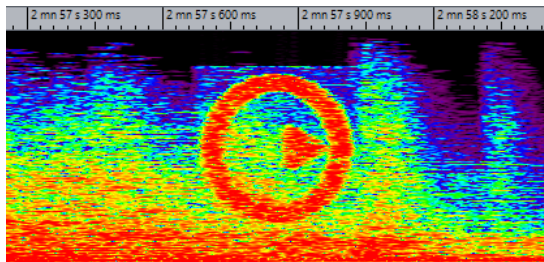
RELATED LINKS
Spectrum Watermark on page 707
Wavelet Display on page 691
Spectrogram on page 690
Spectrum Tab on page 694
Spectrogram Options Dialog on page 693

Master Section Processing

Master Section mode allows you to process an individual frequency range via the **Master Section**.

The selected or non-selected regions of the spectrum can be processed differently. You can also use a number of filters (bandpass/low-pass/high-pass) to further refine the range of frequencies to be affected by any **Master Section** effects.

The signal is split so that one part (selected spectrum or non-selected spectrum) is sent to the plug-ins, while the other part can be mixed with this processed signal, after the **Master Section** output.
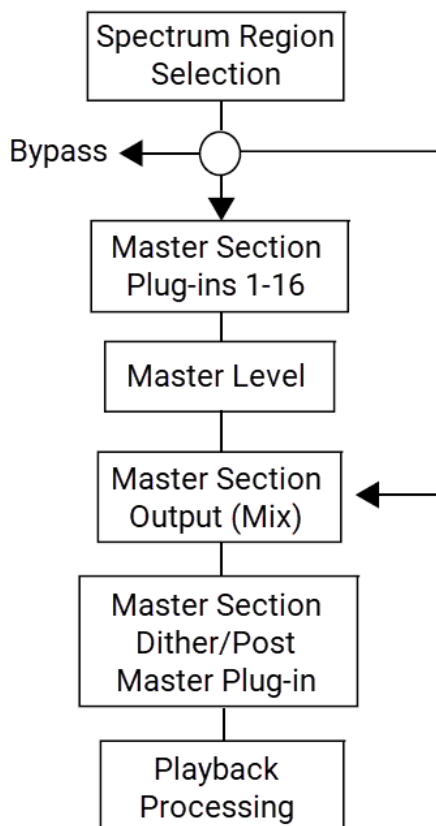
The arrows show the three possible routing options for the spectrum region selection. The non-selected spectrum has the same options, although it cannot use the same routing destination as the region selection.

The spectrum selection goes through the **Master Section** and the non-selected part goes to the output mix.

RELATED LINKS

Applying Master Section Processing

PROCEDURE

1. In the **Audio Editor**, select the **Spectrum** tab.

2. In the **Selection** section, select a selection tool.

3. In the **Spectrogram** or in the **Wavelet** display, define the region in which you want to apply the plug-in processing.

4. In the **Processing** section, open the **Processing Algorithm** menu and select **Master Section**.

5. Click **Apply** to apply the settings.

RELATED LINKS

Auto Split

The auto split function allows you to automatically split audio files in the **Audio Editor** or clips in the **Audio Montage** window according to specific rules.

Auto split can create new audio files or audio montage clips referencing the original files. The new audio files or clips can be automatically named and/or numbered.

RELATED LINKS

Auto Split in Audio Files

You can use the auto split function, for example, to split a recorded audio file into single takes, to split a drum loop into its individual drum hit samples, to output individual tracks from an album master file, or to silence the regions between audio information in an instrumental take.

You can use auto split to split audio files at the following positions:

- Markers
- Regions containing silences
- Beats using beat detection
- Specific intervals
- Specific regions derived from a text file

RELATED LINKS

Auto Split Dialog in the Audio Editor

In this dialog, you can set up auto split rules for audio files.

- To open the **Auto Split** dialog for an audio file, select **File** > **Tools** > **Auto Split**.
  You can also select the **Process** tab in the **Audio Editor**, and click **Auto Split**.

The **Auto Split** dialog contains a series of pages with different parameters and options depending on the selected auto split method.

Source
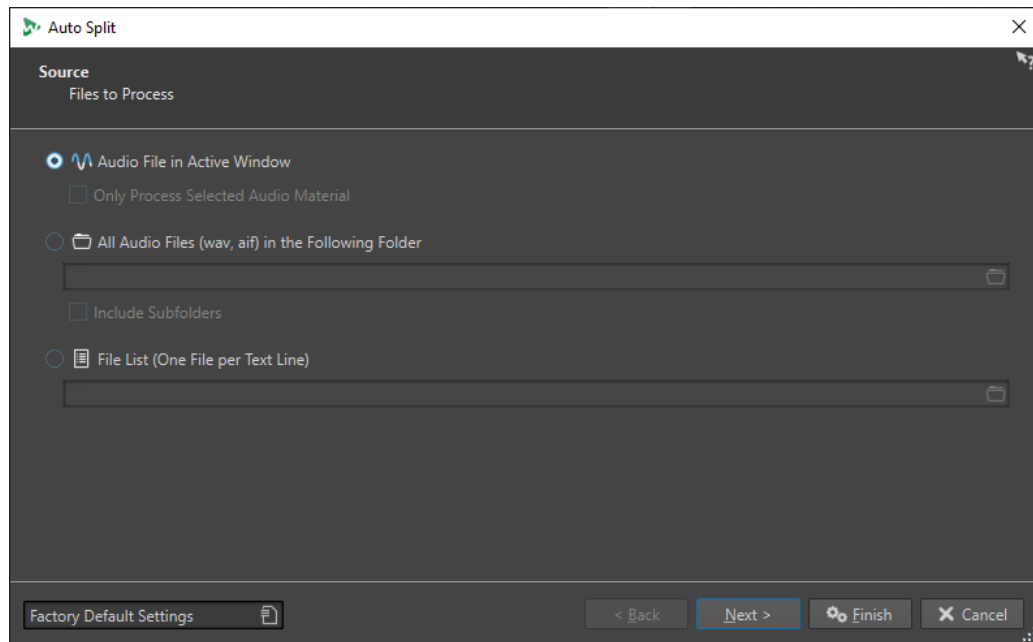
On this page, you select the files that you want to split.

Audio File in Active Window

If this option is activated, the audio file in the active window will be split.

Only Process Selected Audio Material

If this option is activated, the selected range in the audio file will be split.

All Audio Files (wav, aif) in the Following Folder

If this option is activated, you can specify a folder that contains the files that you want to split.

Include Subfolders

If this option is activated, audio files in subfolders will also be split.

File List (One File per Text Line)

If this option is activated, you can specify a text file (UTF-8 format) that contains the file names of the audio files that you want to split. Each audio file must be on a separate text line.

Method
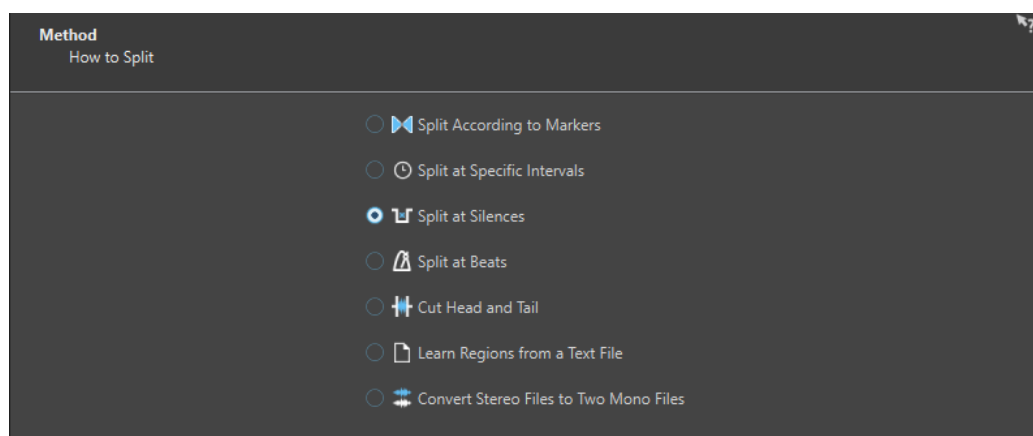
On this page, you select the type of splitting. The following types are available:

Split According to Markers

Splits the files at specific marker positions. If you select this option, you can specify the marker type that will be used for the splitting on the next page.

Split at Specific Intervals

Splits the files at specific time intervals. If you select this option, you can specify the time interval, that is, the duration of each region, on the next page.

Split at Silences

Splits the files so that all non-silent sections become separate regions. If you select this option, you can specify the minimum region duration, the minimum duration of a silent section, and the signal level that should be considered as silence on the next page.

Split at Beats

Detects beats in the audio material and splits the files at each beat. If you select this option, you can specify the sensitivity of the beat detection, the minimum beat level to create a split point, and the minimum region duration on the next page.

Cut Head and Tail

Removes sections from the start and/or end of the files, silent sections, or specified sections. You can specify sections on the next page.

Learn Regions from a Text File

Splits an audio file according to a description of regions that are saved in a text file. The text file must be located in the same folder as the audio file using the same file name.

Convert Stereo Files to Two Mono Files

Splits stereo files into two mono files.

NOTE

The options that you select on this page determine the available options on the next page of the **Auto Split** dialog.
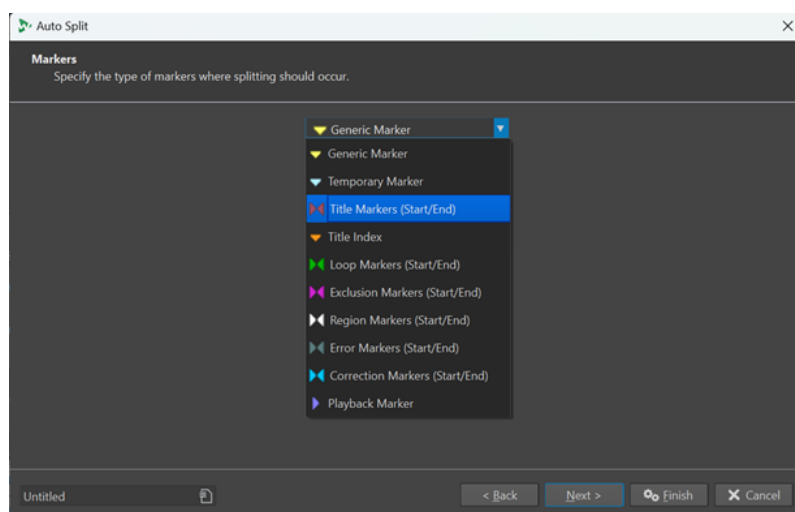
Markers

This page opens if you have selected **Split According to Markers** on the previous page.

Marker Type

Allows you to select the marker type that should be used for splitting. For example, if you select **Generic Marker**, the files are split at the generic marker positions.

Invert Regions

If this option is activated, your auto split settings are applied to the regions outside of start/end marker pairs.

Duration

This page opens if you have selected **Split at Specific Intervals** on the previous page.

Duration

Allows you to specify the duration of each region after splitting.

Duration of Current Audio Selection

If you have made a selection in an audio file, you can set the duration of each region to be the same length as the selection after splitting.

Minimum Duration for Last Region

If this option is activated, you can specify a minimum duration for the last region in the audio file. If the remaining time is shorter than the specified value, the last region is extended by the corresponding amount.

Silence Definition

This page opens if you have selected **Split at Silences** on the previous page.

A Region Has a Duration of at Least

Allows you to set the minimum length of the resulting regions after splitting. Non-silent sections that are shorter than this length will not become split regions.

Minimum Silence between Regions

Allows you to set the minimum length of a silent region. Silent regions shorter than this length are not taken into account when splitting.

Silence is Defined as a Signal Below (RMS)

Allows you to set the threshold level for detecting silence. Levels below this value are considered as silence. The **Automatic Level Detection** option below allows you to detect silence automatically.

Automatic Level Detection

If this option is activated, WaveLab Pro automatically detects silence and splits the file accordingly.

Audio Region to Retain

Allows you to specify which silent part of your audio region you want to retain after splitting. The following options are available:

- If **Exclude Silence Parts** is activated, silent parts of the audio range are excluded when the audio is split.

- If **Keep Silence Before** is activated, the silent part of the audio range before the audio signal is included in the resulting audio range.

- If **Keep Silence After** is activated, the silent part of the audio range after the audio signal is included in the resulting audio range.

Beat Detection

This page opens if you have selected **Split at Beats** on the previous page.

Beat Detection Sensitivity

Allows you to specify the sensitivity of the beat detection algorithm. Depending on the source material, you may need to try different sensitivity values.

Minimum Beat Level to Create Split Point (RMS)

Allows you to specify the minimum beat level that is required to create a split point. Beats with a level equal or greater than this value will create a split point.

Minimum Region Duration

Allows you to set the minimum length of the resulting regions after splitting. If you get many small regions when splitting, you could increase the minimum region length.

Maximize Level before Analysis

If this option is activated, the audio level will be maximized for better beat detection. This non-destructive process does not modify the audio file levels.

Cut Edges

This page opens if you have selected **Cut Head and Tail** on the previous page.

Cut Head

If this option is activated, the audio at the start of the file is removed.

Cut Tail

If this option is activated, the audio at the end of the file is removed.

Find and Cut Silence

If this option is activated, silent sections are removed from the start and/or end of the file.

Silence is Defined as a Signal Below (RMS)

Allows you to set the threshold level for detecting silence. Levels below this value are considered as silence. The **Automatic Level Detection** option below allows you to detect silence automatically.

Automatic Level Detection

If this option is activated, WaveLab Pro automatically detects silence and splits the file accordingly. This process takes longer because the audio file is read twice.

Cut Specific Times

If this option is activated, you can specify the duration of the **Head** and **Tail** of the audio file that you want to remove.

Set Length

If this option is activated, you can specify the length that you want for your audio file.

Cut at Markers

If this option is activated, you can remove sections around markers. The menu below allows you to select to which marker types you want to apply this option.

Split from Text
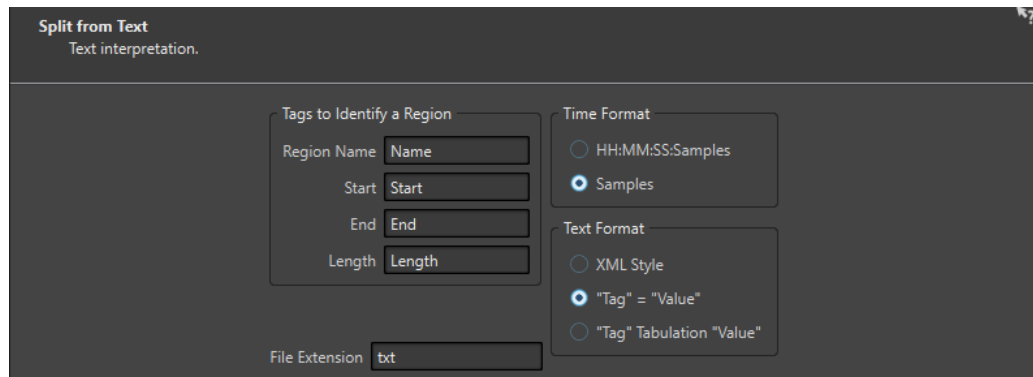
This page opens if you have selected **Learn Regions from a Text File** on the previous page.

Tags to Identify a Region

Allows you to specify the tag names that are used in your text file to identify the regions in your audio file. To identify a region, you must specify 3 tags in your text file. You can use the following tag combinations to identify regions:

- **Region Name**, **Start**, and **End**
- **Region Name**, **Start**, and **Length**

Time Format

Allows you to specify the time format that you want to use for identifying regions. The following time formats are available:

- **HH:MM:SS:Samples** (hours:minutes:seconds:samples)
- **Samples**

Text Format

Allows you to specify the text format that you want to use for identifying regions. The following text formats are available:

- **XML Style**
- **"Tag" = "Value"**
- **"Tag" Tabulation "Value"**

File Extension

Allows you to specify the file extension for the text file. For example, **txt** or **xml**. The text file must be located in the same folder as the audio file using the same file name. The text format must be UTF-8.

Destination
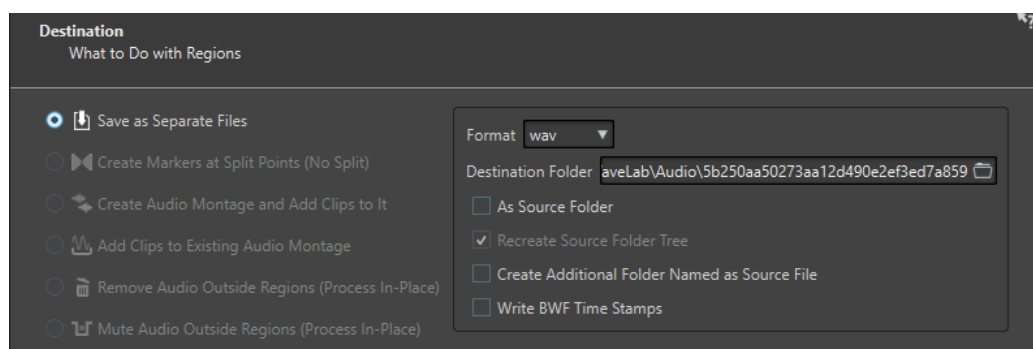
On this page, you specify what to do with the regions that are created by auto split.

Depending on the selected option on the **Method** page of the **Auto Split** dialog, some options are grayed out if they are not applicable.

Save as Separate Files

If this option is activated, each split region is saved as a separate audio file.

Create Markers at Split Points (No Split)

If this option is activated, markers will be created at the split positions. This allows you to experiment with the auto split settings without creating files. Once you have found the best setting, you can switch to another destination option.

Create Audio Montage and Add Clips to It

If this option is activated, an audio montage with a clip for each split region will be created. The clips refer to the original audio file. The following options are available:

- If **Create Fade In/Out in Clips** is activated, a fade in/fade out is created for each clip.

- If **Create Crossfades between Clips** is activated, crossfades are created between the clips.

- **Interval between Clips** allows you to specify the interval between clips. If **Create Crossfades between Clips** is activated, the time specified here is used as the crossfade time.

Add Clips to Existing Audio Montage

If this option is activated, each split region is added as a clip at the cursor position of the active track in the last audio montage that was activated. Make sure to select the correct track and cursor position before using this option.

Remove Audio Outside Regions (Process In-Place)

If this option is activated, the audio outside of split regions will be removed from the audio file. The following options are available:

- **Keep at Least This Silence** allows you to specify the minimum length of the silent part that you want to retain in the split file. This prevents removing too much audio. This option does not add silence if the silent part is shorter than the time specified here.

- If **Crossfade Remaining Parts** is activated, the audio range before and after the removed range is kept and crossfaded.

Mute Audio Outside Regions (Process In-Place)

If this option is activated, the audio outside of split regions will be replaced with silence. For example, this allows you to remove ambience sound with absolute silence. The following options are available:

- If **True Silence** is activated, the muted audio will consist of digital silence. That is, complete silence.

- If **Ambience Sound File (Looped If Not Long Enough)** is activated, you can select an audio file that contains the ambience sound that will be used for the muted audio regions.

- **Gain to Apply to This File** allows you to lower or raise the level of the ambience sound file.

Format

Allows you to select the format for the resulting audio file.

Destination Folder

Allows you to specify the destination folder for the resulting audio file.

As Source Folder

If this option is activated, the resulting audio file is saved in the same folder as the source file.

Recreate Source Folder Tree

If this option is activated and you are processing multiple files, the resulting audio files are saved in the same folder hierarchy as the source audio files.

Create Additional Folder Named as Source File

If this option is activated, the resulting audio files are saved in a folder that is named as the source file.

Write BWF Time Stamps

If this option is activated, BWF time stamps are added to the split points.

Options
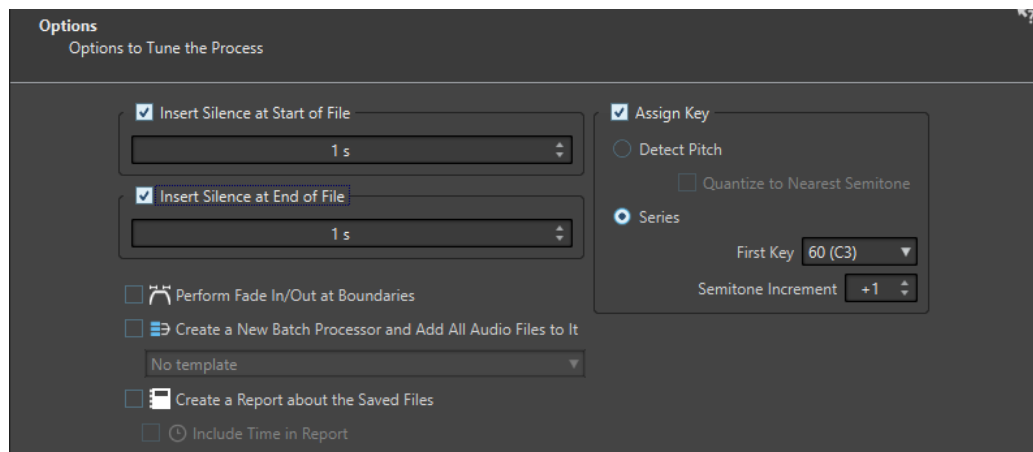
On this page, you can insert silence at the start and/or end of the files, or automatically assign root key note numbers to the files.

Insert Silence at Start of File

If this option is activated, you can specify the amount of silence that you want to add to the start of the resulting audio file.

Insert Silence at End of File

If this option is activated, you can specify the amount of silence that you want to add to the end of the resulting audio file.

Perform Fade In/Out at Boundaries

If this option is activated, a fade with the default duration is added to the start and end of each resulting audio file. You can edit the default fade duration and fade shape in the **Audio** tab of **Global Preferences**.

Create a New Batch Processor and Add All Audio Files to It

If this option is activated, the resulting audio files are opened in the **Batch Processor** window. This allows you to quickly apply the batch processing options to all resulting audio files.

Batch Processor Template

Allows you to select the batch processor template that you want to use for the resulting audio files.

Create a Report about the Saved Files

If this option is activated, WaveLab Pro creates a text file listing the resulting audio files and additional file information. The text file automatically opens in your default application for text files.

Include Time in Report

If this option is activated, the time information for each resulting audio file is added to the report.

Assign Key

If this option is activated, WaveLab Pro assigns a MIDI note number to the key or root key settings in the resulting audio files. This information can be used by samplers.

Detect Pitch

If this option is activated, WaveLab Pro automatically detects the pitch for each audio file.

Quantize to Nearest Semitone

If this option is activated, WaveLab Pro will set the key according to the closest semitone.

Series

If this option is activated, you can specify a key series for the resulting audio files.

First Key

Allows you to specify the note number for the first audio file in the series.

Semitone Increment

Each resulting audio file will get the note number of the preceding file, incremented by the semitone number that you select here.

Naming
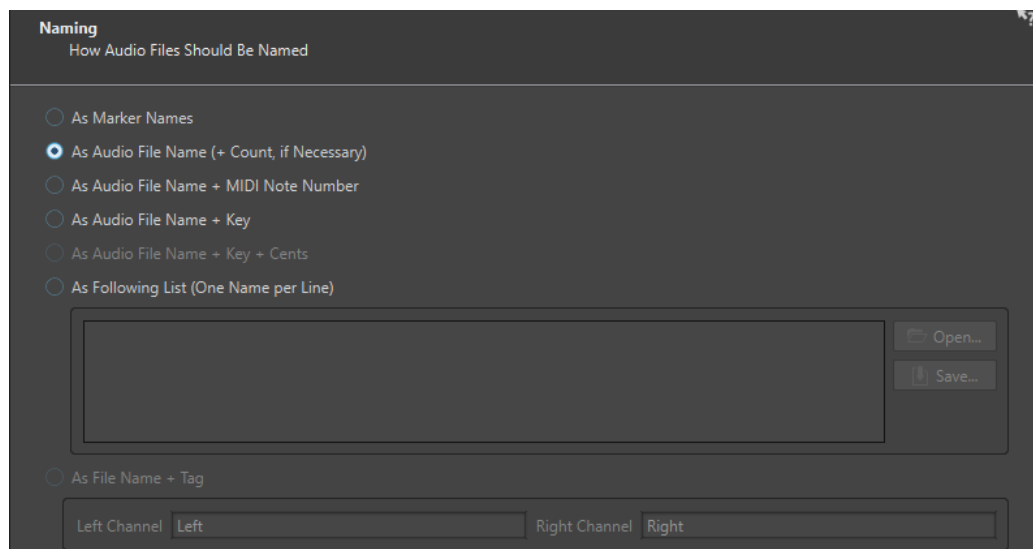
On this page, you specify how to name the files or markers that are created by auto split.

As Marker Names

If this option is activated and you have selected **Split According to Markers** earlier in the dialog, the files are named after the markers that determine the split position.

NOTE

You must have specified marker names to be able to use this option.

As Audio File Name (+ Count, if Necessary)

If this option is activated, the resulting files are named after the source files with an incrementing index number added.

As Audio File Name + MIDI Note Number

If this option is activated, the resulting files are named after the source files with the MIDI note number of the key added.

As Audio File Name + Key

If this option is activated, the resulting files are named after the source files with the key (e.g. C3) added.

As Audio File Name + Key + Cents

If this option is activated, the resulting files are named after the source files with the key (e.g. C3) and the detune (cents) value added.

As Following List (One Name per Line)

If this option is activated, the resulting files are named according to the list of names specified below.

● To save the list as a text file, select **Save**, enter a name and location, and select **Save**.

● To open a saved naming scheme file, click **Open**, select the text file that you want to open, and click **Open**.

As File Name + Tag

This option is available if you have selected **Convert Stereo Files to Two Mono Files** on the **Method** page. If this option is activated, the resulting mono files will have the name of the original stereo file plus the end tags specified in the **Left Channel** and **Right Channel** fields.

Finish

The **Finish** button is accessible from all pages. As soon as you are satisfied with your settings, you can click **Finish** without having to go through all pages. For example, when you use a preset and know that you do not need to make any further adjustments, you can click **Finish** on any page.

Learn Regions From Text File

You can split an audio file according to a description of regions that is saved in a text file.

Each region must be described by a name, a start position, and an end position (or region length). The text file must be placed in the same folder as the audio file, with the same name, and with the extension that you specify in the WaveLab Pro dialog (for example, "txt" or "xml").

You can use four tags to specify the regions.

- Region name
- Start
- End
- Length

These tags can be customized in the **Auto Split** dialog. The text file must specify either the **End** or the **Length** parameter.

Each parameter must be located on a separate text line.

The time values must be in samples or in timecode format.

- Hours:minutes:seconds:samples

You can use three text formats.

- "Tag"="Value": The tag comes first, then "=", then the value.
- "Tag" Tabulation "Value": The tag comes first, then a tabulation, then the value.
- XML style: The tag comes first, surrounded by < and >, then the value, then the tag surrounded by </ and >.

Text files must be in UTF-8 format.

RELATED LINKS
Auto Split Dialog in the Audio Editor on page 711

Example for Using Auto Split for Audio Files

You can split a long recording into samples. This is useful if you are working with a sampler, for example, HALion.

PROCEDURE

1. Open an audio file in the **Audio Editor**.

2. Select the **Process** tab.

3. In the **Split** section, click **Auto Split**.

4. In the **Auto Split** dialog, select **Audio File in Active Window** and click **Next**.

5. Select **Split at Silences** and click **Next**.

6. Set up the page according to the audio file and click **Next**.

    Adjust the first setting according to the length of the shortest recorded note, the second setting according to the shortest period of silence between two notes, and the third setting according to the level of the silence between the notes.

7. Select **Save as Separate Files**, specify the format and location for the new files, and click **Next**.

8. On the **Options** page, activate **Assign Key**, select **Detect Pitch**, and click **Next**.

This way, the correct key is assigned to each sample. If you activate **Quantize to Nearest Semitone**, WaveLab Pro sets the key according to the closest semitone. If not, the **Detune** setting in the sample may also be adjusted, according to any pitch deviations.

9. Select the naming option **As Audio File Name + Key** and click **Finish**.

RESULT

The file is split according to your settings, and new files are created in the specified location.

Auto Split in Audio Montages

You can use the auto split function to split the active clip. You can use the auto split function in many situations, for example, to split a single clip of a recording into separate takes, to split a drum loop into its individual drum hit samples, to output individual tracks from an album master file, or to silence the regions between audio information in an instrumental take.

During the analysis, only the audio files of the audio montage are taken into account. Envelopes and effects are ignored.

You can use auto split to split the active clip at the following positions:

- Markers
- Specific intervals
- Between silences
- Beats

RELATED LINKS
Auto Split Dialog in the Audio Montage Window on page 723

Auto Split Dialog in the Audio Montage Window

In this dialog, you can set up auto split rules for audio montages.

- To open the **Auto Split** dialog for an audio montage, open the **Audio Montage** window, select the **Process** tab, and click **Auto Split**.

The **Auto Split** dialog contains a series of pages, with different parameters and options depending on the selected auto split method.

Source
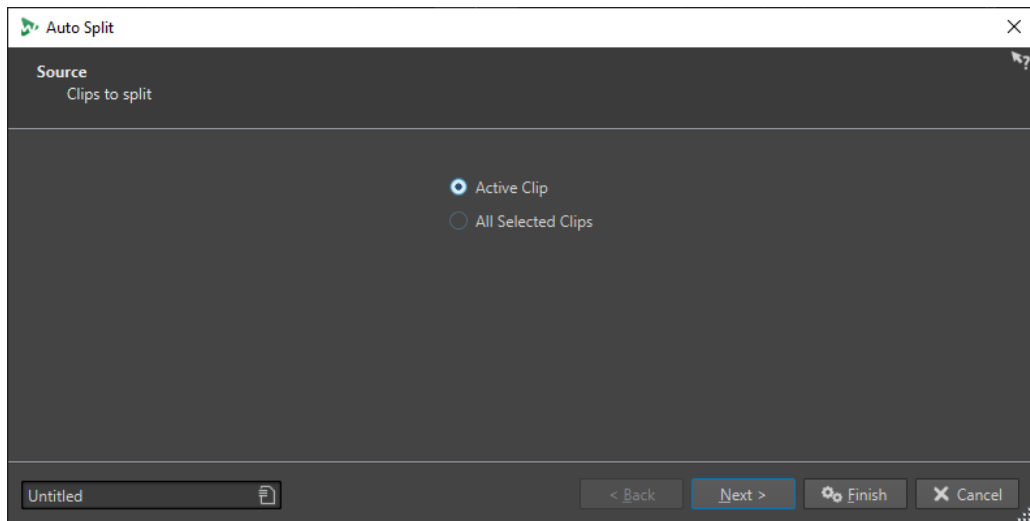
On this page, you select the clips that you want to split. The following options are available:

- **Active Clip**
- **All Selected Clips**

Method
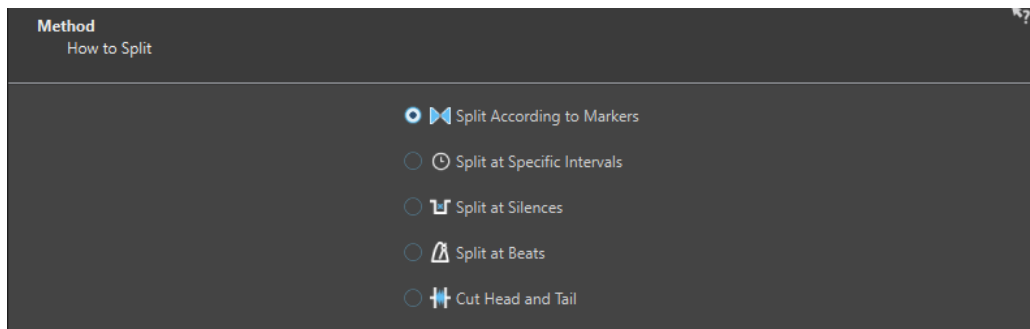
On this page, you select the type of splitting.

Split According to Markers

Splits the files at specific marker positions. If you select this option, you can specify the marker type that will be used for the splitting on the next page.

Split at Specific Intervals

Splits the files at specific time intervals. If you select this option, you can specify the time interval, that is, the duration of each region, on the next page.

Split at Silences

Splits the files so that all non-silent sections become separate regions. If you select this option, you can specify the minimum region duration, the minimum duration of a silent section, and the signal level that should be considered as silence on the next page.

Split at Beats

Detects beats in the audio material and splits the files at each beat. If you select this option, you can specify the sensitivity of the beat detection, the minimum beat level to create a split point, and the minimum region duration on the next page.

Cut Head and Tail

Removes sections from the start and/or end of the files, silent section, or specified sections.

The options that you select on this page determine the available options on the next page of the **Auto Split** dialog.
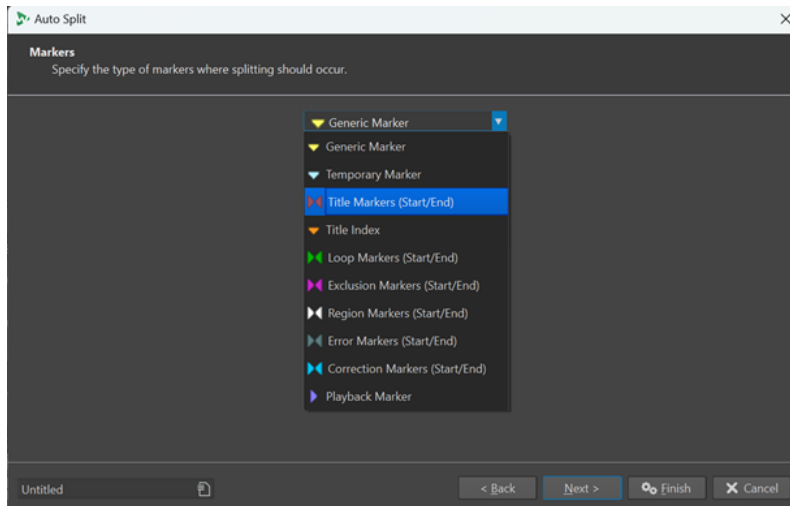
Markers

This page opens if you have selected **Split According to Markers** on the previous page.

Duration

Marker Type

Allows you to select the marker type that should be used for splitting. For example, if you select **Generic Marker**, the files are split at the generic marker positions.

Invert Regions

If this option is activated, your auto split settings are applied to the regions outside of start/end marker pairs.

This page opens if you have selected **Split at Specific Intervals** on the previous page.

Duration

Allows you to specify the duration of each region after splitting.

Duration of Current Audio Selection

If you have made a selection in an audio file, you can set the duration of each region to be the same length as the selection after splitting.

Minimum Duration for Last Region

If this option is activated, you can specify a minimum duration for the last region in the audio file. If the remaining time is shorter than the specified value, the last region is extended by the corresponding amount.

Silence Definition

This page opens if you have selected **Split at Silences** on the previous page.

A Region Has a Duration of at Least

Allows you to set the minimum length of the resulting regions after splitting. Non-silent sections that are shorter than this length will not become split regions.

Minimum Silence between Regions

Allows you to set the minimum length of a silent region. Silent regions shorter than this length are not taken into account when splitting.

Silence is Defined as a Signal Below (RMS)

Allows you to set the threshold level for detecting silence. Levels below this value are considered as silence. The **Automatic Level Detection** option below allows you to detect silence automatically.

Automatic Level Detection

If this option is activated, WaveLab Pro automatically detects silence and splits the file accordingly.

Audio Region to Retain

Allows you to specify which silent part of your audio region you want to retain after splitting. The following options are available:

- If **Exclude Silence Parts** is activated, silent parts of the audio range are excluded when the audio is split.

- If **Keep Silence Before** is activated, the silent part of the audio range before the audio signal is included in the resulting audio range.

- If **Keep Silence After** is activated, the silent part of the audio range after the audio signal is included in the resulting audio range.

Beat Detection

This page opens if you have selected **Split at Beats** on the previous page.

Beat Detection Sensitivity

Allows you to specify the sensitivity of the beat detection algorithm. Depending on the source material, you may need to try different sensitivity values.

Minimum Beat Level to Create Split Point (RMS)

Allows you to specify the minimum beat level that is required to create a split point. Beats with a level equal or greater than this value will create a split point.

Minimum Region Duration

Allows you to set the minimum length of the resulting regions after splitting. If you get many small regions when splitting, you could increase the minimum region length.

Maximize Level before Analysis

If this option is activated, the audio level will be maximized for better beat detection. This non-destructive process does not modify the audio file levels.

Cut Edges

This page opens if you have selected **Cut Head and Tail** on the previous page.

Cut Head

If this option is activated, the audio at the start of the file is removed.

Cut Tail

If this option is activated, the audio at the end of the file is removed.

Find and Cut Silence

> If this option is activated, silent sections are removed from the start and/or end of the file.

Silence is Defined as a Signal Below (RMS)

> Allows you to set the threshold level for detecting silence. Levels below this value are considered as silence. The **Automatic Level Detection** option below allows you to detect silence automatically.

Automatic Level Detection

> If this option is activated, WaveLab Pro automatically detects silence and splits the file accordingly. This process takes longer because the audio file is read twice.

Cut Specific Times

> If this option is activated, you can specify the duration of the **Head** and **Tail** of the audio file that you want to remove.

Set Length

> If this option is activated, you can specify the length that you want for your audio file.

Cut at Markers

> If this option is activated, you can remove sections around markers. The menu below allows you to select to which marker types you want to apply this option.

Destination
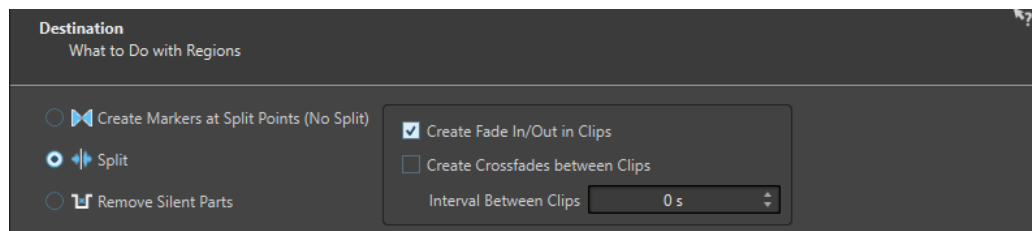
On the fourth page, you specify what to do with the regions that are created by auto split.

Depending on the selected option on the **Method** page of the **Auto Split** dialog, some options are grayed out if they are not applicable.

Create Markers at Split Points (No Split)

> If this option is activated, markers will be created at the split positions. This allows you to experiment with the auto split settings without creating files. Once you have found the best setting, you can switch to another destination option.

Split

> If this option is activated, each split region is added as a clip at the cursor position of the active track in the active audio montage. Make sure to select the correct track and cursor position before using this option.

Remove Silent Parts

> If this option is activated, the audio outside of split regions will be replaced with silence. For example, this allows you to remove ambience sound with absolute silence.

Interval Between Clips

> Allows you to define the time between the resulting clips.

Create Fade In/Out in Clips

If this option is activated, a fade with the default duration is added to the start and end of each clip. You can edit the default fade duration and fade shape in the **Audio** tab of **Global Preferences**.

Naming
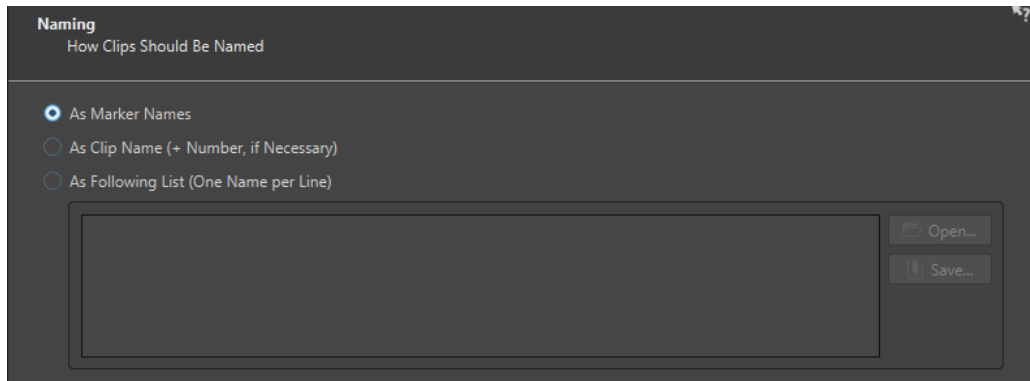
On this page, you specify how to name the clips that are created by auto split.

As Marker Names

If this option is activated and you have selected **Split According to Markers** earlier in the dialog, the clips are named after the markers that determine the split position.

NOTE

You must have specified marker names to be able to use this option.

As Clip Name (+ Number, if Necessary)

If this option is activated, the resulting clips are named after the source clip with an incrementing index number added.

As Following List (One Name per Line)

If this option is activated, the resulting clips are named according to the list of names specified below.

- To save the list as a text file, select **Save**, enter a name and location, and select **Save**.

- To open a saved naming scheme file, click **Open**, select the text file that you want to open, and click **Open**.

Finish

The **Finish** button is accessible from all pages. As soon as you are satisfied with your settings, you can click **Finish** without having to go through all pages. For example, when you use a preset and know that you do not need to make any further adjustments, you can click **Finish** on any page.

RELATED LINKS

Loops

Looping a sound allows you to repeat a section of the sample indefinitely in order to create a sustain of unlimited length. Instrumental sounds in samplers rely on looping organ sounds, for example.

In WaveLab Pro, loops are defined by loop markers or the audio selection. Loop markers are added, moved, and edited just as any other type of marker.

To ensure that you find a good loop point, note the following:

- A long loop usually sounds the most natural. However, if the sound does not have a stable section in the middle (an even sustain part), it might be hard to find a good long loop.

  For example, a piano note which decays continuously is hard to loop because the start point of the loop is louder than the end point. A flute is much simpler, because the sound in the sustain section is very stable.

- A loop should start shortly after the attack, that is, when the sound has stabilized to a sustaining note.

- If you set up a long loop, it should end as late as possible but before the sound starts decaying to silence.

- Short loops are difficult to position within the sound. Try to position them near the end.

NOTE

More information about looping in general, and the exact capabilities of your sampler in particular can be found in the manual of the sampler.

RELATED LINKS
Creating Loops on page 730
Loop Refinement on page 731

Creating Loops

You can loop the audio selection or use loop markers and tweak the loop during playback.

PROCEDURE

1. In the **Audio Editor**, select the audio section that you want to loop.

2. Right-click the audio selection and select **Create Loop from Selection**.

3. On the transport bar, activate **Loop**.

4. Right-click **Play Audio Range** and activate **Region Between Marker Pairs**.

5. Right-click **Loop** and select how often you want the audio to loop in the **Loop Mode** menu. The following options are available:

   - **Play Continuously**
   - **Play Twice**
   - **Play 3 Times**
   - **Play 4 Times**

        ● **Play 5 Times**

6. Play back the loop.
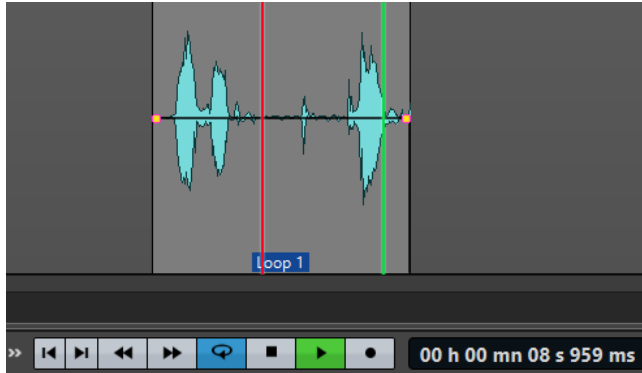
The audio selection is looped.

7. Optional: Adjust the position of the markers or the left and right selection edges to tweak the loop.

8. Optional: Adjust the left and right selection edges to tweak the loop.

AFTER COMPLETING THIS TASK

Creating a loop this way does not necessarily lead to good loops, because clicks or abrupt changes in timbre at the turning point can occur.

We suggest that you use this method for setting up the basic length of the loop and then use the **Loop Tweaker** and **Loop Tone Uniformizer** for optimizing.

RELATED LINKS

Loop Refinement

A basic loop can contain clicks or abrupt changes in timbre at the turning point. To create a seamless loop, you can refine the loop. Use the **Loop Tweaker** dialog to tweak an existing loop selection so that it loops perfectly or use it to create a loop from material which is not perfectly suited to create a loop.

You can automatically detect loop points by scanning the area between two loop markers. You can specify parameters that determine how accurate the program should be when suggesting loop points.

If the automatic search for loop points is not successful, you can process the waveform to allow for smoother loops by crossfading areas of the waveform close to the loop start and end points.

RELATED LINKS

Loop Tweaker Dialog

This dialog allows you to adjust loop start and end points, and to crossfade loop boundaries. The loop start and end points are specified via loop start and end markers.

If more than one loop marker pair is available in the audio file, click in the area between a loop marker pair to tweak the corresponding start and end points.

● To open the **Loop Tweaker** dialog, open the **Audio Editor**. Select the **Process** tab. In the **Loop** section, select **Tweaker**.

Loop Points Adjustment Tab

This tab allows you to manually refine a loop selection by dragging the waveform to the left/right or by using the automatic search buttons to find the nearest suitable loop point. The aim is to align the waveforms so that they meet at a zero-crossing point, where the waveforms match as closely as possible.

NOTE

When you adjust your loop start and end points in the dialog, the start and end loop markers in the main waveform window adjust accordingly. This movement may not be visible, depending on how much you move the markers and on the zoom factor that you have selected.

TIP

● To hear the difference when you adjust the loop markers, activate **Loop** on the transport bar during playback.

● If you are not using a crossfade or post-crossfade, you do not have to click **Apply** when tweaking loop points.

● You can leave the **Loop Tweaker** dialog open and manually adjust the position of the markers in the main waveform windows.

NOTE

If you use the **Loop Tweaker** feature on surround audio files, only the L/R channels are displayed and used to match the waveforms, but all channels are processed.
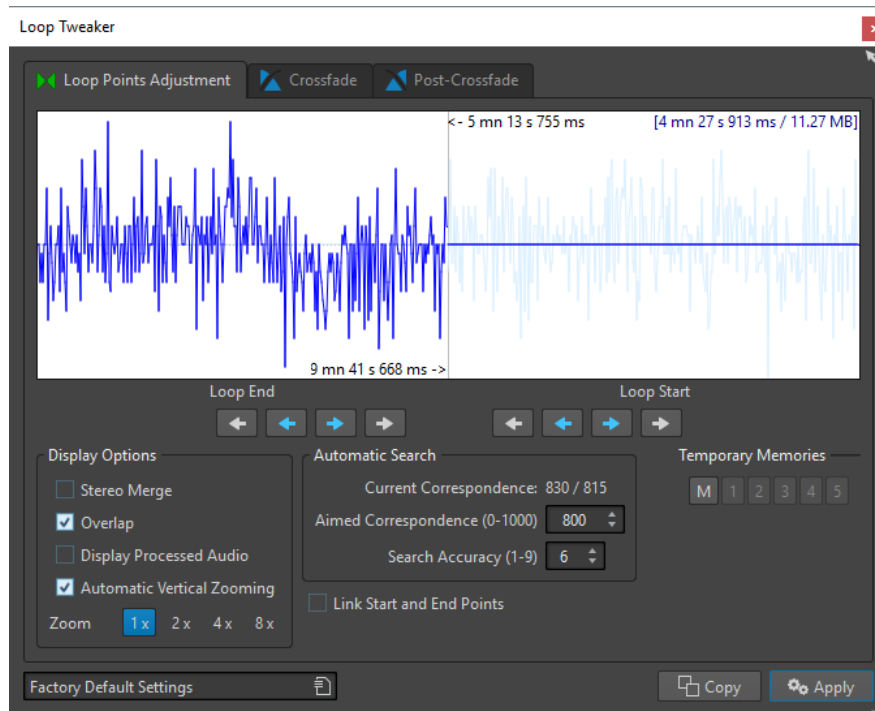
The top of this dialog shows the beginning and the end of the waveform between the loop markers. The bottom of this dialog offers the following options:

Loop End – Inner Arrows

Moves the loop end points to the left/right.

Loop End – Outer Arrows

Invokes an automatic search for the nearest suitable loop point to the left/right of the loop end point and moves the end point to that position.

Loop Start – Inner Arrows

Moves the loop start points to the left/right.

Loop Start – Outer Arrows

Invokes an automatic search for the nearest suitable loop point to the left/right of the loop start point, and moves the start point to that position.

Stereo Merge

If this option is activated for a stereo file, the two waveforms are overlaid. Otherwise, they are shown in two separate sections.

Overlap

If this option is activated, the waveforms of both halves are continued in the other half. This shows how the waveform looks like right before and after the loop.

Display Processed Audio

This option only makes sense after you have applied a crossfade. If this option is activated, a preview of the waveform after crossfading is displayed. If this option is deactivated, you see what the waveform looks like without crossfading.

Automatic Vertical Zooming

If this option is activated, the vertical magnification is adjusted so that the waveform always fills the entire display vertically.

Zoom

Sets the zoom factor.

Current Correspondence

Indicates how well the waveforms near the loop points match one another. The left value estimates the similarity across several wave cycles, while the right value estimates the similarity of the samples near the loop points. The higher the values, the better the match.

Aimed Correspondence (0-1000)

Sets up the automatic search for suitable loop points. This defines how well the found section must resemble the section to which it is compared, in order to be considered a match. The higher the value, the more precise the resemblance must be. A value of 1000 requires a 100% match.

Search Accuracy (1-9)

Determines how many samples are to be taken into account by the auto-find analysis. Higher values result in greater accuracy, but also in longer processing times.

Link Start and End Points

If this option is activated, both the start and end points move simultaneously when you manually adjust the loop points. As a result, the loop length stays exactly the same, and the entire loop moves.

Temporary Memories

Allows you to save up to five different sets of loop points which you can later recall. This allows you to try out different loop settings. To save a set, click the **M** button, then one of the buttons 1-5.

Crossfade Tab

This tab allows you to apply a crossfade between the audio at the end of a loop and the audio at the beginning of the loop. This can be useful to smooth the transition between the end of a loop and its beginning, especially when you use material that is not perfectly suited to create a loop. Use the envelope drag points or value sliders to adjust the crossfade envelope. Click **Apply** to create the crossfade.
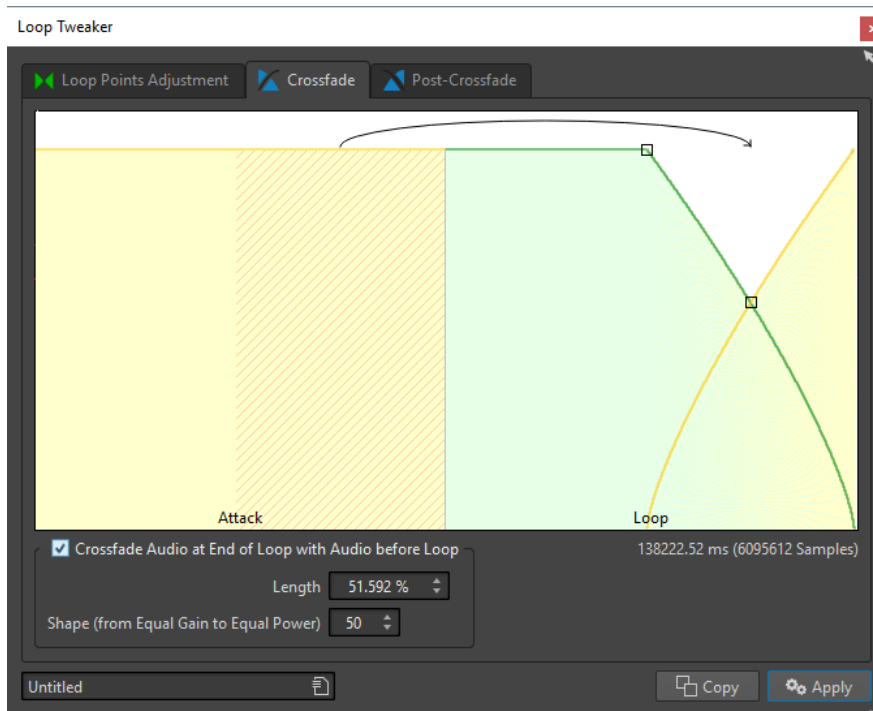
Crossfade Audio at End of Loop with Audio before Loop

To enable crossfading, activate this checkbox. The crossfade is applied when you click **Apply**.

Length

Determines the length of the crossfade. Generally, you want the crossfade to be as short as possible, with an acceptable result.

> NOTE
>
> - Using a long crossfade smoothens the loop. However, more of the waveform is processed, which changes its character.
> - A shorter crossfade affects the sound less, but the loop is not as smooth.

Shape (from Equal Gain to Equal Power)

Determines the shape of the crossfade. Use low values for simple sounds and high values for complex sounds.

Post-Crossfade Tab

Post-crossfading means crossfading the loop back into the audio after the end of the loop so that there is no glitch when playback continues after the loop. This is done by mixing a copy of the loop back into the audio.

This tab allows you to apply a crossfade at the end of the loop by mixing a copy of the loop back into the audio. Use the envelope drag points or value sliders to adjust the crossfade envelope. Click **Apply** to create the post crossfade.
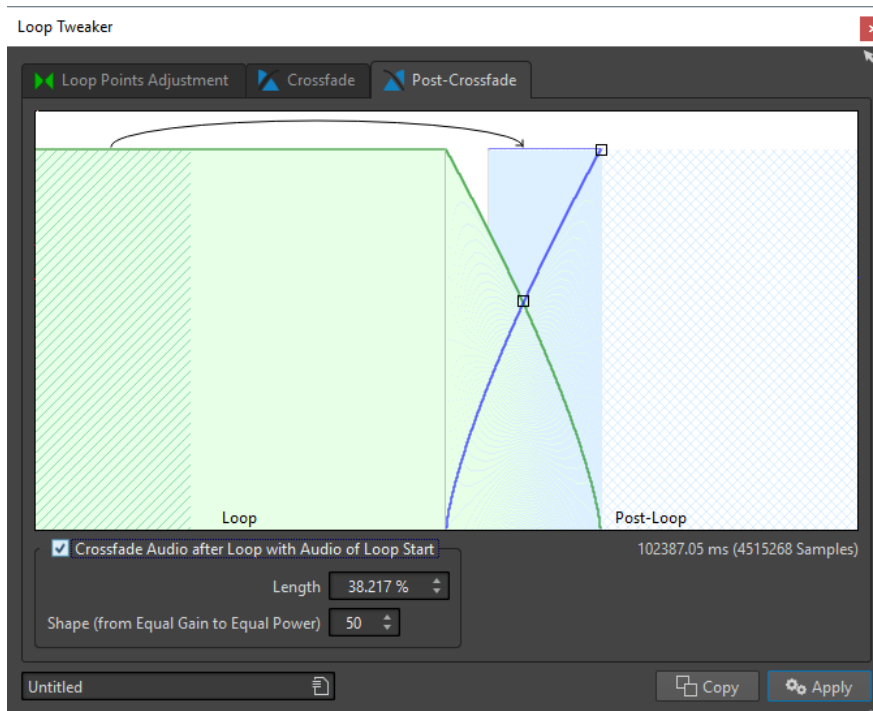
Crossfade Audio after Loop with Audio of Loop Start

> To enable crossfading, activate this checkbox. The crossfade is applied when you click
> **Apply**.

Length

> Determines the length of the crossfade. Generally, you want the post-crossfade to be
> as short as possible, with an acceptable result.

> NOTE
>
> - Using a long post-crossfade smoothens the loop. However, more of the waveform
>   is processed, which changes its character.
> - A shorter post-crossfade affects the sound to a lesser degree, but the loop is not as
>   smooth.

Shape (from Equal Gain to Equal Power)

> Determines the shape of the post-crossfade. Use low values for simple sounds and
> high values for complex sounds.

Refining Loops

You can refine loops using the **Loop Tweaker** dialog.

PROCEDURE

1. In the **Audio Editor**, create a basic loop using a pair of loop markers.

2. Click between the loop start and loop end marker of the loop that you want to refine.

3. Select the **Process** tab.

4. In the **Loop** section, click **Tweaker**.

5. In the **Loop Tweaker** dialog, refine your loop.

6. Click **Apply**.

Moving Loop Points Manually

If your loop still has glitches or bumps at the transition points, you can use the **Loop Tweaker** dialog to move the points in small steps to remove the glitch.

This is similar to moving the loop points in the wave display, but with a visual feedback to facilitate finding good loop points.

There are two ways of moving the loop points manually on the **Loop Points Adjustment** tab in the **Loop Tweaker** dialog:

- Drag the waveform to the left and right.
- Use the blue arrows below the waveform to nudge the audio to the left and right. Each click moves the loop point by a single sample.

The following applies when moving the loop points manually:

- To move the end point to a later or earlier position, move the left part of the display.
- To move the start point to a later or earlier position, move the right part of the display.
- To move the start and end points simultaneously, activate **Link Start and End Points**. This way, when adjusting a loop point, the length of the loop stays the same, but the entire loop is moved.
- You can also adjust the loop markers in the wave window.

Automatically Detecting Good Loop Points

The **Loop Tweaker** dialog can automatically search for good loop points.

PROCEDURE

1. In the **Audio Editor**, select the loop that you want to refine by clicking between its loop start and loop end marker.
2. Select the **Process** tab.
3. In the **Loop** section, click **Tweaker**.
4. In the **Loop Tweaker** dialog, on the **Loop Points Adjustment** tab, make sure that **Link Start and End Points** is deactivated.
5. In the **Automatic Search** section, specify the **Aimed Correspondence** and the **Search Accuracy**.
6. Click the white arrow buttons to start the automatic search for a good loop point.

   WaveLab Pro scans from the current point forwards or backwards, until it finds a point that matches. You can stop at any time by clicking the right mouse button. The program then jumps back to the best found match.
7. Check the loop by playing it back.
8. Optional: If you think there might be a better loop point, continue with the search.

Temporarily Saving Loop Points

Temporarily saving and restoring loop points allows you to compare different loop settings.

PREREQUISITE

Set up a basic loop and open the **Loop Tweaker** dialog.

NOTE

- There are five slots for temporarily saving loop points for each wave window and montage window. If you have several sets of loops in your file, you must be careful to not recall the wrong set.
- Only loop positions are temporarily saved.

PROCEDURE

1. On the **Loop Points Adjustment** tab, in the **Temporary Memories** section, click **M**.
2. Select one of the five memory slots.

Crossfades in Loops

Crossfading is useful to create smooth transitions between the end of a loop and its beginning, especially when using material that is not perfectly suited to create a loop.

Sometimes it is impossible to find a loop that does not cause any glitches. This is especially true for stereo material, where you might be able to find a perfect candidate for only one channel.

In this case crossfading smears the material around the end loop point so that it loops perfectly. This is achieved by mixing material from before the loop start with material that is located before the loop end.

NOTE

This technique alters the waveform and therefore changes the sound.

Creating a Crossfade

PROCEDURE

1. In the **Audio Editor**, create as good a loop as you can.
2. Select the **Process** tab.
3. In the **Loop** section, click **Tweaker**.
4. In the **Loop Tweaker** dialog, decide if you want to create a crossfade or a post-crossfade:
    - If you want to create a crossfade, click the **Crossfade** tab.
    - If you want to create a post-crossfade, click the **Post-Crossfade** tab.
5. Make sure that **Crossfade Audio at End of Loop with Audio before Loop** (**Crossfade** tab) or **Crossfade Audio after Loop with Audio of Loop Start** (**Post-Crossfade** tab) is activated.
6. Specify the length for the crossfade either by dragging the length handle or by adjusting the **Length** value below the graph.
7. Specify the crossfade shape by dragging the shape handle or by adjusting the **Shape (from Equal Gain to Equal Power)** value.

8. Click **Apply**.

   The sound is processed.

   > NOTE
   >
   > Do not move the loop points after you have performed a crossfade. The waveform has been processed specifically for the current loop settings.

AFTER COMPLETING THIS TASK

● You can check the crossfade visually by opening the **Loop Points Adjustment** tab and activating **Display Processed Audio**. If this is activated, the display shows a preview of the crossfaded waveform. If this option is deactivated, the display shows the original waveform. Switching back and forth allows you to compare the two.

Post-Crossfades

Post-crossfading means crossfading the loop back into the audio after the end of the loop so that there is not glitch when playback continues after the loop. This is done by mixing a copy of the loop back into the audio.

The post-crossfade can be set up on the **Post-Crossfade** tab of the **Loop Tweaker** dialog.

The post-crossfade analyzes the part of the waveform that occurs just after the loop start and processes a specific area that begins at the end of the loop. The length parameter adjusts the size of this area. Everything else is identical with regular crossfading.

Looping Audio Which Is Not Very Well Suited for Looping

Sounds that constantly decay in level or continuously change in timbre are difficult to loop. The **Loop Tone Uniformizer** dialog allows you to create loops from these kinds of sounds.

The **Loop Tone Uniformizer** applies processing to the sound that evens out changes in level and timbral characteristics in order for a sound to loop properly. For example, this is useful for creating looped samples for a softsynth or hardware sampler.

The **Loop Tone Uniformizer** includes a crossfade option allowing you to fade in the original sound into the processed sections when playback approaches the loop start.

To use the **Loop Tone Uniformizer**, you must have created a loop by setting a pair of loop markers. The original length of the loop is not changed.

Loop Tone Uniformizer Dialog

This dialog allows you to create sounds that loop from audio which is not very well suited for looping. These are normally sounds that constantly decay in level or continuously change in timbre.

● To open the **Loop Tone Uniformizer** dialog, open the **Audio Editor**, select the **Process** tab, and in the **Loop** section, select **Tone Uniformizer**.

Uniformizers Tab

This tab allows you to specify the methods that are used to even out the sound that you want to loop.
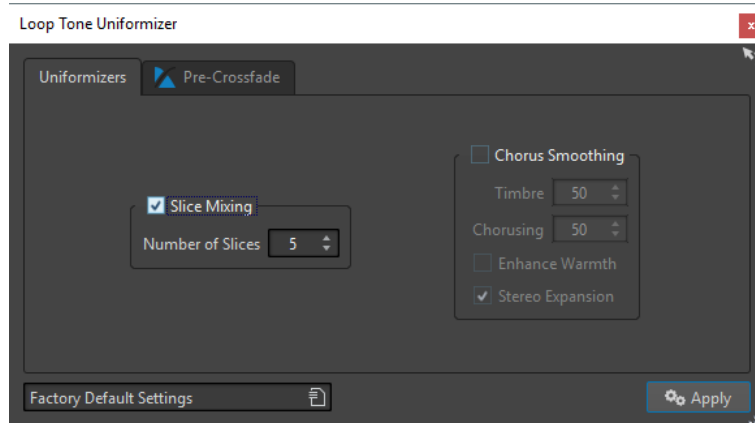
Slice Mixing

    Splits the loop in slices, which are then mixed together to uniformize the sound.

    For slice mixing, you need to determine the number of slices. Only experimentation can tell how many slices are needed, but generally, the more slices you have, the more natural the sound. However, the program puts a restriction on the number of slices, so that each one is never shorter than 20 ms.

    For example, if you specify eight slices, the loop is split into eight sections of equal length. These sections are then overlapped and mixed together as one sound which is repeated eight times. This new piece of audio replaces all audio inside the loop so that no harmonic cancellation due to phase offsets occurs.

Slice Mixing – Number of Slices

    The more slices you use, the more the sound changes.

Chorus Smoothing

    This processor uses a phase vocoding method to filter the harmonics. This method is recommended for looping ensemble and choir sounds and can drastically change the timbre.

Chorus Smoothing – Timbre

    Governs the amount by which the timbral characteristics of the sample should be evened out. The higher the value, the more pronounced the effect.

Chorus Smoothing – Chorusing

    Determines the depth of the chorus effect.

Chorus Smoothing – Enhance Warmth

    Creates a smoother, warmer sounding effect.

Chorus Smoothing – Stereo Expansion

    Increases the width of the sample in the stereo sound image.

Pre-Crossfade Tab

This tab allows you to crossfade the end of the loop with the start of the newly processed section so that the transition into the looped section is smoother during playback. Use the envelope drag points or value sliders to adjust the crossfade.

You need to use this feature because the **Loop Tone Uniformizer** changes the timbre only inside the loop. This means that the transition into the loop is not as smooth as expected unless you apply crossfading.
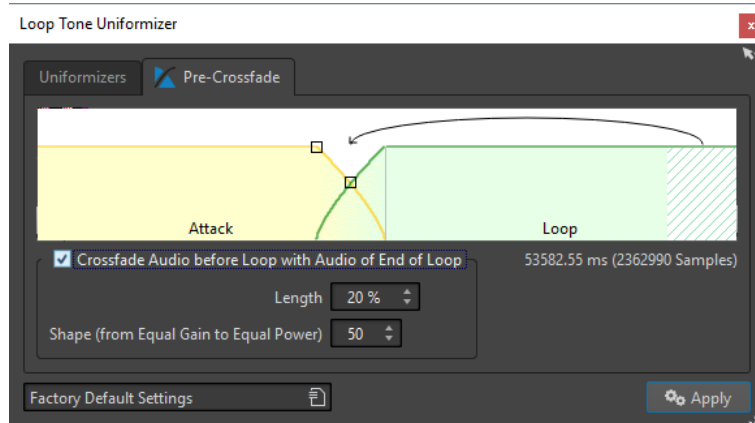
Crossfade Audio before Loop with Audio of End of Loop

Enables crossfading, which is applied when you click **Apply**.

Length

Determines the length of the crossfade. Generally, you want the post-crossfade to be as short as possible, with an acceptable result.

- A long crossfade produces a smoother loop. However, more of the waveform is processed, which changes its character.
- A shorter crossfade affects the sound less, but the loop is not as smooth.

Shape (from Equal Gain to Equal Power)

Determines the shape of the crossfade. Use low values for simple sounds and high values for complex sounds.

Looping Seemingly Unloopable Audio

PROCEDURE

1. In the **Audio Editor**, create a basic loop using a pair of loop markers.

2. Click between the loop start and loop end marker of the loop that you want to refine.

3. Select the **Process** tab.

4. In the **Loop** section, click **Tone Uniformizer**.

5. In the **Loop Tone Uniformizer** dialog, make sure that either **Slice Mixing** and/or **Chorus Smoothing** is activated, and make adjustments as required.

6. Optional: Select the **Pre-Crossfade** tab, and set up a crossfade.

7. Click **Apply**.

The sound is processed. Each time that you click **Apply**, a new loop is defined. This allows you to try out different settings quickly.

NOTE

Do not move the loop points after you have performed a crossfade. The waveform has been processed specifically for the current loop settings.

AFTER COMPLETING THIS TASK

After using the **Loop Tone Uniformizer** dialog, the transition between the end of the loop and the end of the file might not sound very natural. This can be fixed by creating a post-crossfade using the **Loop Tweaker** dialog.

Sample Attributes

Sample attributes allow you to define settings for an audio sample before loading it into a hardware or software sampler.

Sample attributes do not process the sample, they just provide the file properties that the receiving sampler can use. This includes information about the pitch of the sample, which can be detected automatically, the key range that the sample should span, and the velocity range to occupy. For WAV and AIFF files, this information is saved in the header of the file. By default, there are no sample attributes in an audio file.

Editing Sample Attributes

PROCEDURE

1. Open the **Audio Editor**.

2. Select **Tool Windows** > **Sample Attributes**.

3. In the **Sample Attributes** window, click **Create**.

4. Optional: If you want to automatically detect the pitch of an audio selection, select an audio range, and select **Detect from Audio Selection**.

5. Specify the sample attributes.

6. Save the audio file to save the sample attributes settings in the audio file.

    The sample attribute is only saved in WAV and AIFF files.

Sample Attributes Window

In this window, you can create sample attributes for an audio sample.

● To open the **Sample Attributes** window, open the **Audio Editor** and select **Tool Windows** > **Sample Attributes**.
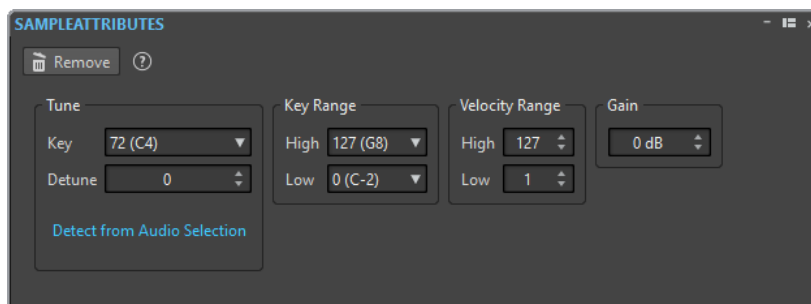
Create/Remove

Creates/Removes sample attributes for the active audio file.

Tune – Key

Specifies which key plays back the sound at its basic pitch.

Tune – Detune

Specifies whether the sample should be played back at a slightly different pitch. The range is ±50% of a semitone, which translates into a quarter tone in each direction.

Detect from Audio Selection

Detects the pitch from an audio selection. Make sure that the audio selection contains a clearly defined pitch.

Key Range – High/Low

Specifies the key range for the sample if the sample is part of a multi-sample key map.

Velocity Range – High/Low

Specifies the velocity range for the sample if the sample is part of a multi-sample key map with velocity-switchable samples.

Gain

For WAV and AIFF files, you can specify the sample attribute gain. This option does not affect the playback volume.

Generating Signals

In WaveLab Pro, you can generate synthesized sounds and DTMF or MF tones.

Signal Generator

The **Signal Generator** allows you to generate complex synthesized sounds in mono or stereo.

You can layer different waveform generators together and if outputting a stereo file, adjust different settings for both the left and right channels.

Use the **Signal Generator** for the following:

- Testing the specifications of audio equipment
- Measurements of various kinds, including calibrating tape recorders
- Testing signal processing methods
- Educational purposes

The **Signal Generator** is based on a waveform generator that can generate a large number of basic waveforms, such as sine, saw, pulse, and various types of noise.

The **Signal Generator** has a multitude of settings for character (**Source** tab), frequency (**Frequency** tab), and amplitude (**Level** tab).

You can combine up to 64 **Signal Generators** into layers and set parameters for the left and right channel independently.

NOTE

The **Signal Generator** is not intended for synthesizing musical sounds.

RELATED LINKS

Signal Generator Dialog

This dialog allows you to generate complex synthesized sounds in mono or stereo.

- To open the **Signal Generator** dialog, select **File** > **Tools** > **Signal Generator**.
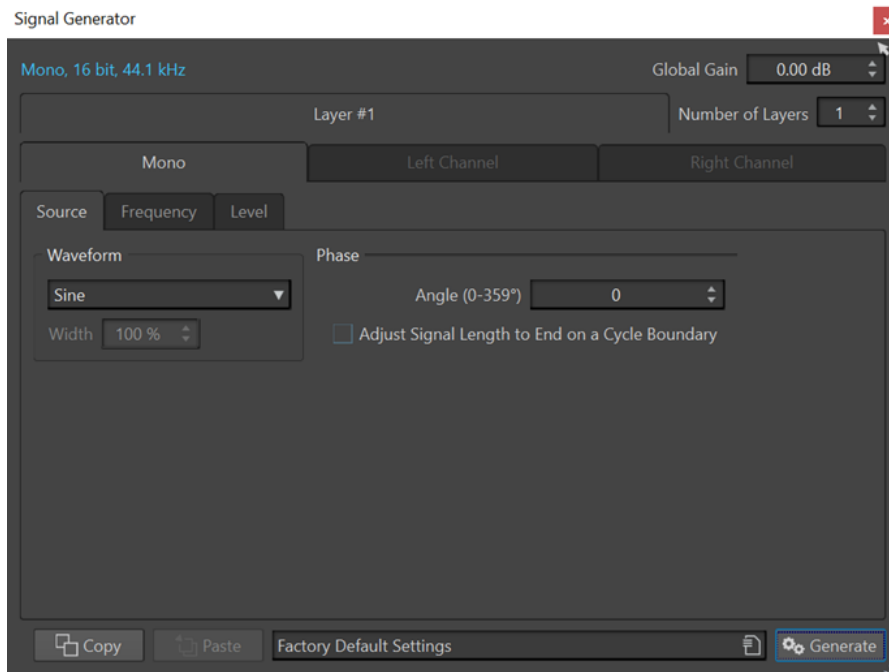
Audio Properties

Opens the **Audio Properties** dialog in which you can select sample rate, bit depth, etc.

Global Gain

Adjusts the global level of all combined layers.

Number of Layers

Determines the number of layers, for example, the number of independent signals to be combined.

Mono/Left Channel/Right Channel

Determines the channels that the settings on the tab are applied to.

Copy

Copies all settings of the current layer.

Paste

Pastes the settings to the selected layer.

NOTE

Clicking **Paste** replaces the source, frequency, and level settings on all tabs, not just on the selected one.

Generate

Applies the settings.

Source Tab
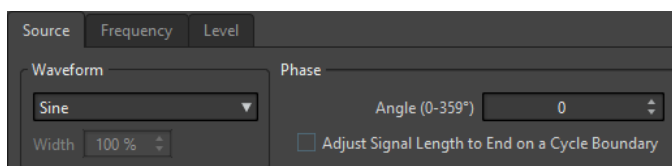
Waveform

Allows you to select a waveform for the selected layer.

Width

If you select one of the pulse waveforms, you can set this parameter to the width of the pulse, specified as a percentage or a number of samples.

Angle (0-359°)

Sets the phase of the signal for the selected layer.

Adjust Signal Length to End on a Cycle Boundary

If this option is activated, the generated waveform ends with a complete cycle, regardless of the phase setting.

Frequency Tab
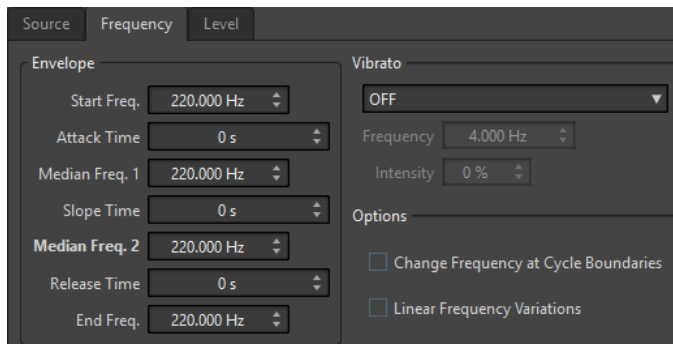
Envelope Section

In this section, you can set up the frequency envelope of the selected layer. The envelope consists of four frequency values and three duration values in between the frequency values.

If you want to set a static frequency (no envelope curve), make sure that all time values are set to 0, and set the frequency with the **Median Freq. 2** parameter.

Vibrato Section

In this section, you can add a vibrato to the frequency of the selected layer. You can select a waveform for the vibrato, set the frequency, and adjust the intensity.

Linear Frequency Variations

If this option is activated, the frequency varies linearly.

Level Tab
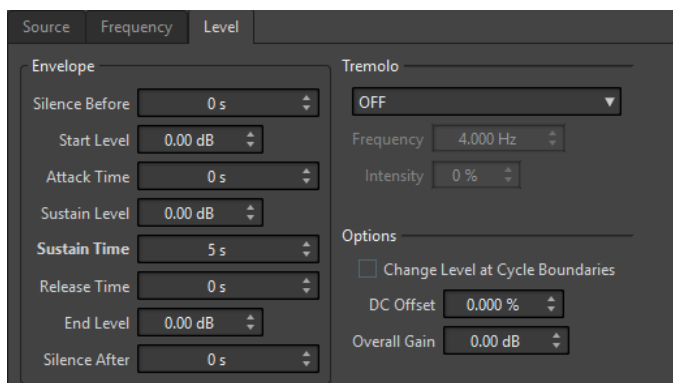
Envelope

In this section, you can set up the amplitude envelope of the selected layer. The envelope consists of three level values and three duration values in between the level values. In addition, **Silence Before** and **Silence After** allow you to include a period of silence before or after the signal of the selected layer.

NOTE

Overall Gain determines the overall level of the layer.

Tremolo

In this section, you can add a tremolo (continuous level variation) to the selected layer. You can select a waveform for the tremolo, set the frequency, and adjust the intensity.

Change Level at Cycle Boundaries

If this option is activated, the tremolo is not continuously applied from sample to sample, but recomputed after each cycle.

DC Offset

Allows you to add a DC offset to the signal of the selected layer.

Overall Gain

Allows you to set an overall level for the selected layer.

RELATED LINKS
Signal Generator on page 744

Generating an Audio Signal

PROCEDURE

1. Select **File** > **Tools** > **Signal Generator**.

2. In the **Signal Generator** dialog, click the audio properties.
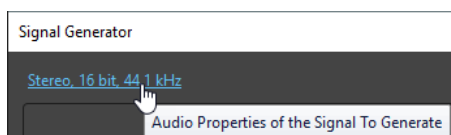
3. In the **Audio Properties** dialog, set up the channels, sample rate, and bit depth.

4. Choose how many layers of signal generators you want to use by setting the **Number of Layers** parameter.

5. Set the **Global Gain**.

6. For each layer, edit the settings on the **Source**, **Frequency**, and **Level** tabs.

7. If you have selected stereo channels, you can edit the settings for both or just one of the channels by selecting **All Channels**, **Left Channel**, or **Right Channel**.

8. Make adjustments as required, and click **Generate**.

   The file is generated and opens in a new window.

RELATED LINKS
Signal Generator Dialog on page 744

DTMF Generator

With the **DTMF Generator** you can generate DTMF (Dual Tone Multi Frequency) or MF tones as used by analog telephone systems.

These tones are created by combining two sine waves with variable frequencies. Push button telephones generate these two sine waves at different frequencies depending on the number that you press. These dial pulses are then decoded by the telephone exchange to identify which letters or numbers you pressed.

RELATED LINKS
DTMF Generator Dialog on page 748
Generating DTMF Files on page 749

DTMF Generator Dialog

This dialog allows you to generate DTMF or MF tones.

● To open the **DTMF Generator** dialog, select **File** > **Tools** > **DTMF Generator**.
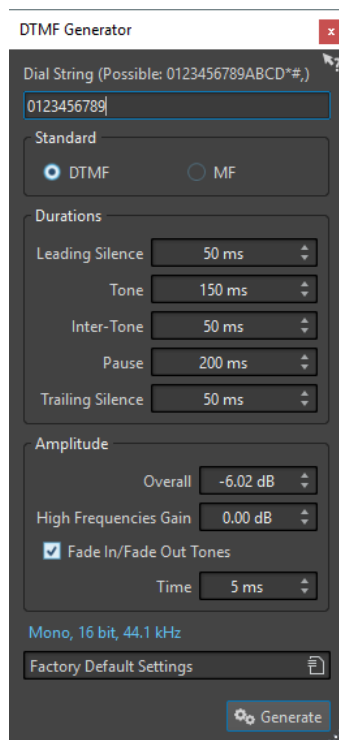
Dial String

Lets you enter the numbers that you want to convert into DTMF tones. The characters that you can use for DTMF are **0123456789ABCD*#,)** and for MF **0123456789ABC*#,**.

DTMF

DTMF is the most commonly used standard. DTMF strings are limited to 16 characters.

MF

MF uses a different frequency than DTMF. MF strings are limited to 15 characters.

Leading Silence

Determines the length of the silent region before the first tone.

Tone

Sets the length of each tone.

Inter-Tone

Adjusts the time interval between the tones.

Pause

Determines the length of any pauses in the dial string. A pause is entered by typing a comma character in the dial string.

Trailing Silence

Determines the length of the silent region after the last tone.

Overall

Controls the level of the tone's mix.

High Frequencies Gain

The DTMF signal consists of a mix between two tones: one high frequency tone and one low frequency tone. You can either choose to let the two tones have the same amplitude by leaving this at zero, or you can raise the high frequency tone by up to 12 dB. On some telephone lines, the high frequency tones are set 2 dB higher than the low ones.

Fade In/Fade Out Tones

If this option is activated, the generated tones will fade in and out.

Time

Lets you set the time of the fades if the corresponding option is activated.

Audio Properties

Opens the **Audio Properties** dialog in which you can select sample rate, bit depth, etc.

RELATED LINKS

Generating DTMF Files

PROCEDURE

1. Select **File** > **Tools** > **DTMF Generator**.

2. In the **DTMF Generator** dialog, enter a dial string in the text field at the top of the dialog.
   The characters that you can use are shown above the text field.

3. Select the standard to use.

4. Edit the settings for **Durations** and **Amplitude**.

5. Click the audio properties to select a bit depth and a sample rate.
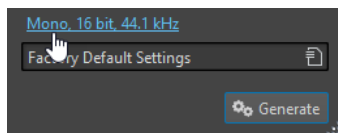
   The **Audio Properties** dialog opens where you can edit settings for the audio file.

6. Click **Generate**.
   The file is generated and opens up in a new window.

RELATED LINKS
DTMF Generator on page 748
DTMF Generator Dialog on page 748

Audio CD Import

You can read titles from regular CDs and save them as a digital copy in any audio format on your hard disk.

Although WaveLab Pro supports a large number of CD drives, there are some restrictions you need to be aware of:

- There are a number of different protocols for retrieving audio from a CD-ROM/CD-R drive. WaveLab Pro supports as many of these methods as possible, but there are no guarantees that it works with any particular drive. This applies to CD-Text and ISRC.
- Observe and respect any copyright notices on the CDs from which you are importing audio.

When importing titles, they are named "Title XX" by default, where XX is a number starting at 01. The numbering scheme can be changed.

NOTE

- Importing titles from an audio CD is technically more complicated than reading files from a CD-ROM or hard disk, because audio sectors can be hard to detect. Some CDs which do not conform completely to the CD standard may cause problems, especially when they are copy protected.
- If you import a title from an audio CD with Emphasis, and later want to use this on a CD of your own, remember to activate **Emphasis** for that title in the audio montage.

RELATED LINKS
Importing Audio from an Audio CD on page 754

Import Audio CD Dialog

In this dialog, you can import one or multiple titles from an audio CD.

- To open the **Import Audio CD** dialog, select **File** > **Import**, and click **Audio CD**.
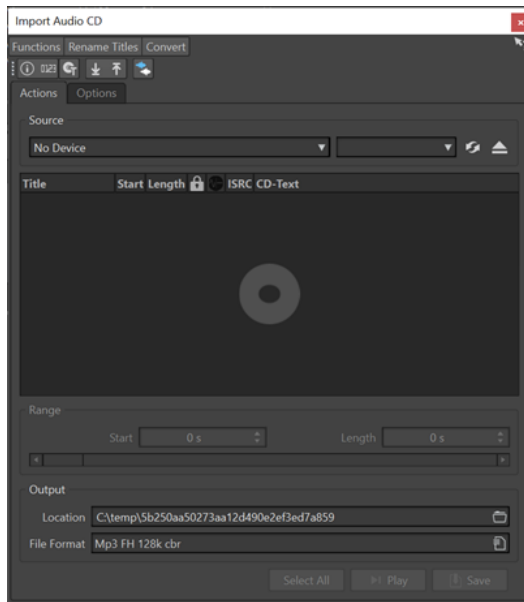
Functions Menu

CD Info

Displays the CD length and the UPC/EAN code, if available.

Extract ISRC Codes

Reads the ISRC codes and displays them in the list of titles. Depending on your CD drive, this can take a while.

Examine CD-Text

Opens the **CD-Text** dialog where you can view the CD-Text. Not all CD drives support CD-Text.

Extract CD-Text

Extracts the CD-Text and displays a summary in the list of titles.

Rename Titles Menu

Name

Renames the titles according to the selected renaming scheme.

Search Track Names on the Internet (gnudb)

Searches title names from an Internet database. If the album is found, the list of titles is updated.

Submit Track Names to the Internet (gnudb)

Submits the information about the album to the gnudb database of CD information.

Convert Menu

Convert All CD Tracks to Audio Montage

Extracts all titles and uses them to create an audio montage.

Convert Selected CD Tracks to Audio Montage

Extracts the selected titles and uses them to create an audio montage.

Actions Tab

Source

Select the CD drive from which you want to import audio.

Speed

Allows you to set the writing speed. The highest speed depends on your writing device and on the disc present in the device.

Refresh

If you insert a CD while the **Import Audio CD** dialog is open, you need to click this button to show the contents of that CD in the list.

Eject Optical Medium

Ejects the medium from the selected drive.

Title List

Shows the titles on the CD.

Range – Start/Length

If you want to import only a section of a title, use the **Start** and **Length** fields to define a start point and length.

Output – Location

Allows you to set the output location.

Output – File Format

Allows you to set the output file format.

Select All

Selects all titles in the list of titles.

Play

Plays back the selected title.

Options Tab

Trim Silence

If this option is activated, silence between imported titles is removed. Only digital silence is removed, that is, samples with a zero level.

Automatically Refresh on CD Change

If this option is activated, WaveLab Pro checks for the presence of a new CD in the drive several times a second. If a new CD is found, the title list display is refreshed.

Automatically Extract ISRC Codes

If this option is activated, ISRC codes are automatically extracted when a CD is inserted.

Automatically Extract CD-Text

If this option is activated, CD-Text is automatically extracted when a CD is inserted.

Automatically Search Track Names on the Internet

If this option is activated, title names are automatically searched on the Internet when a CD is inserted.

Grab Pause before First Track (If Available)

If this option is activated, when a section of audio is located before the first title, it is extracted together with the first title. This way, you can import hidden bonus titles.

Use a Japanese CD-Text Decoder

If this option is activated, CD-Text is interpreted as Japanese the next time it is extracted.

Create Peak File

If this option is activated, a peak file is created together with the rendered files.

Show Times with CD Frame Units

If this option is activated, times are shown in CD frame units. There are 75 CD frames per second.

Play through Master Section

If this button is activated, the **Master Section** is ignored. If the button is deactivated, the audio is played through the **Master Section**.

Convert Titles and CD-Text to Metadata

If this option is activated when importing titles into an audio format supporting metadata (for example, MP3 and WMA), the names of the titles and the CD-Text are automatically added to the file header.

Ultra-Safe Mode (Slow)

If this option is activated, each title is read several times until the same result is found (checksums are used). Specify the number of times that a title must be read with the same result before it is saved to disk.

Read Audio Before and After Titles

You can ensure that titles are imported in their entirety by defining how much audio should be read before and after each title.

RELATED LINKS

Importing Audio from an Audio CD

You can import audio from audio CDs into WaveLab Pro projects.

PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.

2. Select **File** > **Import**.

3. Click **Audio CD**.

4. In the **Import Audio CD** dialog, in the **Source** section, select the drive from which you want to read, and specify the read speed.

5. Optional: Rename the files and adjust the numbering scheme.

    The titles must have unique names if you want to import them all.

6. Optional: On the **Options** tab, in the **Read Audio Before and After Titles** section, define how much audio should be read before and after each title.

7. In the title list, select the titles that you want to import.

8. Optional: If you have only selected one file, in the **Range** section, you can define a **Start** and **Length**, to import just a part of the title.

9. In the **Output** section, click the folder icon, and select an output location.

    You can also drag one or more titles onto an audio montage track.

10. In the **Output** section, click the file format field, and select a file format for the imported audio files.

11. Click **Save**.

RESULT

The titles are imported to the specified location.

RELATED LINKS
Import Audio CD Dialog on page 751

Searching Title Names on the Internet

You can search for information about your CDs using the gnudb database of CD information.

PREREQUISITE

You must be connected to the Internet to use the gnudb function.

PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.

2. Select **File** > **Import**.

3. Click **Audio CD**.

4. In the **Import Audio CD** dialog, select **Rename Titles** > **Search Title Names on the Internet (gnudb)**.

RELATED LINKS
Import Audio CD Dialog on page 751

Submitting Title Names to the Internet

You can submit information about an audio CD to the gnudb database of CD information.

PREREQUISITE

You must be connected to the Internet to use the gnudb function.

PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.

2. Select **File** > **Import**.

3. Click **Audio CD**.

4. In the **Import Audio CD** dialog, rename each title.

5. Select **Rename Titles** > **Submit Title Names to the Internet (gnudb)**.

6. In the **Submit CD Information** dialog, fill out the text fields and enter an email address.

NOTE

You require an email address to report submission errors. It will not be saved.

The gnudb database does not offer the possibility to enter different artists or genres for individual titles. If the artists differ from title to title, you can write the name of the title in the following way: **Title/Artist**.

7. Click **OK**.

RELATED LINKS
Import Audio CD Dialog on page 751

Ultra-Safe Mode

Sometimes, a small bit of a title is not properly retrieved, which results in unpleasant clicks and pops in the audio. This depends on the quality of your CD drive. To solve this issue, you can activate the **Ultra-Safe Mode** in the **Import Audio CD** dialog options.

If this option is activated, you can specify how many times each title must be read with the same result, before it is saved to disk.

RELATED LINKS
Import Audio CD Dialog on page 751

Converting Titles of an Audio CD to an Audio Montage

You can convert titles of an audio CD to an audio montage.

PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.

2. Select **File** > **Import**.

3. Click **Audio CD**.

4. Optional: In the **Import Audio CD** dialog, on the **Options** tab, select which information you want to extract from the Audio CD when converting.

5. Decide whether to convert only selected titles or all titles.

   ● To convert only selected titles, select **Convert** > **Convert Selected CD Tracks to Audio Montage**.

   ● To convert all titles, select **Convert** > **Convert All CD Tracks to Audio Montage**.

RESULT

When the conversion is finished, the imported files open in the **Audio Montage** window.

RELATED LINKS
Import Audio CD Dialog on page 751

Video

WaveLab Pro allows you to add video files to your audio montage. You can play back video files in various formats from within WaveLab Pro, extract the audio from a video file, and edit your audio alongside the video.

RELATED LINKS
Video File Compatibility on page 762
Video Track on page 757
Video Window on page 761

Video Track

The video track in the audio montage allows you to add video files to your audio montage.

The imported video file is displayed as a clip on the video track. Thumbnails represent the frames in the film. The audio file that contains the audio for the video is positioned on a new audio montage track below the video track.

You can import multiple video files of different formats on the same video track. There can only be one video track per audio montage.
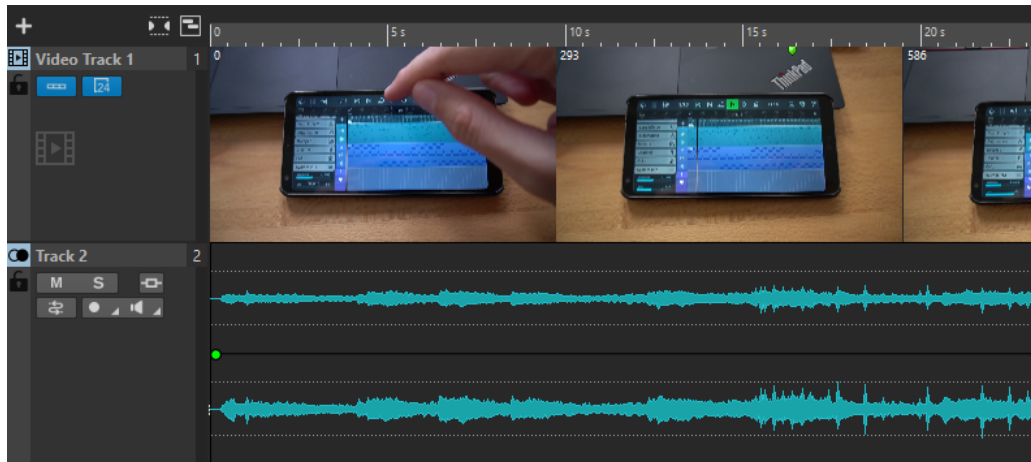
RELATED LINKS
Edit Audio Extracted from Video on page 759
Adding Video Tracks on page 757
Inserting Video Files into Existing Audio Montages on page 758
Importing Video Files into a New Audio Montage on page 758
Tracks on page 371

Adding Video Tracks

You can add one video track per audio montage.

PROCEDURE

● In the **Audio Montage** window, do one of the following:

- Click **+** at the top of the track control area and select **Video Track**.
- Right-click the track control area to open the **Track** pop-up menu and select **Add Track** > **Video Track**.

RESULT

By default, the new track is added below the active track. If you want to place it above the active track, press `Ctrl/Cmd` when adding the new track.

RELATED LINKS
Track Control Area on page 321

Inserting Video Files into Existing Audio Montages

You can insert video files to your audio montage.

CHOICES

- In the **Audio Montage** window, select the **Insert** tab and click **Video File** in the **Import** section. Select the video file that you want to insert and click **Open**.

  The video track is automatically created.
- Drag the video file that you want to insert from the **File** window onto the video track.
- Drag the video file that you want to insert from the File Explorer/macOS Finder onto the video track.

RESULT

The video file is inserted into the audio montage.

NOTE

If the sample rate of the included audio does not match the sample rate of your audio montage, the **Mismatched Sample Rates** dialog opens. This dialog allows you to create a resampled copy of the audio.

RELATED LINKS
Adding Video Tracks on page 757
Importing Video Files into a New Audio Montage on page 758
Mismatched Sample Rates Dialog on page 400

Importing Video Files into a New Audio Montage

You can import video files as video clips into a new audio montage.

PROCEDURE

1. Select **File** > **Import** > **Video**.
2. Select the video file that you want to import and click **Import**.

RESULT

The imported video file is displayed as a clip on the video track. Thumbnails represent the frames in the film. The audio file that contains the audio for the video is placed on a new audio montage track below the video track.

Edit Audio Extracted from Video

You can edit the audio track of a video track. When you import a video file, its audio is extracted and placed on a new audio montage track below the video track.

After editing the audio from the video, you can render the audio montage to replace the original audio with the edited audio.

To find out which embedded audio formats are supported, refer to the Steinberg Support on the Steinberg web site.

RELATED LINKS
Replacing Audio in Video on page 759

Replacing Audio in Video

You can replace the audio track of a video with another audio file or an edited version of the original audio. You can replace the whole audio track or parts of it.

PREREQUISITE
You have added the video file that contains the audio to be replaced to your audio montage.

PROCEDURE

1. Do one of the following:

   ● If you want to replace the audio of the video with an edited version of the original audio, edit the original audio file.

   ● If you want to replace the original audio of the video with other audio, delete the audio on the original audio track and add the new audio.

   When you have finished editing the audio, you can render the audio montage to create a video with the new audio.

2. Select the video track.

3. Select the **Render** tab.

4. On the **Source** menu, select **Range of Active Video Clip**.

5. In the **Output** section, specify a **Name** and a **Location** for the rendered video file.

   NOTE

   The rendered video file keeps the file format of the original video. The video is not re-rendered, which means that there is no quality loss in this process.

6. In the **Options** section, click **Options** and do one of the following:

   ● To create a copy of the original video with the edited audio, activate **Create Video with the Resulting Audio**.

   ● To open the rendered video in a new audio montage, activate **Reimport Video in New Audio Montage**.

   ● To open the rendered audio file of the video file in the **Audio Editor**, activate **Open Rendered Audio File**.

7. In the **Render** section, click **Start Rendering**.

Video Clip Editing

A video clip is created automatically when you import a video file to an audio montage.

NOTE

Before starting to edit and refine the audio of your video file, you should have finished editing your video with a dedicated video editor.

When working with video clips, you can make the following edits:

- To copy a video clip, click the upper area of a video clip and drag it to the new location.
- To trim the end of your video clip, click the end and drag to the left.
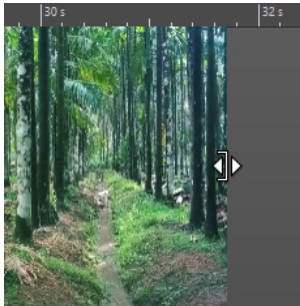
- To disable all editing for video clips, click **Lock** in the track control area for the video track.

- To edit the audio clip of your video clip, use the audio editing tools of WaveLab Pro.

Video Follows Edit Mode

The **Video Follows Edit Mode** allows you to edit audio while getting continuous visual feedback in the **Video** window.

- To activate **Video Follows Edit Mode**, select the **Edit** tab, and activate **Video Follows Edit Mode** in the **Clip** section.

If you activate **Video Follows Edit Mode**, the video in the **Video** window automatically follows each edit that you make. This allows you to instantly see where in the video your edit is taking place.

In **Video Follows Edit Mode**, the **Video** window gives you visual feedback. That is, the picture matches the edit cursor position. You get visual feedback during the following actions:

- Selecting ranges and adjusting range borders

- Moving audio clips

- Nudging audio clips

- Resizing audio clips or range selections

- Adjusting audio clip fade handles

RELATED LINKS
Video Window on page 761
Edit Tab (Audio Montage) on page 337

Video Window

If you import a video to your audio montage and start playback, the video plays back in the **Video** window. You can resize the **Video** window and undock it to place it on another screen, for example.

- To open the **Video** window, select **Tool Windows** > **Video**.

NOTE

For the best performance, undock the **Video** window and use it in an independent window.

RELATED LINKS
Video Track on page 757
Activating/Deactivating the Video Track Timecode on page 761

Activating/Deactivating the Video Track Timecode

The timecode in the **Video** window represents time using hours, minutes, seconds, and frames to provide a location for each device. Each frame represents a visual film or video frame.

PROCEDURE

1. Select **File** > **Preferences** > **Audio Montages**.

2. Click **All Audio Montages**.

3. In the **Video Window** section, activate/deactivate **Show Timecode**.

RELATED LINKS
[All Audio Montages Tab](#) on page 880

Video File Compatibility

When working with video files in WaveLab Pro, you must make sure that the video file type is supported.

NOTE

If you are not able to play back a specific video file, use an external application to convert the file into a compatible format.

To find out what video files are supported, refer to the Help Center on the Steinberg web site.

RELATED LINKS
[Video Container Formats](#) on page 762
[Video Codecs](#) on page 763
[Video Frame Rates](#) on page 763

Video Container Formats

Video and other multimedia files come in a container format.

This container holds various streams of information including video and audio, but also metadata such as synchronization information required to play back audio and video together. Data regarding creation dates, authors, chapter markings, and more can also be held within the container format.

The following container formats are supported by WaveLab Pro:

MOV

This is a QuickTime movie.

MPEG-4

This format can contain various metadata for streaming, editing, local playback, and interchange of content. Its file extension is .mp4.

AVI

This is a multimedia container format introduced by Microsoft.

RELATED LINKS
[Video File Compatibility](#) on page 762
[Video Codecs](#) on page 763

Video Codecs

Codecs are methods of data compression used to make video and audio files smaller and more manageable for computers. For further details, refer to the Help Center on the Steinberg web site.

Video Frame Rates

WaveLab Pro supports different video and film frame rates. The video frame rate must match the audio montage frame rate.

WaveLab Pro automatically adopts to the frame rate of the imported video. You can also manually adjust the frame rate via the **Time Format** dialog.
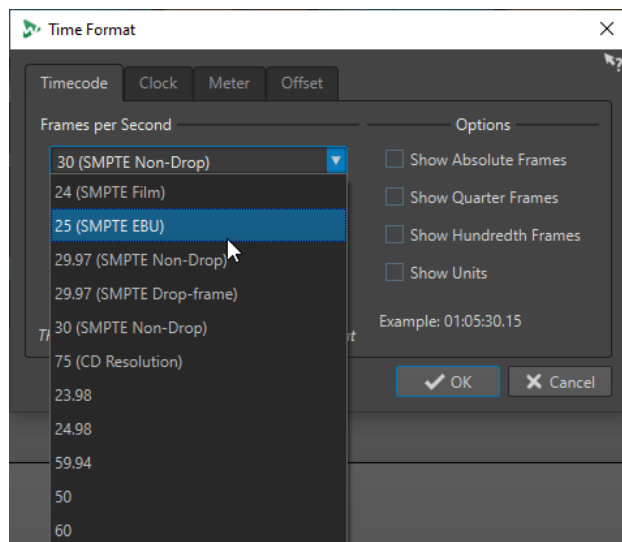
The following frame rates are supported:

Frames Per Second

Regardless of the frame counting system, the actual speed at which frames of video go by in real time is the true frame rate.

WaveLab Pro supports the following frame rates:

23.98 fps

This frame rate is used for film that is being transferred to NTSC video and must be slowed down for a 2-3 pull-down telecine transfer. It is also used for the type of HD video referred to as 24 p.

24 fps

This is the true speed of standard film cameras.

24.98 fps

This frame rate is commonly used to facilitate transfers between PAL and NTSC video and film sources. It is mostly used to compensate for errors.

25 fps

This is the frame rate of PAL video.

29.97 fps/29.97 dfps

This is the frame rate of NTSC video. The count can be either non-drop or drop-frame.

30 fps/30 dfps

This frame rate is not a video standard anymore but has been commonly used in music recording. It used to be the black and white NTSC broadcast standard. It is equal to NTSC video being pulled up to film speed after a 2-3 telecine transfer. The count can be either non-drop or drop-frame.

50 fps

This rate is also referred to as 50 p.

59.94 fps

This video frame rate is supported by high definition cameras and is compatible with NTSC.

60 fps

This video frame rate is supported by many high-definition cameras. However, the NTSC compatible 59.94 fps frame rate is much more common.

IMPORTANT

Video formats with a variable frame rate (VFR) are not supported.

RELATED LINKS
Time Format Dialog on page 89

WaveLab and External Applications

There are several ways of combining WaveLab Pro with external applications, such as DAWs.

WaveLab Pro offers the following features to optimize cross-application workflows involving WaveLab Pro and other audio applications:

- **WaveLab Exchange**, which allows you to use WaveLab Pro as an external editor for Cubase Pro, Cubase Artist, and Nuendo, and vice versa.

- The WaveLab Pro ARA extension, which can be integrated into various DAWs that support the ARA interface and VST 3 and grants you access to the WaveLab Pro audio editing features without having to leave the external application.

- The easy-to-use cross-application copying operations, which allow you to insert any audio range from WaveLab into any other audio application by performing simple copy & paste and drag & drop operations.

RELATED LINKS
WaveLab Exchange on page 766
Cross-Application Copying Operations on page 769
WaveLab as an ARA Extension on page 772

WaveLab Exchange

You can use WaveLab Pro as an external editor for Cubase Pro, Cubase Artist, and Nuendo, and vice versa.

IMPORTANT

- WaveLab Exchange is only available for Cubase Pro 8.5.10 or higher, Cubase Artist 8.5.10 or higher, and Nuendo 7.1.20 or higher.
- WaveLab Exchange supports the file format Wave.

WaveLab Pro as an External Editor for Cubase/Nuendo

You can open Cubase/Nuendo events in WaveLab Pro. This allows you to use the editing capabilities of WaveLab Pro and apply them to Cubase/Nuendo events.

For example, the following advanced editing options are available in WaveLab Pro:

- Audio error correction
- Audio spectral editing
- Independent channel editing and processing
- Mid/Side editing and processing
- Loudness normalization (EBU R-128 recommendation)
- Analysis meters, global analysis (EBU R-128 recommendation), and 3D frequency analysis
- RestoreRig
- MasterRig

Editing Cubase/Nuendo Audio Events in WaveLab Pro

PREREQUISITE
Open your Cubase/Nuendo project in Cubase/Nuendo.

PROCEDURE

1. In the Cubase/Nuendo **Project** window, select the audio event that you want to edit in WaveLab Pro.

   You can also select only a part of the audio event with the **Object Selection** tool.

2. Select **Audio** > **Edit in WaveLab**.

3. In WaveLab Pro, edit the audio event.

4. When you have finished the editing, click **Trigger Cubase/Nuendo Update** on the command bar.
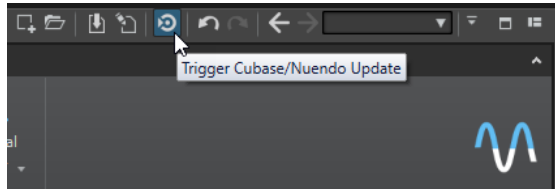
RESULT

The changes to the audio event are applied to the Cubase/Nuendo project.

Cubase/Nuendo as an External Editor for WaveLab Pro

When you are working on an audio file or clip in WaveLab Pro, you can open the project of the audio file in Cubase/Nuendo. This allows you to correct issues that you have identified during mixing and correct these issues in the audio file in Cubase/Nuendo.

When you then export the audio file in Cubase/Nuendo, and you use the same file name, the audio file or clip is automatically updated in WaveLab Pro.

Preparing Cubase/Nuendo Projects for WaveLab Exchange

PROCEDURE

1. In Cubase/Nuendo, open the project that you want to prepare for WaveLab Exchange.

2. Select **File** > **Export** > **Audio Mixdown**.

3. In the **Export Audio Mixdown** dialog, specify a file name and path.

4. In the **File Format** pop-up menu, select **Wave File** or **Wave 64 File**.

5. Activate **Insert iXML Chunk**.

6. Click **Export**.

Editing Audio Files in Cubase/Nuendo

PREREQUISITE

The Cubase/Nuendo project is prepared for WaveLab Exchange.

PROCEDURE

1. In WaveLab Pro, open the audio file in the **Audio Editor**.
   A yellow line above the file tab indicates that the file has been rendered in Cubase/Nuendo.

2. Select the **Edit** tab.

3. In the **Source** section, click **Edit Project**.
   The Cubase/Nuendo project that contains the audio file opens.

4. In Cubase/Nuendo, edit the audio file.

5. Select **File** > **Export** > **Audio Mixdown**.

6. In the **Export Audio Mixdown** dialog, activate **Insert iXML Chunk**.

IMPORTANT

Do not change the file name and path.

7. Click **Export**.

RELATED LINKS
Preparing Cubase/Nuendo Projects for WaveLab Exchange
Tab Change Indicators

Cross-Application Copying Operations

To optimize cross-application workflows, you can easily insert any audio range from WaveLab into any other audio application by performing simple copy & paste and drag & drop operations.

Source Editors in WaveLab

This feature works both for audio selections in the **Audio Editor** and in the **Audio Montage** window.

The following conditions apply:

Audio Editor

- If you select a single mono channel, even if it is part of a stereo or multi-channel file, only this channel is copied.
- If you select a stereo channel cluster from a stereo file or a surround file, the channel pair is copied.
- If you select three or more channels in a surround file, all channels of the file are copied; for example, six channels for a 5.1 file.

Audio Montage

- Selections can cover multiple tracks or lanes.
- If the selected audio range consists exclusively of mono channels, a mono mixdown is created; for example, for all lanes of a mono track.
- For any other audio selection, a stereo mixdown is copied to the clipboard.

Target Applications

- The target application can be any audio application, including WaveLab itself.

  NOTE

  Choosing WaveLab as the target application consumes more storage and memory resources, compared to the standard copying operation.

- In addition to this, you can also choose the File Explorer/macOS Finder as the target.

Background Information

What distinguishes the process from conventional copy & paste and drag & drop operations is that it encompasses two stages:

1   Firstly, you need to generate a copy of the selected audio range via a dedicated command.
2   Secondly, you have to transfer the copy to the target application by dragging or by pasting it there from the clipboard.

  NOTE

  Saving the source file in WaveLab Pro is not required for the feature to work.

To transfer the selected audio samples to the target, WaveLab creates a temporary audio file in the Cache folder. You can specify the location of the Cache folder and the sample resolution of the audio to be generated by selecting **File** > **Preferences** > **Global** and editing the corresponding settings on the **Audio** tab.

The temporary file path is copied to the clipboard of your operating system, both as text and as a file that you can transfer to another location by pasting or by dragging. This means that you can alternatively use the file browser of the target application to access the audio material.

NOTE

If the target application (Cubase, for example) permits, we recommend importing a copy of the temporary file into the target application, rather than a reference to it.

RELATED LINKS
Audio Tab (Global Preferences) on page 868
Copying Audio Ranges to Other Audio Applications on page 770

Copying Audio Ranges to Other Audio Applications

WaveLab offers a special copy-and-paste feature that allows you to transfer your audio material to other applications and to continue working on it without interrupting your workflow.

PROCEDURE

1. Select an audio range in the **Audio Editor** or in the **Audio Montage** window.

    In addition to a time range, the audio range can cover multiple channels or tracks/lanes.

2. Do one of the following to access the special copy function:

    ● Select the **Edit** tab. Right-click the **Copy** button, or click the down arrow to its right to access the menu.

    NOTE

    In the **Audio Editor**, you can find the **Copy** button in the **Cut Copy Paste** section. In the **Audio Montage** window, the **Copy** button is available in the **Clipboard** section

    ● Right-click in the selected audio range to open the context menu.

3. Do one of the following:

    ● To generate a rendered copy of the selected audio range with all effects applied, choose **Copy to System Clipboard (With Effects)**.

    ● To generate a copy of the selected audio range without applying any effects, choose **Copy to System Clipboard (No Effect)**.

    The selected audio range is highlighted by an animated dashed rectangular outline (**1**).

    With the **Edit** tab selected, a green icon (**2**) indicates that an audio range is available for cross-application transfer on the clipboard.

    NOTE

    In the **Audio Editor**, you can find the icon on the left side of the **Cut Copy Paste** caption bar. In the **Audio Montage** window, the icon appears on the **Clipboard** caption bar.
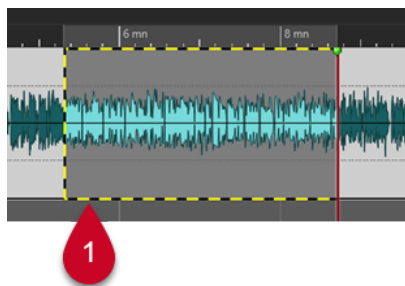
| Highlighted Audio Range | Icon in the Audio Montage Window |
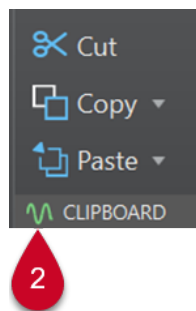
NOTE

As soon as you perform further editing operations on the selected audio range, the outline is not visible any more. However, pasting it to another application, as described in the next step, is still possible, as long as the data is still available on the clipboard.

4. To make the selected audio range immediately available to you for further editing in the target application, simply drag the audio range itself or the green icon (**2**) to the desired location in the target application, or use **Ctrl/Cmd**-**V** to paste it there.

NOTE

The **Ctrl/Cmd**-**V** key command may not work for all audio applications, but it is available for Cubase, Nuendo, and for the File Explorer/macOS Finder, for example.

RELATED LINKS
Cross-Application Copying Operations on page 769

WaveLab as an ARA Extension

WaveLab Pro can be integrated into various external audio applications that support the ARA interface and VST 3.

The following DAWs are officially supported:

- Cubase 13
- Nuendo 13
- Studio One 6.5
- Reaper 6.82

NOTE

Further audio applications with ARA (Audio Random Access) and VST 3 support, such as Soundforge and Sequoia, presumably run WaveLab ARA as well, but they have not been tested by Steinberg and are thus not officially supported.

For information on using ARA extensions in your projects, refer to the user documentation for your DAW; for example, the user manuals on steinberg.help for Cubase and Nuendo.

IMPORTANT

To add WaveLab Pro as an ARA extension to one of your projects in another application, you need to have installed WaveLab Pro and opened the other audio application.

WaveLab ARA Extension Features

The WaveLab Pro ARA extension offers a wide range of common features and elements of the WaveLab Pro **Audio Editor**.

Their layout and design match the familiar WaveLab Pro user interface as closely as possible.

View Options

In the WaveLab ARA editing environment, the following views are available:

- **Waveform**
- **Rainbow**
- **Spectrogram**
- **Wavelet**

You can use the following view-related features:

- **Sync with Other View**
- **Show/Hide Edit Indicators**
- **Switch between L/R and M/S Editing**
- **Automatic Zoom to Peaks**

> **NOTE**
>
> For descriptions of the individual options, see the corresponding sections for the standalone WaveLab Pro version.

RELATED LINKS
Audio Editor Window on page 176
Display Modes on page 177
Audio Montage Window on page 320

View Tab
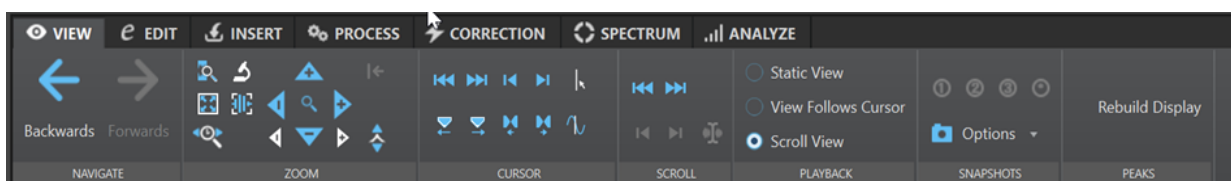
Navigate

- **Backwards**
- **Forwards**

Zoom

- **Zoom Selection**
- **Zoom**
- **Zoom Time**
- **Microscope**
- **View All**
- **Horizontal/Vertical Zoom**
- **Zoom in/Zoom out**
- **Zoom Level** (incl. **Zoom to 0 db**)

Cursor

- **Move Cursor to Start of File**
- **Move Cursor to End of File**
- **Move Cursor to Start of Selection**
- **Move Cursor to End of Selection**
- **Edit Cursor Position**
- **Move Cursor to Next/Previous Marker**
- **Move Cursor to Next/Previous Region Range**

Scroll

- **Scroll to Start/End of File**
- **Scroll to Start/End of Selection**
- **Scroll to Cursor**

Playback

- **Static View**

- **View Follows Cursor**
- **Scroll View**

Snapshots

- **Restore Options**
- **Scroll Position and Zoom**
- **Cursor Position**
- **Audio Selection**

Peaks

- **Rebuild Display**

NOTE

For descriptions of the individual options, see the corresponding sections about the **View** tab in the **Audio Editor** of the standalone WaveLab Pro version.

RELATED LINKS
View Tab (Audio Editor) on page 188

Edit Tab
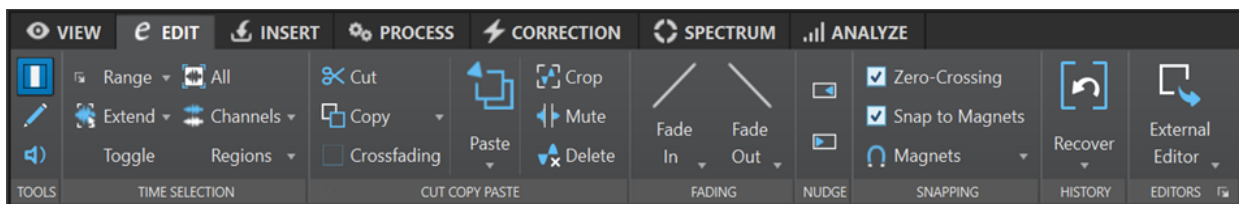
Tools

- **Time Selection**
- **Pen**
- **Play**

Time Selection

- **Range**
- **Extend**
- **Toggle**
- **All**
- **Channels**
- **Regions**

Cut Copy Paste

- **Cut**
- **Copy** (including cross-application copying)
- **Crossfading** options
- **Paste**
- **Crop**
- **Mute**

- **Delete**

Fading

- **Fade in** (all shapes)
- **Fade out** (all shapes)

Nudge

- **Nudge Left**
- **Nudge Right**

Snapping

- **Zero Crossing**
- **Snap to Magnets**
- **Magnets**

History

- **Recover**

Editors

- **External Editors**

  Lists the external editors that you have defined in the corresponding WaveLab Pro standalone preferences.

NOTE

For descriptions of the individual options, see the corresponding sections about the **Edit** tab in the **Audio Editor** of the standalone WaveLab Pro version.

RELATED LINKS

Insert Tab
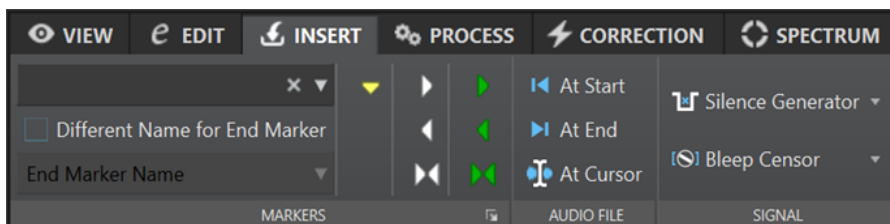
Markers

- **Marker Name**
- **Different Name for End Marker**
- **Create Generic Marker**
- **Create Region Start/End Marker**
- **Create Generic Region from Selection**
- **Create Loop Start/End Marker**
- **Create Loop from Selection**
- **Create/Name Marker Options**

Audio File

- **At Start**
- **At End**
- **At Cursor**

Signal

- **Silence Generator**
- **Bleep Censor**

NOTE

For descriptions of the individual options, see the corresponding sections about the **Insert** tab in the **Audio Editor** of the standalone WaveLab Pro version.

RELATED LINKS

Process Tab
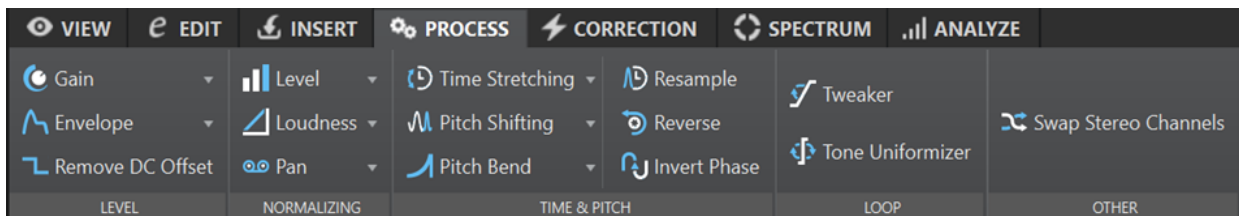
Level

- **Gain**
- **Envelope**
- **Remove DC Offset**

Normalizing

- **Level**
- **Loudness**
- **Pan**

Time & Pitch

- **Time Stretching**
- **Pitch Shifting**
- **Pitch Bend**
- **Resample**
- **Reverse**
- **Invert Phase**

Loop

- **Tweaker**
- **Tone Uniformizer**

> **NOTE**
>
> Loop markers are required for using one of the options in this section.

Other

- **Swap Stereo Channels**

> **NOTE**
>
> For descriptions of the individual options, see the corresponding sections about the **Process** tab in the **Audio Editor** of the standalone WaveLab Pro version.

RELATED LINKS
Process Tab (Audio Editor) on page 196

Correction Tab
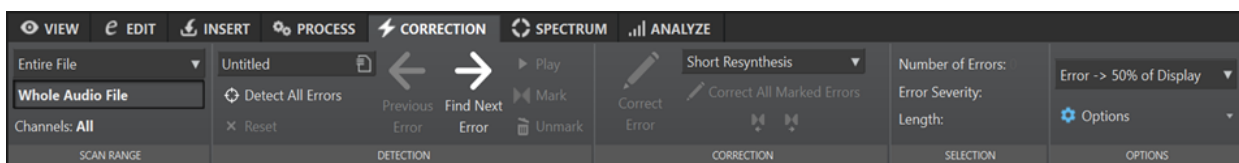
Scan Range

- **Entire File**
- **Define Selection**
- **Channels**

Detection

- **Error Correction Configuration**
- **Detect All Errors**
- **Reset**
- **Previous Error**
- **Find Next Error**
- **Play**
- **Mark**
- **Unmark**

Correction

- **Correct Error**
- **Short Resynthesis**
- **Smooth Pencil Line**
- **Inpainting**
- **Correct All Marked Errors**
- **Previous Correction**
- **Next Correction**

Selection

- **Number of Errors**

- **Error Severity**
- **Length**

Options

- **Auto Play**
- **Auto Vertical Zoom**
- **Set Markers around Corrected Errors**
- **Remove Markers after Correction**

NOTE

For descriptions of the individual options, see the corresponding sections about the **Correction** tab in the **Audio Editor** of the standalone WaveLab Pro version.

RELATED LINKS
Correction Tab (Audio Editor) on page 196

Spectrum Tab
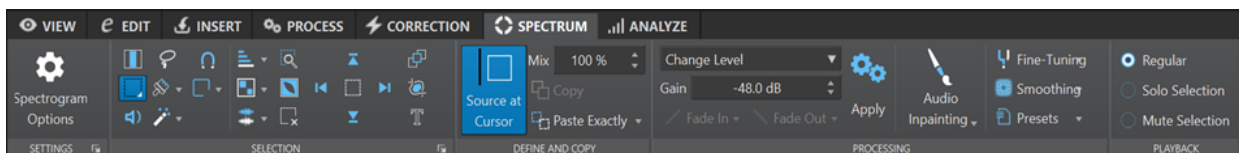
Settings

- **Spectrogram Options**
- **Spectrogram Edit Settings**

Selection

- **Time**
- **Range**
- **Play**
- **Lasso**
- **Brush**
- **Magic Wand**
- **Snap Mode**
- **Selection Modes**:
    - **New**
    - **Add**
    - **Remove**
- **Harmonies**
- **Edit Settings**:
    - **Group Editing**
    - **Show Resizing Frame**
- **Channels**:
    - **Single**

- **All**
- **Zoom**
- **Invert**
- **Clear All**
- **Select up to Top/Bottom/Start/End of File**
- **Share Selection**
- **Crop**
- **Text Selection**
- **Range Selection**

Define and Copy

- **Source at Cursor**
- **Mix Amount**
- **Copy**
- **Paste Exactly/Ambience**

Processing

- **Options** menu:
  - **Change Level**
  - **Blur Peaks**
  - **Dispension**
  - **Fade Out**
  - **Fade In**
  - **Fade Out then Fade In**
  - **Fade In then Fade Out**
  - **Noise Mixing**:
    - **White**
    - **Pink**
    - **Brown**
  - **Transcode Picture**
- **Gain**
- **Fade In**
- **Fade Out**
- **Apply**
- **Audio Inpainting**
- **Fine Tuning**
- **Smoothing**
- **Presets**

Playback

- **Regular**
- **Solo Selection**
- **Mute Selection**

NOTE

For descriptions of the individual options, see the corresponding sections about the **Process** tab in the **Audio Editor** of the standalone WaveLab Pro version.

RELATED LINKS
Spectrum Tab (Audio Editor) on page 196

Analyze Tab
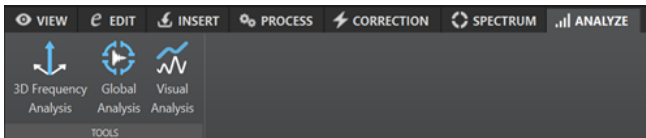
Tools

- **3D Frequency Analysis**
- **Global Analysis**
- **Visual Analysis**

NOTE

For descriptions of the individual options, see the corresponding sections about the **Analyze** tab in the **Audio Editor** of the standalone WaveLab Pro version.

RELATED LINKS
Analyze Tab (Audio Editor) on page 196

Batch Processing

Batch processing in WaveLab Pro allows you to process any number of audio files or audio montage files with **Master Section** plug-ins and presets, offline effects, and other plug-ins that are unique to batch processing.

Each file is processed and then saved to a folder of your choice. You can change the file format, rename the file according to a set of rules, and run an external application when the batch is finished. You can process as many files as you want by taking advantage of multi-processing on multi-core processors.

When you save batch processor files, you can run batches repeatedly, if required. For example, you may have a folder of 24-bit audio files which you want to normalize, add a fade out to, and dither down to 16 bit 44.1 kHz. You can save this as a batch processor file and re-run the batch each time that you update the original files. You can use batch templates to simplify this procedure.

Advantages of the WaveLab Pro Batch Processor

While processing multipass plug-ins, other plug-ins of the plug-in chain are only gone through when necessary, and file writing is reduced to a single writing process. This results in an improved batch processing performance. The following graphic shows the advanced uses of the multipass plug-ins of the batch processor.
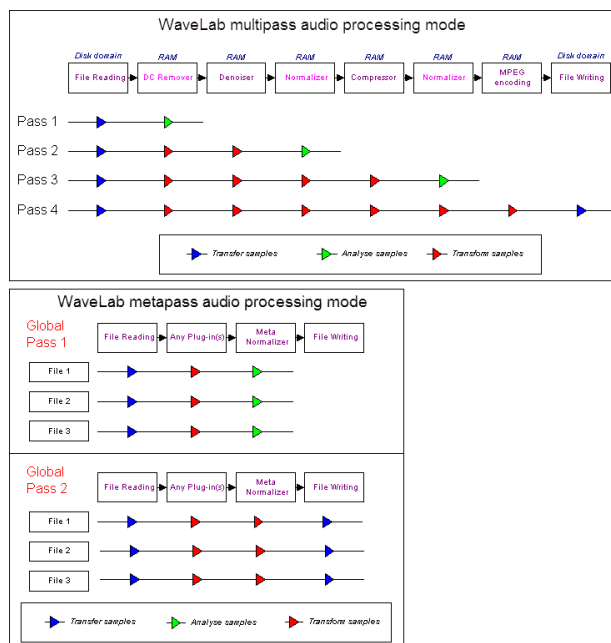
Batch Processing Metadata

You can batch-process metadata. For this, you can set up the **Metadata** dialog in the **Batch Processor** window and apply this metadata to the files of the batch process.

RELATED LINKS
Batch Processor Window on page 782

Batch Processor Window

This window allows you to process any number of audio files or audio montages with **Master Section** plug-ins and presets, offline effects, and other plug-ins.
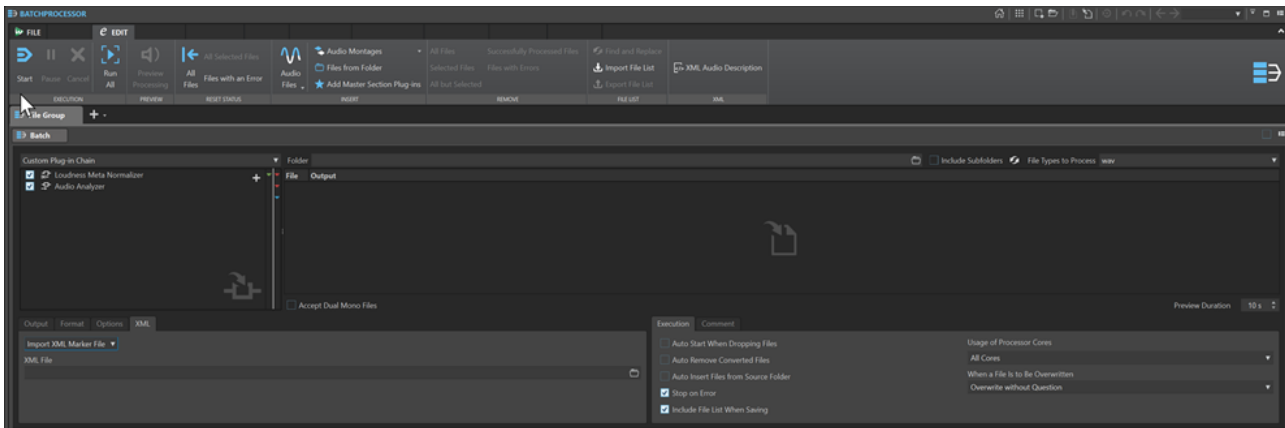
RELATED LINKS

Edit Tab (Batch Processor)

Execution

Start

Runs the batch process.

Pause

Interrupts the process to reduce the CPU load. You can continue the process by clicking **Pause** again.

Cancel

Cancels the running process.

Run All

Runs all open batches sequentially. That is, a batch process starts when the previous one ends. An error does not prevent a new batch process from starting. If you stop the active process, the global process stops.

Preview

Preview Processing

Allows you to preview the effect of the batch processor on any file of a batch. The preview includes all effects and the file format.

Reset Status

All Files

Sets the files with the status "Done" or "Error" to "To do".

All Selected Files

Sets all selected files with the status "Done" or "Error" to "To do".

Files with an Error

Sets the files with the status "Error" to "To do".

Insert

Audio Files

Allows you to select the audio file that you want to add to the batch process.

Audio Montages

Allows you to select the audio montage that you want to add to the batch process.

Files from Folder

Opens the **Add Files from Folder** dialog, where you can add files of a specific type from a folder to the batch process.

Add Master Section Preset

Adds the **Master Section** plug-ins to the batch process.

Remove

All Files

Removes all files from the list that are not being processed.

Selected Files

Removes the selected files from the list that are not being processed.

All but Selected

Removes all files from the list that are not selected and not being processed.

Successfully Processed Files

Removes all files with the status "Success" from the list.

Files with Errors

Removes all files with the status "Error" from the list.

File List

Find and Replace

If the files that you reference in your batch processor file have been renamed or moved to a different location, you can use the **Find** and **Replace with** options to change the file names and file locations in your batch processor list.
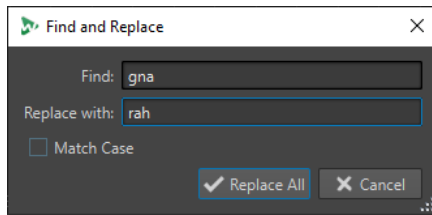
Import File List

Allows you to select a text file that contains the file paths of the files that you want to add to your batch processor.

Export File List

Exports the file paths of your batch processor list to a text file. The exported text file automatically opens in your default text editor.

XML

XML Audio Description

Opens the **XML Audio Description** dialog, in which you can instruct WaveLab Pro how to understand the structure of the XML file that you want to read.

RELATED LINKS

Audio Plug-in Chain

You can create a plug-in chain; that is, add plug-ins for the audio signal to traverse, from top to bottom.

You set up the list by dragging plug-ins from the plug-in section.

- To remove a plug-in from the list, select it, and press **Delete**, or right-click a plug-in, and select **Remove**.
- To remove all plug-ins from the list, right-click in the plug-in chain, and select **Remove All**.
- To edit a plug-in, double-click it, or right-click a plug-in, and select **Edit**.

Red, green, and blue arrows on the right of the audio plug-in chain visualize the audio signal path when plug-ins have been added to the list.

You can prevent a plug-in from processing by deactivating it.

Files to Process

Here, you specify which files to process. You can add files to the list via drag and drop or use the insert options on the **Edit** tab.

Options on Context Menu

You can right-click a file, to access a context menu with the following options:

Reset Status

Sets the status of the selected files to "unprocessed".

Remove

Removes the selected files from the list.

Open in WaveLab Pro

Opens the selected file in WaveLab Pro.

Reveal in File Explorer/Finder

Opens the folder of the selected file in the File Explorer/macOS Finder.

Open with Default Application

Opens the selected file with the default application, for example, a media player.

Preview Processing

Allows you to preview the effect of the batch processor on the selected file. The preview includes all effects and the file format.

Insert Audio Files

Opens a submenu that allows you to select the audio files that you want to insert in the file list.

Insert Audio Montages

Opens a submenu that allows you to select the audio montages that you want to insert in the file list.

Options Above the File List

The following options are available above the files list:

Folder

Lets you select the folder that you want to add to the batch process.

Each time you start the batch process, the selected folder is scanned and the audio files that are found in the folder are processed.

This path is also used as a reference for the file output option **Explicit Path + Recreate Folder Structure**.

To disable this option, clear the path name.

> NOTE
>
> If you want to use XML files in the folder mode, you must select **XML Descriptors** in the **File Types to Process** menu.

Include Subfolders

If this option is activated, the subfolders of the selected folder are also scanned. The audio files inside these subfolders are added to the batch process.

Refresh

Refreshes the selected folder and, if **Include Subfolders** is activated, its subfolders. All audio files inside the folders are added to the batch process.

File Types to Process

Lets you specify which file types should be added to the batch process. You can also select that all file types should be added to the batch process.

Options Below the File List

The following options are available below the files list:

Accept Dual Mono Files

If this option is activated, you can add dual mono files to your batch process.

Preview Duration

Determines the length of the preview duration.

Output Tab (Batch Processor)

The **Output** tab allows you to specify an output location for the files that you are about to process.

Destination folder type

Defines the type of destination folder. The following types are available:

- **Temporary (Can Be Undone)**

  Writes the processed audio to a temporary file. For this to work, the source file must be open in the **Audio Editor**.

- **As Source Path**

  Renders the file to its current folder.

- **Subfolder of Source Path**

  Renders the file to a customizable subfolder of its current folder.

- **Subfolder "Output" in Source Path**

  Renders the file to the Output subfolder of the Watch Folder. This subfolder is automatically created by WaveLab Pro.

- **Explicit Path**

  Renders the file to a destination folder that you must specify in the **Folder** field at the top of the **Batch Processor** window.

- **Explicit Path + Recreate Folder Structure**

  Renders the file to a destination folder that you must specify in the **Folder** field at the top of the **Batch Processor** window, and recreates the folder structure.

  NOTE

  The folder path you define must lead to a source folder common to all audio files to process, as **WaveLab Pro** uses this folder as a reference to recreate the folder hierarchy.

- **Explicit Path + Source Folder**

  Renders the file to a destination folder that you must specify in the **Folder** field at the top of the **Batch Processor** window. **WaveLab Pro** adds the name of the source folder to the path.

- **Explicit Path + Source Folder (2 Levels)**

  Renders the file to a destination folder that you must specify in the **Folder** field at the top of the **Batch Processor** window. **WaveLab Pro** adds the names of the source folder and its parent to the path.

- **Explicit Path + Source Folder (3 Levels)**

  Renders the file to a destination folder that you must specify in the **Folder** field at the top of the **Batch Processor** window. **WaveLab Pro** adds the names of the source folder and its parent plus one additional element of the source path to the path.

- **No Audio Output**

Processes the files without writing an output file.

When using Watch Folders, this option only makes sense in conjunction with the **Audio Analyzer** plug-in, to produce a text file from the source audio file without rendering a new audio file. **WaveLab Pro** always writes the text file to the `Output` subfolder of the Watch Folder.

NOTE

For Watch Folders, you can also specify the destination folder using an XML file that contains this information.

Path

Specifies the folder to which the files are rendered.

Rename Files

Processes the source file names through a renaming preset, to produce new names for the rendered files.

Renaming Field

Allows you to open the **Rename Files** dialog, where you can set up a renaming scheme.

Name Scheme

Allows you to define naming schemes for the audio files or audio montages that you want to render. You can save naming schemes as presets.

RELATED LINKS
Naming Schemes on page 105

Format Tab (Batch Processor)

On this tab, you can specify the file format for the files that you want to process and specify how to handle metadata.

File Format

Allows you to open the **Audio File Format** dialog for single file formats or multiple file formats.

Batch Metadata

Lets you select one of the following options for handling the batch metadata:

● Ignore the batch metadata and preserve the metadata in the audio file.

● Merge the batch metadata with the metadata found in the audio file.

● Replace the metadata of the audio file with the batch metadata.

These options only have effect if **Inherit From Source File** is activated in the **Audio File Format** dialog.

For Audio Montages, Render CD Images and Cue Sheets

If this option is activated, audio montages are rendered as CD images together with cue sheets.

Options Tab (Batch Processor)

On this tab, you can set parameters for the batch process.

Create Peak Files

If this option is activated, peak files are created for each rendered file.

Add Reverb Tail

If this option is activated, the audio tail that is produced by effects such as reverb is included in the rendered file.

Some plug-ins do not transfer information on the tail duration to WaveLab Pro. In this case, this option has no effect. For such plug-ins, you can add the **Silence** plug-in to add extra samples at the end of the file.

Copy Markers

If this option is activated, markers that are included in the range to process are copied to the rendered file.

On Success, Run External Tool

Allows you to select an external tool to run after the batch process is finished. For example, you could email, upload, or archive the resulting files. To be able to select tools, you need to specify them in the **Configure External Tools** dialog.

This option has no effect when using Watch Folders.

Audio Files without Valid Header

- If **Accept Unknown Audio** is activated, you can apply batch processing to audio files that do not include any header information such as sampling rate, bit depth, endian, or number of channels.

  Click on the **Presets** field to open the **Special File Format** dialog. This dialog allows you to specify how to interpret the format of the audio file that you want to open.

- If **Reinterpret Header Sample Rate** is activated, you can specify the sample rate that is applied to the audio stream in the batch process.

  IMPORTANT

  This option could produce files with a wrong sample rate. Use this option with care.

RELATED LINKS
Special File Format Dialog on page 221

XML Tab (Batch Processor)

The **XML** tab in the **Batch Processor** window allows you to specify an XML marker file; that is, a file which contains information about the audio files to be batch-processed, and to import it.

Process

Import XML Marker File allows you to apply a marker structure to multiple files by importing XML marker files into your batch processor. If you do not want to use an XML process, select **No XML Process**.

XML File

Allows you to specify the path to the XML marker file that you want to import.

Execution Tab (Batch Processor)

On this tab, you can set parameters for the batch process.

Auto Start When Dropping Files

If this option is activated, the processing starts automatically when dragging a file into the list.

Auto Remove Converted Files

If this option is activated, a file is removed from the list once it is successfully processed.

Auto Insert Files from Source Folder

If this option is activated, the files inside the specified source folder are automatically added to the file list when you click **Start**.

Stop on Error

If this option is activated, the global process stops if an error is encountered. If it is deactivated, the file associated with the error is marked in red, and the next file is processed.

This option has no effect when using Watch Folders.

Include File List When Saving

If this option is activated, the list of files (with their status) is saved with the batch processor document.

Usage of Processor Cores

Allows you to select how many cores are to be used simultaneously. The contents of this pop-up menu depend on your computer hardware.

When a File is to Be Overwritten

Specify the behavior when a file is to be overwritten. The following options are available:

- **Overwrite without Question**

- **Stop and Ask**

- **Report as Error**

- **Skip and Mark as Done**

- **Auto-Rename**

This option has no effect when using Watch Folders.

Comment Tab (Batch Processor)

On this tab, you can enter a comment for the active batch process document.

Batch Processor Plug-ins Window

The **Plug-ins** window for batch processes allows you to select plug-ins and **Master Section** presets for the batch process. A plug-in or preset can be dragged into the audio plug-in chain of

the active batch processor document. You can also double-click a plug-in to add it at the end of the chain.

- To open the **Plug-ins** window, open a batch process file and select **Tool Windows** > **Batch Processor Plug-ins**.
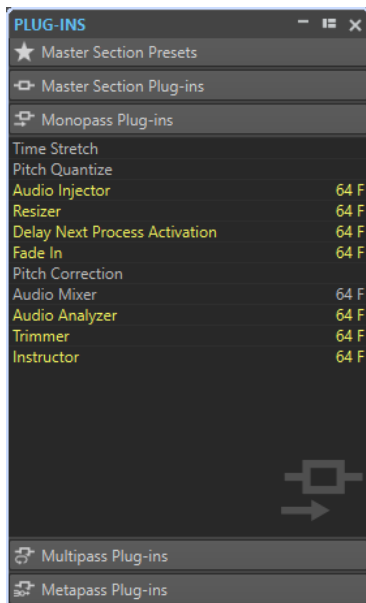
From the following categories, you can select plug-ins or **Master Section** presets:

Master Section Presets

This is the list of **Master Section** presets.

Master Section Plug-ins

This is the list of all plug-ins available in the **Master Section**.

Monopass Plug-ins

This is the list of monopass plug-ins. Monopass means that the audio signal needs to pass through the plug-in only once to be processed. These plug-ins are not available in the **Master Section**.

Multipass Plug-ins

This is the list of multipass plug-ins. Multipass means that the audio needs to be analyzed at least once before it is modified. These plug-ins are not available in the **Master Section**. Some are unique to the **Batch Processor**.

Metapass Plug-ins

This is the list of metapass plug-ins. Metapass means that the audio is analyzed once, and is processed after all other files have been analyzed, to take all analyses into account. These plug-ins are not available in the **Master Section** and are unique to the **Batch Processor**.

RELATED LINKS
Offline Processors on page 790

Offline Processors

There are several different types of plug-ins that can be applied to a batch process.

The following types of batch processing plug-ins are available:

- **Monopass** plug-ins only require one pass when processing. A monopass plug-in effect processes the signal and then outputs it to any subsequent plug-in.

- **Multipass** plug-ins require two or more passes (one or more analysis passes followed by a process pass) before processing the audio. Some are unique to the **Batch Processor** window while others are also found as offline processors in the **Audio Editor**.

- **Metapass** plug-ins are unique to the **Batch Processor** window and require at least one analysis pass on all audio files before audio is processed. After analyzing the audio, a metapass plug-in takes into account all other plug-ins in the effects chain before processing the audio.

Master Section Presets

These presets are updated each time that you save a new preset in the **Master Section**. The presets also contain the **Master Section** gain settings.

Master Section Plug-ins

These plug-ins are all the plug-ins available from the **Master Section**, sorted in the same manner.

RELATED LINKS
Metapass Plug-ins on page 791
Avoid Clipping When Increasing the Signal Level on page 791

Metapass Plug-ins

A metapass plug-in analyzes all files in the batch, collects the results, and processes the files by varying amounts. The result of the analysis of one file can affect how other files are processed.

A typical example of a metapass plug-in is the **Loudness Meta Normalizer**, which can process a number of files so that they all get the loudness of the loudest file in the batch.

Metapass plug-ins can be freely combined with other types of processors. For example, you can use both the **Loudness Meta Normalizer** and a regular **Normalizer** in the same batch. You may also combine metapass plug-ins with multipass plug-ins.

A metapass plug-in requires two processing passes. During the first pass, all the files in the batch are analyzed and during the second pass they are all processed.

This is different from other multipass plug-ins, where each file is analyzed/processed twice or more times if required.

Avoid Clipping When Increasing the Signal Level

Processors often increase the signal level. If you are not careful, your file may be distorted when it exits the batch. To prevent this, you can use the **Only if Clipping** option of the **Level Normalizer** multipass plug-in.

It is no problem for the signal to be amplified above 0 dB (full level) within the audio stream, because WaveLab Pro uses 64-bit internal processing. There is a lot of extra headroom and the signal will not be clipped. However, when a signal that exceeds 0 dB is converted to a 16-bit file at the output of the Batch Processor, clipping occurs.

To remedy this, you can insert the **Normalizer** effect at the end of the signal chain. The Normalizer raises or lowers the levels so that the signal peaks exactly at the specified value just before it is converted to a file. This is useful to do even when **Only if Clipping** is not activated.

If you only want the **Normalizer** to be applied to avoid clipping, activate **Only if Clipping**. When this is activated, the signal output may be low, but the audio does not clip due to amplification within any of the processors.

This allows you to use the **Normalizer** as a completely distortion-free limiter.

If you reduce the bit depth, add the dithering plug-in after the Normalizer plug-in.

Working with the Batch Processor

You can batch-process audio files or audio montage files with **Master Section** plug-ins and presets, offline effects, and other plug-ins that are unique to batch processing.

RELATED LINKS

Creating a Batch Process File

Batch process files allow you to set up a batch process.

PROCEDURE

1. Select **File** > **New**.

   If you have specified a template to be the default template, clicking **New** opens a new template with the settings of the default template.

2. Click **Batch Processor**.

3. Do one of the following:

   - To open an empty batch process file, select **Create Empty**.
   - To create a batch process file that contains all files that are open in WaveLab Pro, select **From Current File**.
   - To create a batch process from a template, select **Templates**, and click the template that you want to use.

Saving a Batch Process File

PREREQUISITE
Set up your batch process.

PROCEDURE

1. Do one of the following:

   - To save a batch process file that has never been saved before, select **File** > **Save As**.
   - To save a batch process file that has been saved before, click **Save**, or select **File** > **Save**.

2. Specify a file name and location.

3. Optional: Activate **Include File List**.

4. Click **Save**.

Save Batch Processor Dialog

In this dialog, you can specify the name and location of the batch processor file that you want to save.

● To open the **Save Batch Processor** dialog, click the **Save As** button, or select **File** > **Save As**.

Name

The name of the file to write.

Location

The location where you want to save the file.

Include File List

If this option is activated, the file list is also saved, including the status of each file.

Save

Saves the file.

Save Copy

Allows you to save a copy of the open batch processor file. The batch process continues to refer to the source file. Click the arrow at the bottom right of the **Save** button to access the **Save Copy** option.

Adding Files to a Batch Process

You can add audio files and audio montages to a batch process.

RELATED LINKS

Adding Audio Files to a Batch Process

PREREQUISITE

Create a new batch process file, or open an existing file.

PROCEDURE

1. In the **Batch Processor** window, select the **Edit** tab.

2. In the **Insert** section, click **Audio Files**.

3. Select **Browse**.

4. Browse to the location of the audio file that you want to add, and select it.

5. Click **Open**.

RESULT

The audio file is added to the batch process.

> NOTE
>
> You can also add audio files by right-clicking the **Files to Process** window, and selecting **Insert Audio Files** > **File Group** > **Select All**, or selecting one of the open audio files from the list.

Adding Audio Montages to a Batch Process

PREREQUISITE

Create a new batch process file or open an existing file.

PROCEDURE

1. In the **Batch Processor** window, select the **Edit** tab.
2. In the **Insert** section, click **Audio Montages**.
3. Select **Browse**.
4. Browse to the location of the audio montage that you want to add, and select it.
5. Click **Open**.

RESULT

The audio montage is added to the batch process.

NOTE

You can also add audio montages by right-clicking the **Files to Process** window and selecting **Insert Audio Montages** > **File Group** > **Select All** or by selecting one of the open audio montages from the list.

Adding Files from a Folder to a Batch Process

You can add all files that are included in a folder to a batch process.

PREREQUISITE

Create a new batch process file or open an existing file.

PROCEDURE

1. In the **Batch Processor** window, select the **Edit** tab.
2. In the **Insert** section, click **Files from Folder**.
3. In the **Add Files from Folder** dialog, specify the folder location.
4. Optional: Activate **Include Subfolders** if you want to include files located in subfolders.
5. Specify the file type.
6. Click **OK**.

RESULT

All files are added to the list of files to process.

Adding Files from a Default Folder to a Batch Process

You can specify a default folder in which you put the files that you want to batch-process. Each time that you start the batch process, the selected folder is scanned and the audio files that are found in the folder are added to the file list and processed.

PREREQUISITE

Create a new batch process file or open an existing file.

PROCEDURE

1. In the **Batch Processor** window, select the **Execution** tab.

2. Activate **Auto Insert Files from Source Folder**.

3. Specify the source folder in the **Folder** field.
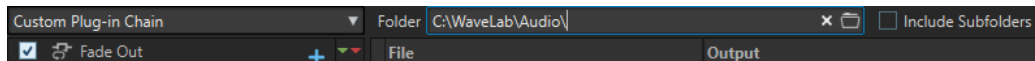
4. If you want to include the files that are located in the subfolders, activate **Include Subfolders**.

5. From the **File Types to Process** pop-up menu, select which audio file types you want to include.

6. To start the batch process, select the **Edit** tab, and click **Start**.

RELATED LINKS
Execution Tab (Batch Processor) on page 789

Custom Plug-in Chain vs. Associated Master Section Preset

You can batch-process files using a common custom plug-in chain or batch-process each file with its own associated **Master Section** preset. You can also choose to use no plug-in at all for the batch process and to only use the other features of the **Batch Processor** window; for example, the file format conversion or metadata processing.

Adding Plug-ins to a Batch Process

You can create a custom plug-in chain and include it in the batch process.

PREREQUISITE

Create a new batch process file, or open an existing file.

PROCEDURE

1. Open the batch processing pop-up menu, and select **Custom Plug-in Chain**.
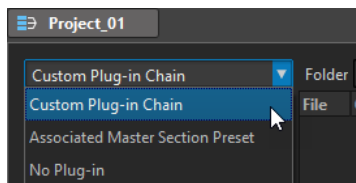
2. In the **Plug-in** window, do one of the following:

   ● Select a plug-in or the **Master Section** preset that you want to use, and drag it to the **Custom Plug-in Chain**.

- Double-click a plug-in or a **Master Section** preset to add it to the end of the plug-in chain.
- Activate an existing plug-in in the list, and drag it to the **Custom Plug-in Chain**.

TIP

You can fine-tune a plug-in in the **Master Section** before using it in the **Batch Processor**.

Audio Signal Path

The audio signal path of a batch process is indicated by red, green, and blue arrows in the audio plug-in chain list.

- A red arrow indicates that the signal is processed, then sent to the next plug-in.
- A green arrow indicates that the signal is analyzed at this stage of the audio chain, but is not yet modified and therefore not sent to the next plug-in. When the audio stream comes to an end, it is restarted. Next time the signal reaches this plug-in, it is modified, and sent to the next plug-in. Some plug-ins need several analyses before passing to the next plug-in.
- A blue arrow indicates that the signal has been fully processed at this stage and is written to disk.
- A vertical separator line indicates that a meta-pass happens. This means that the files are read and processed again one after the other.

NOTE

Some multipass plug-ins request more than one analysis pass, or send the signal further in the chain without ordering the audio stream to restart. This behavior depends on the plug-in settings and on the audio material and cannot be influenced.

Removing Files and Plug-ins from the Batch Process

PROCEDURE

- In the **Custom Plug-in Chain** or **Files to Process** list, right-click the items that you want to remove, and select **Remove**, **Remove All**, or select the item and press **Delete** .

Saving and Loading Plug-in Chains in the Batch Processor
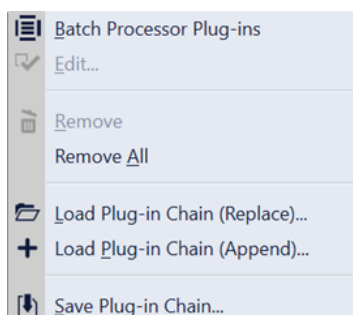
CHOICES

- To save a plug-in chain in the **Batch Processor** window, right-click in the **Custom Plug-in Chain** section, and select **Save Plug-in Chain**. Specify the file name and location, and click **Save**.

- To load a previously saved plug-in chain and to replace an existing plug-in chain in the **Batch Processor** window with it, right-click in the **Custom Plug-in Chain** section, and select **Load Plug-in Chain (Replace)**. Navigate to the file containing the plug-in chain, and click **Open**.

- To add a previously saved plug-in chain to an existing plug-in chain in the **Batch Processor** window without replacing an existing plug-in chain, right-click in the **Custom Plug-in Chain** section, and select **Load Plug-in Chain (Append)**. Navigate to the file containing the plug-in chain, and click **Open**. As a result, the selected plug-in chain is attached to the end of any previously loaded plug-in chains in the **Batch Processor** window.

TIP

Load Plug-in Chain (Append) allows you to create variations of plug-in chains by flexibly combining multiple plug-in chains.

RELATED LINKS
Audio Plug-in Chain on page 784

Finding and Replacing File Names and Locations in the Batch Processor

If the files that you reference in your batch processor file have been renamed or moved to a different location, you can use **Find and Replace** to quickly change the file names and file locations in your batch process list.

PROCEDURE

1. In the **Batch Processor** window, select the **Edit** tab.

2. In the **File List** section, click **Find and Replace**.

3. In the **Find and Replace** dialog, specify the file names or locations that you want to find and replace.
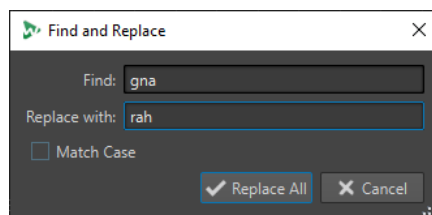
4. Click **Replace All**.

RELATED LINKS
Edit Tab (Batch Processor) on page 782

Importing and Exporting File Lists in the Batch Processor

You can import a text file that contains the file paths of the files that you want to add to the batch process. You can also export the file path of the batch processor file list as a text file.

PROCEDURE

1. In the **Batch Processor** window, select the **Edit** tab.

2. In the **File List** section, do one of the following:

   - To import a text file that contains the file path of all files that you want to add to the batch process, click **Import File List**, select the text file, and click **Open**.
   - To export the file list as a text file, click **Export File List**.

     The text file automatically opens in the default text editor.

RELATED LINKS
Edit Tab (Batch Processor) on page 782

Changing the Order of the Plug-ins in the Batch Process

PREREQUISITE
Create a new batch process file or open an existing file.

PROCEDURE

- Select a plug-in or **Master Section** preset from the audio plug-in chain list, and drag it to another position.

Previewing the Effect of Batch Processing

You can preview the effect of the batch processor on any file of a batch. The preview includes all effects and the file format.

PREREQUISITE
Set up your batch process.

PROCEDURE

1. In the lower right corner of the **Batch Processor** window, set up the **Preview Duration**.

   The preview duration can be between 2 seconds and 59 seconds.

2. Right-click the file that you want to preview and select **Preview Processing**.

Processing Open Files

There are a few things to be aware of when processing open files.

- You cannot save new files under the same name and in the same location as an open file, unless their number of channels is different from the existing files (such as mono vs. stereo, or vice versa). In this case, a new document is created, which is opened in a new untitled window.

Selecting an Output Format for the Batch Process

You can render to a single audio format or to multiple audio formats.

PREREQUISITE

Create a new batch process file or open an existing file.

PROCEDURE

1. In the **Batch Processor** window, select the **Format** tab.

2. Click the **File Format** field.

3. Select **Edit Single Format** or **Edit Multi Format**.

4. In the **Audio File Format** dialog, make adjustments as required, and click **OK**.

Setting Up a File Location for the Batch Process

PREREQUISITE

Create a new batch process file or open an existing file.

PROCEDURE

1. In the **Batch Processor** window, select the **Output** tab.

2. Set the type of destination folder and the folder in which the audio files are rendered.

Specifying an Overwriting Strategy

PREREQUISITE

Create a new batch process file or open an existing file.

PROCEDURE

1. Select the **Execution** tab.

2. From the **When a File Is to Be Overwritten** pop-up menu, select one of the following overwriting strategies:

    ●   **Overwrite without Question**

    ●   **Stop and Ask**

    ●   **Report as Error**

    ●   **Skip and Mark as Done**

    ●   **Auto-Rename**

Naming Rendered Audio Files

With the renaming function of the **Batch Processor** window, you can generate new names for the rendered files according to custom rules.

PREREQUISITE

Open a batch processor file.

1. In the **Batch Processor** window, select the **Output** tab.

2. Activate **Renaming**, and click the renaming field.

3. Make adjustments as required, and click **OK**.

Running and Stopping the Batch Process

After setting the required parameters, you can start the batch process. It is possible to pause and cancel the procedure at any time.

- To start the batch process, select the **Edit** tab and click **Start**.

- To pause the batch process, select the **Edit** tab and click **Pause**. You can continue the batch processing by clicking **Pause** again.

- To cancel the batch process, select the **Edit** tab and click **Cancel**.

Batch Processing Status Icons

The icons next to the file number indicate the status of the files in the **Files to Process** list.

Green circle

Indicates that the file is ready to be processed.

Cogwheel icon

Indicates that the file is being processed. The **Batch Processor** window cannot be closed if any files have this status.

Yellow dot

Indicates that the process is done partially. For example, the files have been analyzed (analysis pass), but not yet processed (modifying pass).

Green dot

Indicates that the file has been successfully processed. In order to process the file again, you need to reset its status.

Red dot

Indicates that an error occurred.

Resetting the Status of Batch Processed Files

To apply the batch process again on already processed files, you need to reset the status of these files.

- To reset the status of one or several files in the **File to Process** list, select one or several files, right-click them, and select **Reset Status**.

- To reset the status of all files in the **Files to Process** list, select the **Edit** tab and, in the **Reset Status** section, click **All Files**.

- To reset the status of all files with an error in the **Files to Process** list, select the **Edit** tab and, in the **Reset Status** section, click **Files with an Error**.

Multitasking During the Batch Process

You can select how many CPU cores of your computer should be used simultaneously. The available number of cores depends on your computer hardware.

Each task uses one core; therefore the multitasking setting represents the maximum number of tasks that can be run in parallel. It is not always recommended to use the highest settings for the following reasons:

● If you want to continue working with your computer during batch processing, you need to spare power.

● The disk is slower.

● Graphics performance and user interface responsiveness are reduced.

● If your processor uses hyper-threading, half of the cores are virtual and do not bring as much power as real cores.

If many large files are written, using multitasking is not always recommended, because the files can become more fragmented on your disk. The resulting files might be slower to read, unless you are using SSD drives.

NOTE

The number of cores to be used can be changed at any time. Tasks that are already running are continued or paused, depending on the new setting.

Selecting Processor Cores for the Batch Process

PROCEDURE

1. In the **Batch Processor** window, select the **Execution** tab.

2. Open the **Usage of Processor Cores** pop-up menu and select the number of processor cores that you want to use.

Watch Folders

Watch Folders can be used to automate batch processing tasks. By copying files into a Watch Folder, a predefined batch processor is automatically applied to these files.

In the batch processor, you can use all audio processing functions that WaveLab Pro offers. For example, processing with VST plug-in chains, R-128 loudness normalizing, audio analysis reports, MP3 conversions, etc.

NOTE

To fully take advantage of the Watch Folder feature, you must be acquainted with the **Batch Processor** window in WaveLab Pro.

Any kind of File Explorer/macOS Finder folder can be defined as Watch Folder. You can drag or copy files into the folder, or save audio files into a Watch Folder from any application. Watch Folders can process both audio files and audio montages.

You can set up multiple Watch Folders, each corresponding to a different audio process.

WaveLab Pro processes any files that are copied into Watch Folders, even if it is not the active application.

The procedure to set up a Watch Folder is to set up a batch processor, create a Watch Folder, associate the Watch Folder with the batch processor, and then activate the Watch Folder. When you now drag files into this folder, they are processed automatically.

The files that you drag into the Watch Folder can be located in folders with subfolders. The processed files in the output folder will have the same folder structure as the source files.

You can also drag XML files that specify the audio files that you want to process into the Watch Folder.

RELATED LINKS
Watch Folders Window on page 802
Setting Up a Batch Processor for Watch Folders on page 802
Using the Watch Folder on page 807
Batch Processing on page 781
XML Files in Batch Processing on page 813

Setting Up a Batch Processor for Watch Folders

You can associate any existing batch processor configuration with your Watch Folders or set up a new batch processor configuration for your Watch Folders.

A Watch Folder can be associated with multiple batch processor tasks. For example, copying a file into a Watch Folder could automatically produce a 96 kbps MP3 file, a 192 kbps MP3 file, an OGG file, and a normalized WAVE file.

● To edit the batch processor, double-click a batch processor in the **Watch Folders** window.

● To edit the output folder of a batch processor, double-click the **Output Folder** column of a batch processor in the **Watch Folders** window.

IMPORTANT

Plug-ins that show a validation dialog on startup cannot be used.

RELATED LINKS
Working with the Batch Processor on page 792
Multitasking During the Batch Process on page 801
Watch Folders Window on page 802

Watch Folders Window

In this window, you can set up and edit the Watch Folder configuration.

● To open the **Watch Folders** window, open the **Batch Processor** window, and select **Tool Windows** > **Watch Folders**.
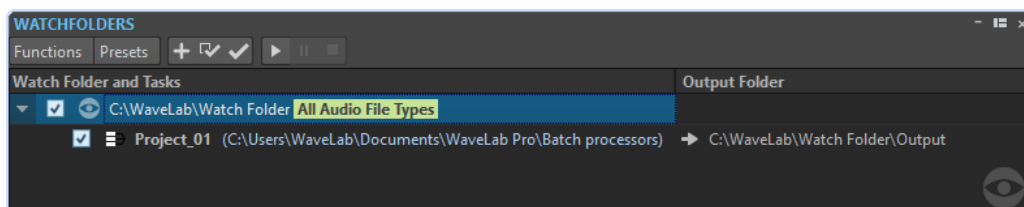
NOTE

The configurations that you make in the **Watch Folders** window are automatically saved as you edit.

Watch Folder List

The Watch Folder list shows the selected Watch Folder and its associated batch processors.

● To edit a Watch Folder, double-click the folder in the list.

● To exclude batch processors from being triggered, deselect the corresponding checkbox in the **Watch Folders** window.

Functions Menu

Add Watch Folder Task

Opens the **Add Watch Folder Task** dialog, where you can assign a new Watch Folder to a batch processor.

Remove Watch Folder Task

Removes the selected Watch Folder task.

Settings

Opens the **Watch Folder Settings** dialog, where you can set additional parameters for the Watch Folder.

Verify Configuration

Verifies that the Watch Folder configuration is valid and ready to be activated. This check is automatically performed when you activate the Watch Folder.

Start

Activates the Watch Folder. If you drag files into an active Watch Folder, the associated batch processors are applied.

Pause

Pauses the Watch Folders.

Stop

Stops the Watch Folders. All tasks that are running are canceled.

Presets Menu

Save As

Allows you to save the active Watch Folder configuration as a preset.

Presets List

Lets you select a Watch Folder configuration preset.

RELATED LINKS

Defining a Watch Folder

PREREQUISITE
Set up a batch processor.

PROCEDURE

1. In the **Batch Processor** window, do one of the following:

    -   Select **Tool Windows** > **Watch Folders** to open the **Watch Folders** window. In the **Watch Folders** window, select **Functions** > **Add Watch Folder Task**.

    -   Select **Tool Windows** > **Watch Folders** to open the **Watch Folders** window. In the **Watch Folders** window, click the **+** icon.

    -   Drag a folder that you want to make a Watch Folder or a batch processor file into the **Watch Folders** window. This opens the **Watch Folder Task** dialog and sets the corresponding folder or batch processor file as default.

2. In the **Add Watch Folder Task** dialog, do the following:

    -   Specify the path of the folder that you want to use as a Watch Folder.

    -   Specify the file types that you want to process.

    -   Specify the path of the batch processor that you want to trigger in the selected Watch Folder.

    If a batch processor is already open in the **Batch Processor** window, it will be proposed by default in the **Batch Processor File** field.

3. Click **OK**.

    The Watch Folder setup is added to the Watch Folders list.

4. In the **Watch Folders** window, select **Functions** > **Settings** to edit the settings for the Watch Folders.

5. To validate the Watch Folder setup, select **Functions** > **Verify Configuration**.

6. Optional: Assign another batch processor to the Watch Folder.

AFTER COMPLETING THIS TASK

When you are done creating a Watch Folder configuration, you must activate it.

RELATED LINKS

Add Watch Folder Task Dialog

In this dialog, you can specify the Watch Folder location, its associated batch processor file, and the file types that should be processed.

-   To open the **Add Watch Folder Task** dialog, open the **Watch Folders** window, and select **Functions** > **Add Watch Folder Task** or click the **+** icon.
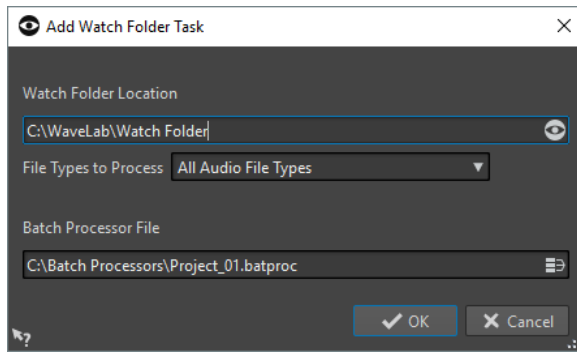
Watch Folder Location

    Allows you to specify the Watch Folder location.

File Types to Process

    Allows you to select the file types that are associated with the Watch Folder. Only files with the corresponding file format are added to the batch process.

Batch Processor File

    Allows you to specify the batch processor file that you want to associate with the Watch Folder.

    You can click the icon at the right of the text field to see a list of all open batch processors and a list of all recently used batch processors.

RELATED LINKS
Defining a Watch Folder on page 803

Activating the Watch Folder Configuration

Once you have set up a Watch Folder configuration, you can activate it.

PREREQUISITE
Set up a batch processor and create one or more Watch Folders.

PROCEDURE

1.   In the **Watch Folders** window, select **Functions** > **Start**.

2.   In the **Watch Folder Activation** dialog, make adjustments as required, and click **Activate**.

RESULT

The Watch Folder configuration is active. Once you drag a file into a Watch Folder, the associated batch processors are triggered.

  IMPORTANT

To apply the changes that you have made for an active Watch Folder configuration, you must stop and restart the Watch Folders.

AFTER COMPLETING THIS TASK

Via the system tray icon, you can access information about the activated Watch Folder, and pause or stop the processing.

RELATED LINKS
Watch Folders on page 801

Processing Watch Folders in the Background

WaveLab Pro's Watch Folder feature can be used as a background task. For this, an additional instance of WaveLab Pro is opened in the background. The two instances can run simultaneously.

The GUI mode is mainly used for setting up the Watch Folder and test the functionality. Once everything has been set up, you can activate the Watch Folder configuration using the WaveLab Pro background instance.

The background instance can be used once you have set up the Watch Folder. When you drag files into your Watch Folder, the WaveLab Pro background instance processes the files. You can have the background instance launched automatically with the operating system.

NOTE

Once a background instance is opened, it is independent from the instance that you work with.

RELATED LINKS
Watch Folder Activation Dialog on page 806
Watch Folders on page 801

Automatically Starting a Background Instance on Startup

You can start a WaveLab Pro background instance automatically with the operating system.

● To activate or deactivate the automatic startup function, open the **Watch Folder Activation** dialog, and select **Activate Watch Folders at Computer Startup**.

You can also deactivate the automatic startup function outside WaveLab Pro.

● On Windows, remove the WatchFolders.lnk file from the following location:
  ```
  C:\Users\[UserName]\AppData\Roaming\Microsoft\Windows\Start
  Menu\Programs\Startup
  ```

● On Mac, remove the WaveLab Pro entry from the login items list.
  ```
  System preferences/Users & groups/Login items
  ```

RELATED LINKS
Activating the Watch Folder Configuration on page 805
Watch Folders on page 801

Watch Folder Activation Dialog

The **Watch Folder Activation** dialog allows you to specify whether the Watch Folder runs in GUI mode or as a background application.

● In the **Batch Processor** window, in the **Watch Folders** window, set up a Watch Folder task, and select **Functions** > **Start**.
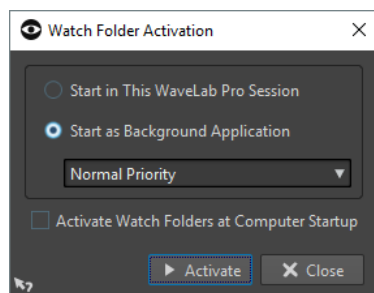
Start in This WaveLab Session

If this option is activated, the active WaveLab Pro instance is used for processing files in the Watch Folders. When files are copied into a Watch Folder, the corresponding batch processor file is activated. This allows you to see the progress of the processing from within WaveLab Pro.

This mode is useful for setting up the Watch Folder configuration.

Start as Background Application

If this option is activated, a new WaveLab Pro instance is launched in the background. This instance is used for processing the Watch Folders.

Priority

When using a WaveLab Pro background instance for processing files in the Watch Folders, this can slow down other programs when files are processed. You can set the priority with which the background instance uses the resources of the computer.

The following priorities are available:

- **Normal Priority**: Causes the WaveLab Pro background instance to run with the same priority as all other programs.

- **Low Priority**: Causes a WaveLab Pro background instance to run with a lower priority. Processing is slower, leaving more power to other applications.

- **Lowest Priority**: Causes a WaveLab Pro background instance to run with the lowest priority. Processing is slower, leaving more power to other applications than the option **Low Priority**.

Activate Watch Folder at Computer Startup

If this option is activated, a background instance of WaveLab Pro automatically launches when the computer starts. This instance is used for processing files in the Watch Folders.

RELATED LINKS

Using the Watch Folder

Once you have set up the Watch Folder configuration, you can start to process files.

PREREQUISITE

Set up one or several batch processor files, associate them with one or more Watch Folders, and activate the Watch Folder configuration.

PROCEDURE

- Drag, copy, or save audio files into your Watch Folders.

  You can also drag entire folders into the Watch Folder.

  > NOTE
  >
  > - If you drag an empty folder into the Watch Folder, it is automatically deleted.
  >
  > - If you have set up the **Scheduled Folder** option, place the files into the `Scheduled` subfolder inside the Watch Folder. Otherwise, they are processed immediately.

RESULT

The files are processed according to your settings.

Saving Watch Folder Configurations as Presets

You can save the Watch Folder settings and list as a preset. However, the preset does not include the batch processor files, which are independent files.

PROCEDURE

1. Set up a Watch Folder configuration.

2. In the **Watch Folders** window, select **Presets** > **Save As**.

3. In the **Save Preset As** dialog, do one of the following:

   - To save the preset in the default folder, enter a name and click **Save**.

   - To save the preset in a custom subfolder of the default folder, click the folder icon, enter a name for the subfolder, and click **OK**. Then select the subfolder, enter a name for the preset and click **Save**.

Watch Folder Settings Dialog

In this dialog, you can make adjustments for handling Watch Folders.

- To open the **Watch Folder Settings** dialog, in the **Watch Folders** window, select **Functions** > **Settings**.

Main Tab

After Processing Input File

After an input file is successfully processed, it has to be removed from its folder. The following options are available:

- **Move Input File to the "Sources" Subfolder**

  If this option is activated, processed files are moved to a folder called `Sources`, inside the Watch Folder. The original folder structure is preserved.

  > NOTE
  >
  > When using an XML file to describe the files to process, an audio file can be located anywhere outside the Watch Folder. In that case, the **Move It to Source Subfolder** option has no effect.

- **Delete Input File**

  If this option is activated, processed files are deleted from the Watch Folder.

If an Input File Cannot Be Processed

If an input file cannot be successfully processed, it has to be removed from its folder. The following options are available:

- **Move Input File to the "Errors" Subfolder**

If this option is activated and a file cannot be successfully processed, it is moved to a folder called `Errors`, inside the Watch Folder. The original folder structure is preserved.

- **Delete Input File**

  If this option is activated and a file cannot be successfully processed, it is deleted from the Watch Folder.

Scheduled Folder

You can specify a time range for the processing of Watch Folders. This allows you to automatically process files over night or during lunch break, for example.

To do so, create a folder named `Scheduled` inside the Watch Folder, activate the **Scheduled Folder** option, and specify the time range.

Files that are copied outside the `Scheduled` subfolder are processed immediately.

Notification after Processing

If this option is activated, a system tray notification pops up when the files have been processed successfully. Clicking this notification opens the folder where the last file was rendered.

Add Readme File to Each Watch Folder

If this option is activated, a file called "readme.html" is added to the root folder of each Watch Folder. The readme file contains information about the settings of the Watch Folder.

Advanced Tab

Timing

- **Poll Period**

  This is the period during which WaveLab Pro scans Watch Folders. The shorter the time, the sooner the files that are copied into the Watch Folder are processed.

- **Delay before Processing Starts**

  A file must be fully written to the Watch Folder before processing can start. Therefore, WaveLab Pro monitors how the file size increases and the time stamp of the file. Once these indicators are stable, WaveLab Pro waits for the specified time before starting the batch processors.

  If the files are written by another application, for example, a Cubase mixdown, we recommend a value of 2 seconds. If the audio files are copied or moved from the File Explorer/macOS Finder, you can use a smaller value.

- **Wait for Ancillary File**

  If an audio file is copied into the Watch Folder along with a marker file (.mrk), the processing should only start when both files are present in the Watch Folder. The delay value specifies how long WaveLab Pro waits for a marker file.

  If you never process audio files with marker files, you can set this value to 0.

  WaveLab Pro also waits for both mono audio files of a dual mono file if this is activated in the batch processor. The **Wait for Ancillary File** option is independent from the dual mono file capability, which relies on file naming analysis that you can set up in the **Audio Files Preferences**.

Log File

You can create a log file that is continuously updated with messages about the batch processing inside the Watch Folders. The log file helps you locate errors in the Watch Folder configuration.

- **File Path**

  Allows you to specify the name and the location of the log file.

  If you use Watch Folders in a distributing network environment, one independent log file is created on each computer.

- **Clear Log File when Activating Watch Folders**

  If this option is activated, the log file is cleared each time Watch Folders are activated. This option is always activated if the log file has a markup format.

- **Only Report Errors**

  If this option is activated, only error messages are written to the log.

- **Format**

  Lets you select whether the log file is a raw text file or a markup file (XML or HTML).

  For markup files, an end tag is added only when the Watch Folders are deactivated. In case of a distributing computing environment, this tag is added by the master computer.

RELATED LINKS

System Tray Icon for Watch Folders

If Watch Folders are active, a system tray icon is displayed that gives information about the progress and errors, and offers several options regarding the active Watch Folder.

To open the context menu, click the system tray icon.
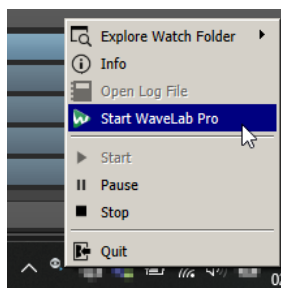
System tray icon on Windows

Explore Watch Folder

Lets you open the active Watch Folders in the File Explorer/macOS Finder.

Info

Opens a pop-up message about the number of successfully processed files and the number of error messages.

Open Log File

Opens the log file for the Watch Folders.

Start WaveLab Pro

If the system tray icon corresponds to a background instance of WaveLab Pro, this option opens a new WaveLab Pro instance.

If there is already a visible instance of WaveLab Pro, it is put to the front.

Start

Activates the Watch Folders. If this option is not available, the Watch Folders are already activated.

Pause

If this option is activated, WaveLab Pro stops watching folders. If files are being processed, their processing is paused. It will continue as soon as **Pause** is deactivated.

Stop

If this option is activated, WaveLab Pro stops watching folders and cancels any batch processing that is taking place.

Quit

Quits WaveLab Pro and cancels any batch processing that is active. This option is only available if WaveLab Pro is running in the background.

System Tray Status Icons

The system tray icon changes according to the status of the Watch Folder.

Active

Indicates that the Watch Folder is active.

Processing

Indicates that the Watch Folder is processing.

Pause

Indicates that the Watch Folder is paused.

Stop

Indicates that the Watch Folder is stopped.

Error

Indicates that an error occurred during processing. However, processing is not stopped.

RELATED LINKS

Folder Structure

There are different types of subfolders that WaveLab Pro automatically creates inside a Watch Folder.

Output, **Sources**, **Errors**, **Scheduled**, and **$TEMP$** are reserved for WaveLab Pro. You cannot create a subfolder with one of these names.

Output

When you create a new batch process, this is the folder where processed files are written by default. You can change the output folder in the **Output** tab of each batch processor.

Sources

> This is the folder where processed files are moved when they are successfully processed. For this, the corresponding option must be activated in the Watch Folder settings.

Errors

> This is the folder where files that could not be processed are moved. For this, the corresponding option must be activated in the Watch Folder settings.

Scheduled

> If you want to process some files only at a specific time, this is the folder where you must place the files. These files are only processed at the time that is specified in the Watch Folder settings.

$TEMP$

> This is a temporary folder that is created and deleted by WaveLab Pro during processing.

RELATED LINKS

Controlling the WaveLab Pro Background Application via Command Line Parameters

You can control the WaveLab Pro background instance via command line parameters.

The following options are available:

--serviceLaunch

> This command launches a WaveLab Pro background instance. It must be followed by the following:
>
> - **alone**: Causes a WaveLab Pro background instance to be launched.
>
> For this command, a background WaveLab Pro instance is launched in stop mode by default. This command can be followed by the commands **--serviceCommand start** and **--servicePriority low**, for example.
>
> ```
> --serviceLaunch alone --serviceCommand start --servicePriority low
> ```

--serviceAuto

> This command causes a WaveLab Pro background instance to be launched in the mode that was active when you last selected **Activate Watch Folders at Computer Startup** from the **Watch Folder Activation** dialog.
>
> For such an instance, the Watch Folders are automatically activated.

--serviceCommand

> This command starts, pauses, or stops the WaveLab Pro background instance. It must be followed by one of the following options:
>
> - **start**: Starts the WaveLab Pro background instance.
> - **pause**: Pauses the WaveLab Pro background instance.
> - **stop**: Stops the WaveLab Pro background instance.

--servicePriority

> This command defines the priority with which the WaveLab Pro background instance is using the processing power of the computer. It must be followed by one of the following options:

- normal
- low
- lowest

--serviceStatus

> This command instructs WaveLab Pro to write the status of the Watch Folder to a file. This command must be followed by a file name and WaveLab Pro must run as a background instance.

> The status file gives information about whether WaveLab Pro is running, paused, or stopped, the number of error messages, and success messages.

> This command is useful to check the status of the Watch Folder system.

> ```
> --serviceStatus "d:\tests\status.txt"
> ```

RELATED LINKS
Watch Folders on page 801

XML Files in Batch Processing

WaveLab Pro can read information from XML files, such as the audio file location and metadata.

This is useful for handling and tagging huge amounts of audio files. In addition to this, you can control the batch input to WaveLab Pro and the batch output from WaveLab Pro with XML files.

WaveLab Pro does not require you to save your input XML files in a special format for it to process them, but we recommend that you provide WaveLab Pro with detailed information on their properties.

XML Input

You can add an XML file to a batch processor to pass on information to WaveLab Pro.

WaveLab Pro can identify the following types of elements:

Input file path and file name

> To instruct WaveLab Pro where to find the audio file that you want to process. This information is mandatory.

Output file path

> To instruct WaveLab Pro where to render the audio file. This information is optional.

> If this information is available, it has priority over any output path settings applied for the batch process on the **Output** tab.

Metadata

> To transmit metadata that WaveLab Pro can add to the audio files that you want to process. This information is optional.

Plug-in chain

> To instruct WaveLab Pro which plug-ins you want to use for processing audio files. This allows you to customize the plug-in processing of each audio file individually and override the batch processor settings.

File format

> To instruct WaveLab Pro which file format you want to use to write the audio files. This allows you to customize the file format for each audio file individually and override the batch processor settings.

XML Audio Description Dialog

In this dialog, you can provide WaveLab Pro with detailed information on the properties of your XML files so that it interprets their structure properly.

● To access the **XML Audio Description** dialog, open the **Batch Processor** window, and select the **Edit** tab. In the **XML** section, click **XML Audio Description**.
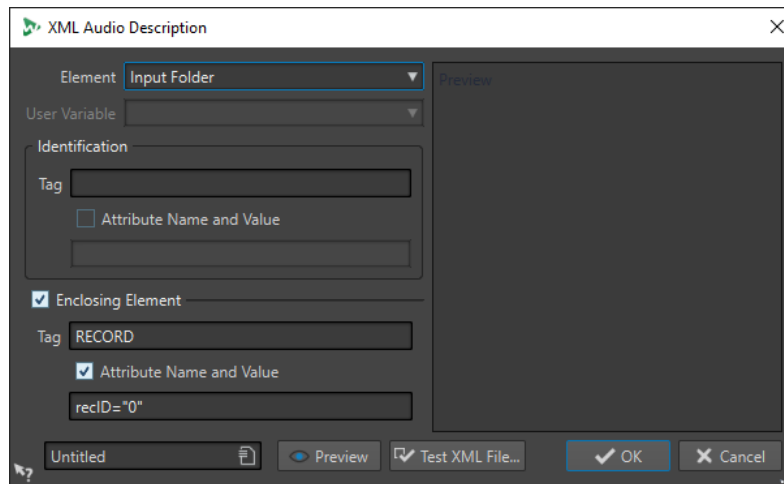
Element

Allows you to select the element that you want WaveLab Pro to identify in the XML file. You can specify the file location of the input file and the file location of the output file. The following elements are available:

● **Input Folder/Output Folder**

The input folder is the folder where the audio file is located. The output folder is the folder where you want to save the file. These paths can be relative to the path of the XML file.

If no input/output folder is found, the file path of the XML file is used.

● **Input File Name/Output File Name**

The file name of the input/output file, for example, `Piano.wav`.

● **Input File Path/Output File Path**

The complete input/output path including the file name, for example, `C:\AudioFiles\Piano.wav`.

● **User Variable (to Import Metadata)**

Allows you to specify custom variables that you want WaveLab Pro to identify in the XML file. This option is available if you have selected **User Variable** on the **Element** pop-up menu.

Custom variables are shared throughout WaveLab Pro. To edit these variables, select **File** > **Preferences** > **Variables**.

● **Plug-in Chain**

Allows you to specify the plug-in chain that you want to use for processing audio files. You can customize the plug-in processing of each audio file individually and override the batch processor settings.

● **File Format**

Allows you to specify the file format that you want to use to write the audio files. This enables you to customize the file format for each audio file individually and override the batch processor settings.

For the input, you must specify either the **Input File Path**, the **Input Folder**, or the **Input File Name**. If the audio file is located in the same folder as the XML file, it is sufficient to specify only the **File Name**.

If you do not set any parameters for the output, the settings of the batch processor are used.

Identification – Tag

Allows you to specify the XML tag that describes the element to be identified.

Identification – Attribute Name and Value

If this option is activated, you can specify an XML attribute and its value for the tag to identify an element. In the text field, you must enter the name and value in the following style:

attr="value"

NOTE

You can only specify one attribute per tag. If your XML file has other attributes, these are ignored by WaveLab Pro.

Enclosing Element

If this option is activated, the element must be further identified by a parent tag.

Enclosing Element – Tag

Allows you to specify the XML tag of the enclosing element.

Enclosing Element – Attribute Name and Value

If this option is activated, you can specify an XML attribute and its value for the tag of the enclosing element to identify an element. In the text field, you must write the name and value in the following style:

attr="value"

NOTE

You can only specify one attribute per tag. If your XML file has other attributes, these are ignored by WaveLab Pro.

Preview panel

The **Preview** panel to the right of the **XML Audio Description** dialog shows a preview of the structure that WaveLab Pro expects in the XML file.

Preview

Opens the **XML File Preview** window, which allows you to see a preview of the XML file, with all the adjustments that you have made in the **XML Audio Description** dialog taken into account.

Test XML File

Allows you to select an XML file that WaveLab Pro analyzes according to your settings, to verify that the proper data is extracted from the selected XML file.

RELATED LINKS

Importing XML Marker Files into Multiple Files

To apply a particular marker structure to multiple files, you can add XML marker files to your batch process.

PREREQUISITE

- You have set up your batch process.
- You have created an XML marker file using the corresponding function in the **Markers** window.

PROCEDURE

1. In the lower left area of the **Batch Processor** window, select the **XML** tab.
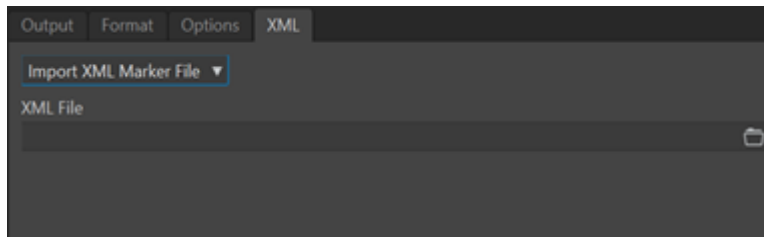
2. Select **Import XML Marker File** from the pop-up menu.
3. In the **XML File** field, specify the path to your XML marker file.
4. Add audio files to the batch process.
5. On the **Edit** tab, click **Start** to initiate the batch process.

RESULT

The audio files are processed, and the marker structure of the XML marker file is applied to all files.

RELATED LINKS
Exporting the Markers List as Text on page 642
Markers Window on page 622

Batch Conversion

You can convert multiple audio files simultaneously to another format. If no processing is needed, this can be done using the **Batch Conversion** dialog.

For more complex batch conversion scenarios, you can use batch processing.

RELATED LINKS
Batch Conversion Dialog on page 817
Batch Converting Files on page 818
Batch Processing on page 781

Batch Conversion Dialog

This dialog allows you to convert the file format of a group of audio files.

● To open the **Batch Conversion** dialog, select **File** > **Tools** > **Batch Conversion**.
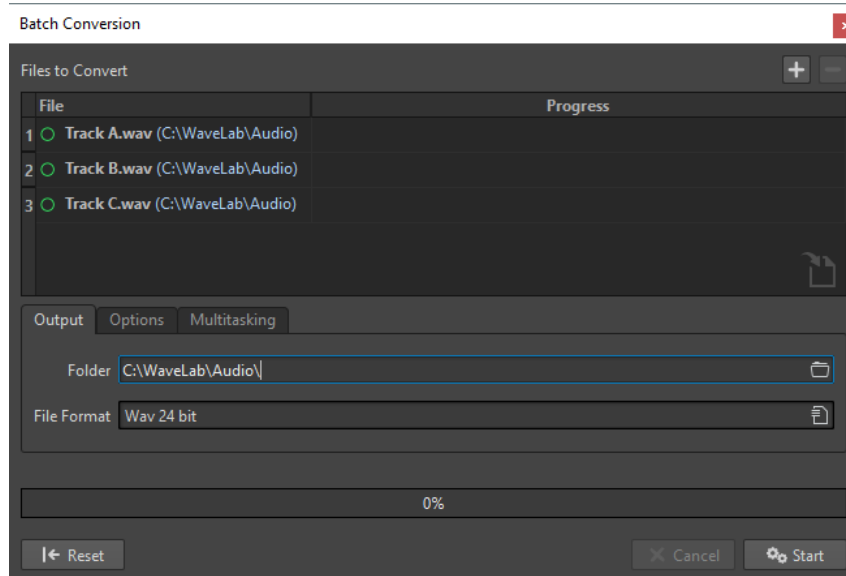
Add File

➕

Opens a dialog, where you can select files to add to the list.

Remove Selected Files

➖

Removes the selected item from the list.

Files to Convert

Shows the list of files to convert.

Output Tab

Folder

Allows you to specify the folder in which the converted files are saved.

File Format

Allows you to open the **Audio File Format** dialog, where you can set the file format.

Options Tab

Auto Start When Dropping Files

If this option is activated, the conversion starts automatically when you drag a file into the list.

Auto Remove Converted Files

If this option is activated, a file is removed from the list once it is successfully converted. Otherwise, it remains in the list with a green mark indicating its status.

Stop on Error

If this option is activated, the global process stops if an error is encountered. If this option is deactivated, the file associated with the error is marked in red, and the next file is processed.

Multitasking Tab

Usage of Processor Cores

Allows you to select how many cores to use simultaneously. The content of this pop-up menu depends on your computer hardware.

RELATED LINKS
Batch Converting Files on page 818

Batch Converting Files

You can convert multiple audio files to another format in a single batch operation.

PROCEDURE

1. Select **File** > **Tools** > **Batch Conversion**.

2. Click the plus icon to add files, or drag the files into the **Files to Convert** list.

3. On the **Output** tab, select a file location and a file format.

4. Optional: Make further adjustments on the **Options** and **Multitasking** tabs.

5. Click **Start** to begin converting the files.

RELATED LINKS
Batch Conversion Dialog on page 817

Batch Renaming

With the batch renaming functions, you can batch rename multiple files, markers, and clips. You can convert, remove, format, import, and insert text. This allows you to batch rename file names according to user specified rules.

You can use simple options to match text, or you can build your own regular expressions. Batch renaming can be useful with large projects, for example, to apply easily identifiable names to all referenced files, clips, and markers belonging to the project.

You can use batch renaming for the following operations:

- Rename files
- Rename clips in an audio montage
- Rename markers in audio files and audio montages

RELATED LINKS
Batch Renaming Dialog on page 819
Batch Renaming Files on page 819
Batch Renaming Markers on page 821
Batch Renaming Clips on page 823
Regular Expressions on page 831

Batch Renaming Dialog

The pages of the **Batch Renaming** dialog for files, clips, and markers share most features, with some differences.

The **Batch Renaming** dialog has 3 pages.

1. The first page defines which files, clips, or markers are renamed. It is different for all renaming operations.
2. The second page defines how the renaming is performed. It is identical for all renaming operations.
3. The third page shows you a preview of the resulting names.

RELATED LINKS
Batch Renaming Dialog for Files on page 820
Batch Renaming Dialog for Markers on page 821
Batch Renaming Dialog for Clips on page 823

Batch Renaming Files

You can batch rename multiple files according to specified settings.

PROCEDURE

1. Select **File** > **Tools** > **Batch Renaming**.
2. In the **Batch Renaming** dialog, select the files that you want to rename and click **Next**.

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3. Define the batch rename operation and click **Next**.

4. Verify that the renaming is performed as intended, then click **Finish**.

RELATED LINKS

Batch Renaming Dialog for Files

In this dialog, you can batch rename individual files. Any open files that reference these files are updated automatically.

● To open the **Batch Renaming** dialog, select **File** > **Tools** > **Batch Renaming**.
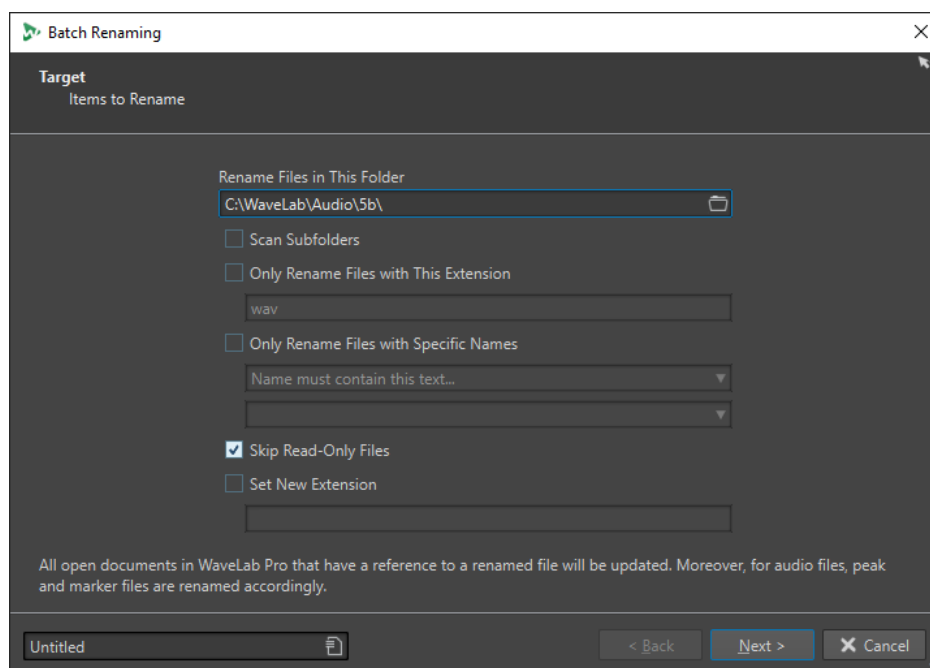
On the first page of this dialog, you can define which files to rename, by using the following options:

Rename Files in This Folder

Allows you to specify the folder that contains the files to rename.

Scan Subfolders

If this option is activated, files are also searched in subfolders.

Only Rename Files with This Extension

If this option is activated, only files with the extension specified in the text field below are renamed.

Only Rename Files with Specific Names

If this option is activated, only files that correspond to a specific name are renamed. You can type in a text string in the text field below, and select one of the following options from the menu:

● **Name must contain this text**

● **Name must NOT contain this text**

- **Name must contain this text (with wild cards)**
- **Name must NOT contain this text (with wild cards)**
- **Name must contain this regular expression**
- **Name must NOT contain this regular expression**

Skip Read-Only Files

If this option is activated, files that are read-only are not renamed.

Set New Extension

If this option is activated, the extension of files is replaced with the extension specified below.

RELATED LINKS
Batch Renaming Files on page 819

Batch Renaming Markers

You can batch rename multiple markers in audio files or audio montages according to specified settings.

PROCEDURE

1. Optional: If you only want to rename markers within a specific time range, create a selection range in the **Audio Editor** or the **Audio Montage** window.
2. Open the **Markers** window, and select **Functions** > **Batch Renaming**.
3. Optional: If you have made an audio selection and want to use it, activate **All Markers in Audio Selection**.
4. In the **Batch Renaming** dialog, on the **Target** page, make adjustments as required, and click **Next**.
5. Define the batch rename operation, and click **Next**.
6. Verify in the preview list that the renaming is performed as intended, and click **Finish**.

RELATED LINKS
Batch Renaming Dialog for Markers on page 821
Renaming Operation Categories and Types on page 824
Previewing and Performing All Renaming Operations on page 831

Batch Renaming Dialog for Markers

In this dialog, you can batch rename markers of any type.

- To open the **Batch Renaming** dialog for markers, open the **Markers** window and select **Functions** > **Batch Renaming**.
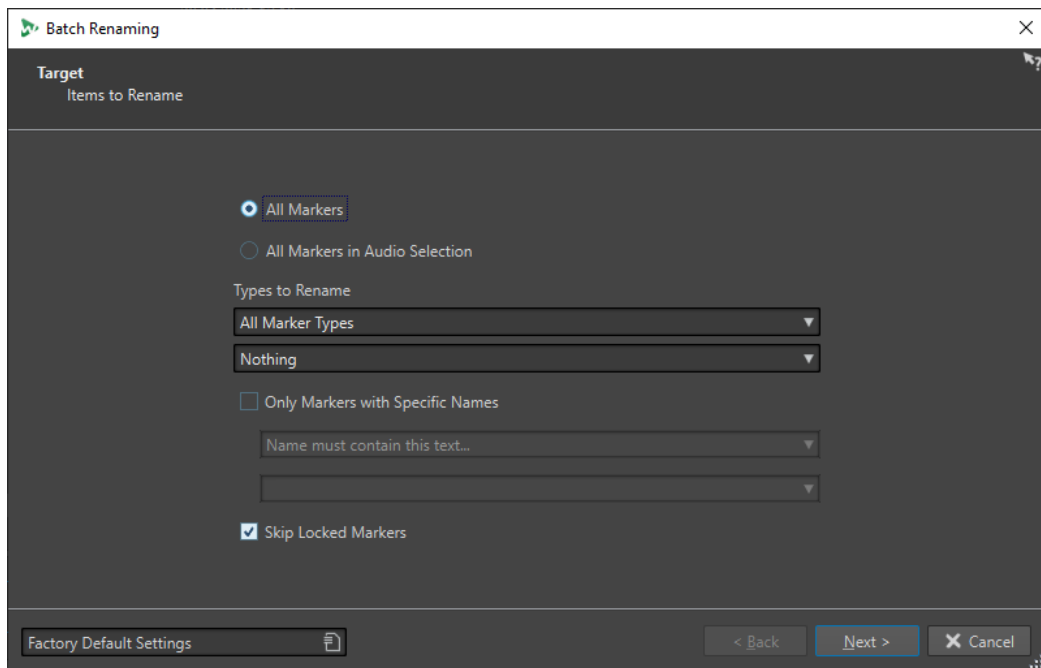
All Markers

> If this option is activated, all markers in the selected file are renamed.

All Markers in Audio Selection

> If this option is activated, all markers in the selected audio range are renamed.

Types to Rename

> Only the markers of the type selected here are renamed.

Only Markers With Specific Names

> If this option is activated, only markers that correspond to a specific name are renamed. You can type in a text string in the text field below, and select one of the following options from the menu:

- **Name must be empty**
- **Name must contain this text**
- **Name must NOT contain this text**
- **Name must contain this text (with wild cards)**
- **Name must NOT contain this text (with wild cards)**
- **Name must contain this regular expression**
- **Name must NOT contain this regular expression**

Skip Locked Markers

> If this option is activated, markers that are locked are not renamed.

RELATED LINKS

Batch Renaming Clips

You can batch rename multiple clips according to specified settings.

PROCEDURE

1. In the **Clips** window, select **Functions** > **Batch Renaming**.

2. In the **Batch Renaming** dialog, select the clips that you want to rename and click **Next**.

3. Define the batch rename operation and click **Next**.

4. Check in the preview list if the renaming is as intended, then click **Finish**.

RELATED LINKS

Batch Renaming Dialog for Clips on page 823
Renaming Operation Categories and Types on page 824
Previewing and Performing All Renaming Operations on page 831

Batch Renaming Dialog for Clips

In this dialog, you can batch rename audio montage clips.

● To open the **Batch Renaming** dialog for clips, open the **Clips** window and select **Functions** > **Batch Renaming**.
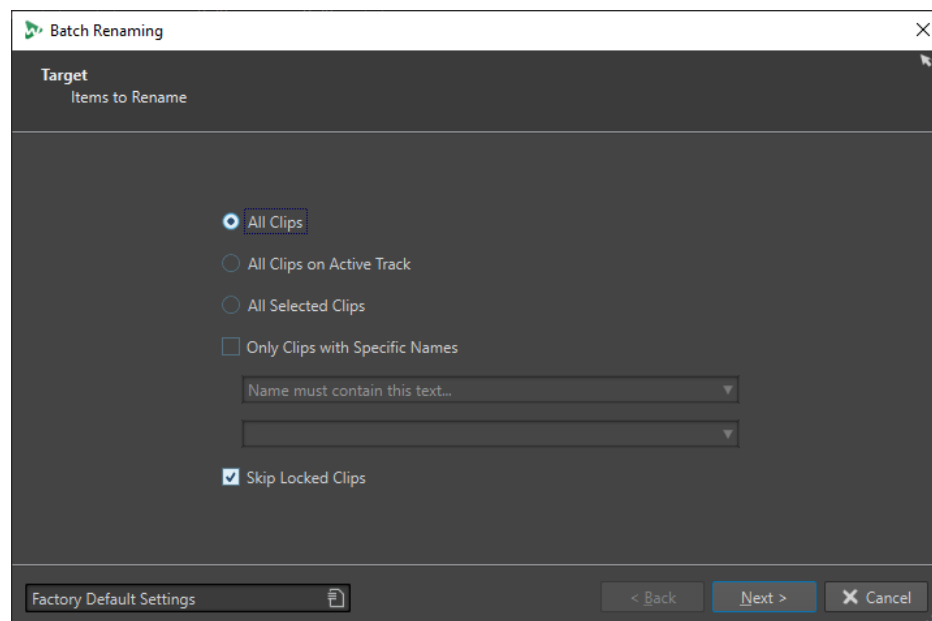
On the first page of this dialog, you can define which clips to rename, by using the following options:

All Clips

If this option is activated, all clips are renamed.

All Clips on Selected Track

If this option is activated, all clips on the selected track are renamed.

All Selected Clips

If this option is activated, all selected clips are renamed.

Only Clips With Specific Names

If this option is activated, only clips that correspond to a specific name are renamed. You can type in a text string in the text field below, and select one of the following options from the menu:

- **Name must be empty**
- **Name must contain this text**
- **Name must NOT contain this text**
- **Name must contain this text (with wild cards)**
- **Name must NOT contain this text (with wild cards)**
- **Name must contain this regular expression**
- **Name must NOT contain this regular expression**

Skip Locked Clips

If this option is activated, clips that are locked are not renamed.

RELATED LINKS
Batch Renaming Clips on page 823
Clips Window on page 406

Renaming Operation Categories and Types

On the second page of the **Batch Renaming** dialog, you set up the renaming operation that you want to perform for clips, files, or markers.

The **Category** pop-up menu lists the renaming operation categories. The **Type** pop-up menu lists the various types of renaming operations. When you select a type, the related controls are displayed. The types depend on the selected category.

Remove

All

Removes all characters from the selected range.

Spaces

Removes all spaces from the selected range.

Spaces at Start/End

Removes all spaces at start and end of the selected range.

Duplicate

Replaces two consecutive identical characters by one. Specify the character to remove in the **Character** field.

Specific Characters

Removes all instances of one or more characters. Specify the characters to remove in the **Character** field.

Surrounded Text

Removes all instances of one or more characters. In the **Left Character** field, specify the first character to remove. In the **Right Character** field, specify the last character to remove. The left character, right character, and all characters in between will be removed.

Then specify in the **Occurrence** pop-up menu which character to remove if several are found.

Convert

To Lower Case

Sets all characters in the selected range to lower case.

To Upper Case

Sets all characters in the selected range to upper case.

Capitalize

Sets the first character to upper case, and the rest to lower case. On the menu, you can specify whether only the first word or all words should be capitalized.

Initials to Upper Case

Sets only isolated letters to upper case. For example, u.s.a to U.S.A.

Specific Character to Text

Replaces each instance of a specific character with a custom string. In the **Character to Replace** field, enter the character you want to replace. In the **Replacement** field, enter the replacement string.

Pad Number with Zeros

Pads a number present in the selected range with zeros at the left side. On the menu below, specify how many digits the number should consist of.

Invert Character Order

Inverts the order of the characters in the selected range.

Replace with New Text

Replaces the selected range by a specific text string. In the text field below, enter this string.

Insert

Nothing

Inserts nothing.

Counter

Inserts a number at the selected position, and updates its value with each insertion. Set up the counter with the additional options.

Specific Text

Inserts a string at the selected position. In the text field below, enter the text to be inserted.

Part of Original Name

Inserts a part of the original name (before the first operation was performed) at the selected position. In the text field below, enter the regular expressions. Clicking the asterisk opens a menu with shortcuts for several regular expressions.

Pair of Characters around Text

Inserts specific characters before and after the selected range. In the **Left Character** field, specify the characters to insert before the selected range. In the **Right Character** field, specify the characters to insert after the selected range.

Spaces around Text

Inserts a space before and after the selected range.

Space after Specific Characters

Inserts a space after specific characters. In the field below, enter the characters that should be followed by a space.

Space before Each Capitalized Word

Inserts a space before each word starting with an upper case letter. For example, this changes "MyNicePiano" to "My Nice Piano".

If **Only Capitalize First Word** is activated, only the first word is capitalized.

Today's Date/Time

Inserts the current date and time.

Universal Unique Identifier

Inserts a unique identifier. This is useful for recordings, for example.

Random Word

Inserts a random pronounceable word.

Import and Insert External Data

This category allows you to insert information taken from a file or current context. This is mostly audio-oriented as some features analyze the audio file headers. The available options differ depending on the selected **Batch Renaming** dialog.

Sample Rate

Inserts the sample rate of the file. In the fields below, enter a prefix and suffix, and select how to format the imported data.

Number of Channels

Inserts the number of channels of the file. In the fields below, enter a prefix and suffix, and select how to format the imported data.

Bit Depth

Inserts the bit depth of the file. In the fields below, enter a prefix and suffix, and select how to format the imported data.

Bit Rate

Inserts the bit rate of the file if the file is encoded. In the fields below, enter a prefix and suffix, and select how to format the imported data.

Variable/Constant Bit Rate

Inserts the tag VBR or CBR if the file is encoded. In the fields below, enter a prefix and suffix.

File Length

Inserts the length of the file. In the fields below, enter a prefix and suffix.

File Extension

Inserts the extension of the file. In the fields below, enter a prefix and suffix.

Date/Time

Inserts the date/time of the file at the selected position. In the **Format** field below, enter a date.

Folder Name

Inserts the name of the folder containing the file. In the fields below, enter a prefix and suffix.

Folder Name (2 Positions Up)

Inserts the name of the folder located two positions higher up in the hierarchy. In the fields below, enter a prefix and suffix.

Folder Name (3 Positions Up)

Inserts the name of the folder located three positions higher up in the hierarchy. In the fields below, enter a prefix and suffix.

Sample: MIDI Note

Inserts the sample note of the file, if available. In the fields below, enter a prefix and suffix, and select how to format the imported data.

Sample: Detune

Inserts the detune information for the sample, if available. In the fields below, enter a prefix and suffix.

Sample: Key Range

Inserts the key range of the sample, if available. In the fields below, enter a prefix, suffix, and separator, and select how to format the imported data.

Sample: Velocity Range

Inserts the velocity range of the sample, if available. In the fields below, enter a prefix, suffix, and separator, and select how to format the imported data.

Metadata: Title

Inserts the title if this information is present in the metadata of the file. In the fields below, enter a prefix and suffix.

Metadata: Artist

Inserts the artist if this information is present in the metadata of the file. In the fields below, enter a prefix and suffix.

Metadata: Genre

Inserts the genre if this information is present in the metadata of the file. In the fields below, enter a prefix and suffix.

Metadata: Album

Inserts the album if this information is present in the metadata of the file. In the fields below, enter a prefix and suffix.

Metadata: BWF Description

Inserts the available information from the BWF description, that is, title, artist, genre, and album.

Variable

Inserts the value of a variable. The value of the variable is retrieved from the corresponding source audio file. In the field below, enter the variable name.

Closest Clip's Name

Inserts the name of the closest clip.

Timeline Position

Inserts the position of the file in the timeline. In the fields below, enter a prefix and suffix.

Line [x] from Text File

> Inserts the specified line from a text file to the specified renaming operation. In the field below, specify the location of the text file (UTF-8) from which the strings should be collected.

Find and Replace from Table

This category allows you to define a table of words and to associate each word with a replacement. This feature is useful to reformat a text according to a new style. For example, it can be used to map a series of numbers to a series of tags, to change a numerical sequence like "000 – 127" to "C-2 – G8" (MIDI notes).

Find Anywhere in Text

> Replaces the words in the table with their specified replacement if they can be found anywhere in the selected range.

Find Exact Text

> Replaces a word of the table with its specified replacement if it is identical to the word in the selected range.

In the table below these types, you can define a list of strings to find, and define a replacement for each one. Double-click the cells to edit the list. If a **Find** cell is empty, it is ignored.

If **Case Sensitive Search** is activated, the search takes the letter cases into account. If **Keep Letter Case** is activated, the case of the replacement text is adapted to the case of the found text.

RELATED LINKS

List of Renaming Operations

In this section on the **Operation** page of the **Batch Renaming** dialog, you can create, delete, and arrange renaming operations.
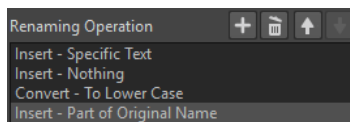
Add Renaming Operation

> Adds a new renaming operation at the end of the list.

Remove Selected Renaming Operation

> Removes the selected renaming operation from the list.

Move Selected Renaming Operation Up/Move Selected Renaming Operation Down

> Moves the selected renaming operation one position up/down.

Renaming Operations

> Lists all renaming operations that are performed on the original name. The operations are performed one after the other.

Preview Section

In this section on the **Operation** page of the **Batch Renaming** dialog, you can preview the result of the selected renaming operation.

When you enter a name in the **Original** field, the change is automatically reflected in the **Output Format** field. This preview is continuously updated.
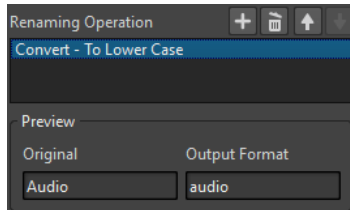
If the preview cannot display missing data, an "X" is shown instead.

Range Parameters

The range parameters on the **Operation** page of the **Batch Renaming** dialog allow you to specify where in the name the operation is performed.

- To access the range parameters, click **Advanced Editing** at the bottom of the **Batch Renaming** dialog.
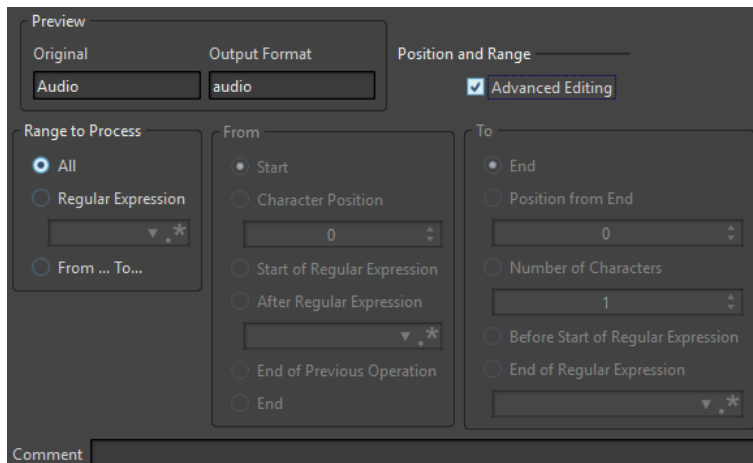
Range to Process

All

If this option is activated, the whole name is processed by the operation.

Regular Expression

Select this option if you want only a part of the name to be processed by the operation. In this case, you need to define a regular expression. Clicking the asterisk opens a menu with shortcuts for several regular expressions.

From/To

If this option is activated, you can set the start and end position of the range independently in the **From** and **To** sections.

From

Start

If this option is activated, the position is the beginning of the source name.

Character Position

If this option is activated, the position is a fixed offset from the beginning of the source name.

Start of Regular Expression

Select this option if you want the position to be the one of the sub-strings found by the regular expression applied on the source name.

After Regular Expression

Select this option if you want the position to be the one right after the sub-string found by the regular expression applied on the source name.

End of Previous Operation

If this option is activated, the position corresponds to the end of the change performed by the previous operation.

End

If this option is activated, the position is the end of the source name.

To

End

If this option is activated, the position is the end of the source name.

Position from End

If this option is activated, the position is a fixed offset before the end of the source name.

Number of Characters

If this option is activated, the end position is given by the start position plus a number of characters.

Before Start of Regular Expression

Select this option if you want the position to be just before the sub-string found by the regular expression applied on the source name.

End of Regular Expression

Select this option if you want the position to be the end of the sub-string found by the regular expression applied on the source name.

Comment

Comment

Allows you to add a comment to the batch renaming operation.

Previewing and Performing All Renaming Operations

On the last page of the **Batch Renaming** dialog, you can see how all the selected file, clip, or marker names are changed before you start the batch renaming. Note that if the name contains a random item, this item name will most likely be different in the preview.

PREREQUISITE

You have made all necessary adjustments on the first two pages of the **Batch Renaming** dialog.

PROCEDURE

1. In the list, check if the changes are as you intended.
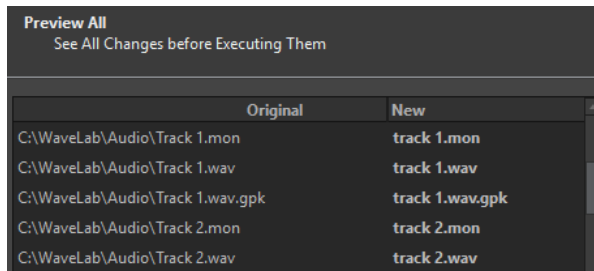
2. Click **Finish**.

RELATED LINKS
[Batch Renaming Dialog](#) on page 819

Regular Expressions

A regular expression is a formula composed of characters that have special meanings (called operators). Other characters are plain letters and numbers that are searched for. The search engine browses the target text one character at a time and stops as soon as it finds a sequence of characters that matches the regular expression.

At various places in WaveLab Pro, you can use regular expressions to build complex text matching operations into your conversion and renaming processes. A regular expression is a set of text symbols that describe a method to find a specific text string within a large body of text, and then apply a specific operation to this text string. Regular expressions are available to perform powerful string search/replace operations, for example, in batch renaming or batch processing.

Throughout WaveLab Pro, wherever you see an asterisk, there is a field where you can create your own regular expressions. A menu containing shortcuts to build up the basic syntax of an expression is also available.

.*

Regular expressions icon

RELATED LINKS
[Common Regular Expressions](#) on page 832

Common Regular Expressions

There are various versions of regular expressions. WaveLab Pro uses a version that represents a good compromise between power and ease-of-use.

The term "expression" refers to a single character, a character class, or a sub-expression enclosed with () or {}. Searches for regular expressions are not case sensitive.

Regular Expressions Pop-up Menu

Menu Item	Operator	Description
Any Character	.	Symbolizes any character.
Character in Range	[ ]	A bracketed text is treated as a single character, for example: [AEW13] means A or E or W or 1 or 3. A hyphen within the brackets specifies a range of characters. For example, [F-I] means F or G or H or I, and [A-Z0-9] matches all letters and all digits.
Character Not in Range	[^]	A circumflex located at the first position in a bracket is a complement operator. It describes a situation where all characters match except those included in the bracket. For example, [^E] means any character except E.
0 or 1 Match (1 if Possible)	?	Matches 0 or 1 time the preceding expression. 1 repeat if possible is grabbed, then the rest of the regular expression continues to be evaluated.
0 or 1 Match (0 if Possible)	??	Matches 0 or 1 time the preceding expression. 0 repeat if possible (the NEXT step in the regular expression is also evaluated and has priority).
0 or More Matches (as Many as Possible)	*	Matches 0 or more times the preceding expression. As many repeats as possible are grabbed, then the rest of the regular expression continues to be evaluated.
0 or More Matches (as Few as Possible)	*?	Matches 0 or more times the preceding expression. As few repeats as possible are grabbed (the NEXT step in the regular expression is also evaluated and has priority).
1 or More Matches (as Many as Possible)	+	Matches 1 or more times the preceding expression. As many repeats as possible are grabbed, then the rest of the regular expression continues to be evaluated.
1 or More Matches (as Few as Possible)	+?	Matches 1 or more times the preceding expression. As few repeats as possible are grabbed (the next step in the regular expression is also evaluated and has priority).

Menu Item	Operator	Description
Or	|	OR operator. Use this to separate two expressions and to match expression #1 or expression #2. For example, Piano|Drum matches all texts that contain Piano or Drum.
Not	!	Negation operator: the expression following ! must not match the text. For example, a!b matches any "a" not followed by "b".
Generic Group	()	Grouping operator. Useful to form a sub-expression.
Capture	{}	Capture operator. By default, the found text corresponds to the entire regular expression. But it is possible to limit a part of the regular expression with { }, and if a part is matched, this will be the retained part. For instance, the regular expression "ab{cd}ef" that is applied on "abcdef" will return "cd".
Beginning of Text	^	Use the circumflex sign to specify that the text must be located at the start of the browsed text. Any match not located at the start of the browsed text is ignored.
End of Text	$	Use this sign to specify that the text must be located at the end of the text. Any match not located at the end of the text is ignored.

Special Characters Submenu

On this submenu, all special characters for regular expressions are available.

Shortcuts Submenu

Menu Item	Operator	Description
Any Digit (0-9)	/d	Symbolizes any digit, as [0-9].
Any Non-Digit (not 0-9)	/D	Symbolizes any non-digit, as [^0-9].
Any Letter (a-z or A-Z)	/l	Symbolizes any letter, as [a-z].
Any Non-Letter (not a-z, not A-Z)	/L	Symbolizes any non-letter, as [^a-z].
Any Alphabetic (a-z, or A-Z, or 0-9)	/w	Symbolizes any alphabetic character, as [0-9a-z].

Menu Item	Operator	Description
Any Non-Alphabetic (not a-z, not A-Z, not 0-9)	/W	Symbolizes any non-alphabetic character, as [^0-9a-z].
Number	/u	Symbolizes a number (without a sign).
Number (with Possible +- Before)	/i	Symbolizes a number which can be preceded by a + or - sign.
Quoted String	/q	Symbolizes quoted text.
Simple Word	/z	Symbolizes a simple word (a sequence of letters surrounded by non-letters, for example, spaces).

Presets Submenu

Menu Item	Operator	Description
1st Word	/z	Searches for the first word (separated by a space).
2nd Word	/z/L+{/z}	Searches for the second word (separated by a space).
3rd Word	/z/L+/z/L+{/z}	Searches for the third word (separated by a space).
Last Word	{/z}/L*$	Searches for the last word (separated by a space).
1st Expression in Parentheses	.*?{/(.*?/)}	Searches for the first string enclosed in parentheses.
2nd Expression in Parentheses	.*?/(.*?{/(.*?/)}	Searches for the second string enclosed in parentheses.
3rd Expression in Parentheses	.*?/(.*?/(.*?{/ (.*?/)}	Searches for the third string enclosed in parentheses.
Last Expression in Parentheses	.*{/(.*?/)}.*$	Searches for the last string enclosed in parentheses.
1st Expression in Brackets	.*?{/[.*?/]}	Searches for the first string enclosed in brackets.
2nd Expression in Brackets	.*?/[.*?{/[.*?/]}	Searches for the second string enclosed in brackets.
3rd Expression in Brackets	.*?/[.*?/[.*?{/ [.*?/]}	Searches for the third string enclosed in brackets.

Menu Item	Operator	Description
Last Expression in Brackets	.*{/[.*?/]}.*$	Searches for the last string enclosed in brackets.

RELATED LINKS

Podcast Creation

A Podcast is an episodic series that consists of audio files. Users can stream or download Podcasts to their device and listen to it. WaveLab Pro with its audio editing tools and effects allows you to create Podcast episodes and upload these episodes to various host services.

You can use the **Audio Editor** and the **Audio Montage** window to create a Podcast episode. Each audio file or audio montage in WaveLab Pro can be uploaded as a Podcast episode.

RELATED LINKS
Podcast Host Services on page 836
Uploading a Podcast Episode on page 837

Podcast Host Services

Podcast host services allow you to host and distribute Podcasts. WaveLab Pro allows you to directly upload your Podcast to various host services.

Supported Host Services

WaveLab Pro supports direct upload to the following host services:

- Spreaker
- Podbean
- SoundCloud
- Buzzsprout
- Castos
- Blubrry
- Captivate

Host Service Authorization

To connect WaveLab Pro with a host service, you must authorize the connection between WaveLab Pro and the host service.

The authorization process depends on the selected host service.

RELATED LINKS
Uploading a Podcast Episode on page 837

File Encoding before Uploading to Host Services

If the audio file or audio montage that you want to upload to a host service is a non-encoded audio file, you can encode the audio file. Some host services only accept encoded audio files. Encoded audio file formats are MP3, MP4, M4A, or MP2, for example.

The **Master Section** plug-ins and settings are taken into account when you render an audio file or audio montage.

Depending on the selected audio file or audio montage, the following applies:

- If the active audio file that you want to upload uses an encoded format, the **Encode Audio File** option is deactivated. Encoding already encoded audio files can lead to quality loss.

- If the active audio files uses a non-encoded format, the **Encode Audio File** option is available but not mandatory. However, depending on the host service it can be necessary to encode the audio file.

- Audio montages must be rendered before you can upload them to a host service. If the active file is an audio montage, you must use the **Encode Audio File** option to render the audio montage.

If the active audio file or audio montage has been saved, the encoded file is saved in the same directory, with the same name, and its proper file extension.

If the active audio file or audio montage has not been saved, a dialog opens and allows you to select a directory and a file name for the rendered file.

RELATED LINKS

Uploading a Podcast Episode

You can upload the audio that you have created in the **Audio Editor** or in the **Audio Montage** window as a Podcast episode.

PREREQUISITE
You have created an audio file or an audio montage.

PROCEDURE

1. In the **Audio Editor** or **Audio Montage** window, select the **Edit** tab.

2. In the **Podcast** section, click **Upload Episode**.
   The **Publish** tab opens.

3. In the **Host Service** section, select the host service to which you want to upload the episode.
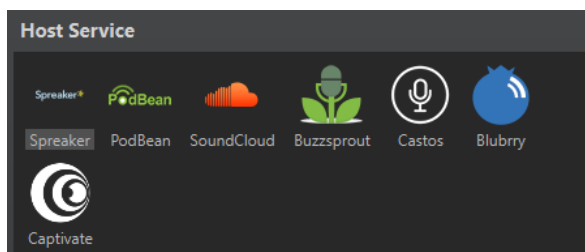
4. Click **Authorize** to allow WaveLab Pro to access the selected host service.
   Your default Internet browser opens the authorization website of the selected host service.

5. Follow the instructions in your browser to complete the authorization.

6. In WaveLab Pro, select the **Podcast** to which you want to add the Podcast episode.

7. Specify a **Title** for the Podcast episode.

8. Depending on the selected host service, it can be necessary to encode the audio file or audio montage. If you want to encode the audio file, activate **Encode Audio File** and select a new encoder.

9. Click **Upload**.

RESULT

The audio file or audio montage is rendered and uploaded to the selected host service.
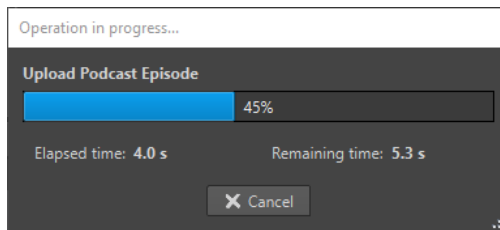
RELATED LINKS
Publish Tab on page 838
File Encoding before Uploading to Host Services on page 836

Publish Tab

The **Publish** tab allows you to select the host service to which you want to upload your Podcast episode. You can select different host services and select the encoder for the audio file that you want to upload.

● To open the **Publish** tab, select the **File** tab and select **Podcast** > **Publish**.

Host Service

Allows you to select the host service to which you want to upload your Podcast episode.

Authorize

Allows you to allow WaveLab Pro to access the selected host service.

If you click **Authorize**, your default Internet browser opens the authorization website of the selected host service.

Episode

● **Encode Audio File** allows you to encode the audio file to another audio file format.

NOTE

If you have selected an MP3 file for upload, the **Encode Audio File** option is deactivated. However, if you add effects to the MP3 file via the **Master Section**, the **Encode Audio File** option is available.

● **Podcast** allows you to select the Podcast to which you want to add the Podcast episode.

● **Refresh Available Podcasts** allows you to refresh the Podcast list that is retrieved from your Spreaker account.

● **Title** allows you to enter a title for the Podcast episode.

Upload

Allows you to upload the audio file to the selected host service.

RELATED LINKS
Podcast Creation on page 836
Uploading a Podcast Episode on page 837

Customizing

Customizing means making adjustments to ensure that WaveLab Pro behaves and looks the way that you want it to.

RELATED LINKS
Workspace Layout on page 839
Customizing the Audio Editor and the Audio Montage Window on page 841
Customizing Shortcuts on page 843
Customizing Command Bars on page 848
Plug-in Organization on page 848
Variables and Text Snippets on page 856
Scripting on page 859
Touch Bar (macOS only) on page 861

Workspace Layout

Workspace layouts are used for creating various work displays for different situations.

You can create a workspace layout that always appears when you launch WaveLab Pro. Optionally, the snapshots and the files that you had opened automatically reopen.

You can save a workspace layout to recall your favorite layout for a specific editing task. Because workspaces can be complex, it is useful to have layouts with a reduced number of visible tool windows to perform a given task.

RELATED LINKS
Working with Workspace Layouts on page 839
Workspace Layout Dialog on page 840
Starting WaveLab Pro With a Workspace Layout Preset on page 840

Working with Workspace Layouts

Depending on your computer setup or the kind of project that you are working on, you may want to use different window layouts. You can select layout presets or create your own layouts.

You can save the placement of the workspace frame and all its tool windows and/or the layout of tabbed data windows.

- To select a layout preset, select **Workspace** > **Layout** and select a layout preset.
- To save the current layout as a preset, select **Workspace** > **Layout** > **Save As**. In the **Workspace Layout** dialog, specify the folder where you want to save the preset, enter a name, and click **Save**.
- To save the current layout as default, select **Workspace** > **Layout** > **Save Current Layout As Default**.
- To restore the default layout, select **Workspace** > **Layout** > **Restore Default Layout**.
- To organize the layout preset folder, select **Workspace** > **Layout** > **Organize Presets**.

The File Explorer/macOS Finder opens. You can then create folders and subfolders and organize layout presets in them. The folder structure will be reflected as submenus on the **Layout** menu.

Workspace Layout Dialog

This dialog allows you to save the window layout of the active workspace as a preset.

- To open the **Workspace Layout** dialog, select **Workspace** > **Layout** > **Save As**.
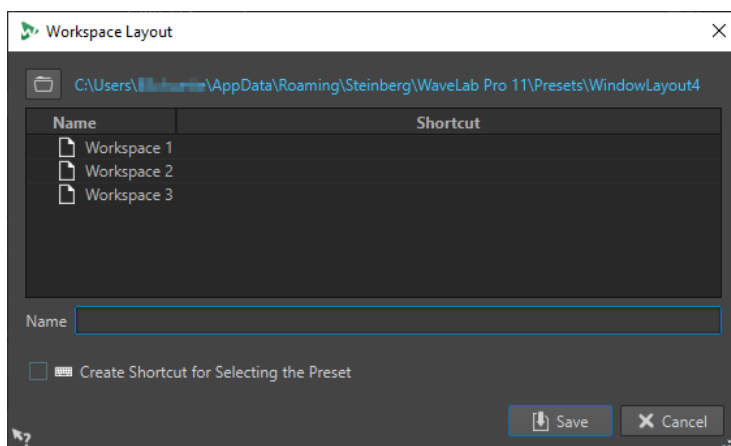
Path name

Opens the root folder of the preset in the File Explorer/macOS Finder. Here, you can create subfolders in which presets can be saved.

Presets list

Lists all existing presets.

Name

Lets you specify the name for the preset.

Create Shortcut for Selecting the Preset

If this option is activated and you click **Save**, the **Shortcut Definitions** dialog opens, which allows you to define a shortcut to apply to this preset.

If a preset already has an assigned shortcut, this option is grayed out. To change the existing shortcut, double-click the preset name in the presets list.

Starting WaveLab Pro With a Workspace Layout Preset

You can start WaveLab Pro with a specific workspace layout by entering a preset name in the command line.

The format of the command line is "--layout presetName".

If the preset is saved inside a folder in the layout preset, you must specify the relative path. If the preset name contains spaces, put the name in quotes. For example, --layout "My Folder/ presetName".

EXAMPLE

1. Set up a workspace layout and save it as **Layout 1**.

2. Start WaveLab Pro with the command line **--layout "Layout 1"**.

RELATED LINKS
Workspace Layout on page 839
Working with Workspace Layouts on page 839
Workspace Layout Dialog on page 840

Customizing the Audio Editor and the Audio Montage Window

You can set up the **Audio Editor** and the **Audio Montage** window by adjusting colors of waveforms, backgrounds, cursor lines, etc., and changing the look of the ruler and other details.

Customizing can be done in the following ways:

- By changing the default style.

- By assigning different styles, according to specific conditions. For example, a specific file type or a specific file name.

RELATED LINKS
Assigning Custom Colors to the Audio Editor or the Audio Montage Window on page 841
Assigning Custom Colors According to Conditions on page 842

Assigning Custom Colors to the Audio Editor or the Audio Montage Window

PROCEDURE

1. Depending on whether you want to customize the colors of the **Audio Editor** or the **Audio Montage**window, do one of the following:

   - For the **Audio Editor**, select **File** > **Preferences** > **Audio Files**, and select the **Style** tab.

   - For the **Audio Montage**window, select **File** > **Preferences** > **Audio Montages**, and select the **Style** tab.

2. Select the part that you want to color from the **Parts** list.

3. Specify a color using the color picker or the RGB fields.

RELATED LINKS
Customizing the Audio Editor and the Audio Montage Window on page 841
Style Tab (Audio Files Preferences) on page 877
Style Tab on page 883
Copying Color Settings on page 842

Assigning Custom Colors According to Conditions

You can apply different color schemes automatically to different clips, according to their names or the properties of their audio files.

IMPORTANT

If you redefine colors, be careful not to choose colors that cause other elements to disappear.

PROCEDURE

1. Depending on whether you want to customize the colors of the **Audio Editor** or the **Audio Montage** window, do one of the following:

    ● For the **Audio Editor**, select **File** > **Preferences** > **Audio Files**, and select the **Style** tab.

    ● For the **Audio Montage** window, select **File** > **Preferences** > **Audio Montages**, and select the **Style** tab.

2. Do one of the following:

    ● In the **Audio Files Preferences**, select one of the **Conditional** options from the pop-up menu at the top of the dialog.

    ● In the **Audio Montages Preferences**, in the **Parts** list, select one of the **Custom** entries.

3. Specify a color using the color picker or the RGB fields.

4. In the **This Style Is Used If These Conditions Apply** section, specify the conditions.

5. Click **OK**.

RELATED LINKS
Customizing the Audio Editor and the Audio Montage Window on page 841
Style Tab (Audio Files Preferences) on page 877
Style Tab on page 883
Copying Color Settings on page 842

Copying Color Settings

When you apply color settings in the **Audio Editor** or the **Audio Montage** window, you can copy the color settings of one part or all parts of a custom color scheme.

PREREQUISITE

You can assign custom colors to the **Audio Editor** and the **Audio Montage** window in the **Style** tab of the **Audio Files Preferences** and the **Audio Montages Preferences**.

CHOICES

● To copy a color setting, select the part from which you want to copy the color, and select **Copy Color**. Then select the part to which you want to copy the color, and select **Paste**.

● To copy all color settings of a custom color setting, drag the name of a custom color setting onto another custom color name, and click **OK**.

RELATED LINKS
Customizing the Audio Editor and the Audio Montage Window on page 841
Style Tab (Audio Files Preferences) on page 877
Style Tab on page 883

Customizing Shortcuts

In WaveLab Pro, you can control many functions via shortcuts to speed up your workflow. You can edit existing shortcuts and create new shortcuts.

Most shortcuts are restricted to a specific editor, which means that you can reuse the same shortcut combination in different editors. The exception is the **Master Section** where all shortcuts are global to the application.

The shortcuts in the **Navigation (Numeric Pad)** and **View and Navigation** sections on the **Shortcuts** tab are dedicated to navigating through WaveLab Pro.

Shortcuts that cannot be edited are grayed out. The shortcuts that you created are displayed in blue in the editor.

You can create new shortcuts in the following ways:

- By specifying a key sequence of up to four keys that must be pressed in a specific order to invoke the operation.

- By specifying a MIDI command. You need a MIDI controller device connected to your computer for this to work.

- By specifying keywords.

RELATED LINKS
Shortcuts Tab (Preferences) on page 843

Shortcuts Tab (Preferences)

This tab allows you to customize your own shortcuts for WaveLab Pro. It shows a list of the assigned shortcuts for WaveLab Pro commands and menu options.

- To open the **Shortcuts** tab, select **File** > **Preferences** > **Shortcuts**.
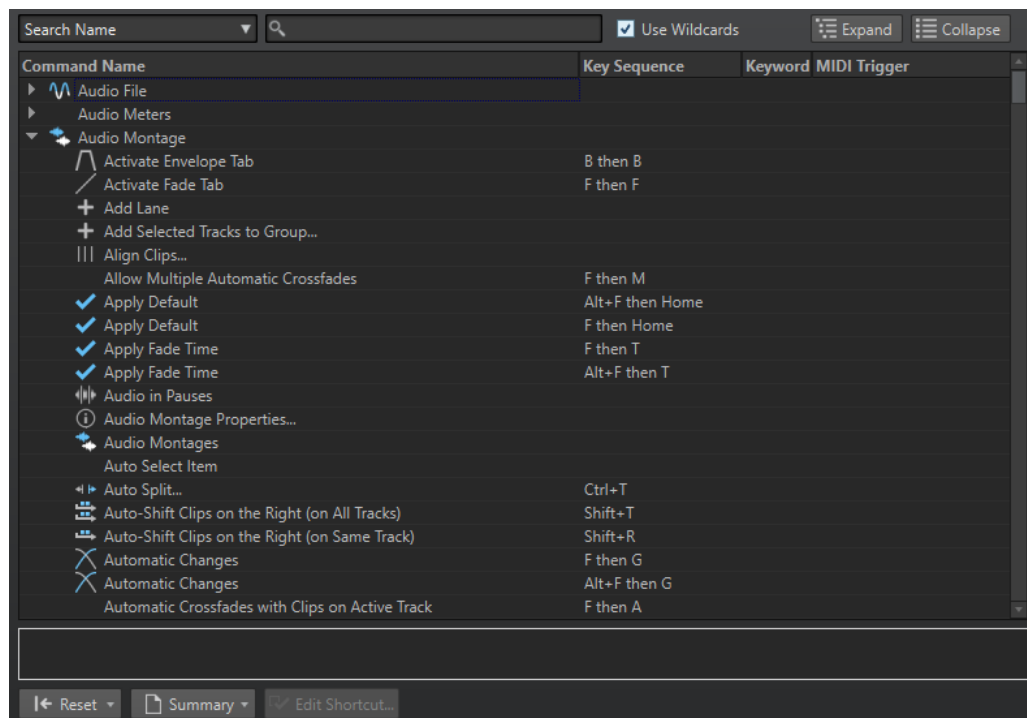
Search pop-up menu

Allows you to select the part of the commands list in which the search is performed.

Search field

Allows you to search for a command.

Use Wildcards

If this option is activated, the wildcard characters "*" and "?" can be used.

"*" substitutes zero or more characters, and "?" substitutes a single character.

For example, if **Search Keyboard Shortcut** is selected, type "*" to display all commands that are already associated with a shortcut.

Expand/Collapse

Expands/Collapses the folder tree.

Commands list

Shows all commands and their shortcuts. The section below the commands list shows additional information for the selected command.

Reset

Resets the commands to the factory settings.

Summary

Opens a menu from which you can generate a list of all commands and their shortcuts, either in HTML or as a printout.

Edit Shortcut

Opens the **Shortcut Definitions** dialog where you can edit the shortcuts for the selected command.

RELATED LINKS

Editing Shortcuts

You can see the list of all shortcuts in the **Shortcuts** tab, and edit and define shortcuts on the **Shortcut Definitions** dialog.

The **Shortcuts** tab provides a different command set for each menu or dialog.

● To open the **Shortcut Definitions** dialog, select **File** > **Preferences** > **Shortcuts**, select a command, and click **Edit Shortcut**. This opens the **Shortcut Definitions** dialog.

● You can enter a keyword which you can later use to activate a command by typing it into the **File Search and Keywords** field in the command bar.

● You can define a command to be triggered by an external MIDI controller. For example, this can be useful for issuing transport commands from your midi keyboard. You can specify a sequence of up to three midi events. The MIDI shortcut is displayed in the **MIDI Trigger** column.

● You can define one key shortcut, and/or one MIDI shortcut, and/or one keyword per command. Each shortcut can be a sequence of up to four keystrokes or three MIDI events. A keyword can be of any length.

● To reset some or all types of shortcuts to their factory default use the **Reset** button.

Shortcut Definitions Dialog

This dialog allows you to define your own customized shortcuts for a particular function.

●   To open the **Shortcut Definitions** dialog, select **File** > **Preferences** > **Shortcuts**, select a command, and click **Edit Shortcut**.
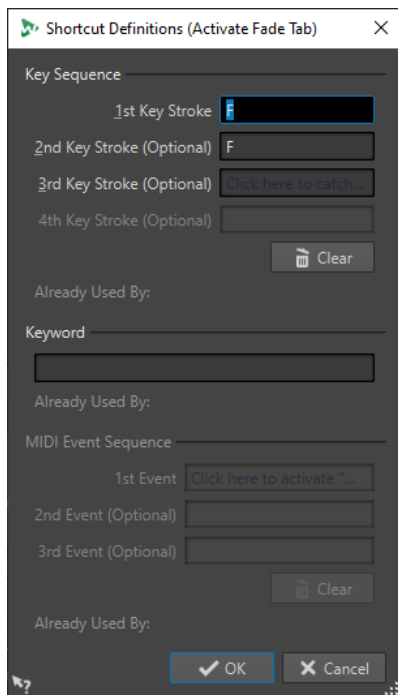
Key Sequence

1st Key Stroke

Lets you select the first key of a sequence that can consist of up to four keys. Set the focus to the key stroke field, then press the key combination. If nothing is displayed, a key is not allowed in this context.

2nd/3rd/4th Key Stroke (optional)

Lets you select additional keys that must be used to execute the command. The command is only executed if this key event happens after the first/second/third one.

Clear

Erases all key event fields.

Keyword

Lets you type in a keyword that invokes the command.

MIDI Event Sequence

This section is only available if a MIDI input port is specified in the main preferences in WaveLab Pro.

1st Event

Lets you select the first MIDI event of a sequence that can consist of up to four MIDI events. Set the focus to the event field, then trigger the MIDI event from your MIDI controller.

2nd/3rd Event (optional)

Lets you select additional MIDI events that must be triggered to execute the command. The command is only executed if this MIDI event happens after the first/second one.

Clear

Erases all MIDI event fields.

RELATED LINKS
Editing Shortcuts on page 844
Shortcuts Tab (Preferences) on page 843

Defining Key Sequences

You can define key sequences for a keyboard and for a MIDI controller.

If you want to define a key sequence for a MIDI controller, make sure that your MIDI controller is connected to your computer, and selected on the **Remote Devices** tab.

On a Mac, commands for the main menus must consist of a single key command.

When using multiple key stroke commands, make sure that the key commands do not interfere with each other. For example, when you have one shortcut **Shift**-**L**, **M** and define another to be **Shift**-**L**, this second shortcut has no effect.

PROCEDURE

1. Select **File** > **Preferences** > **Shortcuts**.

2. In the commands list, select the command for which you want to define a key sequence, and click **Edit Shortcut**, or double-click the **Key Sequence** column of the corresponding command.

3. In the **Shortcut Definitions** dialog, click in the **Key Stroke** fields and press the buttons that you want to use as the key sequence.

4. Click **OK**.

RESULT

When you now press the keys/buttons specified in the dialog, the corresponding operation is performed. The key strokes must be executed one after the other.

RELATED LINKS
Remote Devices Tab on page 42
Shortcuts Tab (Preferences) on page 843
Shortcut Definitions Dialog on page 845
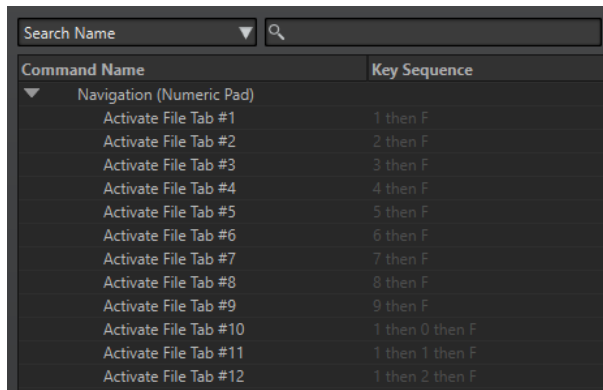
Indexed Key Commands

Indexed key commands allow you to quickly jump to specific locations in your project, for example, to a specific marker or **Master Section** slot.

The available indexed key commands are listed on the **Shortcuts** tab, in the **Navigation (Numeric Pad)** section.

- To trigger an index key command, type the number of the item that you want to jump to and press the corresponding key on your keyboard.

EXAMPLE

If you want to jump to the 5th marker in your file window, press **5** on the numeric pad of your keyboard and then press **M** .

If you want to jump to the 10th file tab, press **1** then **0** on the numeric pad of your keyboard and then press **F** .

RELATED LINKS
[Shortcuts Tab (Preferences)](#) on page 843

Keywords

Keywords are custom words that are assigned to a function in the **Customize Commands** dialog or to a preset in the **Shortcut Definitions** dialog. When you enter the keyword in the **File Search and Keyword** field, the corresponding function is triggered.

EXAMPLE

For example, if you want to have a quick way to normalize audio to -1 dB, proceed as follows:

1. In the **Audio Editor**, select the **Process** tab.

2. In the **Normalizing** section, click **Level**.

3. In the **Level Normalizer** dialog, set the **Peak Level** to -1 dB.

4. Click the **Presets** field, and select **Save As**.

5. In the **Save Preset As** dialog, enter a name for the preset, and activate **Create Shortcut for Applying the Preset**.

6. Click **Save**.

7. In the **Shortcut Definitions** dialog, enter **norm_1** as a **Keyword**, and click **OK**.

8. Now, to trigger the preset, enter **.norm_1** in the **File Search and Keyword** field, and press **Return** .

   The dot in front of the keyword instructs WaveLab Pro to interpret the text as a keyword. Without the dot, the **File Search and Keyword** field is used for finding file tabs.

RELATED LINKS
[Shortcuts Tab (Preferences)](#) on page 843
[Shortcut Definitions Dialog](#) on page 845

Generating a List of All Shortcuts

You can generate an HTML file or print a list that contains all shortcuts.

PROCEDURE

1. Select **File** > **Preferences** > **Shortcuts**.

2. Click **Summary**, and select one of the following options:

    ●   To open the **Print Preview** dialog, from which you can print out the list of all shortcuts, select **Print Preview**. For **Print Preview** to be available, a printer must be connected.

    ●   To open the list of all shortcuts in the HTML file format in the standard browser, select **HTML Report**.

RELATED LINKS
Shortcuts Tab (Preferences) on page 843

Selecting a MIDI Controller for Defining MIDI Commands

Before you can use MIDI commands, you have to select a MIDI controller.

PROCEDURE

1. Select **File** > **Preferences** > **Remote Devices**.

2. On the **Device Editing** tab, select **MIDI Shortcuts for Menus** from the pop-up menu at the top.

3. Select **Active** to activate the selected device.

4. From the **In-Port** pop-up menu, select a MIDI input port.

Customizing Command Bars

You can hide or show individual command bar buttons. This way you can customize command bars by removing unwanted commands.

PROCEDURE

1. In a tool window, open the menu and select **Customize Command Bar**.

2. To show a specific command on the command bar, activate the checkbox in the **Bar** column for the corresponding command.

3. Click **OK**.

Plug-in Organization

WaveLab Pro comes with various plug-ins, and additional plug-ins can be added. To retain an overview over the plug-ins that are relevant to your project, you can organize your plug-ins in groups.

On the **Organize** tab of the **Plug-ins Preferences**, you can specify how your plug-ins appear on menus in the program. In the plug-ins list, you find subfolders representing groups of plug-ins.

Initially, plug-ins are categorized by vendor, category, favorite plug-ins, and recently used plug-ins.

If the 32-bit and 64-bit versions of WaveLab Pro are used on the same system, their settings are shared. An exception to this rule are the following options in the **Plug-ins Preferences**:

- **Additional VST Plug-in Folders**
- **Ignore Plug-ins Located in the following Subfolders**

This is because 32-bit plug-ins cannot be used in WaveLab Pro 64 bit and vice versa.

RELATED LINKS

Excluding Plug-ins from Certain Plug-in Menus

You can exclude plug-ins from appearing in the plug-in menus in certain areas of WaveLab Pro.

PROCEDURE

1. Select **File** > **Preferences** > **Plug-ins**.
2. Select the **Organize** tab.
3. In the plug-ins list, navigate to the plug-in that you want to exclude.
4. Deactivate the checkbox in for the plug-in. When selecting multiple plug-ins, you can deactivate all of them with a single click.

   - To exclude the plug-in from the plug-in selection menus, deactivate the checkbox in the **Effect** column.
   - To exclude the plug-in from the **Final Effects/Dithering** pane of the **Master Section**, deactivate the checkbox in the **Final** column.
   - To exclude the plug-in from the **Playback Processing** pane of the **Master Section**, deactivate the checkbox in the **Play** column.
   - To exclude a clip plug-in when a clip is not streamed, deactivate the checkbox in the **Dyn** column.

     This allows you to save DSP power when using hardware plug-ins.

RELATED LINKS

Adding Plug-ins to the Favorites Menu

You can add plug-ins that you are using regularly to the **Favorites** menu of the plug-in selection menu.

PROCEDURE

1. Select **File** > **Preferences** > **Plug-ins**.
2. Select the **Organize** tab.
3. In the plug-ins list, navigate to the plug-in that you want to add to the favorites.
4. Activate the checkbox for the corresponding plug-in in the **Favorites** ⬇ column.

> **NOTE**
>
> If the **Favorites** menu is empty, it does not appear in plug-in selection menus.

Customizing Plug-in Groups

You can customize the appearance and sorting of plug-ins on the **Organize** tab of the **Plug-ins Preferences**.

- To update the tree, click **Show Changes**.
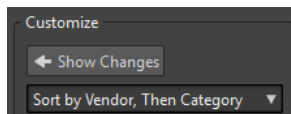
- To create a custom category for a plug-in, click the **Custom Category** column for the corresponding plug-in, and enter a new category name. **Alt**-click to delete the category. Use the character "|" to create subcategories, for example, "Folder-1|Folder-2". If you select multiple plug-ins, the category name is applied to all selected plug-ins.

- To rename a custom category, click the category name in the **Custom Category** column, and select **Rename Category** from the pop-up menu. In the **Rename Category** dialog, enter the name of the category that you want to rename in the **Find** field, and the name that you want to replace it with in the **Replace with** field. Then click **Replace All**.

- The category labels that are used to create the hierarchy are supplied by the plug-in manufacturers. To change the category name, navigate to the **Category Renaming** table, click in the **Original** column, and select the category that you want to rename. Then click in the **Modified** column, and enter a new name.

- To change the sorting of plug-in groups, select whether to sort by category or by vendor in the sorting menu of the **Customize** section. If a plug-in does not publish a vendor name or category, the name of the enclosing plug-in folder on disc is used as vendor name or category if it is not the VST plug-in root folder.

- To group all plug-ins that start with the same prefix in one submenu, activate **Create Submenus Based on Prefixes**, and specify the number of plug-ins that must start with the same prefix. Only if this number is reached, a submenu is created.

- To group plug-ins in a single submenu if their number is below a specified value, activate **Compress Hierarchy**, and specify the threshold. A tree is flattened to a single submenu if the number is below the threshold. This prevents too small submenus.

- To activate the **Recently Used** category, activate **Submenu with Recently Used Plug-ins**, and specify the maximum number of recently used plug-ins that should be displayed in this category.

- You can make the **Recently Used** category global to all places or individual for each context, for example, for the **Master Section**, audio montage track, or audio montage clip. To make the **Recently Used** category individual for each context, activate **Independent Recently Used Plug-ins Menus**.

Adding Additional VST Plug-ins

You can specify folders where additional VST plug-ins can be found. This is useful if you are using third-party VST plug-ins that you do not want to save in the standard VST folder.

PROCEDURE

1. Select **File** > **Preferences** > **Plug-ins**.

2. Select the **General** tab.

3. In the **Additional VST Plug-in Folder (**WaveLab Pro **Specific)** section, click the folder icon, and navigate to the folder that contains the VST plug-ins that you want to add.

RELATED LINKS
Plug-ins Tab (Preferences) on page 852

Preventing Plug-ins from Being Opened

You can prevent WaveLab Pro from opening individual plug-ins, entire plug-in folders, or VST 2 plug-ins.

PROCEDURE

1. Select **File** > **Preferences** > **Plug-ins**.

2. Select the **General** tab.

3. Choose from the following options:

    - To prevent WaveLab Pro from opening VST 2 plug-ins, activate **Ignore VST 2 Plug-ins**.

    - To prevent WaveLab Pro from opening plug-ins in specific folders, indicate the folder names in the **Ignore Plug-ins Located in the following Subfolders (Separate Folder Names with a Semicolon)** section.

    - To exclude individual plug-ins, type the name of the plug- in into the **Do Not Load the Following Plug-ins** section:

      Enter the exact file name, without path and file extension.

      Enter one name per line.

      If you put "*" in front of the name, any plug-in that contains the name is ignored.

RELATED LINKS
Plug-ins Tab (Preferences) on page 852

Replacing Missing Plug-ins

When you open an audio montage and some plug-ins for tracks or clips are missing, you can select plug-ins to replace the missing plug-ins.

PROCEDURE

1. In the **Missing Plug-ins** dialog, click the **Replacement** column, and select a replacement for the plug-in displayed in the **Original** column.
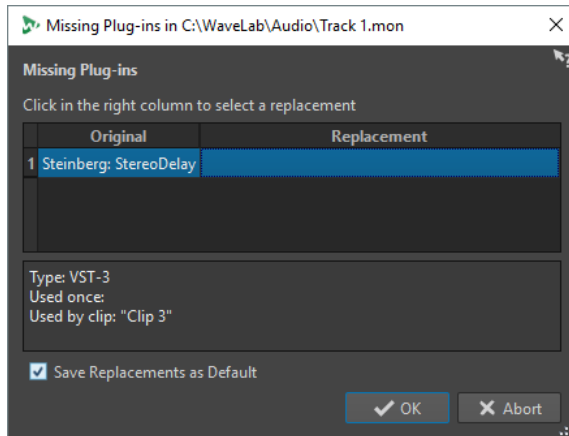
2. If you want to use the new plug-in from now on, activate **Save Replacements as Default**.

3. Click **OK**.

Plug-ins Tab (Preferences)

On this tab, you can access a number of options for managing your VST plug-ins.

You can specify where WaveLab Pro should search for your VST plug-ins and which ones it should ignore. It also allows you to choose how your VST plug-in controls respond to mouse actions and how frequently graphics are updated.

If you use your own file structure to organize and save VST plug-ins, this dialog allows you to gain full control over which plug-ins are loaded and which are ignored. This is useful if you want to deactivate a particular plug-in or if you want to ignore plug-ins that you never want to use with WaveLab Pro.

● To open the **Plug-ins Preferences**, select **File** > **Preferences** > **Plug-ins**.

General Tab
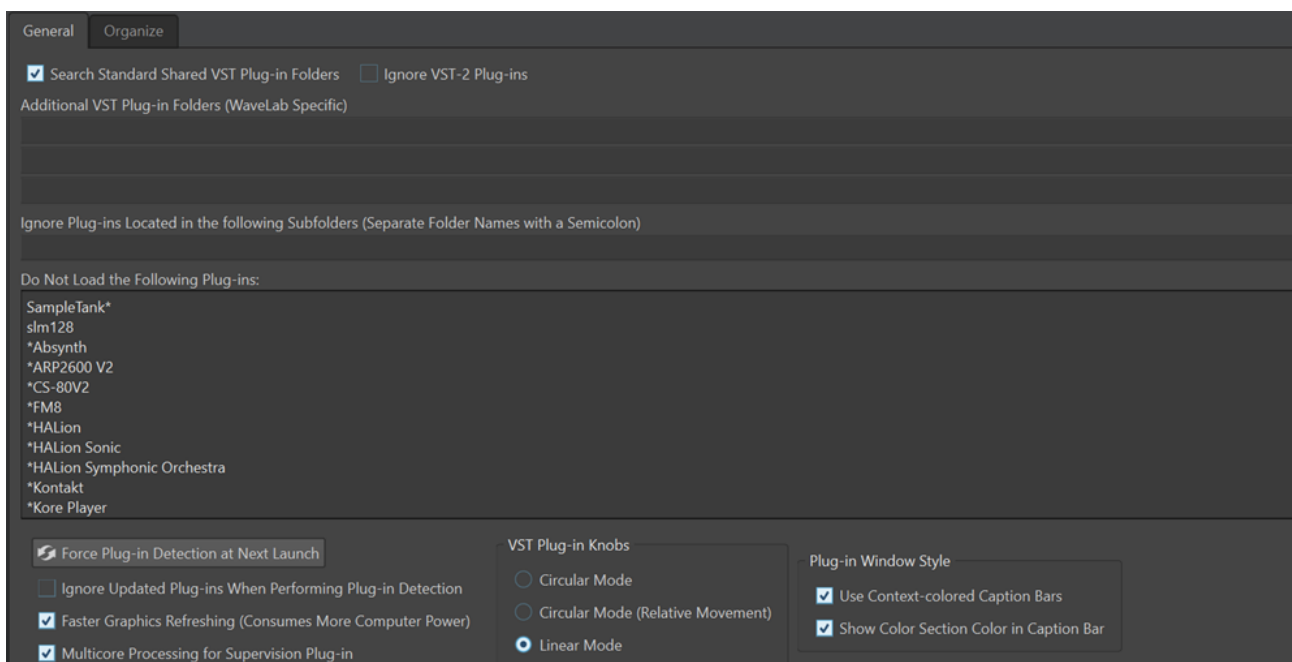
Search Standard Shared VST Plug-in Folders

Prompts WaveLab Pro to search for VST plug-ins in the default VST plug-in folders.

NOTE

For information on the folders that WaveLab Pro searches for plug-ins on launching the application, you can click the info icon ⓘ in the upper right corner of the window.

If you cannot find a plug-in in WaveLab Pro, this helps you to determine whether you have specified the correct folder, for example.
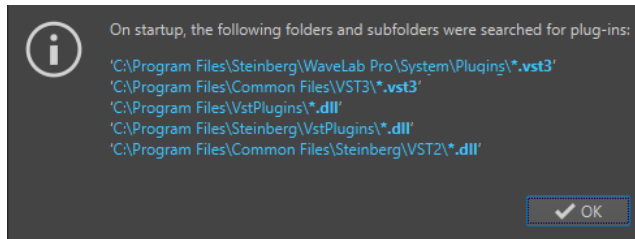
Ignore VST 2 Plug-ins

Prevents WaveLab Pro from searching for and displaying plug-ins using the old VST 2 standard.

NOTE

We recommend restarting WaveLab Pro for the option to take full effect.

Additional VST Plug-in Folders (WaveLab Pro Specific)

Allows you to specify additional folders where VST plug-ins can be found.

Ignore Plug-ins Located in the following Subfolders (Separate Folder Names with a Semicolon)

Allows you to specify folder names that WaveLab Pro skips when searching for VST plug-ins.

Do Not Load the Following Plug-ins

Allows you to specify plug-ins that you do not want WaveLab Pro to open by indicating the file names, without path and without file extension, with each plug-in entered on a new line.

If you put the character * in front of the name, any plug-in that contains the name is ignored.

Force Plug-in Detection at Next Launch

Analyzes the plug-ins when launching WaveLab Pro the next time. To reduce the start time of WaveLab Pro, the plug-ins are not analyzed every time WaveLab Pro is started. However, WaveLab Pro keeps a list of plug-ins and updates it automatically when a date or size change is detected.

Ignore Updated Plug-ins When Performing Plug-in Detection

PreventsWaveLab Pro from checking if the properties of updated plug-ins have changed. If you have plug-ins that are updated very frequently, this option speeds up the WaveLab Pro startup.

However, some manufacturers combine multiple plug-ins within a single file. If you know that some plug-ins were added by the manufacturer but do not appear in WaveLab Pro, deactivate this option and restart WaveLab Pro. Afterwards, you can activate this option again.

Faster Graphics Refreshing (Consumes More Computer Power)

Refreshes the graphics of VST plug-ins more quickly.

Multicore Processing for Supervision Plug-in

If this option is activated, the **Supervision** plug-in is processed on multiple cores to improve graphics performances.

> NOTE
>
> We recommend that you exclusively use this option on computers with at least eight cores.

VST Plug-in Knobs

Allows you to set the mode for using knobs in plug-ins. The available options are **Circular Mode**, **Circular Mode (Relative Movement)**, and **Linear Mode**.

Plug-in Window Style

- **Use Context-colored Caption Bars** helps you to identify and distinguish effect plug-in types by displaying color codes for the captions bars of the plug-in windows.

- You can activate **Show Color Section Color in Caption Bar** to display a colored box on the caption bar of effect plug-in windows, whose color depends on the element that the plug-in is applied to.

Organize Tab
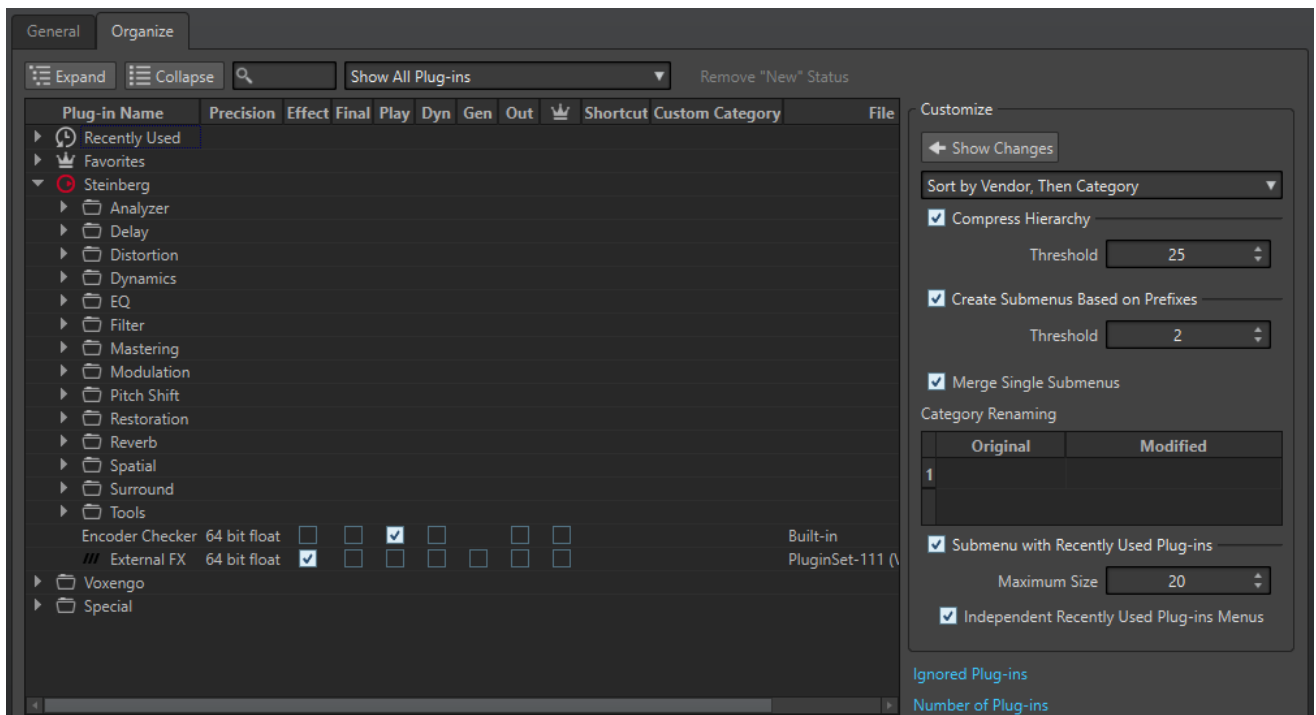
Plug-ins list

Displays the hierarchy of the plug-ins in WaveLab Pro. In the **Final** and **Play** columns, you can specify whether a plug-in is available on the plug-in selection menus and/or the **Final Effects/Dithering** pane and **Playback Processing** pane of the **Master Section**.

You can add plug-ins to the **Favorites** list, create shortcuts for plug-ins, specify custom categories, and decide whether to use the generic user interface or the plug-in specific user interface.

The **Precision** column displays the processing precision of each plug-in. 64-bit float plug-ins are capable of double precision processing. In other effects menus, throughout WaveLab Pro, plug-ins that are capable of double precision processing are marked with "64 F" for 64-bit float.

	Leveler	64 F
///	MasterRig	64 F
	Peak Master	64 F
	Resampler	64 F

NOTE

Processing in 64-bit float results in double precision but a slightly longer processing time than in 32-bit float.

The **Out** column allows you to specify the plug-ins for which you want to change the output channel layout when you add the plug-ins to the **Master Section**. In this case, the **Plug-in Output Channel Layout** dialog opens, where you can select the output channel layout for the plug-in.

For Steinberg plug-ins, such as **VST Ambidecoder** and **MixConvert V6**, the **Plug-in Output Channel Layout** dialog opens by default when you add the plug-ins in the **Master Section**.

NOTE

Changing the output channel layout is only recommended for plug-ins that are capable of processing multichannel streams.

Expand/Collapse

Expands/Collapses the folder tree.

Search field

Allows you to filter the plug-ins list for names.

- Click in the search field, and enter the text that you want to search for.
- To switch the focus from the search field to the plug-ins list, press **Down Arrow**.
- To switch the focus from the plug-ins list to the search field, press **Ctrl/Cmd**-**F**.

Filter menu

Allows you to only display plug-ins that have particular properties.

- **Show All Plug-ins** displays all plug-ins.
- **Show New Plug-ins** only displays recently detected plug-ins.
- **Show 32-bit float Plug-ins** only displays plug-ins that are capable of 32-bit float processing.
- **Show 64-bit float Plug-ins** only displays plug-ins that are capable of 64-bit float processing.
- **Show Plug-ins with a Custom Category** only displays plug-ins that have a custom category.
- **Show Plug-ins without a Custom Category** only displays plug-ins that do not have a custom category.

Remove "New" Status

Resets the "new" status of the recently detected plug-ins.

Show Changes

Refreshes the plug-in tree according to the current settings.

Sorting

Determines how the plug-ins are sorted. All other parameters act on that hierarchy.

Compress Hierarchy

Merges all items into a single submenu if a submenu and all its submenus contain less than a specific number of plug-ins (**Threshold**).

The **Threshold** value determines the minimum number of items that are needed to compress the hierarchy.

Create Submenus Based on Prefixes

Creates a submenu that is labeled as the prefix if several items in a submenu start with the same prefix.

The **Threshold** value determines the minimum number of items that must start with the same prefix and that are needed to create submenus that are labeled as the prefix.

Merge Single Submenus

Merges submenus that contain another submenu with only a single item in it.

Category Renaming

The category labels used to create the hierarchy are supplied by the plug-in manufacturers. In this section, you can change the category name. This can also be useful to merge two categories into one, by renaming these two categories with the same name.

Submenu with Recently Used Plug-ins

If this option is activated, the **Recently Used** submenu is shown.

The **Maximum Size** value determines the maximum number of plug-ins on the **Recently Used** submenu.

The **Independent Recently Used Plug-ins Menus** option determines whether the **Recently Used** submenu is global to all places where plug-ins can be selected, or if it is local to each context.

Ignored Plug-ins

Opens the **Ignored Plug-ins** dialog, where you can see plug-ins that were not loaded. This dialog allows you to prompt WaveLab Pro to rescan these plug-ins after restarting the application. This is faster than a full rescan.

Number of Plug-ins

Shows the number of plug-ins that are available in WaveLab Pro.

RELATED LINKS

Variables and Text Snippets

You can define and use custom variables and text snippets, or use auto variables in various places in WaveLab Pro, for example, in the **Metadata** dialog.

Custom variables can be used to replace codes with a specified text in metadata saved within audio files. For example, you can define the variable %proj% to be replaced by the name of the

current project. A custom variable can also contain references to other variables. For example, %comment% can be defined as "%proj% started on @Date1@".

Variable codes are replaced with the variable values when the file is written. For example, when the metadata is saved inside an audio file.

Auto variables are automatically set by WaveLab Pro. For example, the current date, the sample rate, the bit depth, or metadata values that are found in audio files.

Text snippets can be used to define words that you are using regularly when filling in text fields. These can be inserted into a text field via the **Text Snippets** menu.
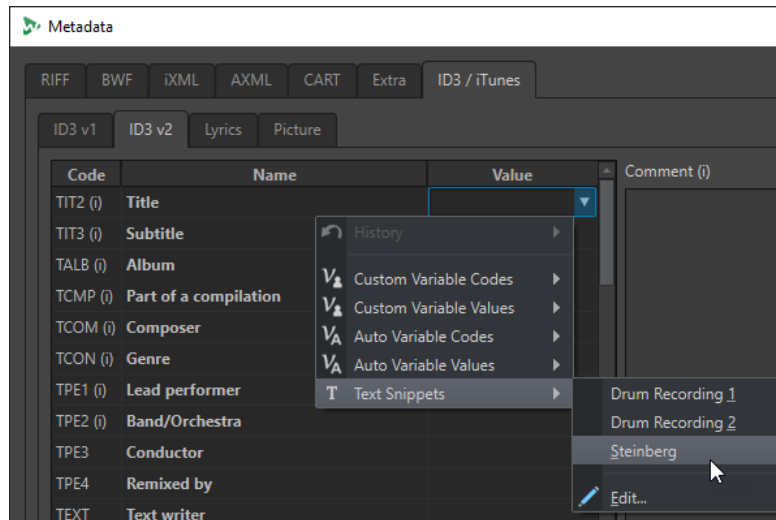
Some auto variables depend on the context. For example:

- CD Text variables are only used when rendering an audio montage.
- Auto variables that relate to titles of an audio CD are only used when rendering titles from an audio montage.

If a variable is used in a wrong context, it is replaced by a blank.

RELATED LINKS

Defining Variables and Text Snippets

You can create new variables and text snippets, and define values for them.

PROCEDURE

1. Select **File** > **Preferences** > **Variables**.

2. Do one of the following:
    - On the **Custom Variables** tab, click the plus icon to add a new variable, or double-click an existing variable that you want to modify.
    - On the **Text Snippets** tab, click the plus icon to add a new definition, or double-click an existing definition that you want to modify.

3. For custom variables, enter the name, code, and value for the variable. For text snippets, enter the text.

NOTE

Variable codes are case sensitive. We recommend that you select the codes from the menus.

Applying Variables and Text Snippets

You can apply custom variables, auto variables, and text snippets at various places in WaveLab Pro.

PREREQUISITE

Define custom variables and text snippets in the **Variable**s tab.

PROCEDURE

1. In a value field, click the arrow icon. If several fields are selected, right-click to access the pop-up menu.
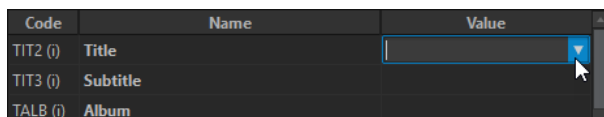
2. From the menu, select a custom variable, an auto variable, or a text snippet.
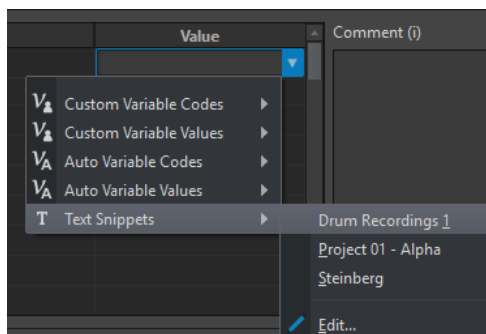
The variable or text snippet is added to the value field.
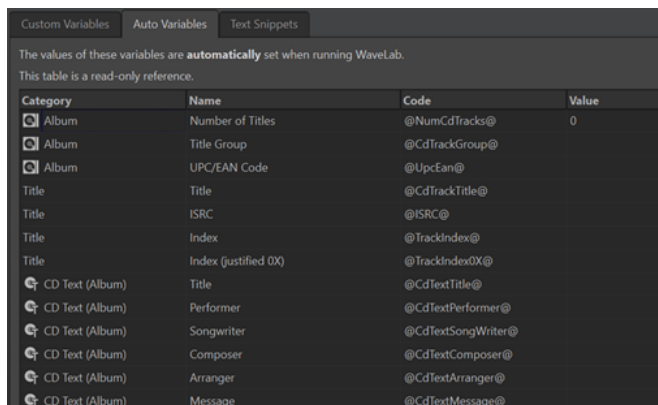
Variables Tab (Preferences)

This tab allows you to define custom variables, see the auto variables, and define text snippets.

● To open the **Variables** tab, select **File** > **Preferences** > **Variables**.

Plus icon

Adds a new custom variable/text snippet.

Minus icon

Removes the selected custom variable/text snippet.

Scripting

WaveLab Pro contains a powerful scripting language to help advanced users create their own scripts to automate tasks. Using basic scripts can be useful for automating repetitive editing tasks such as trimming and cropping a file at specific times, for example.

You can write scripts that perform other basic editing commands, apply offline processing, place markers, and display information about the active file. You can script commands to edit the active audio file or the active audio montage. If you have some experience of programming with modern scripting languages you should have no problem writing utility scripts for WaveLab Pro.

The WaveLab Pro scripting language is based on ECMAScript, with the addition of WaveLab Pro specific commands.

- The WaveLab Pro specific scripting functions are available in the **WaveLab Pro Scripting** documentation. The documentation is available on the Internet from https://steinberg.help/.

- On Windows, there is an additional scripting interface to control WaveLab Pro from external applications using VBScript or JScript. The **WaveLab Pro ActiveX Scripting** documentation is available on the Internet from steinberg.help and in the following folder:

  `Steinberg\WaveLab Pro 11\Tools\Windows Scripting\`

- For a broader look at the complete subset of commands that are available, see the ECMAScript Language Specification.

This chapter is about scripts that are executed from within WaveLab Pro.

Script Editor

The **Script Editor** allows you to write and execute scripts in WaveLab Pro.

- To open a new script file, select **File** > **New** and click **Script**.

- To open a saved script file, select **File** > **Open** and click **Script**. Select the script file and click **Open**.
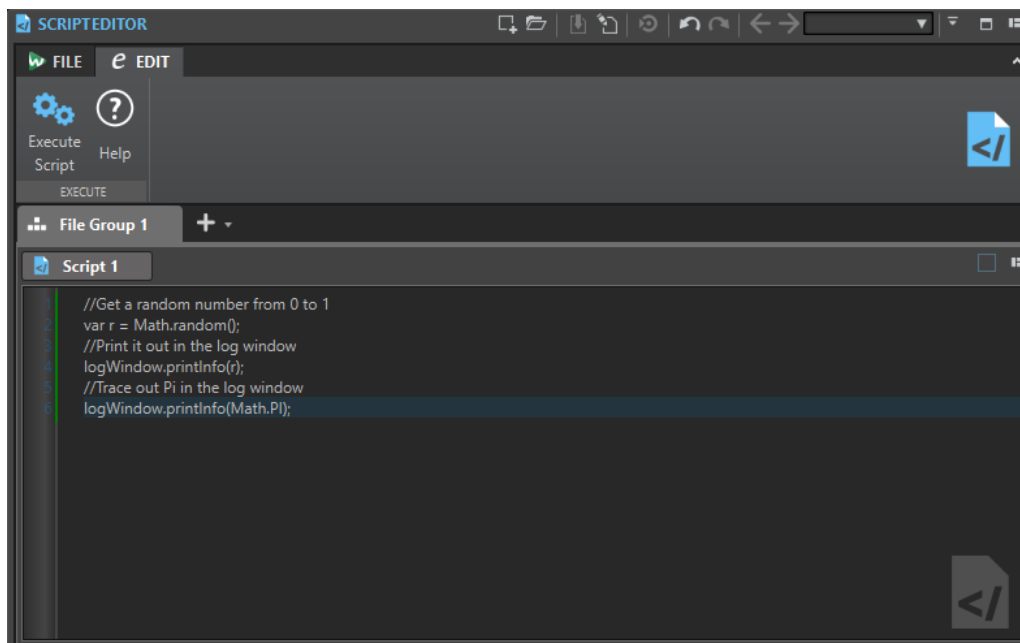
Execute Script

Executes the script.

RELATED LINKS
Scripting on page 859
Writing and Executing a Script on page 860

Writing and Executing a Script

PROCEDURE

1. Select **File** > **New**.

2. Click **Create Script**.

3. In the **Script Editor**, type your script or copy and paste it from an external text editor.

4. To run the script, select the **Edit** tab, and click **Execute Script**.

   NOTE

   Only one script can be executed at a time.

RESULT

The script runs if there are no syntax errors. Any errors appear in a dialog box to help you debug them.

> **NOTE**
>
> There are several free utility text editors that are context sensitive. This means that they can color and highlight parts of your code to make it more readable. If you use one of these for writing and editing your scripts, choose JavaScript as the editing language and/or save the file with a `.js` (JavaScript) extension.

RELATED LINKS
Script Editor on page 860
Using the Log Window When Scripting on page 861

Using the Log Window When Scripting

It is a good idea to begin scripting by writing some simple scripts that output some text to the **Log** window.

The goal of the following example is to output a simple text message to the **Log** window.

PROCEDURE

1. Select **Tool Windows** > **Log**.

2. Copy and paste the following script into the **Script Editor**.

   //output the number of samples in the active wave as text in the log window.

   logWindow.printInfo("This file has " + activeWave.size() + " samples");

   > **NOTE**
   >
   > Any lines of a script that begin with two forward slashes // are comments, and are ignored when the script is executed.

3. Execute the script.

RESULT

In the **Log** window, the number of samples used in the active file is displayed.

RELATED LINKS
Script Editor on page 860
Writing and Executing a Script on page 860
Log Window on page 93

Touch Bar (macOS only)

The Touch Bar at the top of your keyboard gives you shortcuts to the WaveLab Pro functions. The Touch Bar changes automatically based on where you are in WaveLab Pro and offers a subset of the available options. You can customize the Touch Bar according to your needs.

> **NOTE**
>
> The Touch Bar is only available on certain Apple products.

RELATED LINKS
Customizing the Touch Bar (macOS only) on page 862

Customizing the Touch Bar (macOS only)

You can customize the Touch Bar in the Touch Bar customization window.

CHOICES

- To open the Touch Bar customization window, select **WaveLab Pro 11** > **Customize Touch Bar**.
- To add an option to the Touch Bar, use your cursor to drag your favorite options from the customization window down into the Touch Bar.

  When you are done, tap **Done** in the Touch Bar or click **Done** on the screen.
- To rearrange options within the Touch Bar, drag them to the left or right.
- To remove options from the Touch Bar, drag them up and out of the Touch Bar.

RELATED LINKS

Configuring WaveLab Pro

You can configure WaveLab Pro according to your needs.

NOTE

The parameters that you set in the preferences are applied when you switch to another WaveLab Pro window.

Global Preferences

Global Preferences are preferences that apply throughout WaveLab Pro. Before you start working with WaveLab Pro, it is recommended to edit these preferences according to your needs.

● To open the **Global Preferences**, select **File** > **Preferences** > **Global**.

RELATED LINKS

General Tab (Global Preferences)

This tab allows you to change the location of settings files and the user interface language. You must restart the application for changes to take effect.

● To open the **General** tab of the **Global Preferences**, select **File** > **Preferences** > **Global** and click **General**.

General

Language

Allows you to select the user interface language.

Setting Location

Common for All Users

Shares the preferences settings with all users on this computer.

Independent for Each User

Allows all users on this computer to set their own individual preferences.

Application Folder (Portable Installation)

Saves settings in the application directory. Use this option to install the application on a portable device.

Specific Folder

Allows you to save the settings in a specified folder.

Open Setting Folder

Opens the folder that is used to save settings. This way you know where the settings are saved and you can back up the settings.

Synchronization Settings

Master Folder

Allows you to specify where the preference settings are saved.

Synchronize at Every Launch

If this option is activated, the settings are synchronized whenever WaveLab Pro is launched.

Synchronize at Next Launch

If this option is activated, the settings are synchronized the next time that WaveLab Pro is launched.

Preferences Handling

Determines how to synchronize the preferences, that is, all settings except the presets. You can either ignore or mirror the preferences.

Preset Handling

Determines how to synchronize the presets that are saved in the master folder. The following options are available:

- If **Ignore Presets** is activated, the presets are not synchronized.
- If **Mirror Presets** is activated, the presets are restored from the master folder, regardless of their time stamp. Any additional local presets are deleted.
- If **Import New Presets** is activated, the presets in the master folder that are unavailable on the computer are imported.
- If **Update Old Presets** is activated, existing presets are overwritten if a newer version is found in the master folder.

Ignore the following Preset Folders (Separate Them with a Semicolon)

Allows you to specify which preset folders you want to ignore when synchronizing the settings. For example, to ignore the Audio Connections settings, add **Audio Connections** to the field.

Update Master

If you click this button, the settings that were used when launching WaveLab Pro are used to update the master folder.

NOTE

This procedure should only be run by the system administrator if multiple WaveLab Pro workstations are used.

RELATED LINKS

Display Tab (Global Preferences)

The **Display** tab allows you to make changes to the user interface, which affect the entire application.

● To open the **Display** tab of the **Global Preferences**, select **File** > **Preferences** > **Global**, and click **Display**.

Theme

Allows you to choose a color scheme for the user interface:

● **Dark** sets the user interface to a dark color scheme.

● **Light** sets the user interface to a light color scheme.

Workspace

Display Active File Path in Title Bar

Displays the file path of the active file in the title bar of the workspace.

When Closing the Active Tab

Determines the behavior of the program after closing the active tab. You can choose to activate the most recently activated tab again (**Activate the Previously Active Tab**), the tab to the left of the currently active tab (**Activate the Tab at Its Left**), or the tab to the right of the currently active tab (**Activate the Tab at Its Right**).

Tool Windows

Show Title for Single Tool Windows

Allows you to show or hide the title bar for single tool windows.

Auto-Hide Slide-Out Window

Causes any open slide-out window to automatically close when you click outside of the window or shift the focus to another part of the application.

Animate Slide-Out Windows

Causes slide-out windows to open with an animation.

Window Transparency

Sets the degree of transparency for windows that have this option activated.

History

Maximum Number of Items in Recent File Menus

Sets the maximum number of files that are listed in recent file menus.

Maximum Number of Items in Recent Files Tab

Sets the maximum number of files that are listed in the **Recent Files** tab.

Maximum Number of Items in the Recent Folders Menu

Sets the maximum number of files that are listed in the **Recent Folder** menus.

Miscellaneous Options

Show Application in High DPI (Windows only)

If this option is activated and your display supports high resolution, WaveLab Pro is displayed in high resolution. Otherwise, this option is ignored.

NOTE

Plug-in windows are not displayed in high resolution. If plug-in windows appear too small, deactivate **Show Application in High DPI**.

Restrict Scaling to Multiples of 100

If this option is activated, only scaling factors that are multiples of 100 are supported. For example, if you use a scaling factor of 150%, in WaveLab Pro, the scaling that is applied is 200%.

If this option is deactivated, intermediate ratios such as 150% are possible.

Use the System File Selector to Open Files

If this option is activated, the standard file selector is opened when you select **Save As**.

Open Quick File Selector When Saving Files

If this option is activated and you save a file via the save shortcut, a dialog is opened instead of the **File** tab.

Hide Unused Ribbon Tabs

If this option is activated, unused ribbon tabs are hidden.

Undo/Redo Does Not Scroll/Zoom Audio

If this option is activated, the undo and redo functions for audio files and audio montages do not restore the snapshot that was active when the operation was performed.

Show WaveLab Pro Logo on Startup

Determines whether the WaveLab Pro logo is displayed during initialization.

Hide Top Level Windows When the Application Is Not Active (Windows only)

If this option is activated, all floating windows are automatically hidden when another application becomes active. If this option is deactivated, floating windows remain on top of other application windows.

Show Options Bar for Mouse Actions

If this option is activated, in some contexts, the **Context Options** info bar displays key commands that are available to you at a particular stage in your workflow.

Tooltip Delay

Allows you to select the delay after which tooltips appear when you move the mouse over user interface controls.

You can choose from the following options: **300 milliseconds**, **500 milliseconds**, **700 milliseconds**, **1 sec**, and **2 sec**. If you prefer not to see any tooltips at all, you can select **Never Show**.

Upon Launching the Application with a Specific File

Allows you to choose whether, on starting WaveLab by opening a specific file via drag and drop or the File Explorer/macOS Finder, all files that you most recently worked on are opened in conjunction with it or not.

Maximum Dynamic Vertical Zooming to View

Automatically scales the waveform so that it fills the entire vertical space of the window.

Edit Cursor

Blink Rate

Allows you to set the edit cursor to the blinking frequency that you feel most comfortable with:

- **No Blink** cancels the blinking, so that the edit cursor is displayed as a static red line.
- **Standard** sets the blinking frequency to the default value.
- **Fast** causes the edit cursor to blink at a faster rate, compared to the default value.

Width

Allows you to customize the width of the edit cursor.

You can set it to **Thin**, **Medium**, or **Thick**.

Focused

Allows you to customize the color of the edit cursor for when the editor view has the keyboard focus.

Non-Focused

Allows you to customize the color of the edit cursor for when the editor view does not have the keyboard focus.

Playback Cursor

Color

Allows you to customize the color of the playback cursor.

Dim for Muted Channels

With this option activated, any parts of the playback cursor that intersect with muted audio channels are set to semi-transparent.

Width

Allows you to customize the width of the playback cursor.

You can set it to **Thin**, **Medium**, or **Thick**.

Show Trail

With this option activated, a transparent shadow is applied to the left of the playback cursor, which follows its motion.

- **Width** allows you to set the width of the trail.

  You can set it to **Tiny**, **Small**, **Medium**, or **Wide**.
- **Color** allows you to set the trail to the same color as the playback cursor, to white, or to a shade of gray.
- **Intensity** allows you to define the degree of visibility of the trail.

  You can set it to **Subtle**, **Mild**, **Soft**, **Moderate**, or **Pronounced**.

NOTE

The settings related to displaying the playback cursor can be set independently for the **Dark** and the **Light** user interface themes.

RELATED LINKS

Audio Tab (Global Preferences)

This tab allows you to change audio preferences, such as the processing precision.

- To open the **Audio** tab of the **Global Preferences**, select **File** > **Preferences** > **Global** and click **Audio**.

Resample Conversion Quality

Allows you to specify the resample conversion quality.

Default Fade/Crossfade

Allows you to specify the default duration and the shape of the fades or crossfades that WaveLab Pro automatically creates during specific processes.

Audio Cue Point Detection

In this section, you can choose from the following options:

- **Maximum number of audio cue points around cursor** allows you to choose a number from 1 to 10. The higher the number, the more audio cue points are displayed.

  WaveLab Pro analyzes the audio within a range of five seconds before to five seconds after the current mouse position. The number you specify here determines the audio cue point density displayed within this range.

  TIP

  We recommend using a high number in conjunction with the **Sticky** option, which you can access via **Edit** > **Snapping** > **Magnets** > **Additional Options**.

  If preventing your workspace from looking cluttered is important to you, we recommend that you keep this number low.

- **When to Activate** allows you to select the actions that are required for audio cue points to be generated and displayed:

  - **Time Selection with the Mouse**

  - **Dragging the Edit Cursor on the Time Ruler**

  - **Dragging the Edit Cursor with the Mouse (+ Shift)**

- TIP

  If you do not want WaveLab Pro to display any audio cue points at all, you can deactivate all three options.

Processing Precision

Plug-in Processing allows you to select the processing precision for plug-ins.

- If you select **64 bit float** and a plug-in is capable of processing 64-bit samples, processing takes place in lossless 64 bit.

  If a plug-in is only capable of handling 32-bit samples, WaveLab Pro converts all 64-bit float samples to 32-bit float before sending them to the plug-in. After the plug-in processing is completed, WaveLab Pro converts the 32-bit float samples back to 64-bit float without loss.

- If you select **32 bit float**, WaveLab Pro converts all 64-bit float samples to 32-bit float before sending them to the plug-in. After the plug-in processing is completed, WaveLab Pro converts the 32-bit float samples back to 64-bit float without loss.

In the plug-in menus, the "32F" and "64F" indicators next to the plug-in name show whether a plug-in is capable of 32-bit float or 64-bit float.

NOTE

Processing in 64-bit float means double precision but slightly longer process time than 32-bit float.

Temporary Files allows you to select the precision of temporary files that WaveLab Pro creates when processing audio.

By default, WaveLab Pro creates temporary files in 32-bit float. Use **64 bit float** if you want to create 64-bit float audio files or 32-bit PCM files.

NOTE

Temporary files in 64-bit float have double precision but take longer to read and write than 32-bit float and their file size is twice as big.

System Clipboard allows you to select the resolution of audio files created during system clipboard transfers.

It is set to 32-bit float by default. However, if WaveLab Pro detects that a file can maintain its quality at a lower resolution, the value is automatically reduced.

RELATED LINKS
Temporary Files on page 110
Global Preferences on page 863

Formats Tab (Global Preferences)

This tab allows you to adjust settings for some of the audio formats and units that WaveLab Pro uses.

● To open the **Formats** tab of the **Global Preferences**, select **File** > **Preferences** > **Global** and click **Formats**.

Formats

Use AES17 Standard for RMS Values

Determines how RMS values are reported.

● If this option is activated, the displayed level for a full scale sine audio file is 0 dB. This follows the AES17 standard.

● If this option is deactivated, the displayed level for a full scale sine audio file is -3 dB.

Loudness Analysis Reference

Allows you to define the loudness reference value. The EBU R-128 recommendation for broadcast is -23 dB.

The loudness reference value is used in the following contexts:

● To display the zero point marker in the bottom scale of the **Loudness Meter**.

● To display the loudness value in relation to the reference value in the **Global Analysis** dialog.

● To display the loudness value in relation to the reference value in the **Audio Analyzer** plug-in of the **Batch Processor** window.

- To compare the value in relation to your audio material via the **Loudness Analysis** dialog of the **Analyze** tab (available in the **Audio Editor** and in the **Audio Montage** window).

Pitch of A3 (Used in Frequency To Note Conversions)

Sets the reference pitch in WaveLab Pro. The frequency-to-note conversions take this pitch into account.

Create Windows-Compatible File Names (macOS only)

Some characters in file names, for example, | and \, are not supported by Windows. If this option is activated and you save a file, WaveLab Pro converts unsupported characters to characters that are supported by Windows.

MIDI Note Display

The options in this section allow you to choose whether to display the different key values in WaveLab Pro with the pitch or the MIDI note number of the key. In musical notation, keys are denoted according to their pitch. For example, C3 means the note C in the third octave.

Each key corresponds to a MIDI note number from 0 to 127. For example, key C3 corresponds to the MIDI note number 48. MIDI note numbers make it possible for samplers to automatically map samples to the correct keys.

Numeric Style

Determines the format for MIDI notes that are displayed as numbers.

Middle C (Note #60)

Determines the key convention for the MIDI note range (0-127).

Display

Determines how MIDI notes are displayed throughout the application.

CSV Delimiter

CSV Delimiter

Several areas of WaveLab Pro allow you to export information in the CSV text format. This option lets you set the delimiter character that a third-party software requires to import CSV files.

RELATED LINKS
Global Preferences on page 863

CD Writing Tab (Global Preferences)

This tab allows you to set a number of parameters for CD writing and for the creation of DDP images.

- To open the **CD Writing** tab of the **Global Preferences**, select **File** > **Preferences** > **Global** and click **CD Writing**.

CD Writing

Use Burnproof

Fixes possible buffer underrun errors automatically, provided that the CD writer supports this technology.

Allow Disc Overflow

Allows WaveLab Pro to attempt writing more data (maximum 2 minutes) than the official capacity of the disc.

Maximum Audio CD Size

Allows you to specify the maximum length for a CD. A warning message will appear if the project exceeds this length. The standard maximum length is 74 minutes.

DDP Creation

DDP Creation – Format 1.0/Format 2.0

Determines which format to create when producing DDP files for an audio project.

Write Checksum File (CRC-32)

If this option is activated, a file called CHECKSUM.CHK is added to the DDP files that are created on the hard drive. The checksum contains the CRC-32 checksums of the created DDP files.

Write Checksum File (MD5)

If this option is activated, a file called CHECKSUM.MD5 is added to the DDP files that are created on the hard drive. The checksum file contains the MD5 checksums of the created DDP files.

Write Log File

If this option is activated, a text file called gear.log is added to the DDP files that are created on the hard drive. The log file logs all operations.

Warn If Files Already Exist

If this option is activated, a warning message is displayed if files are about to be overwritten in the specified destination folder.

RELATED LINKS

Options Tab (Global Preferences)

This tab allows you to control application-wide start-up options. You can also reset the default message boxes.

● To open the **Options** tab of the **Global Preferences**, select **File** > **Preferences** > **Global** and click **Options**.

Make Tasks Monitor Visible When Task Starts

If this option is activated, the **Tasks** window opens when a background task starts.

Play a Sound When a Long Task Completes

If this option is activated, a sound that is played when a task finishes. The sound is played whether the task is completed successfully or not.

Minimum Duration

Specifies how long a task must be for a sound to be triggered when the task is finished. If the task duration is shorter, no sound is triggered.

Path and Name of the Audio File

Allows you to select which audio file is played. On Windows operating systems, the file format must be WAV, and on macOS operating systems, the file format can be WAV or AIFF.

Only Play the Sound for Blocking Tasks

If this option is activated, the sound only plays if tasks prevent you from working elsewhere in WaveLab Pro. For example, background tasks do not trigger a sound when they are completed.

Interval for Zoom Key Command

Allows you to specify how much the waveform zoom factor changes each time that the zoom shortcuts are triggered. Higher values allow you to zoom in and out more quickly but with bigger steps.

Reset Default Answers

Resets all message box options to their default settings. For example, all **Do not show again** options are deactivated.

RELATED LINKS
Global Preferences on page 863

External Applications Tab (Global Preferences)

This tab allows you to specify external editors and an alternative external file browser.

● To open the **External Applications** tab of the **Global Preferences**, select **File** > **Preferences** > **Global** and click **External Applications**.

External Editors

Allows you to specify the path to external editors that you want to open from WaveLab Pro.

Alternative External File Browser

Allows you to specify an alternative external file browser that opens when you use the **Reveal Folder in File Explorer/macOS Finder** or **Reveal Files in File Explorer/macOS Finder** options in WaveLab Pro.

If the application needs a special command line formatting, you can specify it in the **Command Line** field. Use **%1** as a placeholder for the file or folder to which you want to browse.

RELATED LINKS
Global Preferences on page 863
External Editors on page 887
Alternative External File Browser on page 889

Audio Files Preferences

This dialog allows you to define settings for editing in the **Audio Editor**. However, these settings also affect other parts of WaveLab Pro. You can choose defaults for editing and playback, adjust the visual appearance of the waveform displays, and determine how WaveLab Pro works with audio and peak files.

● To open the **Audio Files Preferences** tab, select **File** > **Preferences** > **Audio Files**.

RELATED LINKS
Editing Tab (Audio Files Preferences) on page 873
File Tab (Audio Files Preferences) on page 875
Style Tab (Audio Files Preferences) on page 877

Editing Tab (Audio Files Preferences)

Display

Show Overview When Opening New Audio Files

If this option is activated and you open an audio file, the overview is also displayed. If this option is deactivated, only the main view is displayed.

Show Overview for Mono and Stereo Files Only

If this option is activated, the overview window is displayed when opening mono and stereo files, and hidden when opening multichannel audio files. To show the overview for multichannel audio files, click at the top of the main window and drag down.
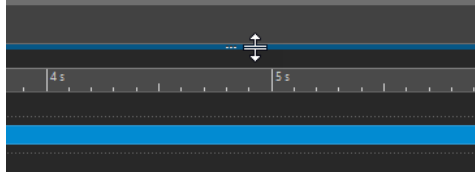
Show Overview When Opening New Audio Files in Multiple Tab Groups

If this option is activated and two or more tab groups are available, the overview is also displayed in the **Audio Editor** when you open an audio file. If this option is deactivated, only the main view is displayed.

Overview: Passive Range Indicator Also Covers the Waveform

If this option is activated, the range indicator that is displayed in the time ruler of the overview also covers the waveform area. Unlike the time ruler indicator, the range indicator is passive and cannot be modified.

Analog Waveform Emulation at Sample Level Zooming

If this option is activated and a waveform is zoomed at the sample level in the timeline, an analog emulation of the waveform is displayed.

Auto-Zoom for Overviews

If this option is activated and you open an audio file, the zoom of the overview is set to display the whole file.

Display File Extension on Tabs

If this option is activated, tabs display file names with their extension. For example, "piano.mp3" instead of "piano".

Number of Seconds to Display on Opening

Allows you to specify the time range to display when opening an audio file for the first time. WaveLab Pro converts this time range to the appropriate zoom factor.

Whole Audio File

If this option is activated, the horizontal zoom is set to display the whole file.

Process Whole File If There is No Selection

If this option is activated and a process is to be applied to an audio file, the whole file is processed if no audio is selected. In the same situation, if the option is deactivated, a warning appears.

Allow Undoing Edits after Saving File

If this option is activated, you can undo edits after you have saved the file. You can deactivate this option if you want to use less disk space or if you want to remove all temporary files when saving the file.

Playback Scrubbing

Restrict to Play Tool

If this option is activated, this function only works if the **Play Tool** is used.

Sensitivity

Allows you to set the micro audio loop duration that is performed when you move the mouse cursor over the time ruler.

Snap Selection to Zero-Crossing

Do Not Snap at High Zoom Factors

If this option is activated, snapping does not occur if the waveform is displayed at a high zoom factor.

Scan Range

Allows you to define how far WaveLab Pro searches a zero-crossing point in the left and right direction.

Upward Crossing Point/Any Crossing Point

Allows you to choose whether you want WaveLab Pro to detect any zero crossing point in the audio (**Any Crossing Point**), or to limit the search to zero crossing points that mark an upward slope (**Upward Crossing Point**).

NOTE

We recommend choosing **Upward Crossing Point** for loop selections. Note that, as only positive slopes are taken into account, selecting this option generates fewer results, with a greater distance between the individual zero crossing points, than **Any Crossing Point**.

Loudness Waveform Overlay

AES-17 Scaling

With this option activated, the **RMS Loudness** of a sine wave matches its peak value.

TIP

To clearly distinguish between the **RMS Loudness** and the peak values of an audio signal, we recommend deactivating this option, as this slightly reduces the height of the loudness display.

Resolution

Allows you to set the duration of audio slices for **RMS Loudness** processing. The lower the value, the more closely the display matches the peaks; the higher the value, the less responsive it is to peaks.

TIP

To highlight highly dynamic sections, with a significant difference between peaks and loudness, we recommend setting a higher value.

NOTE

Changing the resolution results in rebuilding the display for all audio images.

File Tab (Audio Files Preferences)

Warn When Opening a File with a Malformed Header

If this option is activated, a message opens when you open a file with a corrupt header; for example, a damaged file, or a file that is not properly formatted by another application.

If this option is deactivated, WaveLab Pro tries to open the file, but you are not informed about possible issues.

Support RF64 File Format

If this option is activated, WaveLab Pro creates WAV files that can be larger than 2 GB.

NOTE

This file format is not supported by all applications.

Default Sample Rate for Files without Header

Allows you to specify the sample rate of audio files that do not have a header describing this property.

Save Audio Files in the Background

If this option is activated, WaveLab Pro saves audio files in the background, so that you can continue working.

Write Markers in WAV File Header (RIFF Format/BWF Format)

If this option is activated, markers are written in WAV file headers. As a result, the markers are available at all times, even if you open the files in another application.

If **Write Markers in WAV File Header (RIFF Format)** is activated, markers are written in WAV file headers in the RIFF standard. However, WaveLab Pro has more marker options than the RIFF standard.

If **Write Markers in WAV File Header (BWF Format)** is activated, markers are written in WAV file headers in the BWF standard, a standard that serves as a replacement for the older RIFF standard. However, not all applications support the BWF standard.

Write Markers in Separate File

If this option is activated, markers are written in a separate file (extension .mrk) that is saved in the same folder as the audio file. As a result, markers are included in file formats that do not support markers by default.

Save Error and Correction Markers

If this option is activated, error and correction markers are saved with the other markers.

Create Peak Files When Writing Audio Files

If this option is activated, WaveLab Pro writes peak files while rendering audio files.

Delete Peak Files When Closing Audio Files

If this option is activated, peak files are deleted after use. This saves disk space, but as a result, it takes you longer to open the audio files.

Save View Settings with Each Audio File

If this option is activated, the view settings are saved with the audio files.

Location of Associated Files

Allows you to choose where to save associated files (a.k.a. ancillary files):

- **Audio Montage or Project Folder** saves ancillary files in a sub-folder of the audio montage or project folder, labeling the sub-folder as `cache.mon` or `cache.prj`, respectively; provided that the corresponding audio files are also saved in the audio montage or project folder.

- **Specific Folder** saves ancillary files in a folder that you can specify.

  TIP

  We recommend choosing this option in case you see the need to free up memory space later on, as you can periodically delete the content of the folder without risking to lose any important data.

- **Side to Side with Audio File** saves ancillary files in the same directory as the corresponding audio files.

Allow Opening of Dual Mono Files

Enables the identification of multiple selected mono files as stereo files, based on their names, and allows you to edit them as a single stereo file.

Name Creation/Name Interpretation

Allows you to define a name creation pattern and up to seven name interpretation patterns for different naming schemes.

- Name creation pattern (only one) is used by WaveLab Pro to add the specified suffix to audio files when creating dual mono files. The default suffix is "-L" and "-R".

- Name interpretation patterns (up to seven) are used by WaveLab Pro to identify the original channel of mono files, based on an analysis of their names.

Left Channel ID/Right Channel ID

Represent character sequences that are used to identify the left and right channel files in their names; for example, "_l" for the left channel and "_r" for the right channel.

Suffix

With this option activated, the channel ID string must be located at the end of the file name.

Advanced

With this option activated, which requires a name pattern, the channel ID string can be located anywhere in the file name. The name pattern must have a {capture} section.

Default suffixes for recognizing dual mono files:

- -L/-R

- _L/_R

- .L/.R

NOTE

This option is only available for input patterns.

Style Tab (Audio Files Preferences)

This tab allows you to specify custom colors for parts of the **Audio Editor**.

Theme

Allows you to select the default style and conditional styles.

Parts

Shows parts that can be colorized. Click a part to edit the color.

Hide (for specific parts only)

Hides the selected part.

Dotted Line (for specific parts only)

Changes the line to a dotted line.

Transparency (for specific parts only)

Allows you to edit the degree of transparency of the selected element.

Element Size (for specific parts only)

Allows you to edit the size of the selected element.

Change Both Channels If Applicable

Allows you to apply separate color settings to the left and the right sides of a stereo file. If this option is activated, settings for the left side of a file are automatically mirrored on the right side, and vice versa.

Change Both Main View and Overview

Allows you to apply separate color settings to the main view and the overview. If this option is activated, settings for the main view are automatically mirrored on the overview, and vice versa.

Color Picker

Allows you to select the color for the selected part. Click the surrounding circle to select the hue. Click in the triangle to adjust the saturation and lightness.

Red/Green/Blue

Allows you to specify the red, green, and blue components of the RGB color spectrum.

Copy Color

Copies the current color to the clipboard.

Paste

Pastes the color from the clipboard.

This Style Is Used If These Conditions Apply

These options allow you to define conditions under which a specific color style is applied.

Mid/Side Display

If this option is activated, the color style is applied to files that are displayed in mid/side view.

File Extension Is Any Of

If this option is activated, the color style is applied to files with the specified extension. Separate extensions with a ";" character.

Name Contains Any of These Keywords

If this option is activated, the color style is applied to files with specific keywords in their name. Separate keywords with a ";" character.

Sample Rate Is in the Range

If this option is activated, the color style is applied to files that have a sample rate within the specified range.

Bit Depth Is in the Range

If this option is activated, the color style is applied to files that have a bit depth within the specified range.

Number of Channels Is

If this option is activated, the color style is applied to files that have the specified number of channels.

RELATED LINKS

Color Elements in the Audio Editor

You can assign custom colors to various elements of the **Audio Editor**. For some elements, further styling options are available.

Left Channel/Right Channel

Waveform

The waveform color.

Waveform (Selected)

The waveform color of the selected part of the waveform.

Waveform Outline

The outline color of the waveform.

Waveform Outline (Selected)

The outline color of the selected part of the waveform.

Background Top

The color of the background top.

Background Top (Selected)

The color of the selected part of the background top.

Background Bottom

The color of the background bottom.

Background Bottom (Selected)

The color of the selected part of the background bottom.

Waveform Main Axis

The color of the waveform main axis and its style.

Waveform 50% Axis

The color of the waveform 50% axis and its style.

Waveform Elements

Channel Separator

The color of the channel separator line.

Pre-/Post-Roll Indication

The color of the pre-/post-roll indication.

Marker Line

The color of the marker lines and an optional transparency.

Edit Indicator Line

The color of the edit indicator line.

Edit Indicator Head

The color of the edit indicator head.

End of File Indicator

The color of the end of the file indicator.

Time Ruler Style

The color of the time ruler and its style.

Time Ruler Font

The color of the font on the time ruler and the font size.

Level Ruler Style

The color of the level ruler, its style, and transparency.

Level Ruler Font

The color of the font on the level ruler and the font size.

RELATED LINKS
Audio Files Preferences on page 872
Style Tab (Audio Files Preferences) on page 877

Audio Montages Preferences

This dialog allows you to set up general parameters for all audio montages or for the active audio montage only.

● To open the **Audio Montages Preferences** tab, select **File** > **Preferences** > **Audio Montages**.

RELATED LINKS
Active Audio Montage Tab on page 879
All Audio Montages Tab on page 880
Style Tab on page 883

Active Audio Montage Tab

The settings on this tab apply to the active audio montage only.

Default Gap

Sets the default gap for clips. This setting is used for separating clips; for example, when you insert several clips at the same time.

Show Copy Option Dialog When Importing Files

Allows you to choose whether or not to display the **Copy File to the Audio Montage Folder** option when inserting audio files into an active audio montage.

RELATED LINKS
Audio Montages Preferences on page 879

All Audio Montages Tab

The settings on this tab apply to all audio montages.

Periodic Copy Saving

Maximum Number of Copies

Allows you to specify how many back-up copies of the audio montage to keep.

Auto Save

Automatically saves the audio montage at intervals which you can specify in the time field below.

Display Options

Colored Clips Take Priority Over Rainbow Display

Displays any clips to which you assigned specific colors in their custom colors, even with the **Rainbow** display activated. This enables you to clearly identify them by their colors at all times, while you still benefit from the advantages of the **Rainbow** display for all other clips.

Display Clip Side Cues

Allows you to choose whether to show or hide clip side cues; that is, small red arrows at the right and/or left border of a clip that indicate that the clip has been trimmed and only part of it is currently visible.

Display Indications of Possible Actions

Displays hints in the status bar of the audio montage about what you can do at the current mouse position.

Display Envelope Tooltip While Editing

Displays a tooltip when you click and drag an envelope element. The tooltip indicates the value of the performed editing.

Clip Time Ruler – Time is Relative to Clip Start

With **Ruler** activated in the **Clip** section of the **View** tab, choosing this option sets the clip ruler time at the start of a clip to zero. If this option is deactivated, the clip ruler time is relative to the time of the audio file source.

Clip Time Ruler – Show Grid

Displays a grid in the **Audio Montage** window, aligned with time ruler marks; that is, the major ticks on the time ruler.

Video Window

If **Show Timecode** is activated, a timecode in the **Video** window represents time using hours, minutes, seconds, and frames to provide a location for each device. Each frame represents a visual film or video frame.

Reset Plug-ins before Rendering

If this option is activated before rendering, all active plug-ins are reloaded.

Use this option if you experience clicks or noises in rendered audio files.

Reset Plug-ins When Starting Playback

If this option is activated, all active effect plug-ins are instructed to release all samples in their memory when you start playback.

You can use this option if you experience clicks or noises when the playback position reaches the start of a clip that contains effects, such as reverb or delay.

NOTE

Activating this option can lead to a delayed response upon playback start. Therefore, we recommend that you deactivate it, unless you experience a shortage of memory that is caused by too many plug-ins.

Show Copy Option Dialog When Importing Files

Allows you to choose whether or not to display the **Copy File to the Audio Montage Folder** option when inserting audio files into audio montages.

Further Settings

Basic Amplitudes for Nudging – Time/Gain

Defines the amount with which elements are adjusted when you modify them with the nudge commands. This is used for nudging the position of objects or edges and for nudging volume gains.

CD Cue Sheets – Write Audio File Names without Path

If this option is activated, audio files are referenced without a path when generating CD cue sheets.

Process with Multiple Cores

If this option is activated, WaveLab Pro uses multiple CPU cores to process the audio montage during playback and file rendering. It is recommended to activate this option unless you are using non-multicore compatible plug-ins.

Suspend Track Plug-in Processing When Audio Is Silent

If this option is activated, the track plug-ins and track group plug-ins are bypassed if their input signal is silent. This can improve system performance noticeably for playback and rendering. WaveLab Pro automatically detects reverb signals and continues to send a silent signal for these plug-ins.

When a plug-in does not receive a silent signal, its meters might not reflect its status. In this case, you can instruct WaveLab Pro to continue sending the silent signal for the time specified in the **Processing Hold Time After Silence** value field.

Plug-in Warm-Up

Grants plug-ins a warm-up phase by inserting audio samples (usually silence) prior to processing an audio range, such as a clip, a title, or a time selection. This sample prefetching can enhance the resulting audio quality.

You can choose from the following warm-up options:

- **OFF** deactivates the option.
- **500 milliseconds** is the default value.
- **1 second** applies an extended warm-up phase.

When an Audio File Is Replaced in a Clip

When you replace the audio file in a clip, the clip is resized accordingly.

This applies in the following situations:

- When replacing the audio file of a clip

- When replacing an audio file in an audio montage

- When rendering a super clip

- When re-rendering a sequencer project whose file is used by one or more clips

Markers that are attached to the clips are automatically shifted.

The following options determine what happens when you replace the audio file in a clip.

- If **Synchronize Clip Length with Audio File** is activated, the clip length is set to the length of the new audio file.

- If **Shift Clips on the Right** is activated, the clips on the right of the clip retain their relative position.

NOTE

This only applies to clips that represent the whole audio file. If a clip is only a limited view of a larger audio file, these options have no effect.

Default Settings for New Clips

Allows you to specify whether the level/fade envelope or pan envelope should be applied before or after the clip effects when creating new clips. The following options are available:

- **Level/Fade Envelope before Effects**

- **Level/Fade Envelope after Effects**

- **Pan Envelope before Effects**

- **Pan Envelope after Effects**

Loudness Matching

Allows you to choose from a range of options for loudness matching.

- **Warm-Up Time** allows you to specify the time in which the loudness level is calculated before loudness matching is initiated, in seconds.

- **Deviation Warning** allows you to specify a threshold value for the deviation of the current, equalized gain from the required gain, which, when exceeded, triggers a visual warning. In this case, the deviation label is highlighted in red.
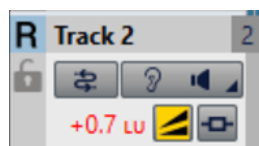
- **Reset Gain Automatically** automatically readjusts the gain to the required level.

- **Ceil Gain** allows you to set the ceiling level, that is, the upper limit of the gain, to prevent sudden loudness surges and to avoid stress on the speakers. When the limit is reached, the value is displayed with a red background, next to the corresponding yellow button.
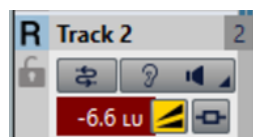
This setting only becomes relevant if you use entirely different, unrelated audio signals for the comparison.

Monitoring Filters (Output)

Allows you to set and customize filters for monitoring specific frequency ranges of your audio montage output or reference tracks.

- **Low-pass Filter** allows you to set a frequency above which frequencies are attenuated, to isolate the low frequencies as an individual frequency range for monitoring.

- **Band-pass Filter #1** allows you to set an individual frequency range, to isolate it for monitoring.

- **Band-pass Filter #2** allows you to set an individual frequency range, to isolate it for monitoring.

- **Band-pass Filter #3** allows you to set an individual frequency range, to isolate it for monitoring.

- **High-pass Filter** allows you to set a frequency below which frequencies are attenuated, to isolate the high frequencies as an individual frequency range for monitoring.

RELATED LINKS

Style Tab

This tab allows you to specify custom colors to clips and parts of a clip in the **Audio Montage** window.

Theme

Allows you to switch between the WaveLab Pro color schemes.

Parts

Shows parts that can be colorized. Click a part to edit the color.

Checkbox

Allows you to select multiple parts to colorize multiple parts at the same time.

Undo

Undoes the last change. This action is also possible after saving the file.

Redo

Allows you to redo changes that were undone. This action is also possible after saving the file.

Hide

Hides the selected part.

Change Both Channels If Applicable

It is possible to specify different colors for the left and the right side of stereo clips. If this option is activated, settings for the left side of a clip are automatically mirrored on the right side, and vice versa.

Color Picker

Allows you to select the color for the selected part. Click the surrounding circle to select the hue. Click in the triangle to adjust the saturation and brightness.

Red/Green/Blue

Allows you to specify the red, green, and blue components of the RGB color spectrum.

Copy Color

Copies the current color to the clipboard.

Paste

Pastes the color from the clipboard.

This Style Is Used If These Conditions Apply

These options allow you to define conditions under which a specific color style is applied.

File Extension Is Any Of

If this option is activated, the color style is applied to clips referencing a file with the specified extension. Separate extensions with a ";" character.

Name Contains Any of These Keywords

If this option is activated, the color style is applied to clips with specific keywords in their name. Separate keywords with a ";" character.

Sample Rate Is in the Range

If this option is activated, the color style is applied to clips referencing a file that has a sample rate within the specified range.

Bit Depth Is in the Range

If this option is activated, the color style is applied to clips referencing a file that has a bit depth within the specified range.

Number of Channels Is

If this option is activated, the color style is applied to clips that have the specified number of channels.

RELATED LINKS

Color Elements in the Audio Montage

You can assign custom colors to various elements of the audio montage window.

Clip Colors

The following clip types are available:

Crossfade Region

Allows you to set the background color for overlapping clip sections.

Default

The default colors, used for clips for which you have not selected any specific color.

Mid/Side

The colors used for mid/side clips.

Locked

The colors used for fully locked clips.

Muted

The colors used for muted clips.

Custom

These options correspond to the items in the color submenus. You can set up conditions in the **This Style Is Used If These Conditions Apply** section for when these should be automatically applied.

The following color elements are available:

Background Top/Bottom (Normal/Selected/Selected Range)

The background colors of the clip for selected and unselected clips and the selection range. The resulting display backgrounds are gradient fades from the top colors to the bottom colors.

Waveform (Normal/Selected/Selected Range)

The waveform color for selected and unselected clips and the selection range.

Waveform Outline (Normal/Selected/Selected Range)

The color of the waveform outline for selected and unselected clips and the selection range.

Edge

The left and right edge of the clip.

Edge (Selected)

The left and right edge of a selected clip.

Edge (Selected Range)

The left and right edge of a selected clip if within a selection range.

Axis (Level Zero)

The color of the horizontal dotted line in the middle of a clip, indicating the zero level.

Axis (Half Level)

The color of the horizontal dotted lines halfway up and down from the middle of a clip, indicating 50% level.

Channel Separator (Stereo Clip)

The line dividing the two sides in a stereo clip.

Clip Name

The name label of the clip.

Active Clip Name

The name label of the active clip.

Active Clip Name Background

The name label background of the active clip.

Miscellaneous

Background Top/Bottom

The background colors of the track view for areas without a clip.

Background (Selected Range) Top/Bottom

The background colors in selected ranges.

Marker Line

The color of the marker lines in the audio montage.

Cue Point Line/End Cue Point Line

The color of the vertical dotted cue point lines and end cue point lines.

Marker Line (Source File)

The color of marker lines from the source montage window.

NOTE

The marker lines are displayed if **Ruler** is activated in the **Clip** section of the **View** tab.

Time Ruler (Source File)

The color of the source ruler.

NOTE

The source ruler is displayed if **Ruler** is activated in the **Clip** section of the **View** tab.

Time Grid Lines

The color of the time grid if activated on the menu of the time ruler.

RELATED LINKS
Audio Montages Preferences on page 879
Style Tab on page 883

Synchronizing WaveLab Pro Settings on Several Computers

You can make some reference settings available to other WaveLab Pro installations. These settings can then be used by other WaveLab Pro workstations to keep the settings synchronized on several computers.

PROCEDURE

1. Select **File** > **Preferences** > **Global**.

2. Select the **General** tab.

3. In the **Setting Location** section, specify where to save the settings.

Multi-User Settings

If you use multiple WaveLab Pro stations in your studio or in your school, for administration, etc., you can set up one WaveLab Pro station to be the master station. The shared preferences and presets of this station can then be used by other slave stations.

These settings can be saved on the local network, for example.

If the administrator updates these settings, the different WaveLab Pro stations can synchronize with the master settings. You can also use this feature for individual computers to back up a reference setting and revert to this if necessary.

The settings in the **General** tab of the **Global Preferences** dialog are not synchronized. These are saved for each user in the `startup.ini` (Windows) or `startup.plist` (Mac).

> **IMPORTANT**
>
> Settings cannot be synchronized between PC and Mac.

Setting Up a Multi-User Setup

You can use the settings that you have applied on a master WaveLab Pro station for other slave WaveLab Pro stations.

PROCEDURE

1. Set up a WaveLab Pro station with all settings and presets that you want to use on other WaveLab Pro stations.

2. Assign read-only access to the settings folder of the master WaveLab Pro station.

3. Open WaveLab Pro on another station for which you want to use the master settings.

4. Select **File** > **Preferences** > **Global**.

5. Select the **General** tab.

6. In the **Synchronization Settings** section, set up the **Master Folder**, specify when the settings should be synchronized, and specify whether to include the preferences and/or presets.

7. Close WaveLab Pro.

8. Copy the `startup.ini` (Windows) or `startup.plist` (Mac) of the slave WaveLab Pro station to the settings folder of the other slave WaveLab Pro stations.

RESULT

All slave WaveLab Pro stations use the settings of the master WaveLab Pro station.

External Editors

You can integrate external editors, for example, SpectraLayers, Melodyne 4, or Izotope RX, into your WaveLab Pro workflow. This allows you to modify audio files and clips in one or more external editors directly from within your current WaveLab Pro session.

You can use external editors before or after you use clip effects on the audio clip. However, we recommend that you edit the clip in the external editors before you add clip effects. This workflow requires less processing power.

Your edits are applied to a copy of the source audio. This means that you are editing in a non-destructive environment. For audio montages, WaveLab Pro creates temporary files in the **DATA** folder of the audio montage. For audio files, WaveLab Pro creates temporary files in the user location or in the location that you have defined in the **Folders** tab in the **Preferences**.

RELATED LINKS

Setting up External Editors

Before you can use external editors in WaveLab Pro, you must specify the file location of the external editors.

PROCEDURE

1. Select **File** > **Preferences** > **Global**.

2. Click **External Applications**.

3. Click in an **External Editors** field.

4. In the File Explorer/macOS Finder, select the external editor that you want to integrate into WaveLab Pro, and click **Open**.

Editing Audio Files in External Editors

You can edit audio files with external editors. This way, you can edit your audio files from within WaveLab Pro and without changing the original files.

PREREQUISITE

You have set up any external editors in the **Global Preferences**.

PROCEDURE

1. In the **Audio Editor**, make a selection.

   You can select a range on mono channels and stereo channels.

2. Select the **Edit** tab.

3. In the **Editors** section, click **External Editor**, and select the external editor that you want to open.

4. In the external editor, make your edits.

5. After editing in the external editor, you must update the clip in WaveLab Pro. This procedure depends on the external editor.

   ● In SpectraLayers, select **File** > **Replace Project Audio in WaveLab**.

   ● In Melodyne 4, select **File** > **Replace Audio**.

RESULT

In the **Audio Editor**, the edited audio is inserted as a new audio file.

RELATED LINKS

Setting up External Editors on page 888

Editing Audio Montages in External Editors

You can edit audio montage clips with external editors.

PREREQUISITE

NOTE

We recommend using no clip effects when working in external editors to prevent duplicating clip effects when you insert a new clip.

You have set up any external editors in the **Global Preferences**.

1. In the **Audio Montage** window, select a clip or make a selection on a clip.

2. Select the **Edit** tab.

3. In the **Editors** section, click **External Editor**, and select the external editor that you want to open.

4. In the external editor, make your edits.

5. After editing in the external editor, you must update the clip in WaveLab Pro. This procedure depends on the external editor.

   - In SpectraLayers, select **File** > **Replace Project Audio in WaveLab**.

   - In Melodyne 4, select **File** > **Replace Audio**.

RESULT

If you have selected a range for editing in an external editor, the edited audio is inserted as a new audio clip. If you have selected an entire clip for editing in an external editor, the entire clip is replaced with the updated clip. The clip effects of the original clip are copied to the new clip.

RELATED LINKS
Setting up External Editors on page 888

Alternative External File Browser

By default, WaveLab Pro uses the file browser of your operating system when you browse for audio files, for example. However, you can specify an alternative external file browser in the **Preferences**.

RELATED LINKS
Setting up Alternative External File Browsers on page 889

Setting up Alternative External File Browsers

PROCEDURE

1. Select **File** > **Preferences** > **Global**.

2. Select **External Applications**.

3. Activate **Alternative External File Browser**.

4. Click the text field to open the file browser.

5. Specify the file location of the alternative external file browser.

6. Click **OK**.

RELATED LINKS
Alternative External File Browser on page 889
External Applications Tab (Global Preferences) on page 872

External Tools

You can configure external tools to work with WaveLab Pro. You can pass command line arguments on to the external tools so that they can process the current file/folder on which you are working, or the settings folder of WaveLab Pro.

This function is useful if you want to edit an audio file in another application, or if you want to compress all your audio files into a backup ZIP file, for example.

Once you have defined an external tool, you can run it by selecting it from the **External Tools** pop-up menus in the **Audio Editor** and **Batch Processor** window.

NOTE

An external tool only works within the editor in which it is defined. Thus, each editor type can have its own external toolkit.

RELATED LINKS
Configuring External Tools on page 890

Configuring External Tools

To be able to select external tools from the **Tools** menu, you must configure them.

PROCEDURE

1. In the **Audio Editor** or the **Batch Processor** window, open the **Configure External Tools** dialog.

2. In the **Configure External Tools** dialog, click the plus icon to create a new tool definition.

3. Specify a title, the path to the external tool that you want to run, arguments, an initial folder, and a comment.

4. Optional: Add more tool definitions by clicking the plus icon again.

RESULT

The external tool is configured and can be selected from the **Tools** menu.

Once an external tool has been configured, you can assign a shortcut to it.

RELATED LINKS
Configure External Tools Dialog on page 891
Customizing Shortcuts on page 843

Running an External Tool After a Batch Process

You can specify external tools to run after a batch process is completed. For example, you can run a tool to zip the output files or an FTP tool to upload the files to the Internet.

PREREQUISITE
Configure the external tool that you want to run after the batch process.

PROCEDURE

1. In the **Batch Processor** window, select the **Options** tab.

2. From the **On Success, Run External Tool** pop-up menu, select the external tool that you want to run after the batch process.

RELATED LINKS

Configure External Tools Dialog

In this dialog, you can configure external tools to work with WaveLab Pro. For example, you can run a tool to zip the output files or an FTP tool to upload the files to the Internet.

● To open the **Configure External Tools** dialog for audio files, select the **Process** tab in the **Audio Editor**, click **External Tools** in the **Other** section, and select **Configure External Tools**.

● To open the **Configure External Tools** dialog for batch processes, select the **Options** tab in the **Batch Processor** window, open the **On Success, Run External Tool** pop-up menu, and select **Configure External Tools**.

List of external tools

The list of all external tools that are defined, in the order as they appear in the **Tools** menu.

Create item

Creates a new tool definition.

Delete item

Deletes the selected tool definition from the list.

Move selected item one position up/down

Moves the selected tool definition one position up/down.

Title

The title for the tool definition.

Application

The full path and file name of the application to run.

Arguments text field

The list of arguments to pass on to the application. Normally, there is at least one argument, for example, the active file name in WaveLab Pro. The required arguments depend on the application to run. Refer to the related documentation.

The arguments must be separated from one another by a space character. If an argument contains space characters, it must be enclosed in quotes.

Predefined arguments can be selected via the menu button next to this text field.

Arguments button

Opens a menu with a list of predefined arguments. These are placeholders that are replaced by actual values at runtime.

For example, if you select **Active File Name with Its Path** from the menu, the following text is inserted: **$(FilePathAndName)**. At runtime, this symbol could be replaced by **C:/Music/Piano.wav**, presuming that this is the active file in WaveLab Pro.

Initial Folder

Specify the reference path that might be needed by the application. This path depends on the application. This setting is optional.

Comment

Allows you to add comments.

Before Execution – Warn If Active File Has Unsaved Changes (Audio Editor only)

If this option is activated, WaveLab Pro warns you if the active file has unsaved changes before running the external tool.

Before Execution – Close Active File (Audio Editor only)

If this option is activated, WaveLab Pro closes the active file before running the external tool. This is useful if the tool is meant to modify the active file.

Before Execution – Stop Playback (Audio Editor only)

If this option is activated, WaveLab Pro stops playing back the file before running the external tool. This is useful if the tool is meant to play back the file.

RELATED LINKS

Index