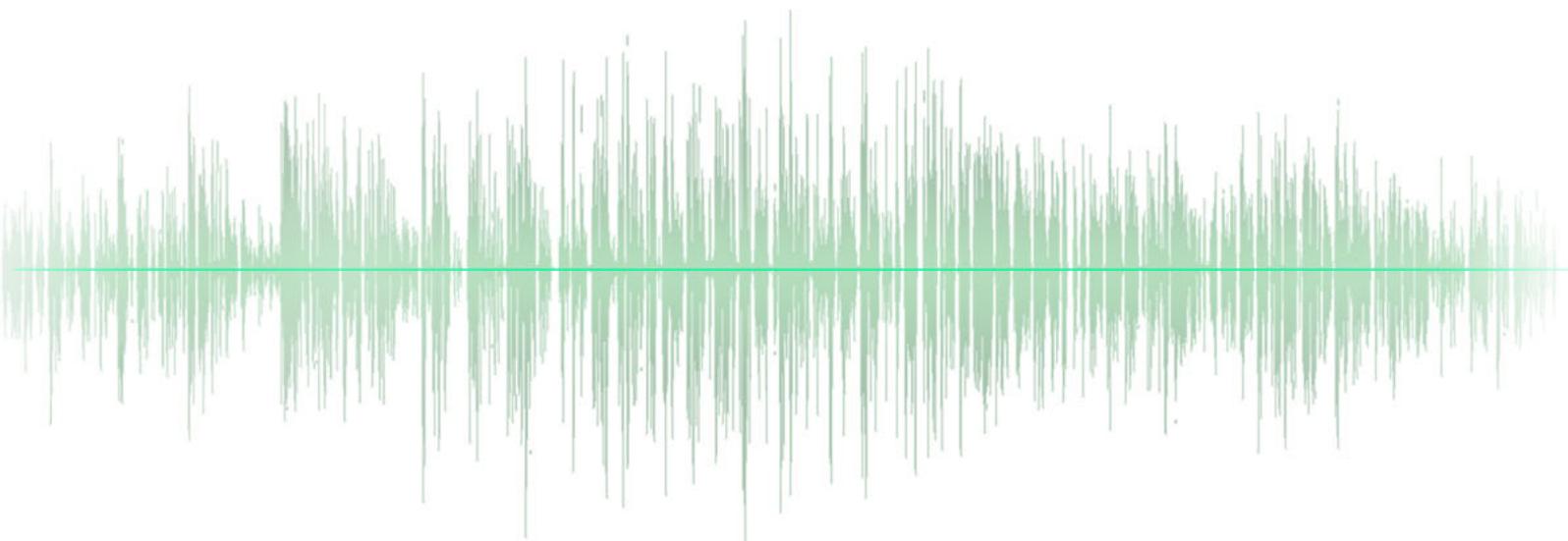


# Operation Manual



# WAVELAB ELEMENTS<sup>9</sup>

Personal Audio Editing System



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# Introduction

## Help System

The detailed help system of WaveLab Elements enables you to look up interface features and get information from within the program.

## Accessing the Help System

There are several ways of accessing the help system.

- To open the WaveLab Elements help, select **Help > Contents**.
- To open the manual in PDF format, select **Help > PDF Documentation**.
- To show tooltips, move the mouse over an interface icon.
- To open the help for an active dialog, click the question mark icon on the title bar (Windows) or in the dialog (Mac OS) to show the **Help** button, and then click the **Help** button, or press [F1] (Windows) or [Command]-[?] (Mac OS).
- To use the menu help, move the mouse over a menu item.
- To see information on what kind of editing can be performed when using the mouse and modifier keys in the **Audio Montage** window, move the mouse over the montage window. The help text is displayed on the info line at the bottom of the window.

To open the “What's This” help, you have the following possibilities:

- In any window, press [Shift]-[F1] and move the mouse over an interface item, or select **Help > What's This?**.
- In a dialog, select the question mark icon on any title bar (Windows) or in the dialog (Mac OS), and move the mouse over an interface item or a menu option.
- Some “What's this” tooltips include a link to a dedicated help topic.

### RELATED LINKS

[Info Line on page 173](#)

## About the Program Versions

The documentation covers the operating systems Windows and Mac OS X.

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 Mac OS X.

Some points to consider:

- The screenshots are taken from a Windows operating system.
- Some functions that are available on the **File** menu on Windows operating systems can be found in the program name menu on Mac OS X operating systems.

## Conventions

In our documentation, we use typographical elements and mark-ups to structure information.

## Typographical Elements

The following typographical elements mark the following purposes.

### **PREREQUISITE**

Requires you to complete an action or to fulfill a condition before starting a procedure.

### **PROCEDURE**

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

### **IMPORTANT**

Informs you about issues that might affect the system, the connected hardware, or that might bring a risk of data loss.

### **NOTE**

Informs you about issues that you should consider.

### **EXAMPLE**

Provides you with an example.

### **RESULT**

Shows the result of the procedure.

### **AFTER COMPLETING THIS TASK**

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

## RELATED LINKS

Lists related topics that you can find in this documentation.

## Mark-Ups

Bold text indicates the name of a menu, option, function, dialog, window, etc.

---

### EXAMPLE

To open the **Layout Options** pop-up menu, click **Layout Options** in the top right corner of the **Audio Editor**.

---

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

---

### EXAMPLE

Select **File > Save As**.

---

## Key Commands

Many of the default key commands use modifier keys, some of which are different depending on the operating system.

For example, the default key command for **Undo** is [Ctrl]-[Z] on Windows and [Command]-[Z] on Mac OS X. When key commands with modifier keys are described in this manual, they are shown with the Windows modifier key first, in the following way:

- [Win modifier key]/[Mac modifier key]-[key]

---

### EXAMPLE

[Ctrl]/[Command]-[Z] signifies: press [Ctrl] on Windows or [Command] on Mac OS X, then press [Z].

Similarly, [Alt]/[Option]-[X] signifies: press [Alt] on Windows or [Option] on Mac OS X, then press [X].

---

## How You Can Reach Us

On the **Help** menu in WaveLab Elements, you find items linking to additional information.

The menu contains links to various Steinberg web pages. Selecting a menu item automatically launches your browser and opens the page. On these pages, you can find support and compatibility information, answers to frequently asked questions, information about updates and other Steinberg products, etc. This requires that you have a web browser installed on your computer, and a working Internet connection.

# Setting Up Your System

Before you start working, you need to make some settings.

## IMPORTANT

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

## Connecting Audio

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

## Audio Cards and Background Playback

When you activate playback or recording in WaveLab Elements, other applications cannot access the audio card. Likewise, if another application uses the audio card, WaveLab Elements is unable to play back. The Windows MME driver is an exception from this.

You can run WaveLab Elements together with other applications and always give the active application access to the audio card.

---

### PROCEDURE

1. Select **File > Preferences > VST Audio Connections**.
  2. Select the **Options** tab.
  3. Activate **Release Driver**.
  4. Do one of the following:
    - If you want to release the driver when WaveLab Elements is in the background, activate **When WaveLab Elements is in Background**.
    - If you want to release the driver only when Cubase is in the foreground, activate **When Cubase is in Foreground**.
-

## Latency

Latency is the delay between when audio is sent from the program 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 strictly the case with WaveLab Elements.

When working with WaveLab Elements, the important issues are optimum and stable playback and editing precision.

The latency in an audio system depends on the audio hardware, its drivers, and settings. In case of dropouts, crackles, or glitches during playback, raise the **Buffer Number** setting on the **Options** tab in the **VST Audio Connections**, or increase the buffer size in the ASIO control panel, specific to the audio card.

### RELATED LINKS

[VST Audio Connections Tab on page 12](#)

## Defining VST Audio Connections

To be able to play back and record audio in WaveLab Elements, you must specify how the internal input and output channels in WaveLab Elements are connected to your sound card and which device you intend to use for audio playback and recording.

You can define the buffer settings for your device as well as set up connections to external gear, such as external effects units. You should select at least two channels for stereo playback and recording.

If you have no third-party audio card, you can select the **Windows MME** driver or **Built-in Audio** (Mac) options. You can also use MME with most third party audio cards, with the advantage that you can record and play at different sample rates. However, Windows MME drivers do not allow audio monitoring in the **Recording** dialog or multichannel operation, and other drivers generally offer better sound quality and performance.

### RELATED LINKS

[VST Audio Connections Tab on page 12](#)

## Selecting an 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 soundcard of a computer.

---

### PROCEDURE

1. Select **File > Preferences > VST Audio Connections**.
2. Open the **Audio Device** pop-up menu and select your ASIO driver.  
The **ASIO Plug-ins** tab and the **Control Panel** button are activated.

3. Optional: Click **Control Panel** and make your settings.
  4. On the **ASIO Plug-ins** tab, select the audio ports that are used for recording and monitor input of the ASIO plug-ins.
- 

## Selecting a Windows MME Driver

---

### PROCEDURE

1. Select **File > Options > VST Audio Connections**.
  2. Open the **Audio Device** pop-up menu and select **Windows MME**.
  3. On the **Playback** tab, select the audio ports that are used for playback.
  4. On the **Recording** tab, select the audio ports that used for recording and monitor input.
- 

## VST Audio Connections Tab

This tab allows you to specify how the internal input and output channels in WaveLab Elements are connected to your sound card and which device you want to use for audio playback and recording.

- To open the **VST Audio Connections** tab, select **File > Options > VST 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 **Windows MME** driver or **Built-in Audio** (Mac) options.

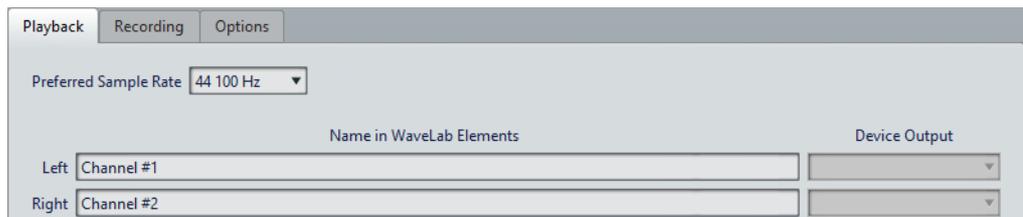
### Control Panel

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 select and name audio ports that are used for playback.

## Recording Tab



This tab allows you to select and name your audio ports that are used for recording and input monitoring. The inputs that you define here are then available in the **Recording** dialog.

## Options Tab

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

### Buffer Number

Increasing this value improves the elasticity of audio streaming to avoid dropouts.

### MME Specific – Buffer Size

Increasing this value improves the elasticity of audio streaming to avoid dropouts. This is only available when an MME driver is selected.

### Initialize Streaming Engine at First Use

Initializes the audio streaming engine when playback or recording are used for the first time. If this option is deactivated, the audio streaming engine is initialized at program startup.

### Reset Driver When Changing Sample Rate

Resets the driver when sample rate is changed. When playback or recording must be set to a new sample rate, some audio device drivers must be fully reset to work properly. This operation takes some time.

### Perform Short Fade In/Out When Starting/Stopping Playback

Performs a short fade in when starting playback and a short fade out when stopping playback. This avoids clicks that are caused by waveforms that are not starting on a zero-crossing point.

### Release Driver

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

- If **When WaveLab Elements is in Background** is activated, the driver is released when WaveLab Elements is in the background.
- If **When Cubase is in Foreground** is activated, the driver is released when Cubase is in the foreground.

## CD/DVD Recorders

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

Make sure to 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 Devices

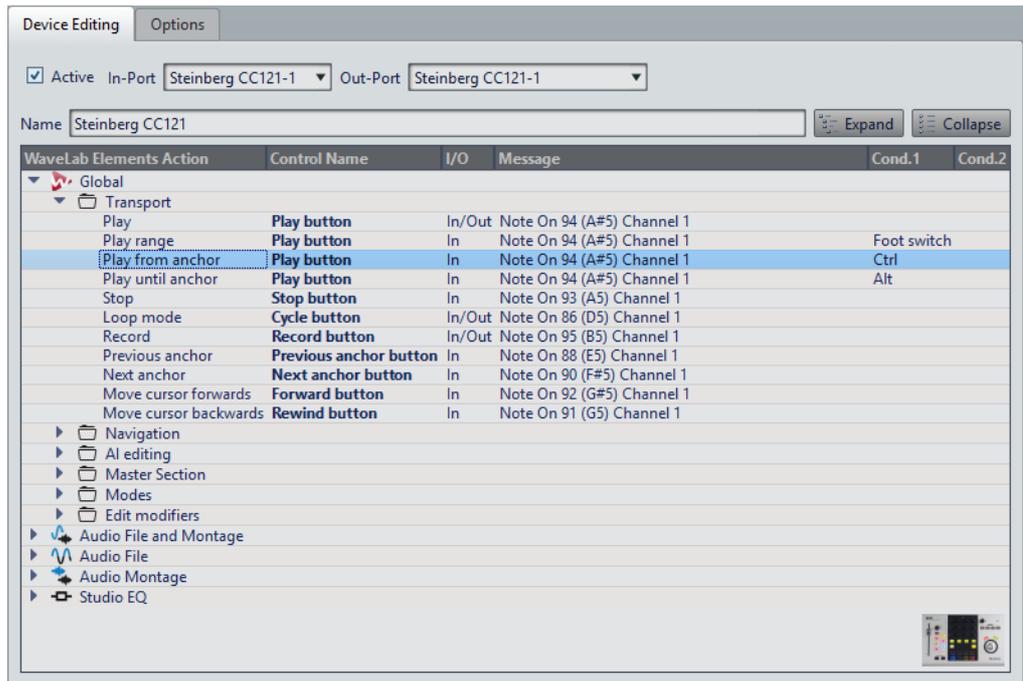
You can use remote devices to remote-control WaveLab Elements.

Several commands can be controlled with knobs and sliders of your remote control device.

### Remote Devices Tab

This tab allows you to select a device to remote-control WaveLab Elements, and see the control map of MIDI control devices.

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



## Device Editing Tab

This tab lets you select a MIDI control device and see the control map.

### Active

Activates the selected device and scans the MIDI ports.

### In-Port/Out-Port

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

### Name

Lets you enter a map name.

### Expand/Collapse

Expands/collapses the folder tree of the control map.

### WaveLab Elements Action List

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

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

The **Global** folder contain the parameters that can always be controlled.

## Options Tab

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

### **Emulate Mouse Wheel**

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

### **Edit Focused Numeric Field**

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

## **CC121 Advanced Integration Controller**

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

This section describes the WaveLab Elements factory preset for the CC121. For detailed information on how to use the controller, refer to the manual that came with the CC121. Note that the CC121 was originally designed for Cubase. The following mapping combines the WaveLab Elements functionality with the CC121 controls. The controls that are not listed in the following paragraph are not assigned to a parameter.

### **Channel Section**

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

#### **Fader**

Controls the **Master Section** fader.

#### **PAN knob**

Controls the gain of the selected track.

#### **Mute**

Mutes/Unmutes the selected track.

#### **Solo**

Activates/Deactivates solo for the selected 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]/[Option]. 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]/[Command].

### **EQ Section**

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

If the EQ TYPE button 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 Elements navigation mode by turning off the EQ TYPE button. In WaveLab Elements navigation mode, you get access to alternative functions, such as scrolling, zooming, and switching between windows.

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 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 on the **Audio Montage** window or scrolls vertically on 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**

In this section you can control the transport functions of WaveLab Elements.

**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**

In this section, you can 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 Elements 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.

In this section you can control parameters via the AI knob.

#### **AI KNOB**

Controls the VST 3 plug-in parameters, emulates the mouse wheel, for example, for scrolling, and lets you 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.

### **CUBASE READY Indicator**

The CUBASE READY indicator has no function in WaveLab Elements.

### **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 Elements Concepts

This chapter describes general concepts that you will use when working with WaveLab Elements. Getting accustomed with these procedures allows you to work more effectively with the program.

## 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 cut, copy, paste, or the selection of multiple items can be performed using standard keyboard shortcuts.

### NOTE

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

## Startup Dialog

When WaveLab Elements starts, the **Startup** dialog opens where you can select which file or template you want to open.



## Create

### Empty Window

Creates an empty WaveLab Elements window.

### Templates

Allows you to open a template in a new project.

## Open

### Last Files

Opens the files that you last used in WaveLab Elements.

### Recent Files

Allows you to open a recently used file.

### Browse

Allows you to select the files that you want to open.

### Use as Default (Do Not Show This Dialog Again)

If this option is activated, the option that you select is used from now on and the startup screen does not open anymore. To display the **Startup** dialog, even if this option has been activated, press [Ctrl]/[Command] when starting WaveLab Elements.

## Basic Window Handling

WaveLab Elements follows the basic guidelines for the Windows/Mac OS interface, which means that Windows/Mac OS standard procedures apply.

## Closing Windows

- To close a file tab, click the **X** button of the corresponding tab or press [Ctrl]/[Command]-[W].
- To close a file tab without saving your changes, hold [Ctrl]/[Command]-[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 file tabs but the selected file tab, right-click a file tab and select **Close All But This**.

## Switching Between Files

You can have multiple files open and switch between them.

- To bring a file to the front, click the corresponding tab.
- To cycle between the files, hold [Ctrl]/[Command], and press [Tab] continuously.
- To cycle back and forth between the last two active files, press [Ctrl]/[Command]-[Tab]. Between each step you have to release all keys.
- To cycle backwards, press [Ctrl]/[Command]-[Shift]-[Tab].
- To toggle between the active file and the last edited file, press [F5].

## Selecting Audio

Almost all types of editing and processing that you perform in WaveLab Elements operate on the audio selection. There are numerous ways to make an audio selection.

- To select the whole audio file, double-click it. If the audio file contains markers, triple-click it.

## Selecting a Range by Dragging

The standard way to select a range in the wave window is to click and drag.

If you drag all the way to the left or right side of the wave window, it 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 wave window edge you are.

## 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:

### All

Selects the entire waveform.

### Toggle

Toggles the selection range on/off.

### Extend

Opens a menu where you can select the following options:

- **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 until the edit cursor 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 until 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.
- **From Playback Position to End of Audio File** creates a selection range from the playback position to the end of the audio file. If no playback is taking place, the position of the edit cursor is used.
- **From Playback Position to Start of Audio File** creates a selection range from the playback position to start of the audio file. If no playback is taking place, the position of the edit cursor is used.
- **Double Selection Length** doubles the length of the current selection range.

- **Halve Selection Length** halves the length of the current selection range.

### Channels

Opens are menu where you can select 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 only.
- **Right Channel Only** reduces the current selection range to the right channel only.

### Regions

Opens are menu where you can select the following options:

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

## Selecting in Stereo Files

If you are working on stereo material in the **Audio Editor**, you can apply an operation to one channel only or to the entire stereo material.

Which channel is selected when you click and drag in the wave window depends on where you position the mouse cursor. The pointer shape indicates which channel will be affected.

The following pointer shapes are available:

### Select left channel



Clicking in the upper half of the left channel selects the left channel.

### Select both channels



Clicking in the middle area between the left and the right channel selects both channels.

### Select right channel



Clicking in the lower half of the right channel selects the right channel.

## Switching the Selection Between Channels

You can switch the channel selection that you have made for a channel to all channels or switch the selection to the other channel.

---

### PROCEDURE

1. In the wave window of the **Audio Editor**, select a range.
2. Select the **Edit** tab.
3. In the **Time Selection** section, click **Channels** and select one of the following options:
  - **Extend to All Channels**
  - **Left Channel Only**
  - **Right Channel Only**

You can press [Tab] to switch between the different channel selections.

---

## 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 wave window of the **Audio Editor**, hold down [Ctrl]/[Command] and click and drag in the overview.
- 

## Moving a Selection Range

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

---

### PROCEDURE

1. In the wave window, hold down [Ctrl]/[Command]-[Shift].
  2. Click in the middle of the selection and drag to the left/right.
- 

## Extending and Reducing the Selection

You can resize a selection range in the wave window.

There are several ways to extend/reduce the selection:

- Select a range, [Shift]-click outside the selection range, and drag to the left/right, or 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.

## Extending and Reducing the Selection Using the Cursor Keys

- To move the start/end of a selection in the wave window to the left/right, hold down [Shift] and press the left/right cursor keys. To move it in bigger steps, press the [Page Up]/[Page Down] keys.
- To extend a selection to the previous/next boundary in the wave window (marker or start/end of the audio file), hold down [Ctrl]/[Command]+[Shift] and press the left/right cursor keys.

## 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 **Cutting** 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.

## Sliders

At various places in WaveLab Elements, slider controls are available to change parameters. There are a number of ways to change the value of a slider.

- Position the mouse over the slider and use the mouse wheel without clicking. Hold [Ctrl]/[Command] 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 position, click the slider at any 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]/[Command]-click the slider, or click using the third mouse button, or double-click the handle.

## Renaming Items in Tables

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

- To rename an item, double-click it or select it, and press [Return], and enter the new name.
- To rename the previous/next item, press [Up Arrow] or [Down Arrow]. This way you move the focus on the previous/next item, while staying in the edit mode.

## File Browser

The **File Browser** window allows you to browse files from within WaveLab Elements. The **Auto Play Mode** is useful for speeding up the process of auditioning sound files.

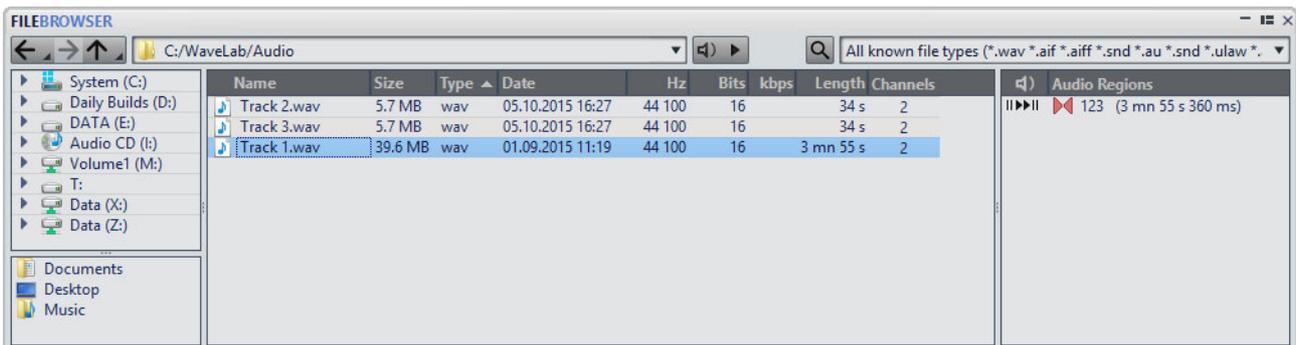
The **File Browser** window provides you with all the standard browsing functions. It features additional controls to audition audio files and any marker defined regions. You can use it to open or insert files by dragging them to another location.

You can also choose to only view specific file types.

## File Browser Window

In this window, you can browse files and open them in WaveLab Elements.

- To open the **File Browser** window, select **Tool Windows > File Browser**.



### Back/Forward/Parent Directory

Allows you to navigate through the list and file hierarchy.

### Location

This menu lets you select a file location to browse and lists the recently used locations.

### **Auto-Play Mode**

Automatically starts playback of the selected file.

### **Play Selected Audio File**

Plays the selected audio file.

### **Search**

If this button is activated, you can enter text in the search field.

### **File format list**

Allows you to select which file format to display.

### **Folder tree**

Shows the folders that are available on your computer.

### **Favorite folders**

You can add your favorite folders by dragging them from the folder tree.

### **File list**

Shows the file name, size, type, modification date, and other information about the file.

### **Create Folder**

Allows you to create a new folder. Right-click in the file list and select **Create Folder**.

### **Audio Regions**

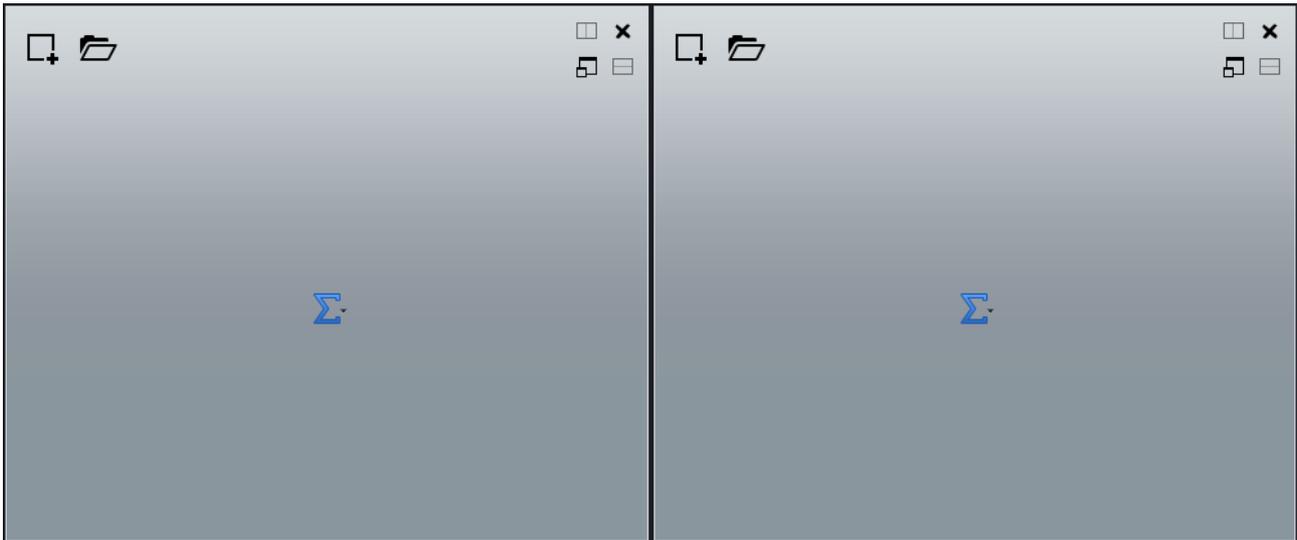
If the selected file contains region markers, the regions are displayed in the **Audio Regions** section. You can drag regions onto a track.

## **Tab Groups**

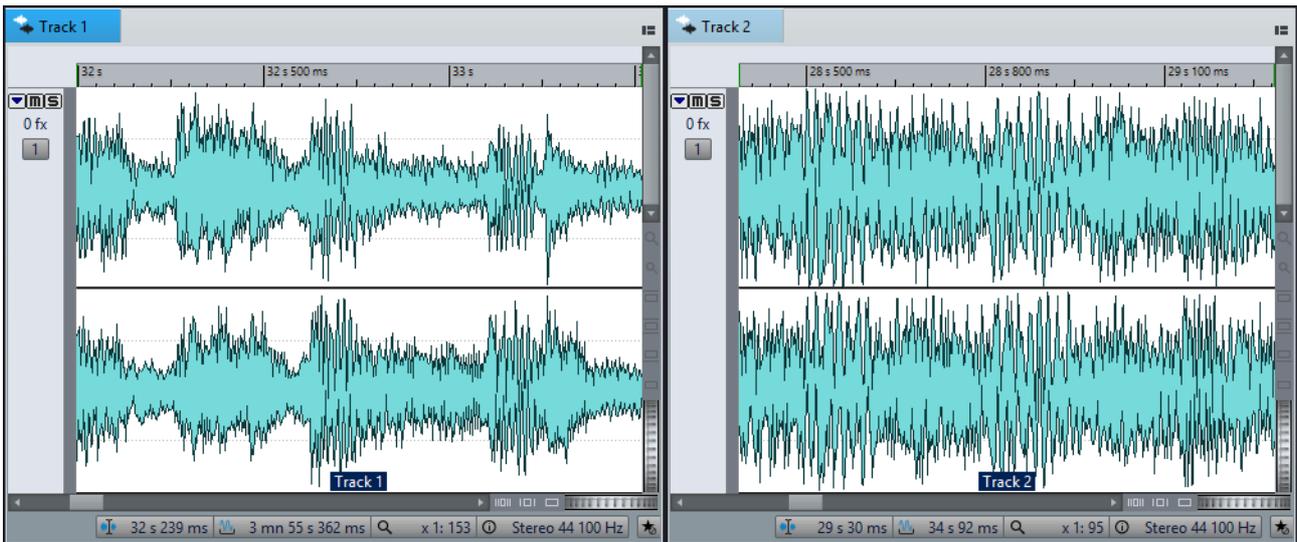
With tab groups, you can view the content of different files, tool windows, or meters at the same time, without having to navigate through different windows. Each tab group has its own content and tab bar.

You can have two file tab groups.

## Empty File Tab Groups



## File Tab Groups with Audio Montages

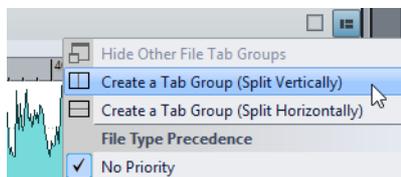


## Creating File Tab Groups

---

### 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)**.
- 

## 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)**.
- 

## Using Tab Groups

The **Tab Group** button in the top right of each tab window allows you to maximize, move, and close tab groups. Tabs are used differently 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.

### 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.

## Peak Files

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

Peak files speed up the time it takes to draw the corresponding waveform. By default, the peak file is saved in the same location as the audio file.

## Rebuilding Peak Displays

Normally, peak files are automatically updated when the date of the peak file is older than the date of the audio file. However, it can happen that the date of the audio file is not automatically updated. In this case you can force a rebuild of the peak file.

---

### PROCEDURE

1. In the **Audio Editor**, select the **View** tab.
  2. In the **Peaks** section, click **Rebuild Files**.
- 

## Companion Files

Companion files (extension `.vcs`) contain **Master Section** presets and view settings for audio files. If this feature is activated when you save a file, the settings are recreated the next time that you load the file.

Companion files are only available in the **Audio Editor**.

The following view settings are included in companion files:

- Window size and position
- Zoom level
- Scroll position

## Storing Companion Files in Another Location

By default, companion files are saved in the same location as the audio file. However, you can select another file location.

---

### PROCEDURE

1. Select **File > Preferences > Folders**.
  2. Click **Companion Files** and specify another file location.
-

# Workspace Window

The **Workspace** window provides an editing and playback environment for each particular file type. Each environment allows functions according to the specific purpose of each file type.

- **Audio Editor** for viewing and editing audio files.
- **Audio Montage** window for assembling and editing audio montages.
- **Podcast Editor** for preparing and uploading podcasts.

The **Workspace** window is highly customizable to match your workflow.

## Elements of the Workspace Window

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

- A menu bar
- 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.
- A set of tool windows. Which tools are available depends on the file type you are working on. The tool windows can be activated/deactivated individually.

## Audio Editor

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

The **Audio Editor** includes various metering tools.

The wave window gives you a graphical representation of the audio file and allows you to view, play back, and edit the file.

### RELATED LINKS

[Audio File Editing on page 87](#)

## Audio Montage

In the **Audio Montage** window, you assemble audio clips into a montage. You can arrange, edit, and play back clips on both stereo or mono tracks.

Features include both track- and clip-based effects, volume and pan automation, and wide-ranging fade and crossfade functions.

You can place any number of clips on an audio track. A clip contains a reference to a source audio file on your hard disk, as well as start and end positions in the file.

The montage window gives you a graphical representation of clips on tracks. In it you can view, play back, and edit the tracks and clips.

### RELATED LINKS

[Audio Montage on page 150](#)

## Podcast Editor

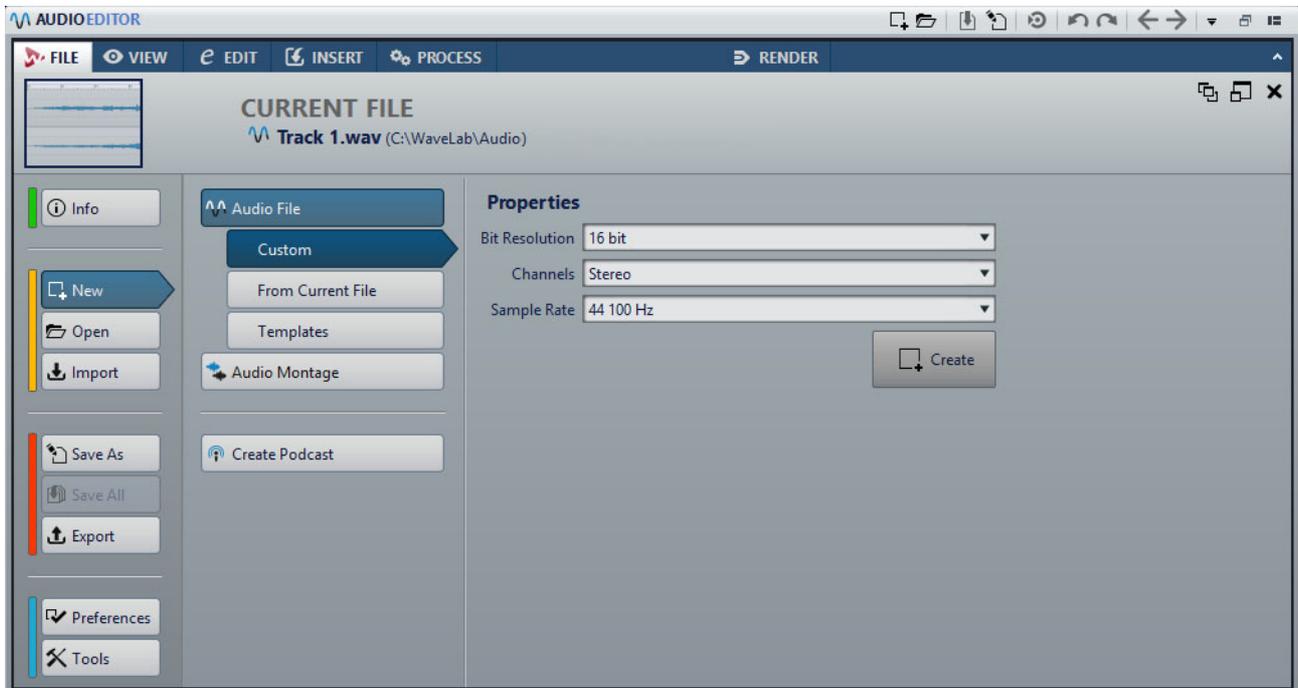
In the **Podcast Editor**, you assemble, define, and publish your podcast to the Internet.

### RELATED LINKS

[Podcasts on page 283](#)

# File Tab

The **File** tab is the control center of WaveLab Elements. Here, you can save, open, render, import, and export files. It also gives you detailed information about your files and allows you to set up the WaveLab Elements 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, or podcasts. You can create new files or use a template.

## Open

Allows you to open audio files, audio montages, or podcasts.

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

## Import

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

- Audio File to Montage
- Unknown Audio

You can also import audio CD tracks from an 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 once. The file list gives you an overview of all files that have been changed.

You can use the filter to show all changed files, only audio files, or only audio montages.

### **Export**

Allows you to render the active file and upload the audio file to SoundCloud.

### **Preferences**

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

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

### **Tools**

- **Data CD/DVD**
- **Batch Conversion**

### RELATED LINKS

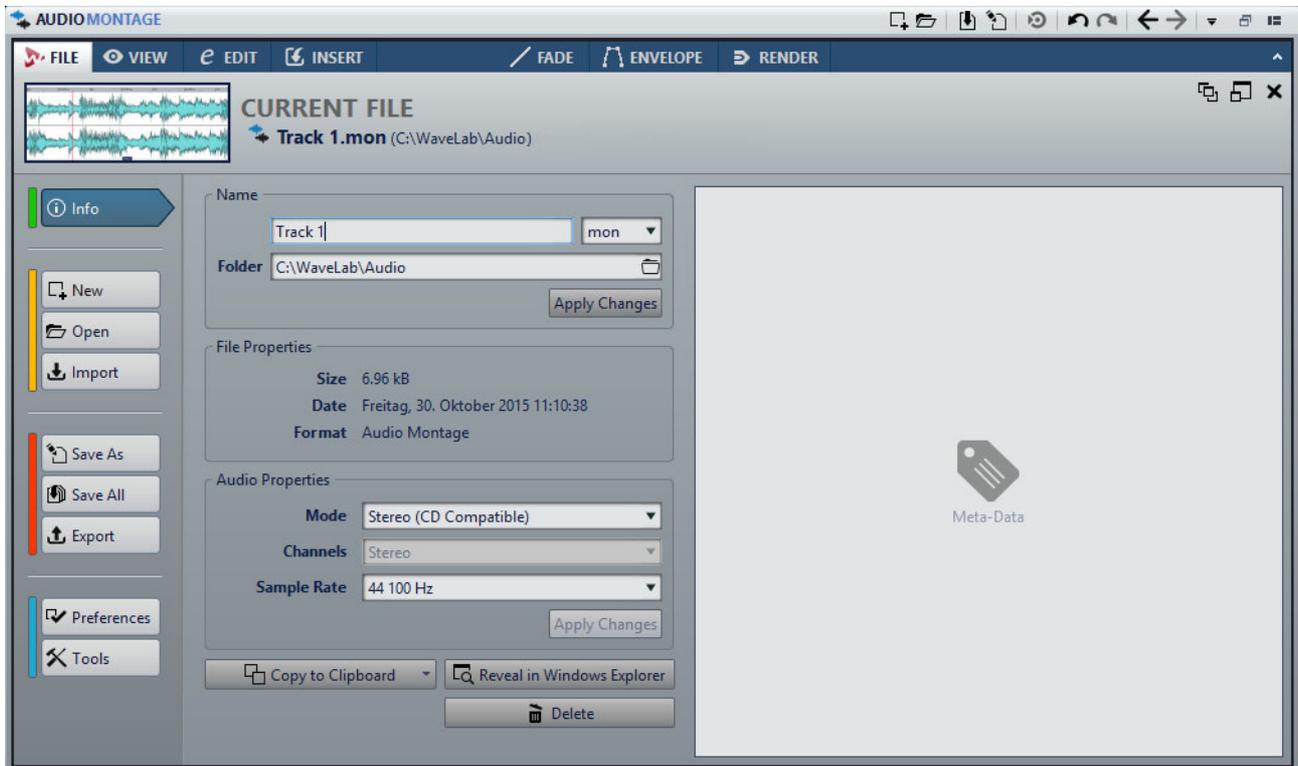
[Info Tab on page 37](#)

[Configuring the Software on page 307](#)

## Info Tab

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

- To open the **Info** tab, 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 bit resolution, channels, and sample rate of the active file.

For audio montages, this displays the mode, channels, and 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.

### **Meta-Data**

Displays the meta data of the active file.

### **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/Mac OS Finder**

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

### **Delete**

Deletes the active file.

## **Tool Windows**

Throughout WaveLab Elements there are various tool windows available that allow you to view, analyze, and edit the active file.

Generally, the content of a tool window is synchronized with the active file, with the exception of the audio meters which displays 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.

The tool windows can be accessed via the **Tool Windows** menu.

## **Opening and Closing Tool Windows**

You can close all tool windows that you do not need for your project.

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

## **Meter Windows**

WaveLab Elements 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.

## Opening and Closing Meter Windows

You can close all meter windows you do not need for your project.

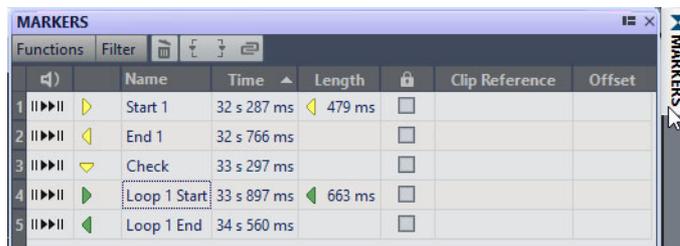
- To open a meter window, select **Meters** and select a meter window.
- To close a docked meter window, right-click the meter window tab and select **Hide**.
- To close an undocked meter window, click its **X** button.

## 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



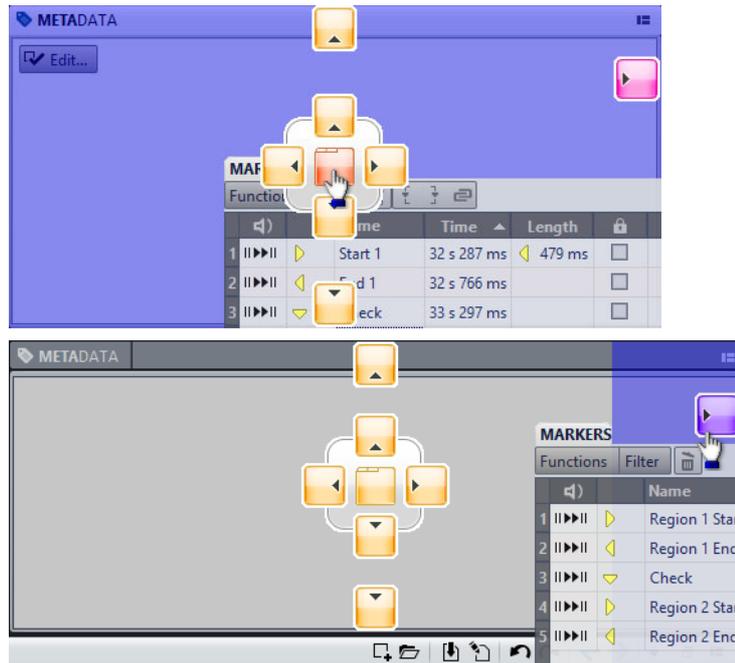
An open slide-out window

## Docking and Undocking Tool Windows and Meter Windows

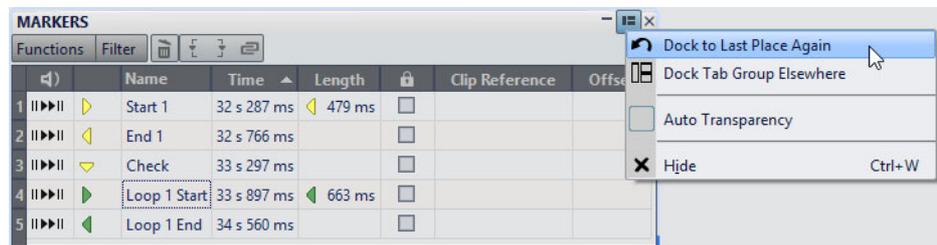
Tool windows and meter windows can be used as docked windows, as floating windows, or as a slide-out window. You can freely drag around the windows and dock them at various locations.

- To undock a tool window or meter window, drag the corresponding tab to another position.  
Now the tool window or meter window is a floating window which can be freely moved.
- To dock a tool window or meter window, click and hold the caption bar or click the **Options** button on the right of the caption bar and select **Dock Tab Group Elsewhere**.

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 meter window at its last docked position, click the **Options**  button on the right of the caption bar and select **Dock to Last Place Again**.



RELATED LINKS

[Slide-Out Windows on page 39](#)

## Setting the Transparency for Floating Windows

You can make the tool windows and meter windows become transparent if they are not the active window. For this, specify the transparency value in the global preferences and activate the transparency for each window individually.

- 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 meter window, click the **Tab Group** button at the top right of the window, and select **Auto Transparency**.

RELATED LINKS

[Global Preferences on page 307](#)

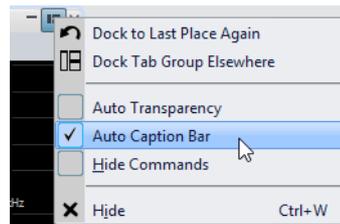
## Hiding the Caption Bar in Floating Meter Windows

To save screen space, the caption bar of floating meter windows can automatically be hidden if the window is not the active window. This can be set individually for each floating window.

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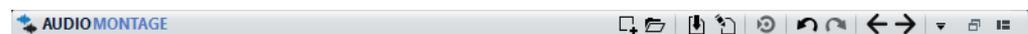
### PROCEDURE

1. In a floating meter window, click the **Options**  button at the top right of the window.
2. Select **Auto Caption Bar**.



## Command Bar

The command bar of file windows allows you to create, open, and save files, and undo/redo changes. You can also use the text field to quickly find and access open files, and to trigger keywords.



### New

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

### Open

Allows you to open an audio file, audio montage, or podcast.

### 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 Update

Updates the Cubase 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 **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.

### Customize Command Bar

Allows you to select the buttons that you want to display on the command bar.

### Maximize Window

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

### Layout Options

Allows you to determine the position of the command bar and transport bar.

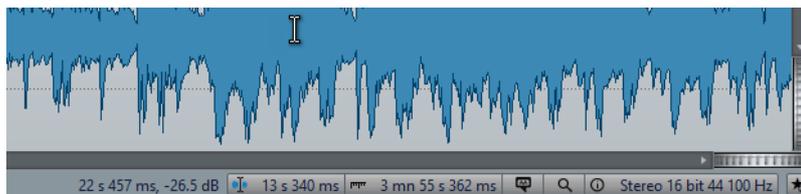
### RELATED LINKS

[WaveLab Exchange on page 280](#)

## Status Bar

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

The information displayed on the status bar is updated depending on the cursor position and on the audio selection that you have made.



### Time/Level (dB)

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

### Audio Information at Edit Cursor

Displays the time at the position of the edit cursor. This information changes if you reposition the cursor.

- To define the cursor position, click the **Audio Information at Edit Cursor** field to open the **Cursor Position** dialog.
- To focus the cursor position, right-click the **Audio Information at Edit Cursor** field.

### 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 **Audio Range** dialog, where you can define or refine a selection.

### Zoom Indicator

Displays the current zoom factor.

- To open a pop-up menu, that allows you to make additional zoom settings, click the indicator.
- To open the **Zoom Factor** dialog, that allows you to edit the zoom factor, right-click the indicator.

### 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.

### Audio Properties Indicator

In the **Audio Editor**, this displays the bit resolution 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 button is activated, the **Master Section** is bypassed. If the button is deactivated, the audio is played through the **Master Section**.

### 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 provided buttons.



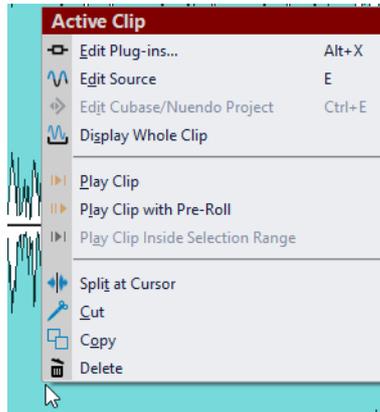
## Context Menus

Throughout WaveLab Elements, various context menus are available. These menus group the commands and/or options that are specific to the active window.

The context menus appear if you right-click specific areas and are useful for speeding up your workflow.

For example, right-click a file tab to open a context menu with some relevant file options. Right-clicking the ruler of the waveform window brings up the **Time Ruler** context menu that allows you to access a number of options for changing the time ruler display format.

You can find most context menu commands in the tabs, in the file window and in the main menus, but some commands are only available in context menus. If you search for a function, right-click the current working window to check if it has a context menu.



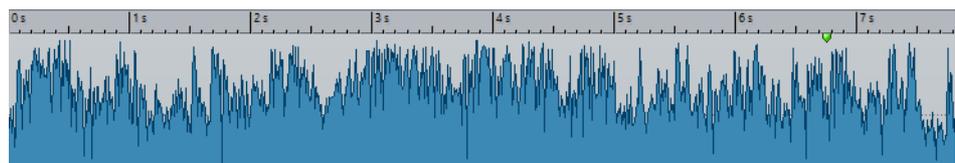
Context menu in the montage window

## Time Ruler and Level Ruler

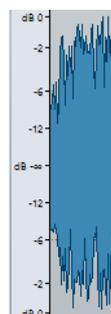
In the **Audio Editor**, you can display a time and a level ruler in the wave window. In the **Audio Montage** window, you can display a time ruler in the montage window.

You can also determine which time and level units the rulers show.

### Time Ruler



### Level Ruler (Audio Editor only)



## Time Ruler and Level Ruler Options

You can specify the time and level (amplitude) formats for each ruler in each wave window and the time formats for each ruler in the montage window separately by right-clicking the ruler and selecting a format from the pop-up menu.

### Time Ruler Menu

#### 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.

#### Samples

Displays positions as 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.

#### Bars and Beats

Displays bars and beats.

#### File Size (Audio Editor only)

Displays positions in megabytes. Decimals represent kilobytes.

#### Show grid (Audio Montage window only)

Displays vertical lines in the montage window, aligned with time ruler marks.

#### Time Format

Opens the **Time Format** dialog, that 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 wave windows or 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.

RELATED LINKS

[Time Format Dialog on page 47](#)

## Level Ruler Menu (Audio Editor only)

### 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 32-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 wave windows.

## 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 wave window or the 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 **Meter** tab, set the **Time Signature** and **Tempo** to values that match your audio file.
  4. Set the **Ticks per Quarter Note** setting to a number that you feel comfortable with.  
For example, this can be the same value that is used by your MIDI sequencer.
  5. Click **OK**.
-

## 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:

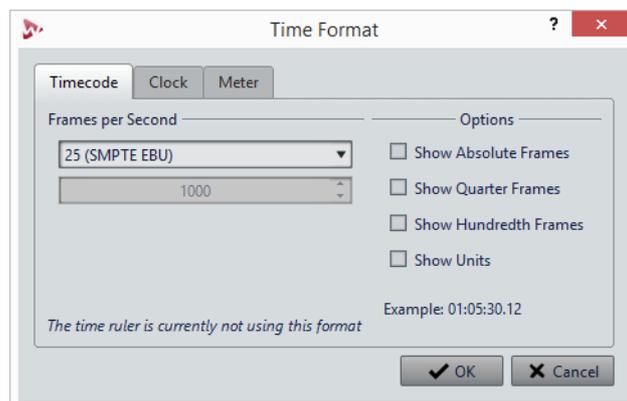
- Click somewhere in the wave window, the montage window, or the time ruler. If you have made a selection, click the time ruler to prevent deselecting.
- Click and drag in the time ruler.
- Use the transport controls.
- In the **Audio Editor** and **Audio Montage** window, select the **View** tab and use the options in the **Cursor** section.
- Use the cursor keys.
- Double-click a marker.

## Time Format Dialog

In this 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 **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** option.

#### 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 are displayed.

### 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** option.

### Show Units

Adds time units to the time format of the ruler.

### Compact

Shows the time without unit indicators.

## Meter Tab

On this tab, you can configure the appearance of the **Bars and Beats** option.

### Time Signature

Lets you edit the time signature used to display the time represented as a musical notation.

### Tempo

Lets you edit the tempo used to display the time represented as a musical notation.

### Ticks per Quarter Note

Lets you edit the number of ticks per quarter note. These are used to display times that are compatible with your sequencer.

## Managing Tabs

A tab is a container for a file in WaveLab Elements. You can open several tabs, but only one can be active at a time. The **Tabs** context menu offer tab related options.

### File Tabs

The following options are available when you right-click a file tab.



**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.

**Info**

Displays information about the active file.

**Reveal in File Explorer/Mac OS Finder**

Opens the File Explorer/Mac OS 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.

## Activating Full Screen Mode

---

PROCEDURE

- Select **Workspace > Full Screen**.
-

# Project Handling

## Opening Files

---

### PROCEDURE

1. Select **File > Open**.
  2. Select the file type that you want to open.  
For example, **Audio File**.
  3. From the file browser, select the file that you want to open.
  4. Click **Open**.
- 

## Opening Files from the Clipboard

You can open files in WaveLab Elements that you have previously copied to the clipboard in the File Explorer/Mac OS Finder.

---

### PROCEDURE

1. In the File Explorer/Mac OS Finder, copy the files that you want to open to the clipboard.
  2. In WaveLab Elements, select **File > Open**.
  3. Click **Open Files from Clipboard**.
- 

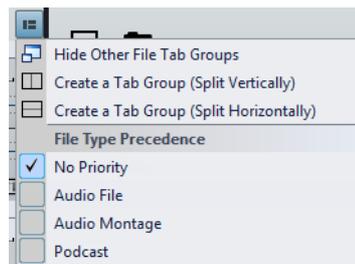
### RESULT

The files open in new file tabs.

## Automatically Opening Files in a Dedicated Tab Group

You can specify a predated 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/Mac OS Finder are automatically opened in the corresponding tab group for this file type.

- To specify a predated file type for a tab group, click **File Tab Group Options**  at the header of a tab group, and select a file type.



## Value Editing

At various places in the program, numerical values can be edited by using a combination of text fields and knobs.

Values are sometimes composed of several elements, for example, 12 mn 30sec 120ms. Each value can be edited by using any of the following methods:

- To change a value, click in a value field and type a new value, or click the small arrows in the value field.
- To change the value by one unit at a time, press the [Left Arrow] and [Right Arrow] keys.
- To change the value by several units, press the [Page Up] and [Page Down] keys.
- 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] and [End] keys.
- To move from one element of the value to another, press the [Left Arrow] and [Right Arrow] keys.

## Drag Operations

WaveLab Elements makes much use of drag-and-drop techniques to perform various operations, some of which can only be performed this way. These are referred to as drag operations in this documentation.

- To drag an object, click and hold with the mouse when positioned on the object and drag it. Drop the object by releasing the button.

Many types of objects can be dragged between 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 Elements 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 Elements, from the file browser of your operating system, 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]/[Command], 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 39](#)

## Dragging in the Audio Editor and Audio Montage Window

- To insert an audio file in 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 browser of your operating system, 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 3rd 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] (Windows) or [Option]-[Ctrl] (Mac), and release the mouse button.

## Dragging in the Podcast Window

- To reorder episodes in the episodes list, drag them to another position.

## Dragging in the Master Section

- To change the order of processing, drag effects between different effects slots.

## Undoing and Redoing Actions

You can undo and redo as many steps as you like. The only limitation is the available hard disk space.

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 before the operation.

- To undo or redo a step, click **Undo**  or **Redo**  in the title bar of the **Audio Editor** or **Audio Montage** window.

## Navigating Backwards and Forwards

In audio files and audio montages, you can navigate to the previous/next cursor position, zoom factor, and selection range without undoing/redoing the edit operation.

---

### PROCEDURE

1. In the **Audio Editor** or **Audio Montage** window, select the **View** tab.
  2. In the **Navigate** section, click **Backwards** or **Forwards**.
- 

## Zooming

### Horizontal Zooming

- 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.

## Vertical Zooming

- When you zoom out as far as possible, the height of the wave fits in the window.
- As you progressively zoom in, the display only shows a part of the total height. The vertical scrollbar lets you adjust exactly which section is shown. Check the ruler to see which part of the waveform is shown in the display.
- To optimize the vertical zoom of the waveform, press [Ctrl]/[Command], the time ruler, keep the mouse button pressed, and drag the mouse up or down.

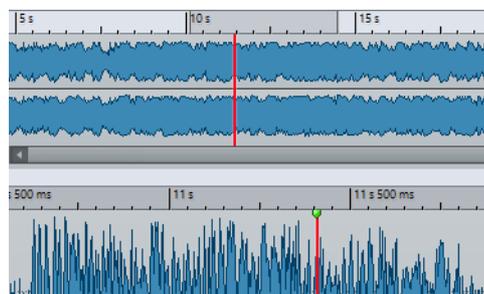
## High Zoom Level

- When the zooming level is very high, each sample is shown with a step and a bullet. The steps show the real digitized state, while the bullets make it easier to see the samples, especially for zeroed samples.
- The curve also represents an estimation of the analog reconstructed signal to give hints on true peaks.

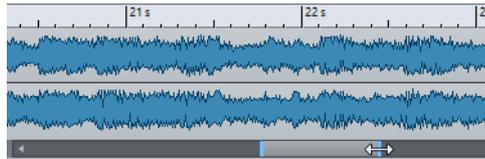


## Zooming in the Overview and Main View Sections (Audio Editor Only)

- You can have different zoom levels in the overview and in the main view section. In the overview, a range indicator on the time ruler indicates which section of the file is displayed in the main view.
- To adjust the zoom level, drag the edges of the range indicator.
- To scroll in the main view, drag the range indicator. The range indicator is located at the top of the overview display.

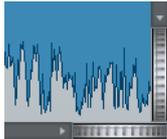


- To adjust the zoom level using the scrollbar, drag the edges of the scrollbar.



## Zooming Using the Zoom Controls

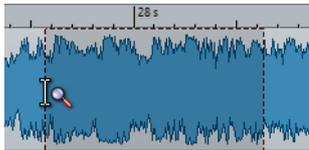
Both the main view and the overview have horizontal and vertical zoom controls.



- To zoom horizontally, click the **Horizontal Zoom** control, and drag left or right, or use the mouse wheel.
- To zoom vertically, click the **Vertical Zoom** control, and drag up or down, or use the mouse wheel.
- To fully zoom-out, double-click the zoom controls.

## Zooming Using the Zoom Tool

The **Zoom** tool is used to zoom in a specific section of the waveform so that it occupies the entire wave window. This is only available in the **Audio Editor**.



## Using the Zoom Tool in the Main View

The selection that you make in the main view of the wave window is magnified and fills up the entire main view.

---

### PROCEDURE

1. In the **Audio Editor**, select the **View** tab.
2. In the **Tools** section, click **Zoom** .
3. In the main view of the wave window, click and drag left or right, and release the mouse button.

The selected part of the wave now occupies the entire main view.

---

## Using the Zoom Tool in the Overview

The selection that you make in the overview of the wave window is displayed in the main view.

---

### PROCEDURE

- In the overview of the wave window, click and drag left or right, and release the mouse button.
- 

### RESULT

The selected range of the waveform is shown in the main view.

## Zooming Using the Mouse

With the mouse, you can change the zoom factor by clicking and dragging or by using the mouse wheel.

- To zoom horizontally, in the wave window or the montage window, position the mouse cursor over the time ruler, click, and drag up or down.
- To zoom horizontally while maintaining the cursor position, position the mouse cursor over the time ruler, press [Shift], and drag up or down.  
For this, you can also use the mouse wheel. Press [Ctrl]/[Command]-[Shift], point at a waveform, and use the mouse wheel.
- To zoom horizontally around the mouse cursor position using the mouse wheel, press [Ctrl]/[Command], point at a waveform, and use the mouse wheel.
- To zoom horizontally around the edit cursor position, press [Ctrl]/[Command]-[Shift], point at a waveform, and use the mouse wheel.
- To zoom vertically using the mouse wheel, press [Shift], point at a waveform, and use the mouse wheel.

### Audio Editor Only

- To zoom vertically, in the wave window, position the mouse cursor over the level ruler, click, and drag left or right.
- To reset the vertical zoom to 0dB, double-click the level ruler.
- To set the vertical zoom to the best value, that is, the current minimum and maximum displayed samples, make sure that the level ruler is set to 0dB, and double-click the level ruler.

## Zooming Using the Keyboard

A quick way to zoom the active wave or montage window is to use the arrow keys on the computer keyboard.

- To zoom horizontally in the active wave window or montage window, press [Up Arrow] or [Down Arrow].
- To zoom vertically in the active wave/montage window, hold [Shift], and press [Up Arrow] or [Down Arrow].
- To zoom vertically to fit the available height, press [Ctrl]/[Command]-[Shift]-[Up Arrow].
- To zoom out fully, press [Ctrl]/[Command]-[Down Arrow].
- To zoom in fully, press [Ctrl]/[Command]-[Up Arrow].

### NOTE

You can increase or decrease the zoom steps with the **Interval for Zoom Key Command** option. You can set this option in the **Global Preferences** on the **Options** tab.

---

### RELATED LINKS

[Global Preferences on page 307](#)

## Zoom Options

The zoom options allow you to quickly access various zoom settings.

The zoom options are available in the **Audio Editor** and the **Audio Montage** window on the **View** tab in the **Zoom** section.

### 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.

To edit the zoom factor, click **Edit Zoom Factor**. This opens the **Zoom Factor** dialog, where you can edit the following settings:

- **Set Time Range** allows you to specify the time range that you want to display.
- **Samples per Screen Point** allows you to specify how many audio samples are summarized in each screen point.
- **Screen Points per Sample** allows you to specify how many screen points are used to represent a single audio sample.

### Zoom

Activates the **Zoom** tool that 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.

### **Display Whole Clip (Audio Montage window only)**

Adjusts the view to display the active clip.

### **Microscope**

Zooms in as far as possible.

### **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.

### **Level**

Adjusts the zoom to only display samples below the selected dB value.

### **Optimize Vertical Zoom (Audio Editor only)**

Changes the vertical zoom factor so that the peaks are clearly visible. This adjustment is done according to the section of the wave that is visible in the wave/montage window.

### **Reset Zoom to 0dB**

Adjusts the zoom to display audio levels up to 0dB.

### **Zoom in Vertically/Zoom out Vertically**

Zooms in/out to show waveforms with a lower/higher level.

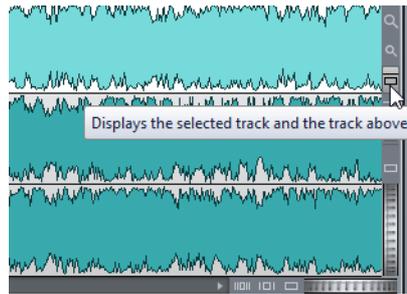
## **Zooming in the Audio Montage**

Zooming options in the **Audio Montage** window are almost similar to those in the **Audio Editor**. However, there are additional zooming options for tracks.

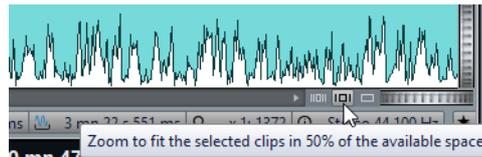
## **Zoom Buttons in the Audio Montage**

The zoom buttons in the **Audio Montage** window allow you to apply zoom presets.

- To only display the selected track, or also the tracks below and/or above the selected track, click the corresponding buttons.



- To set the zoom setting to fit the active clips in 25%, 50%, or 100% of the available space, click the corresponding buttons.



- To select a specific area, click [Ctrl]/[Command], and drag the rectangle over the tracks and clips that you want to zoom in on.

## Displaying More or Less Tracks

The number of tracks that are displayed in the **Audio Montage** window can be changed with the zoom controls in the lower right corner of the montage window.

- 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 whole montage window, click the numbered button in the track control area, and select **Zoom** from the pop-up menu. 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 commonly used settings. WaveLab Elements provides a selection of factory presets that can be used by most dialogs.

You can save customized presets. The next time that you load the program, the presets are available.

Presets are saved as single files and can be organized in subfolders. The root folder of the preset is different for each type of preset and cannot be changed.

## Saving a Preset

---

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**.
- 

## Loading Presets

To apply a saved preset or a factory preset to a dialog or 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.
- 

## Modifying a Preset

You can modify a preset 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 a Preset

---

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/Mac OS Finder, select the preset file that you want to delete, and press [Delete].
-

## Saving and Restoring Temporary Presets

Some dialogs allow you to save and load up to 5 temporary presets. This is useful if you want to quickly test and compare different settings.

### Saving Presets Temporarily

---

PROCEDURE

1. Open the dialog that you want to use and make your settings.
  2. Open the **Presets** pop-up menu.
  3. From the **Store Temporarily** submenu, select a slot.
- 

### 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.
-

# File Operations

## Recently Used Files

All files that you have recently used in WaveLab Elements are saved in a list. This helps you to gain fast access to recent projects. You can open recently used files via the **File** menu.

## Setting the Number of Recently Used Files to Display

---

### PROCEDURE

1. Select **File > Preferences > Global**.
  2. In the **Global Preferences** window, select the **Display** tab.
  3. In the **History** section, set the maximum number of items to be listed on the **Recent File** menu.
- 

## Save and Save As

- Once a file has been saved, select **File > Save**, or press [Ctrl]/[Command]-[S] to update the file and make the changes permanent.
- If you want to specify a new name, location, and/or file format, select **File > Save As**.

---

### NOTE

In the **Audio Editor**, all save operations except **Save Copy** clear the undo history, which means that after saving you cannot undo or redo.

---

## Tab Colors

The line above tabs gives information on whether a file is saved or not, and whether the file has been rendered in Cubase.

### White

The file is not modified.

### Green (Audio Editor only)

The file uses a decoded file format and is saved.

### Red

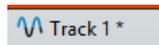
The file has been modified and changes have not been saved yet.

### 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.



## Saving Multiple Files at Once

You can save some or all open files at once.

---

### PROCEDURE

1. Open the **File** window and click **Save All**.
  2. Select the files that you want to save.
  3. Click **Save**.
- 

## Saving a Copy of a File

You can save copies of files that you are working on.

---

### PROCEDURE

1. Select **File > Save As**.
  2. Specify a name and location.
  3. Right-click **Save** and select **Save Copy**.
-

## Reverting to Saved File

You can revert the file that you are working on back to its last saved state. This undoes all the changes made to the file since it was last saved.

---

### PROCEDURE

1. Select **File > Open**.
  2. Select the file type that you want to open.
  3. Click **Revert to Saved File**.
  4. In the warning dialog, click **Yes** to revert to the last saved state.
- 

### RESULT

The last saved version of the file is loaded from disk.

## Automatic Backups

You can automatically create backups of your files.

For example, if you select **Save As** and specify a file name that is already used in that folder, you will be asked if you want to replace the existing file or replace the existing file and rename the old file. If you click **Replace and Keep Old**, the backup name of the audio file that is replaced will be the original name, with `.bak` added at the end.

## About Saving Audio Montages

The saving operations for audio montages are the same as for audio files. However, there are things to note when saving audio montages.

- Audio montage files only contain references to audio files. If you want 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, save these audio files before saving the audio montage.

### RELATED LINKS

[Renaming Files on page 68](#)

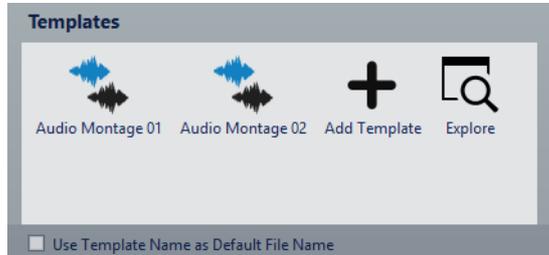
## Templates

You can save file settings that you regularly use as templates. Templates are useful when creating new audio files, audio montages, or podcasts.

## Templates Tab

This tab shows 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.

### 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”.

### Explore

Opens the folder where the template files are located. Here, you can rename and delete templates.

## Creating a Template

You can create a template from an active audio montage, audio file, or podcast and use it as a basis for newly created files.

### PREREQUISITE

Select the file that you want to base your template on.

---

### PROCEDURE

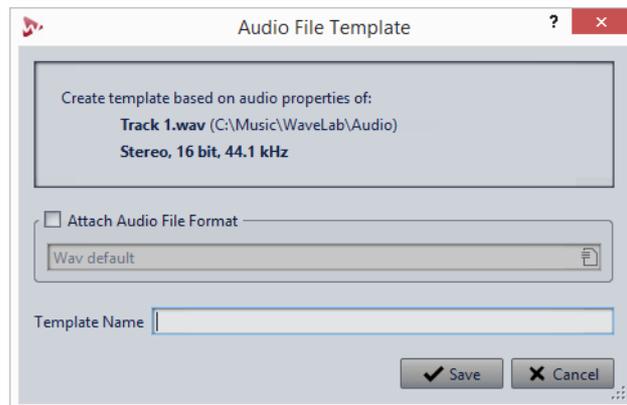
1. Select **File > New**.
2. Select the file type for which you want to create a template.
3. Click **Templates**.
4. In the **Templates** tab, do one of the following.
  - To create a new template, click **Add Template**, make your settings, and click **Create**.
  - To update an existing template, 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 make additional settings.
    - When saving an audio file template, the **Audio File Template** dialog opens. Here, you can select whether WaveLab Elements should attach an audio file format.
    - When saving an audio montage template, the **Audio Montage Template** dialog opens. Here, you can select whether to include track plug-ins, clips, and/or markers. Also select whether WaveLab Elements should attach an audio file format.
- 

## Audio File Templates

The **Audio File Template** dialog displays the audio properties of the audio file template that you are creating. You can also specify whether to always associate a specific audio file configuration with optional meta-data when creating an audio file template or not.

- To open the **Audio File Template** dialog, select **File > New**, click **Audio File**, and click **Templates**. In the **Templates** tab, click **Add Template**.



### Attach Audio File Format

If this option is activated, whenever you open the **Render** or **Save As** dialogs, the audio file configuration specified below is proposed by default.

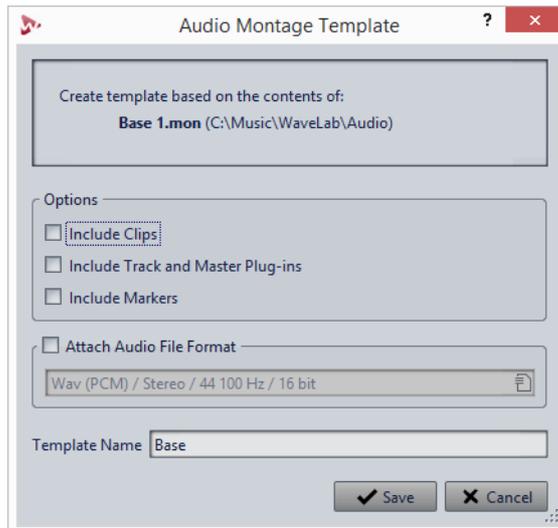
### Template Name

Allows you to enter a name for the template.

## Audio Montage Templates

In the **Audio Montage Template** dialog, you can set 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

If this option is activated, clips are saved in the template.

### Include Track and Master Plug-ins

If this option is activated, track plug-ins and master plug-ins are saved in the template.

### Include Markers

If this option is activated, markers are saved in the template.

### Attach Audio File Format

If this option is activated, whenever you open the **Render** dialog, the audio file configuration specified below is proposed by default.

### Template Name

Allows you to enter a name for the template.

## Creating a File From a Template

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 the available templates, select the template that you want to take as the basis of 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/Mac OS 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/Mac OS Finder, rename the templates.
- 

## 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.

## Renaming Files

### PREREQUISITE

If you want to rename a file that is referenced by other files, open the files that reference the file that you are about to rename in WaveLab Elements.

---

### PROCEDURE

1. Open the file that you want to rename.
2. Select the **File** tab.
3. Click **Info**.
4. In the **Name** section, enter the new name and/or a new file location.

5. Select a file suffix from the drop-down list.
  6. Click **Apply Changes**.
- 

## Deleting Files

You can delete the active file from within WaveLab Elements.

### PREREQUISITE

The file that you want to delete is not copied to the clipboard, is not pasted into another file that is open, and 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.

## Temporary Files

Temporary files are used for specific operations, such as the undo/redo functions. You can specify where WaveLab Elements saves its temporary files.

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.

### RELATED LINKS

[Specifying Folders on page 70](#)

## Work Folders vs. Document Folders

WaveLab Elements distinguishes between two types of folders: work folders and document folders.

- In work folders, temporary files are saved.

- Document folders contain WaveLab Elements-specific files, such as audio files, audio montages, etc.

## Specifying Folders

You can specify which document folder should open when you perform an open or save operation. You can also specify up to three work folders for temporary files.

---

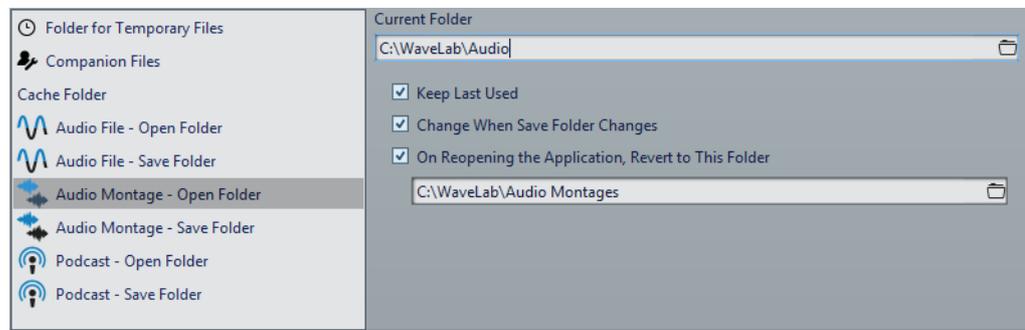
### PROCEDURE

1. Open the file for which you want to specify folders.
  2. Select **File > Preferences > Folders**.
  3. On the **Folders** tab, click the type of folder for which you want to specify a location.
  4. Specify a location in the **Folder** field.
  5. Optional: Depending on the selected type of folder, you can make additional settings.
- 

## Folders Tab

On this 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 specify the folder type that you want to make settings for.

### Folder for Temporary Files

Specify a folder for saving temporary files.

### Companion Files

Specify a folder for saving companion files, that is, **Master Section** presets and view settings for audio files.

### Cache Folder

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 Elements checks the date of each file in this folder and deletes files that were created before a specific number of days.

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.

Depending on the selected item, different settings are available on the right side of the dialog.

### Current Folder

In this field, the folder that is used as default is displayed. 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. 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.

### On Opening the Application, Revert to This Folder

Activate this option to restore a specific folder each time you open WaveLab Elements. This way, any changes to save/open folders are only temporary and are reset when you restart WaveLab Elements.

## Setting the Focus on the Current File

If you are editing inside a floating window or a tool window and you want to switch the focus back to a wave/montage window, you can use the **Set Focus on Current File** option.

---

#### PROCEDURE

- In any window, press [Ctrl]/[Command]-[F12], to set the focus on the wave/montage window.
-

# Playback

## Transport Bar

With this command bar you can control playback of an audio file or audio montage, navigate between various positions in an audio file or audio montage, and open the **Recording** dialog.

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** on the transport bar.



### Presets

Lets you save and apply presets.

### 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**.

Right-click the button to select the pre-roll or post-roll length and to specify to 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 **Auto Replay While Editing** is activated, playback is automatically restarted when you hold down the mouse button while editing ranges, and use the shortcuts to trigger playback. This is useful to find a loop, for example.

This option works even if the automated selection mode is deactivated.

- If **Solo Track When Editing** is activated and you keep the mouse button pressed when editing ranges in the 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 different audio ranges for playback:

- **Time Selection**
- **Region between Marker Pairs**
- **Clip** (audio montage only)
- **Crossfade** (audio montage only)
- **Fade In** (audio montage only)
- **Fade Out** (audio montage only)

### **Play until Anchor/Play from Anchor**

Plays until or from 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 **Auto Replay While Editing** is activated, playback is automatically restarted when you hold down the mouse button while editing anchors, and use the shortcuts to trigger playback. This is useful to find a loop, for example.  
This option works even when the automated selection mode is deactivated.
- If **Solo Track When Editing** is activated and you keep the mouse button pressed when editing anchors in the 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.

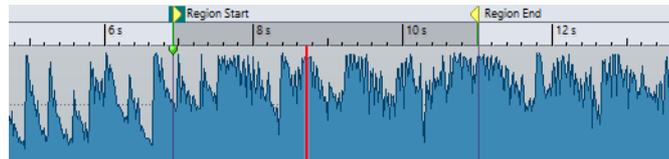
You can select which anchor to use as reference for the commands **Play from Anchor** and **Play until Anchor**. When there are multiple possibilities, for example, multiple markers, the last selected item is used as a reference anchor or, if no item was selected, the closest item near the edit cursor 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**
- **Clip Start** (audio montage only)
- **Clip End** (audio montage only)
- **Selected Envelope Point in Active Clip** (audio montage only)

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]/[Command], and click the **Move Playback Position Backwards/Forwards** button.

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/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 the 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 the **Play from Anchor**, **Play until Anchor**, or **Play Audio Range** options.

### Start Playback from Cursor

Starts playing back the active audio file or audio montage from the edit cursor position.

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.

## Transport Bar in the Podcast Editor

In the **Podcast Editor**, a simplified transport bar allows you to play back the selected podcast episode.



## Play Button

Clicking the **Play** button on the transport bar starts playing back the active audio file or audio montage from the edit cursor position.

You can also use the Space bar 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 Button

The result of clicking the **Stop** button or on the transport bar or [0] on your numeric keypad depends on the current situation.

- If you trigger **Stop** in stop mode, the edit cursor moves either to the previous playback start marker, or to the selection start (whatever 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

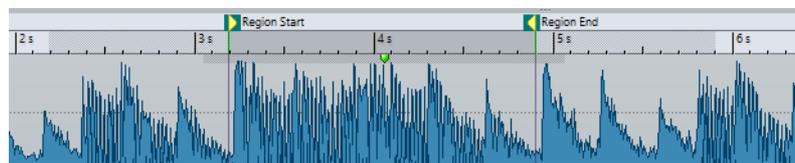
You can play back audio ranges using the **Play Audio Range** options on the transport bar.

---

### 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.

This 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. 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 Until an Anchor

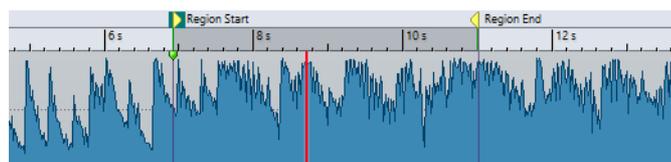
You can play back audio from an anchor or until a specified anchor using the **Play from Anchor** or **Play until Anchor** options on the transport bar.

---

### 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, position the edit cursor in the wave window or montage window inside the range that you want to play back.

For example, if you have selected **Region Start Marker**, click somewhere in the area of the region marker pair from which you want to play back from/to. 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 until 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” Functions

You can play back audio from an anchor or until an anchor using the **Play from Anchor** or **Play until Anchor** functions on the transport bar. These playback functions behave differently depending 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.
- If the loop mode is activated, the pre-roll and post-roll settings are taken into account. This way you can play a loop around the edit cursor position, without having to make further range settings.

### 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, until the selected anchor.
- If no anchor is selected, **Play until Anchor** is deactivated.
- The loop settings have no effect.

## Using the Auto Selection Mode

You can use the auto selection mode in combination with the playback shortcuts to play back audio ranges or anchors. This makes it easy to monitor your editing actions.

---

### PROCEDURE

1. On the transport bar, right-click the **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 wave window or the 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 wave/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 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 are 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 until an anchor, press [F8].
- 

### RESULT

The selection range is played back, or play back starts from the anchor or stops at the anchor. Pre-roll and post-roll settings are taken into account.

### NOTE

A selection range has priority over any other range. To allow other ranges to be auto-selected, deselect the selection range.

---

## Using Auto Replay While Editing

You can automatically re-trigger playback while editing audio with the mouse. This is useful if you want to monitor the adjustment of a selection boundary, for example.

---

### PROCEDURE

1. On the transport bar, right-click the **Play Until Anchor** button and activate **Auto Replay While Editing**.
  2. In the wave window or the montage window, make a selection range and keep the mouse button pressed.
  3. Start playback by using one of the following shortcuts:
    - To play back the selected audio range, press [F6].
    - To play back from an anchor, press [F7].
    - To play back until an anchor, press [F8].
  4. Drag the cursor to the right or left.  
The selection range is adjusted and played back until you release the mouse button. When playback ends, the new selection range is played back.
- 

## Skipping Sections During Playback

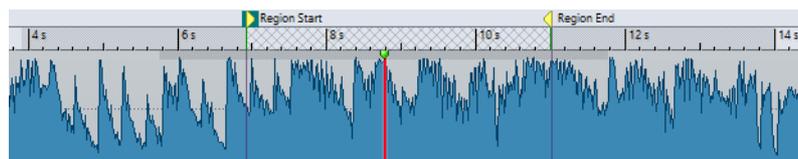
You can automatically skip a selected audio range during playback. This way, you can audition what the material would sound like without specific sections.

---

### PROCEDURE

1. On the transport bar, activate **Skip Range** .
2. Activate **Perform Pre-Roll** and **Perform Post-Roll**.
3. If you want 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 wave window.
  - If you have activated **Region Between Marker Pairs**, click between a marker pair.

The audio range that will 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.

You can also use the factory preset for skipping selections during playback. Activate **Skip Range**, make an audio selection, and press [Shift]-[F6].

#### NOTE

This mode also works with the **Start Playback from Cursor** button if there is a time selection or if exclusion start and end markers are set. In this case, the pre-roll and post-roll times are ignored.

---

## Loop Playback

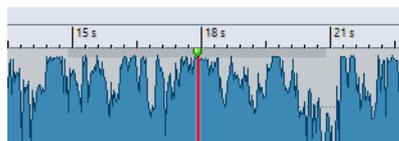
Loop points are updated continuously during playback. If you change the loop start or end during playback, the loop changes. This way, you can audition selection points for rhythmic material.

If you loop a section in an audio montage, playback loops within the boundaries of the current selection range. This selection range may be on any track, even if it is empty. The vertical position of the selection range is of no relevance for loop playback, only the left and right selection boundaries matter.

## Pre-Roll and Post-Roll

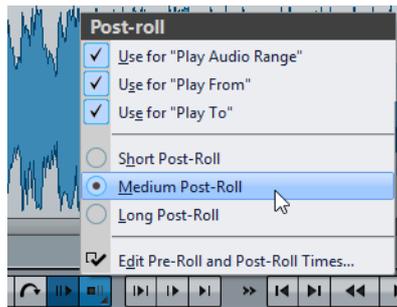
You can start playback slightly before a specific position (pre-roll) and stop playback slightly after another position (post-roll). This gives you a brief context if you are auditioning a clip, for example.

The position can be an anchor or the start or end of a range. The pre-roll and post-roll times are displayed in the time ruler.



To activate pre-roll and/or post-roll, activate **Perform Post-Roll** and **Perform Pre-Roll** on the transport bar.

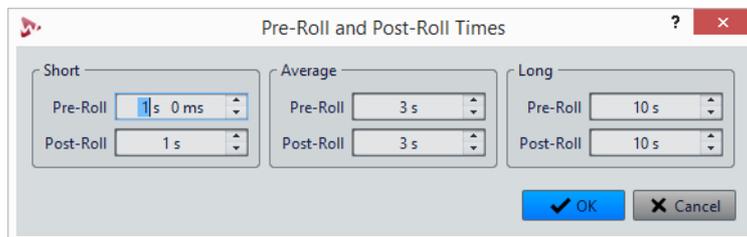
When right-clicking the pre-roll or post-roll button on the transport bar, you can select a pre-roll/post-roll time. Here, you can also select a play option for the pre-roll/post-roll, and you can open the **Pre-Roll and Post-Roll Times** dialog.



## Pre-Roll and Post-Roll Times Dialog

This dialog allows you to define a short, an average, and a long pre-roll and post-roll time. These settings are global to WaveLab Elements.

- 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**.



## Playback Shortcuts

In addition to the buttons on the transport bar, there are shortcuts to control the playback.

### Space bar

Start/Stop playback. This shortcut can be used even when the wave window or 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 (whatever is closer), until the start of the file is reached. This is the same as clicking **Stop** on the transport bar. This shortcut can be used even if the wave window or 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 Cursor** on the transport bar.

**[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.

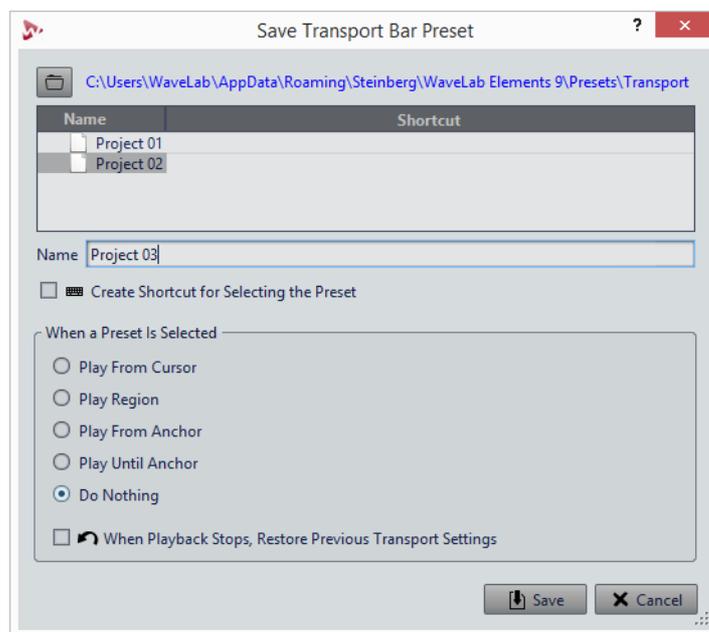
**[F8]**

Starts playback until the selected anchor, depending on the selected option in the **Anchors** section of the transport bar.

## Save Transport Bar Preset Dialog

In this dialog, you can save a transport bar setup as 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/Mac OS Finder. Here, you can create subfolders for your presets.

**Presets list**

Lists all existing presets.

**Name**

Lets you specify a name for your preset.

### When a Preset Is Selected

This lets you 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

If this option is activated, the settings are restored to as they were before playback start. This is useful to trigger a special play task, and 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, middle, or bottom of the file window.

---

#### PROCEDURE

1. In the title 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**, **Middle**, or **Bottom**.
- 

## Hiding the Transport Bar

---

#### PROCEDURE

1. In the title bar of the **Audio Editor** or **Audio Montage** window, click **Layout Options**.
  2. In the **Transport Bar** section, select **Hidden**.
- 

## Starting Playback From the Ruler

You can use the ruler to jump to a position and start playback from there.

- Double-clicking the 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 position, click the 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]/[Command] and double-click the marker.

## Using the Play Tool

This 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]/[Option].
  3. In the wave 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. 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 is moved to the playback start position.

## Playback Scrubbing

Playback scrubbing helps you find a specific position in an audio file, by restarting playback repeatedly when you click and drag on the time ruler during playback or when using the **Play** tool.

## Scrubbing Using the Play Tool

---

### PROCEDURE

1. In the **Audio Editor**, select the **Edit** tab.
  2. In the **Tools** section, select the **Play** tool, or press and hold [Alt]/[Option].
  3. Click in the wave window.  
Playback starts at the position where you clicked.
- 

### RELATED LINKS

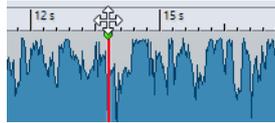
[Playback Scrubbing Preferences on page 85](#)

## Scrubbing Using the Time Ruler

---

### PROCEDURE

1. Start playback.
2. Click the time ruler and 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.
- 

## 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.

- 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 click and drag on the time ruler with the **Play** tool.

## Scroll During Playback

You can determine how the view should be scrolled 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.

### Steady View

Disables scrolling.

### View Follows Cursor

The view automatically scrolls to keep the playback cursor visible.

### Scroll View

Scrolls the view to keep the playback cursor centered.

#### NOTE

If you get dropouts during playback, activate **Steady View**.

---

## Playback in the Audio Montage Window

Playback in the **Audio Montage** window works the same way as in the **Audio Editor**. However, there are some things to note.

### Mute and Solo Tracks

You can mute or solo tracks in an audio montage by using the corresponding buttons in the track control area.

- When a track is muted, the mute button is yellow.
- When a track is soloed, the solo button is red.
- **Solo** can only be activated for one track at a time. However, you can unmute other tracks when **Solo** is active if you want to listen to a combination of tracks.

#### RELATED LINKS

[Track Control Area on page 151](#)

### Playing Back Individual Clips

You can play back an individual clip on a track. Overlapping clips or clips on other tracks are muted.

---

#### PROCEDURE

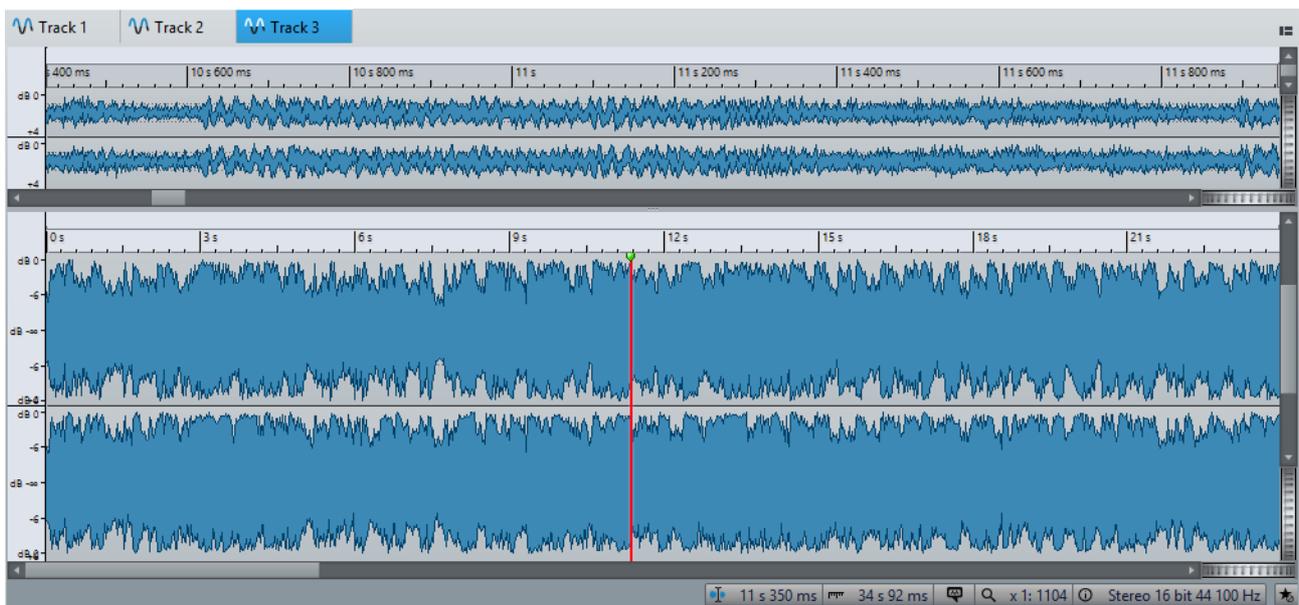
1. In the montage window, right-click the lower part of the clip that you want to play back.
  2. On the menu, select one of the following play options:
    - To play back the clip, select **Play Clip**.
    - To play back the clip with pre-roll, select **Play Clip with Pre-Roll**.
-

# Audio File Editing

Audio file editing refers to opening, editing, and saving audio files.

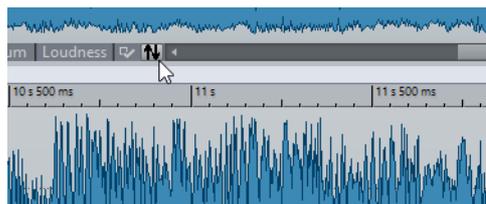
## Wave Window

The wave window displays audio files graphically. Here, you view, play back, and edit individual audio files.



The wave window consists of two displays. You can use one display as an overview to navigate through the project and the other as the main view for editing.

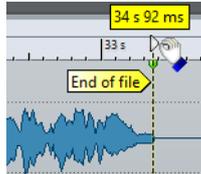
You can synchronize the waveform displays so that they display the same part of the audio file, by clicking **Sync with Other View**.



## 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.



To place the cursor at a magnetic position, click the time line and keep the mouse button pressed. When you now move the cursor, it jumps to the next magnetic bound.

## Magnets Menu

On this pop-up menu, you can specify which positions should be magnetic. If **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 Editor**, and click **Magnets**.

You can let items snap to the following positions:

### Start of File/End of File

Elements snap to the start/end of the file when they are moved near these positions.

### Time Ruler Marks

Elements snap to the time ruler grid when they are moved near these positions.

### Markers

Elements snap to marker positions when they are moved near these positions.

### Selection Edges

Elements snap to the selection edges when they are moved near these positions.

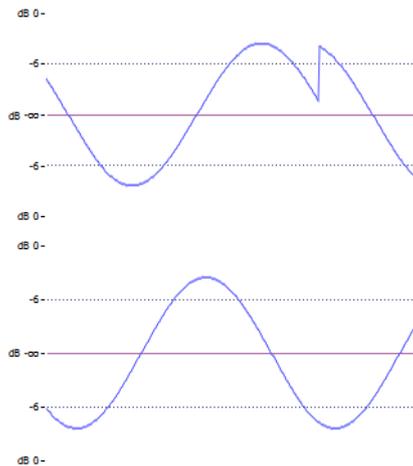
### Cursor

Elements snap to the edit cursor when they are moved near the cursor.

## Zero Crossing

A zero crossing is a point where the waveform crosses the zero level axis. When you perform editing operations, such as cutting, pasting, or dragging, make sure that the material is inserted 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 make sure that the selections that you make are always adjusted so that they start and end at the nearest zero crossing.

## Setting Up the Zero Crossing Detection

You can let selection edges automatically snap to the nearest zero crossing point. In the **Audio Files Preferences** dialog, you can specify whether to allow snap at high zoom factors, and specify the scan range for the 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. Make your settings in the **Snap Selection to Zero-Crossing** section.
  6. Click **OK**.
-

## 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**.

## 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



## 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.

To edit the zoom factor, click **Edit Zoom Factor**. This opens the **Zoom Factor** dialog, where you can edit the following settings:

- **Set Time Range** allows you to specify the time range that you want to display.
- **Samples per Screen Point** allows you to specify how many audio samples are summarized in each screen point.
- **Screen Points per Sample** allows you to specify how many screen points are used to represent a single audio sample.

### **Zoom**

Activates the **Zoom** tool that 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.

### **Optimize Vertical Zoom**

Changes the vertical zoom factor so that the peaks are clearly visible. This adjustment is done according to the section of the wave that is visible in the wave/montage window.

### **Reset Zoom to 0dB**

Adjusts the zoom to display audio levels up to 0dB.

### **Zoom in Vertically/Zoom out Vertically**

Zooms in/out to show waveforms with 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 edit 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.

### **Cursor**

Displays the cursor position.

## **Playback**

### **Steady View**

Deactivates 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.

## **Analysis**

### **3D Frequency Analysis**

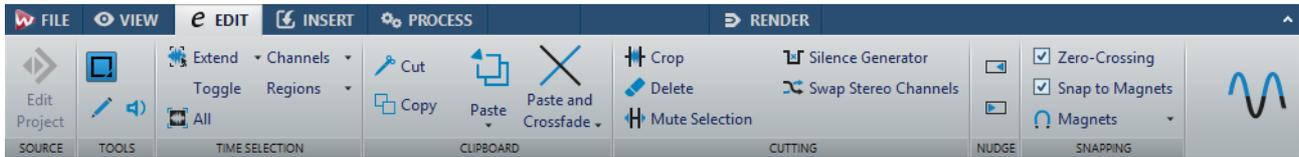
Opens the **3D Frequency Analysis** dialog where you can define which frequency range is analyzed and modify the appearance of the graph for the 3D frequency analysis.

## **Peaks**

### **Rebuild Peak Display**

Normally, peak files are automatically updated when the date of the peak file is older than the date of the audio file. However, it can happen that the date of the audio file is wrong and therefore not automatically updated. In this option allows you to rebuild the peak file.

## Edit Tab



## Tools

### Time Selection

Tool that allows you to select a time range.

### Pen

Tool that allows you to redraw the waveform in the wave window. This can be used to quickly repair waveform errors.

### Play

Tool that allows you to play back the audio file at the position where you click.

## Time Selection

### Extend

This pop-up menu contains various options for creating or extending selection ranges.

### Toggle

Toggles the current audio selection.

### All

Selects the entire waveform.

### Channels

This pop-up menu allows you to change the channel selection.

- **Extend to All Channels** extends the current selection range to all channels.
- **Left Channel Only** reduces the current selection range to the left channel only.
- **Right Channel Only** reduces the current selection range to the right channel only.

### Regions

This pop-up menu allows you to select a range between two markers.

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

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

## Clipboard

### Cut

Cuts the active clip to the clipboard.

### Copy

Copies the active clip to the clipboard.

### Paste

Pastes the clipboard content.

Right-click **Paste** to open a pop-up menu that allows you to select a paste type.

- **Overwrite** replaces the audio at the paste position.
- **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** 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 for the audio on the clipboard and at the destination. All the data on the clipboard is always mixed in, regardless of the length of the selection.

### Paste and Crossfade

Pastes the clipboard content and creates a crossfade.

Right-click **Paste and Crossfade** to open a pop-up menu that allows you to select a crossfade type for pasting.

- **Linear (Equal Gain)** changes the level linearly.
- **Sinus (Equal Power)** changes the level according to a sine curve, the power of the mix remains constant.
- **Square-Root (Equal Power)** changes the level according to a square-root curve, the power of the mix remains constant.

## Cutting

### Crop

Deletes the data outside the selection.

### Delete

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

### Mute Selection

Replaces the audio selection with silence.

### Silence Generator

Opens the **Silence Generator** dialog that allows you to insert silence or background noise in an audio file.

### Swap Stereo Channels

Moves the audio in the left channel to the right channel, and vice versa.

## 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 always snap to a zero-crossing point of the waveform.

### Snap to Magnets

If this option is activated, moved elements such as clip edges, time selection edges, cursor, and markers snap to the magnets that are activated on the **Magnets** pop-up menu.

## Insert Tab



## Markers

### Marker Name

Lets you enter the name of the start and end marker. If nothing is entered, 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

If this option is activated, you can enter a different name for the end marker.  
If this option is deactivated, the name of the start marker is also used for the end marker.

### Create Marker

Allows you to create markers and marker pairs at the edit cursor position.

## Audio File

### At Start

Allows you to insert an audio file at the start of the active audio file.

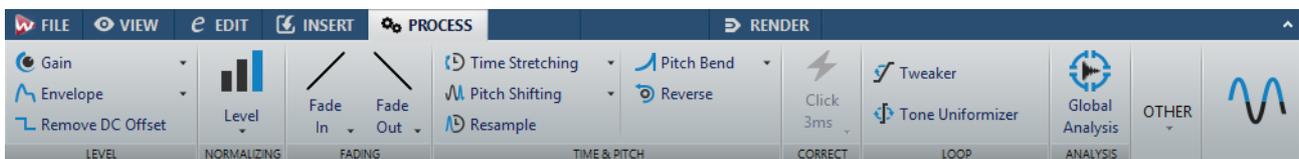
### At End

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.

## Process Tab



## 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 a 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.

## 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.

## 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.

### Resample

Opens the **Sample Rate** dialog where you can change the sample rate of your audio.

### Pitch Bend

Opens the **Pitch Bend** dialog where you can gradually change the pitch of your audio using an envelope curve.

### Reverse

Creates a backwards-tape effect.

## Correct

### Error Correction

Lets you select the default error correction method.

- **Linear Interpolation** draws a straight line between the first and the last selected samples.
- **Optimal for Small Clicks – 1 ms** is optimal to remove clicks smaller than 1 ms.
- **Optimal for Common Clicks – 3 ms** is optimal to remove clicks smaller than 3 ms.
- **Waveform Replacement – 500 ms** replaces the corrupt samples with the best match detected in the material up to 500 milliseconds to the left/right.
- **Waveform Replacement – 4 s** replaces the corrupt samples with the best match detected in the material up to 4 seconds to the left/right.
- **Waveform Replacement – Left 6 s** replaces the corrupt samples with the best match detected in the material up to 6 seconds to the left.
- **Waveform Replacement – Right 6 s** replaces the corrupt samples with the best match detected in the material up to 6 seconds to the right.

## 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.

## Analysis

### Global Analysis

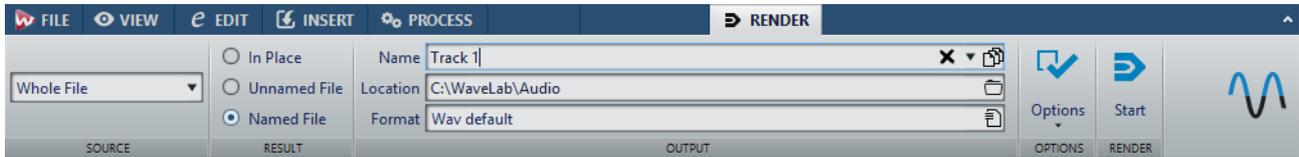
Opens the **Global Analysis** dialog where you can analyze peaks, loudness, pitch, DC offset, and errors in the audio file.

## Other

### Invert Phase

Turns the signal upside down.

## Render Tab



### Source

The **Source** pop-up menu allows you to select which part of the audio file you want to process. The following options are available:

#### Whole File

Processes and renders the whole audio range.

#### Specific Region

Processes and renders a specific audio range to an independent file.

Specify the region to process on the pop-up menu.

### Result

#### In Place

If this option is activated, the rendered audio range replaces the source audio range.

#### Unnamed File

If this option is activated, the rendered file is named `untitled`.

#### Named File

If this option is activated, you can 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.

#### Location

Allows you to select a destination folder for the rendered files.

#### Format

Opens a pop-up menu where you can select a file format.

### Options

Depending on the selected source, different options are available.

### **Bypass Master Section**

If this option is activated, the plug-ins and gain of the **Master Section** are bypassed when rendering.

### **Exclude Master Section Bypassed Plug-ins**

If this option is activated, the plug-ins that are bypassed in the **Master Section** during playback are not used for rendering.

### **No Reverb Tail**

If this option is activated, the audio tail produced by effects such as reverb is not included in the rendered file.

Some plug-ins do not transfer information on the tail duration to WaveLab. 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, the markers that are included in the range to process are copied to the rendered file.

### **Skip Exclusion Region**

If this option is activated, muted audio ranges are skipped and not included in the result.

### **Open Resulting Audio File**

If this option is activated, every rendered file is opened in a new window.

### **Bypass Master Section on Resulting Audio File**

If this option is activated, playback of the resulting audio file bypasses the entire **Master Section**. This setting can be toggled by clicking the button at the bottom right of the wave window or montage window.

#### **NOTE**

It is recommended to activate this option, because this way, you do not monitor new files through the effects that have already been applied to them.

---

### **Upload to SoundCloud**

If this option is activated, the rendered file is uploaded to SoundCloud.

## **Render**

### **Start**

Starts the rendering process.

# File Handling in the Audio Editor

## Mono/Stereo Handling

WaveLab Elements is very flexible in its handling of stereo. All editing operations can be performed on either one channel or on both.

## Supported File Formats

WaveLab Elements can open and save audio files in a number of file formats.

### Wave (.wav)

The following bit resolutions are supported: 8bit, 16bit, 20bit, 24bit, and 32bit (float).

### WavPack (.wv/.wvc)

This file format allows digital audio to be losslessly compressed, including 32bit float audio files.

### AIFF (.aif, .aiff, .snd)

Audio Interchange File Format, a standard defined by Apple Computers Inc. The following bit resolutions are supported: 8bit, 16bit, 20bit, and 24bit.

### 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 sound quality.

#### NOTE

When you open an MPEG compressed file in WaveLab Elements, the file is converted to a temporary wave file. On saving, the temporary wave file is converted back to MP3.

### MPEG-1 Layer 2 (.mp2, .mpa, .mpg, .mus)

MP2 (sometimes referred to as "Musicam files") is a common file format in the broadcast industry.

### Original Sound Quality (.osq, read only)

This is the proprietary lossless compressed audio format of WaveLab Elements.

### Sound Designer II (.sd2)

This audio file format is used by Digidesign applications (such as Pro Tools). The following bit resolutions are supported: 8bit, 16bit, and 24bit.

### **U-LAW (.ulaw, .vox)**

This is an audio encoding and compression technique supported by Windows and Web phones, using 8bit resolution. The U.S. telephone system uses U-law encoding for digitization.

### **A-LAW (.alaw, .vox)**

This is an audio encoding and compression technique for telephony, using 8-bit resolution. The EU telephone system uses A-law encoding for digitization.

### **Sun/Java (.snd, .au)**

This is an audio file format used on Sun and NeXT computers. The following bit resolutions are supported: 8bit, 16bit, and 24bit.

### **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.

### **Ogg Vorbis (.ogg)**

Ogg Vorbis is a compressed file format that is open, patent-free, and which creates very small audio files maintaining comparatively high audio quality.

### **Text/Excel (.txt)**

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 Elements, 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 32-bit float files, the .txt 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.

### **Windows Media Audio (.wma, .asf)**

Microsoft's own compressed format. WaveLab Elements lets you 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.

### **Ensoniq Paris (.paf)**

Used by the Ensoniq Paris™ system. The following bit resolutions are supported: 16bit and 24bit.

### **FLAC (.flac)**

Free Lossless Audio Codec (FLAC) is a codec which allows digital audio to be losslessly compressed.

### **Apple formats (.caf, .3gp, .3g2, .caf)**

If Quicktime is installed on your system, these formats are available (read-only and only on 32-bit Windows or Mac systems).

### AAC (.aac)

Advanced Audio Coding (AAC) is a codec that allows lossy compression and encoding scheme for digital audio.

#### NOTE

The “\$\$\$” file type is a temporary file format of WaveLab Elements. If you experience a computer crash, you may restore some of your work by opening any “\$\$\$” files on your hard disk.

---

## 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 Elements can handle 20-bit and 24-bit audio files. Any processing or editing performed on the files is always done at full resolution (32-bit float), even if your card does not support the full resolution.

For playback, WaveLab Elements automatically adapts to the card that you have installed.

## Creating a New Audio File

You can create an empty audio file, to assemble material from other audio files, for example.

---

#### PROCEDURE

1. Select **File > New**.
  2. Click **Audio File > Custom**.
  3. Specify the audio properties and click **Create**.
- 

## Saving an Audio File

---

#### PROCEDURE

1. Do one of the following:
    - To save an audio file that has never been saved before, 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 location.
  3. Click **Save**.
-

## Saving in Another Format

You can change the file format, sampling frequency, bit resolution, and stereo/mono status when saving.

---

### PROCEDURE

1. Select **File > Save As**.
  2. In the **Save As** window, specify a file name and 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

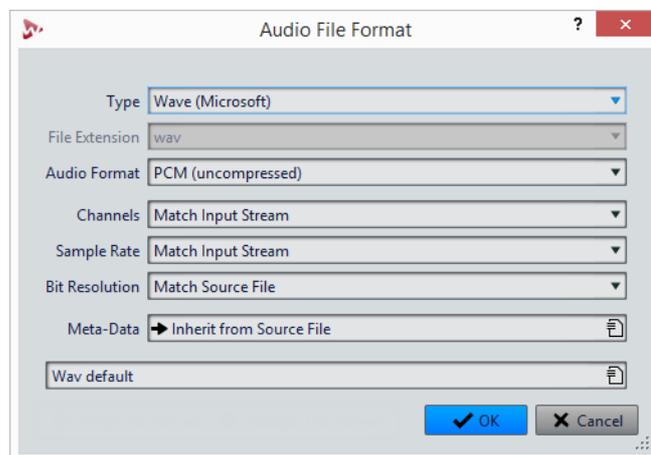
A new file is created. The original file is not affected by the operation.

## Audio File Format Dialog

In this dialog, you can change various file settings when saving.

- To open the **Audio File Format** dialog, select **File > Export**, and select **Render**. Then activate **Named File**, click in the **Format** field, and select **Edit Single Format**.

This dialog can also be opened from various other locations in WaveLab Elements.



### Type

Select an audio file type. This affects which options are available on the **Audio Format** menu.

### File Extension

Select a file extension that is compatible with the current file type.

## Audio Format

Select an audio format that is compatible with the current file type.

## Channels

Specify the number of audio channels for the files to be created.

## Sample Rate

Select a sample rate for the audio file. If you change this setting, a sample rate conversion takes place.

### IMPORTANT

Use this only for simple conversions. For professional results, use the **Resample** plug-in and add limiting and dithering.

---

## Bit Resolution

Select a bit resolution for the audio file. This option is only available for specific file types.

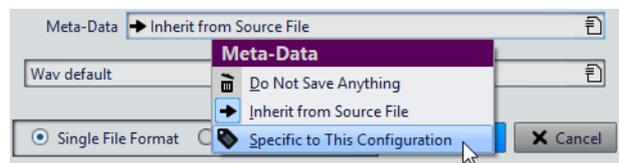
### IMPORTANT

Reducing the bit resolution is only advised for simple conversions. For professional results, it is recommended to add dithering in the **Master Section**.

---

## Meta-Data

Lets you make meta-data settings that are saved with the file. This option is only available for some file types.



- If **Do Not Save Anything** is selected, no meta-data are saved with the file.
- If **Inherit from Source File** is selected, the meta-data of the source file are used. If the source meta-data is empty, the default meta-data is used, if available.
- If selecting **Specific to This Configuration** is selected, you can edit the meta-data, or replace it with a meta-data preset. To edit the meta-data, open the meta-data pop-up menu again, and select **Edit**.

## Changing the Format

When changing the sample rate, bit resolution, and number of channels of an audio file, several operations are performed.

### Sample Rate

If a new sample rate is specified, a sample rate conversion is performed.

### Bit Resolution

If a different bit resolution is specified, the file is either truncated down to 8 bits, or padded up to 64 bits. If you are converting to a lower bit resolution, you should consider adding dithering.

### Mono/Stereo

If the file is converted from mono to stereo, the same material is used in both channels. If the conversion is from stereo to mono, a mix of the two channels is created.

#### NOTE

- If you only want to change the bit resolution, 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, it is not recommended to change the sample rate and number of channels using the **Audio Properties** section, but instead use plug-ins and functions of the **Master Section**.
- 

## Saving a Selection as an Audio File

You can save a selection in the open audio file as a new audio file.

---

#### PROCEDURE

1. In the wave window, make a selection range.
  2. In the **Audio Editor**, 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 and location.
  5. Open the **Format** menu and select **Edit Single Format**.
  6. In the **Audio File Format** dialog, specify the output format and click **OK**.
  7. In the **Render** section, click **Start**.
- 

## Saving Left/Right Channel as Audio File

You can save each channel individually into a separate file. Use this option when 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 location.
3. Open the **Format** 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. Make additional output settings and click **OK**.
  6. In the **Render** section, click **Start**.
- 

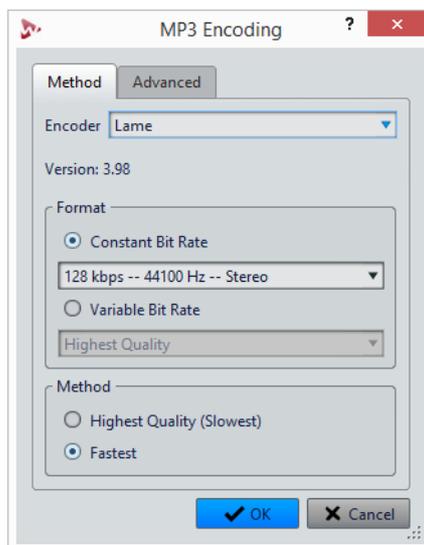
## Encoding Audio Files

Audio can be saved in different formats. The process of converting audio to another format is called encoding. When saving audio files, you can specify various encoding options for some file formats.

### MP3 Encoding Dialog

You can edit the encoding options when you save an MP3 audio file.

You can open the **MP3 Encoding** dialog from most places where you can select an output file format. For example, open an audio file, select **File > Save As**, click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, select **MPEG-1 Layer 3 (MP3)** as type, click the **Encoding** field, and select **Edit**.



#### Encoder

Lets you select the encoder (**Fraunhofer** or **Lame**).

#### Constant/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

Select the quality that you want 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 message is displayed.

---

When you use the **Lame** encoder, you can make additional settings on the **Advanced** tab.

### 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

This is 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.

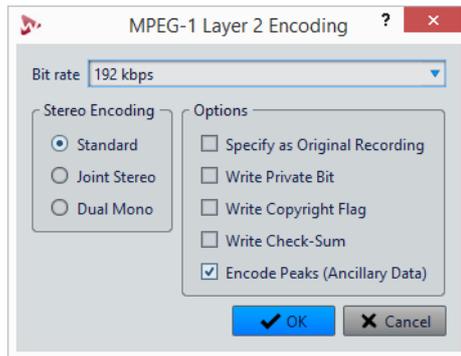
### Create Long Frames

Saves space by writing fewer headers in the file (not compatible with all decoders).

## MPEG-1 Layer 2 Encoding Dialog

You can edit the encoding options when you save an MPEG-1 Layer 2 (MP2) audio file.

You can open the **MPEG-1 Layer 2 Encoding** dialog from most places where you can select an output file format. For example, open an audio file, select **File > Save As**, click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, select **MPEG-1 Layer 2** as type, click 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** mode, the encoder uses the existing correlations between the two channels to increase the ratio quality/space.

In **Dual** mode, both channels are independently encoded. This mode is recommended for signals with independent channels.

### Specify as Original Recording

Marks the encoded file as the original recording.

### Write Private Bit

This is 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.

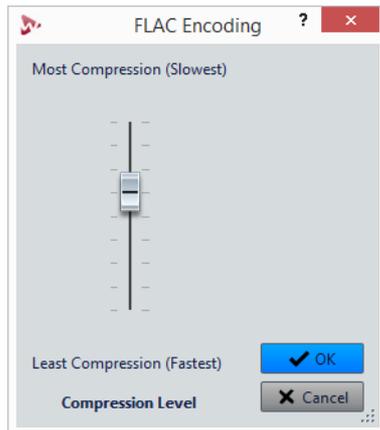
### Encode Peaks (Ancillary Data)

This must be activated for compatibility with specific systems, for example, DIGAS.

## FLAC Encoding Dialog

You can edit the encoding options when you save a FLAC audio file.

You can open the **FLAC Encoding** dialog from most places where you can select an output file format. For example, open an audio file, select **File > Save As**, click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, select **FLAC** as type, click the **Encoding** field, and select **Edit**.



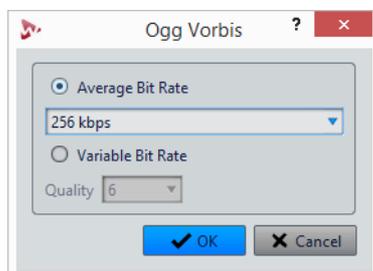
### Compression Level

Lets you specify the compression level. The more compression, the slower the encoding.

## Ogg Vorbis Dialog

You can edit the encoding options when you save an Ogg Vorbis audio file.

You can open the **Ogg Vorbis** dialog from most places where you can select an output file format. For example, open an audio file, select **File > Save As**, click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, select **Ogg Vorbis** as type, click 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. Because the file size is proportional to time, the localization of a given point is easier, but it can result in a lower quality compared to the **Variable Bit Rate** option.

### Variable Bit Rate

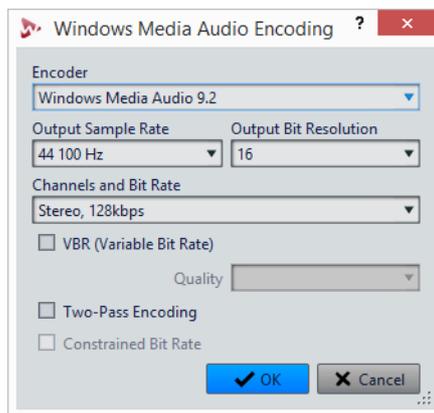
If this option is activated, the bit rate in the file will vary during encoding, depending on the complexity of the material. This can give a better quality/size ratio in the resulting file.

In the **Quality** field, select the quality. Lower quality settings result in smaller files.

## Windows Media Audio Encoding Dialog

You can edit the encoding options when you save a Windows Media Audio (WMA) audio file. This dialog is only available in on Windows systems.

You can open the **Windows Media Audio** dialog from most places where you can select an output file format. For example, open an audio file, select **File > Save As**, click in the **Format** field, and select **Edit**. In the **Audio File Format** dialog, select **Windows Media Audio (WMA)** as type, click 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 Resolution

Sets the output bit resolution of the encoded file. This parameter is not available for all encoders.

### Channels and Bit Rate

The available items here 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 will vary during the 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

This option is available when the **VBR** and **Two-Pass Encoding** options are activated. This is used to maintain the bit rate within limits to avoid peaks. This is recommended for media, such as CD or DVD.

## Creating an Audio Montage from an Audio File

You can export audio files to an audio montage, including all markers that you have set in the audio file.

---

#### PROCEDURE

1. In the **Audio Editor**, open the audio file that you want export to an audio montage.
  2. Optional: If you want to use a specific time range of the audio file, create a selection range in the wave window.
  3. Select **File > New**.
  4. Select **Audio Montage > From Current File**.
  5. In the **From Current Audio File** section, click **Insert Audio File in New Montage**.
  6. Click **Create**.
  7. In the **Create Audio Montage from Audio File** dialog, select whether to import the whole file or the selected audio range.
  8. Optional: Decide if you want to perform any of the following marker operations:
    - **Import Markers**
    - **Split at Generic Region Markers**
  9. Click **OK**.
- 

## 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 in which you want to insert another audio file.
2. If you want 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.  
The edit cursor snaps to the nearest zero crossing. This avoids glitches.
3. Select the **Insert** tab.
4. 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 cut at the insert position. The part after the cut is moved to the right.

5. On the pop-up menu, select the audio file that you want to insert.
- 

RELATED LINKS

[Magnetic Bounds in Audio Files on page 88](#)

## Turning Selections Into New Files

You can turn selections into new files via drag and drop or by using the **Render** tab in the **Audio Editor**.

### Turning Selections Into New Files By Dragging

---

PROCEDURE

1. Make a selection in the wave window.
  2. Drag the selection to the tab bar above the wave window and release the mouse button.
- 

RESULT

The selection opens in a new stereo window.

### Turning Selections Into New Files Using the Menu

---

PROCEDURE

1. Make a selection in the wave window.
  2. Right-click the selection and select **Copy Selection to New Window**.
  3. From the submenu, select one of the following options:
    - **Exact Copy**
    - **Stereo Version**
    - **Mono Mixdown**
    - **Mono Mixdown (Subtract Right Channel from Left Channel)**
- 

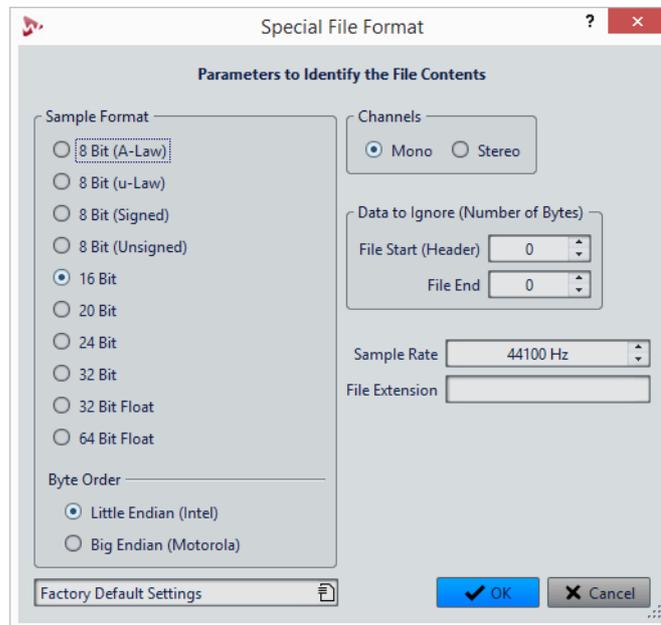
RESULT

The selection opens in a new stereo or mono window.

## Special File Format Dialog

When opening files via the **Unknown Audio** option, you can specify how to interpret the format of the audio file that you want to open.

- 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 bytes should be interpreted. 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 end of the audio file are ignored.

### 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.

## Converting From Stereo to Mono and 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.

### Converting a Selection From Stereo to Mono

---

#### PROCEDURE

1. Make a stereo selection in the wave window.
  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 wave contains the difference between the channels. For example, this allows you to verify that a wave file really is a true stereo file rather than a mono file converted to stereo format.
- 

#### RESULT

The selection opens in a new mono window.

### Converting From Stereo to Mono While Saving

---

#### PROCEDURE

1. Make a stereo selection in the wave window.
  2. Select **File > Save As**.
  3. In the **Save As** window, specify a file name and location.
  4. Click in the **Format** field and select **Edit**.
  5. In the **Audio File Format** dialog, open the **Channels** menu and select one of the mono settings.  
For example, when selecting **Mono (Mix -3dB)**, the resulting audio file is attenuated by 3dB.
  6. Click **OK**.
  7. Click **Save**.
-

## Converting a Selection From Mono to Stereo

---

### PROCEDURE

1. Make a mono selection in the wave window.
  2. Select **File > New**.
  3. Select **Audio File > From Current File**.
  4. Click **Stereo Version**.
  5. Click **Create**.
- 

### RESULT

The selection opens in a new stereo window.

## 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 **Edit** tab, and in the **Cutting** section, click **Swap Stereo Channels**.
- To swap the channels only a selected range of the audio file, make a selection range in the wave window, select the **Edit** tab, and in the **Cutting** section, click **Swap Stereo Channels**.

## Special Paste Options

On the **Paste** pop-up menu in the **Audio Editor**, you find additional paste options.

- To access the special paste option, open the **Audio Editor**, select the **Edit** tab, and in the **Clipboard** 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 with the same length as the pasted selection is overwritten.
- If there is a selection in the destination file, the pasted selection replaces that 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

Blends two files into each other, starting at the selection or, if there is no selection, at the cursor position.

- When you select the **Mix** option, a dialog opens, allowing you to specify the gain for the audio on the clipboard and at the destination.
- All the data on the clipboard is always 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 cutting and pasting.

### Moving Audio by Dragging

#### PREREQUISITE

Decide whether you want to use **Snap Selection to Zero-Crossing**.

---

#### PROCEDURE

1. In the wave window, make a selection.
2. Drag the selection to a position outside the selection in the same file, or to another wave window.

---

#### RESULT

The selection is removed from its original position and inserted where you drop it.

#### NOTE

To undo a move between two files you must first undo the paste in the destination window and then undo the cut operation in the source window.

---

## Moving Audio Using Cut and Paste

### PREREQUISITE

Decide whether you want to use **Snap Selection to Zero-Crossing**.

---

### PROCEDURE

1. In the wave window, make a selection.
  2. Use one of the following copy methods:
    - In the **Audio Editor**, select the **Edit** tab, and click **Cut**.
    - Press [Ctrl]/[Command]-[X].
  3. Select how you want to insert the selection:
    - If you want to insert the audio, click once at the position in the same file or in another file.
    - If you want to replace a section of audio, select it.
  4. To paste the selection, do one of the following:
    - In the **Audio Editor**, select the **Edit** tab, and click **Paste**.
    - Press [Ctrl]/[Command]-[V].
- 

### RESULT

The selection is removed from its original position and inserted where you drop it.

### NOTE

To undo a move between two files you must first undo the paste in the destination window and then undo the cut operation in the source window.

---

## Moving Audio by Nudging

The nudge left/right tools can be used to move the audio in small steps within a file.

---

### PROCEDURE

1. In the wave window, make a selection.
  2. In the **Audio Editor**, select the **Edit** tab.
  3. In the **Nudge** section, click **Nudge Left** or **Nudge Right**.
- 

### RESULT

The audio is moved one pixel. Exactly how much this is depends on how far you are zoomed in. For example, if the status bar displays **x1:256**, the selection is moved 256 samples. The moved section overwrites the audio at that position.

## Copying Audio

You can copy sections of audio within the same file or between audio files.

## Stereo/Mono Handling

When you drag or copy stereo or mono files to other locations, the target location determines how the files are inserted.

Stereo/Mono is handled as follows when you drag between files:

| 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. |

Stereo/Mono is handled as follows when you copy and paste files:

| Copied section | Paste wave | Action  |
|----------------|------------|---|
| Stereo         | Stereo     | If the wave cursor extends across both channels of the destination file, the material is inserted into both channels.   |
| Stereo         | Stereo     | If the wave 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.  |
| Mono           | Stereo     | What happens depends on whether the wave 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). The program warns you if this is about to happen.

While mixing sample rates can be used as an effect, it is most often not intended. There are two ways to get around this:

- Convert the sample rate of the source file to the same rate as the destination file before editing.

- Convert the sample rate of the destination file to the same rate as the source file before adding the audio.

## Copying Audio Using Copy and Paste

### PREREQUISITE

Decide whether you want to use **Snap Selection to Zero-Crossing**.

---

### PROCEDURE

1. In the wave window, make a selection.
  2. Use one of the following copy methods:
    - In the **Audio Editor**, select the **Edit** tab, and click **Copy**.
    - Press [Ctrl]/[Command]-[C].
  3. Select how you want to insert the selection:
    - If you want to insert the audio, click once at the position in the same file or in another file.
    - If you want to replace a section of audio, select it.
  4. To paste the selection, do one of the following:
    - In the **Audio Editor**, select the **Edit** tab, and click **Paste**.
    - Press [Ctrl]/[Command]-[V].
- 

## Copying Audio by Dragging

### PREREQUISITE

Decide whether you want to use **Snap Selection to Zero-Crossing**.

---

### PROCEDURE

1. In the wave window, 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 wave window.
- 

### RESULT

The selection is inserted at the indicated point. The audio that previously began at that point is moved to the right.

## Changing the Audio Properties

You can change the sample rate and bit resolution of audio files.

Changing these values 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 resolution, the file is converted to the new resolution the next time you save it.

---

**NOTE**

There is no undo for this. If you save a file with a lower bit resolution, 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, specify a new **Sample Rate** and/or **Bit Resolution**.
  5. Click **Apply Changes**.
- 

**RELATED LINKS**

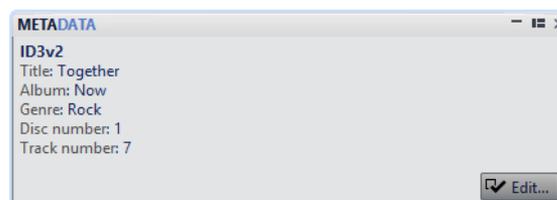
[Info Tab on page 37](#)

## Meta-Data

Meta-data consists of attributes that describe the audio contents, for example, the title of the track, the author, or the date the track was recorded. Depending on the file format of the selected audio file, this data varies.

When opening an audio file or audio montage, the meta-data found in the file is loaded. You can create different meta-data presets for audio files and audio montages. When creating a new file from a template, this file can inherit the meta-data of the preset, if available.

A preview of the meta-data is displayed in the **Meta-Data** window. To view the complete meta-data of a file and to be able to edit the meta-data, select **Tool Windows > Meta-Data** and click the **Edit** button.



Not all file formats can save meta-data. Depending on the output file format, all meta-data or only part of the meta-data is saved in an audio file. The following file formats can contain meta-data:

- .wav
- .mp3
- .ogg
- .wma
- .flac

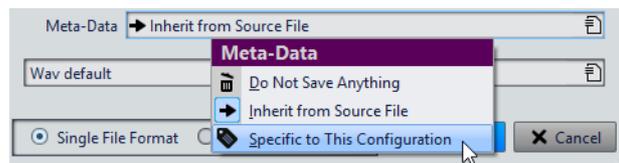
For MP3, the following meta-data types are available:

- ID3 v1 and ID3 v2, including picture support

For WAV, the following meta-data types are available:

- RIFF
- BWF
- BWF markers
- CART (AES standard, dedicated to broadcast needs)
- ID3, including picture support

When saving or recording an audio file in the **Audio File Format** dialog, you can specify whether not to use any meta-data, inherit the meta-data from the source file, or edit the meta-data of the file.



Meta-data can be entered manually or generated automatically.

The following options can be generated automatically:

- Time markers (**CART** tab)
- USID (**BWF, Basics** tab)

(\*) These options cause a file analysis while the file is written, which means that the file writing process can take longer.

WaveLab Elements includes several meta-data presets. They are used as examples and can be customized to your needs. You can load meta-data presets from the **Meta-Data Presets** pop-up menu in the **Audio File Format** dialog, or from the **Meta-Data** dialog.

#### RELATED LINKS

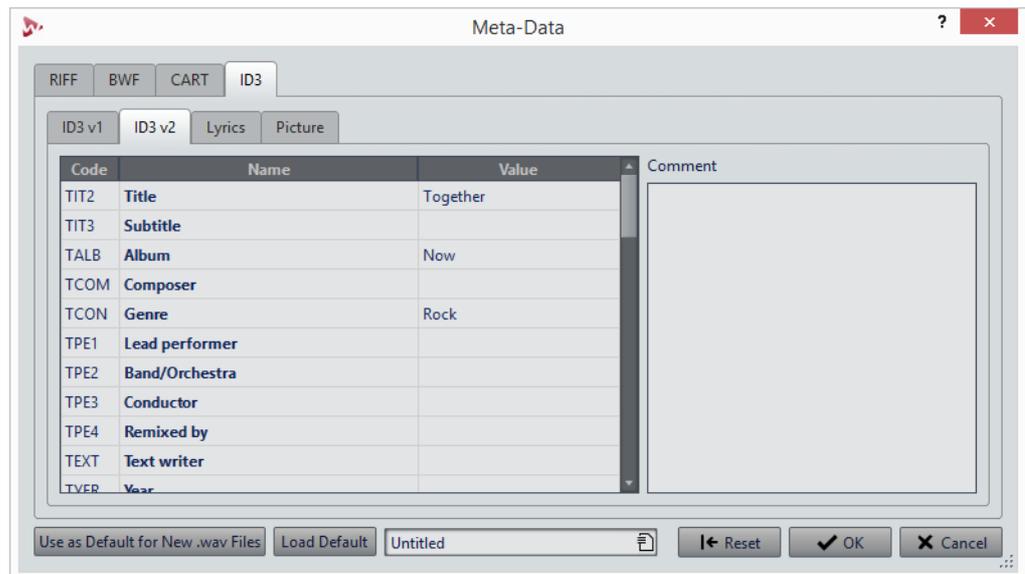
[Audio File Format Dialog on page 104](#)

## Meta-Data Dialog

This dialog allows you to define the meta-data to be embedded in your audio file.

- To open the **Meta-Data** dialog, open the **Meta-Data** window and click **Edit**.

Depending on the file type, the meta-data is handled differently.



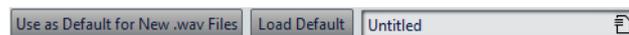
Meta-Data dialog for WAV files

When opening the **Meta-Data** dialog for files in the **Audio Editor**, you can edit the meta-data that is saved in the audio file. This meta-data is saved to disk later.

When opening the **Meta-Data** dialog for files in the **Audio Montage** window, you can edit the meta-data for the audio files that are created when rendering the audio montage. If you render to WAV or MP3 formats, the meta-data will be associated to these files.

## Meta-Data Presets

In the **Meta-Data** dialog, you can save meta-data presets and apply these presets to other files. Meta-data presets can be applied to WAV, MP3, and AAC files.



The **Use as Default for New .wav Files** option allows you to define a set of meta-data as default.

When you create a new file, and do not add any meta-data, this default meta-data is applied to the file when saving it. For example, you can save or record WAV files with BWF meta-data and automatically add a Unique Material Identifier.

To edit the default meta-data preset, select **Load Default**, and edit the preset.

## CART and Markers

WaveLab Elements reads the CART markers, if any, and merges them with the existing markers of the file.

The CART standard can contain up to 8 markers. WaveLab Elements saves them if their names conform to the CART standard.

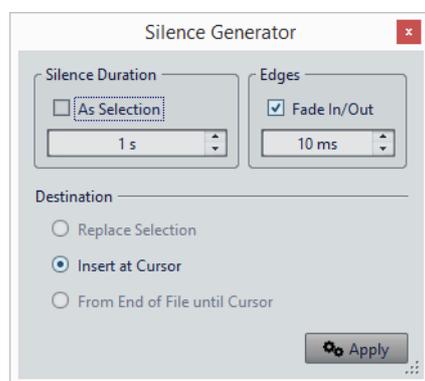
If **Generate Time Markers** is activated in the **CART** tab of the **Meta-Data** dialog, the markers are generated if at least one **CART** text field has content. Otherwise, the **CART** data is meant to be unused.

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 in the **Render** dialog.

## Silence Generator Dialog

This dialog allows you to insert silence or background noise in an audio file.

- To open the **Silence Generator** dialog, select the **Edit** tab in the **Audio Editor**, and click **Silence Generator**.



### Silence Duration

**As Selection** uses the duration of the active audio selection as the duration of the silent section. Specify the duration of the silent section in the value field below.

### Edges

**Fade In/Fade Out** performs a crossfade at the start and end of the silent section for smoother transitions. 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.

## Replacing a Selection with Silence

You can replace a section of an audio file with silence.

---

### PROCEDURE

1. In the **Audio Editor**, make a selection.
  2. Select the **Edit** tab.
  3. In the **Cutting** section, click **Silence Generator**.
  4. Set the silence duration to **As Selection**, and the destination to **Replace Selection**.
  5. Click **Apply**.
- 

## Inserting Silence

You can insert a specified length of silence at any position of the audio file.

---

### PROCEDURE

1. In the **Audio Editor**, set the cursor where you want the inserted silence to begin.
  2. Select the **Edit** tab.
  3. In the **Cutting** section, click **Silence Generator**.
  4. Deactivate **As Selection**, and specify the length.
  5. Set the destination to **Insert at Cursor**.
  6. Click **Apply**.
- 

## Muting a Selection

The **Mute Selection** function replaces the selection with true silence.

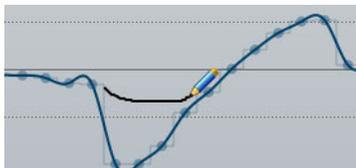
---

### PROCEDURE

1. In the wave window of the **Audio Editor**, make a selection.
  2. Select the **Edit** tab.
  3. In the **Cutting** section, click **Mute Selection**.
-

## Waveform Restoration with the Pen Tool

The **Pen** tool allows you to redraw the waveform in the wave window. This can be used 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.

# Audio Analysis

WaveLab Elements provides you with a comprehensive set of tools for analyzing your audio and for detecting any errors.

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.

## Global Analysis

In WaveLab Elements you can perform advanced analysis on your audio to identify areas with specific properties. This helps you 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 Elements scans the section or the audio file and extracts information which is displayed in the dialog. WaveLab Elements also marks sections of the file that meet specific characteristics, for example, sections that are very loud or almost silent. You can then browse between these points, set markers, or zoom in on markers. On most of the tabs, you find settings that determine exactly how the analysis is performed. Each tab focuses on a particular analysis area.

You perform the global analysis in the **Global Analysis** dialog. This dialog consists of the following tabs that provide different analysis types:

- The **Peaks** tab lets you find individual samples with very high values.
- The **Loudness** tab lets you find sections with high intensity.
- The **Pitch** tab lets you find the exact pitch of a sound or section.
- The **Extra** tab provides information about DC offsets and the significant bit resolution.
- The **Errors** tab lets you find glitches and sections where the audio has been clipped.

Most of the analysis types provide a number of positions in the file that indicate peaks, glitches, etc. These points are called “hot points”.

## Opening the Global Analysis Dialog

The **Global Analysis** dialog provides various analysis options.

---

### PROCEDURE

1. In the wave window, select a range in the audio file that you want to analyze. If you want to analyze the entire file, press [Ctrl]/[Command]-[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.
- 

## Choosing the Analysis Type

Several types of analysis can be performed. Each of them takes some time, so make sure that only the types that you need are included in the analysis.

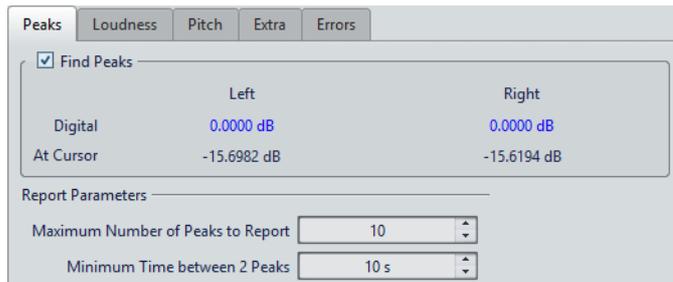
Select the analysis types in the **Global Analysis** dialog by activating them in the corresponding tabs.

- To include the peaks analysis, select the **Peaks** tab and activate **Find Peaks**.
- To include the loudness analysis, select the **Loudness** tab and activate **Analyze Loudness**.
- To include the pitch analysis, select the **Pitch** tab and activate **Find Average Pitch**.
- To include the extra analysis, select the **Extra** tab and activate **Find DC Offset**.
- To include the errors analysis, select the **Errors** tab and activate **Find Possible Glitches** and **Find Clipped Samples**.

## Global Analysis – Peaks Tab

On this tab, you can make settings that help you find digital peak values in the audio, that is, single samples with very high values.

- In the **Global Analysis** dialog, select the **Peaks** tab.



### Find Peaks

Enables peak analysis.

### Digital

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 Hot 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 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 peaks.

## Results of the Analysis

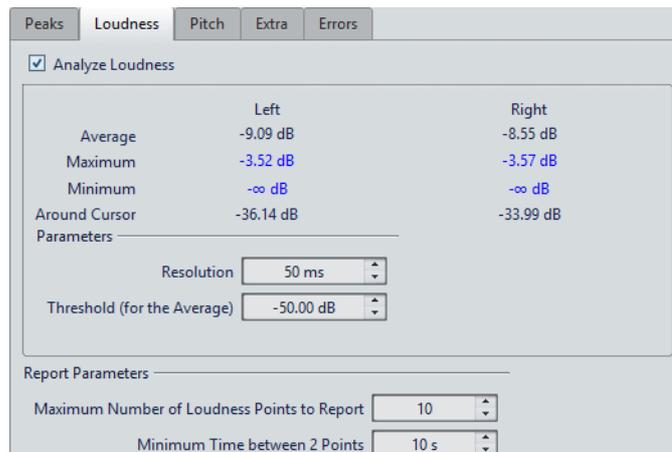
The **Find Peaks** fields show the highest peak in the analyzed section and the level of the sample at the wave cursor position at the time of the analysis.

## Global Analysis – Loudness Tab

On this tab, you can make settings that help you find sections that are perceived by the human ear as louder or weaker in volume. To find sections that the ear perceives as significant in volume, you must look at a longer section of audio.

- In the **Global Analysis** dialog, select the **Loudness** tab.

## Loudness Settings



|               | Left      | Right     |
|---------------|-----------|-----------|
| Average       | -9.09 dB  | -8.55 dB  |
| Maximum       | -3.52 dB  | -3.57 dB  |
| Minimum       | -∞ dB     | -∞ dB     |
| Around Cursor | -36.14 dB | -33.99 dB |

Parameters

Resolution: 50 ms

Threshold (for the Average): -50.00 dB

Report Parameters

Maximum Number of Loudness Points to Report: 10

Minimum Time between 2 Points: 10 s

### Analyze Loudness

Enables 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 Hot 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 Hot 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.

### Maximum Number of Loudness Points to Report

Restricts the number of reported hot points. The highest points are reported. For example, setting this to 1 reports only the loudest section or one of the sections with the same highest value.

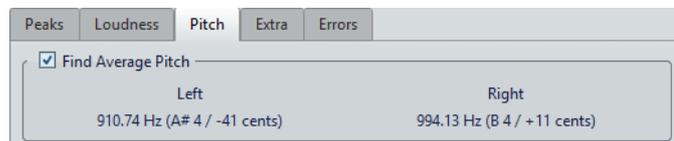
### Minimum Time between 2 Points

Controls the distance between points, so they do not appear too close to each other. For example, setting this to 1 s ensures that there is always at least one second between reported points.

## Global Analysis – Pitch Tab

On this tab, you can make settings that help you finding 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.

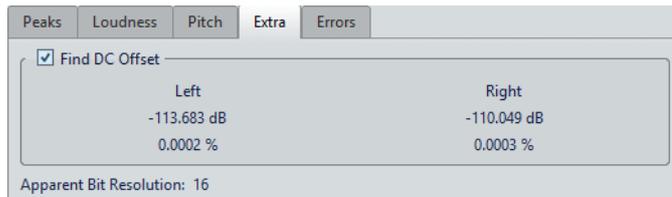
Usage guidelines for the **Pitch** tab:

- 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.

## Global Analysis – Extra Tab

This tab shows the average DC Offset of the analyzed section and the **Apparent Bit Resolution**.

- In the **Global Analysis** dialog, select the **Extra** tab.



The **Apparent Bit Resolution** attempts to detect the actual resolution 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 resolution and then expanded to 24 bits.

## Errors Detection

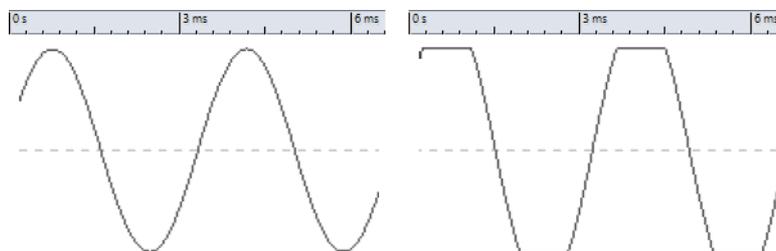
You can detect errors, such as glitches and sections where the audio has clipped.

### 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.

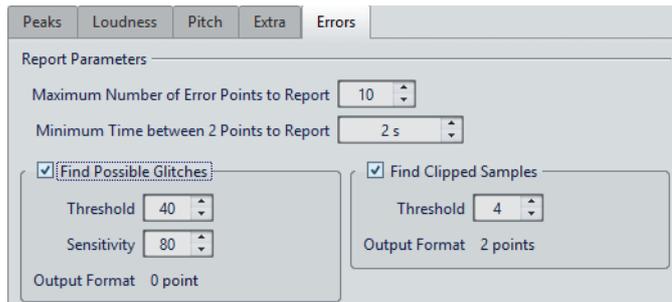
## Result of the Analysis

This reports the number of glitches and clipping instances that have been detected.

## Global Analysis – Errors Tab

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 numbers 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 Hot 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 Hot Points** section in the lower left corner of the dialog.

## 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 **Peak** or **Loudness** tab is selected, move the cursor to the position that you want to analyze.  
The Peak 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 browse.
4. Click the value.
5. Check the **Number of Hot 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 Hot 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.

---

RELATED LINKS

[Performing a Global Analysis on page 134](#)

## 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 the **Create Markers at Hot Points** button.  
Temporary markers are added at all hot points.
- 

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

[Performing a Global Analysis on page 134](#)

## Focusing Hot Points

After a global analysis, you can focus the display on 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 Hot Points** scroll bar 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.
- 

## 3D Frequency Analysis

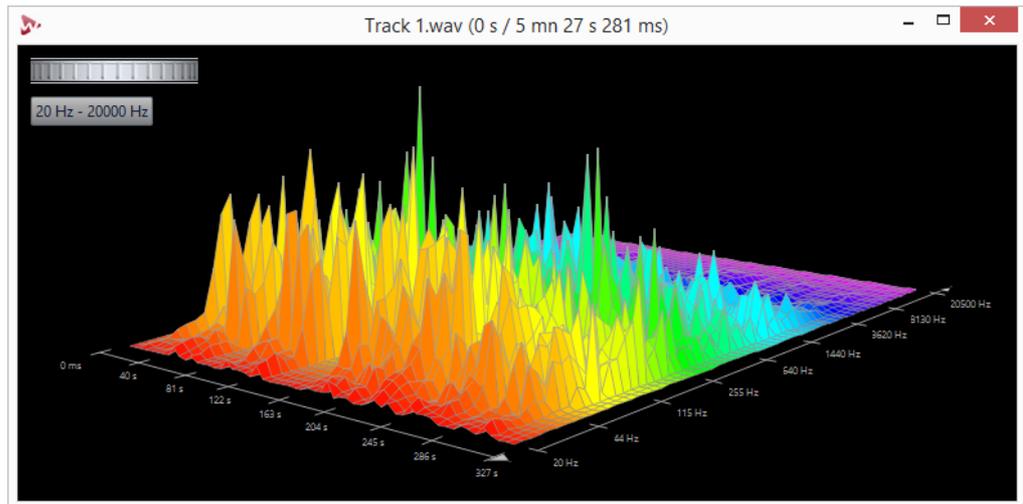
Using the 3D Frequency Analysis, you can view an audio file in the frequency domain.

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 a background noise 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 Elements 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 crowded graph.



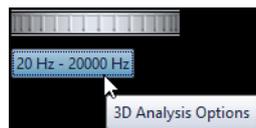
## Creating a Graph for 3D Frequency Analysis

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 **View** tab.
3. In the **Analysis** section, click **3D Frequency Analysis**. The audio is analyzed.
4. To edit the analysis parameters, click **3D Analysis Options**.

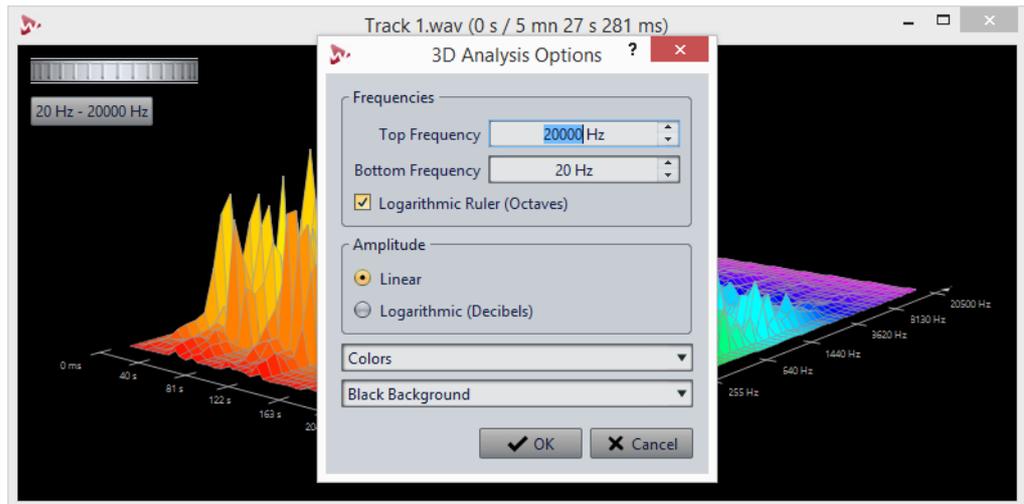


5. Adjust the parameters and click **OK**. The audio is re-analyzed.
- 

## 3D Analysis Options

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 Analysis Options** button.



### Top/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 with Decibel Scale**).

### Colors

Defines the color scheme of the graph.

### Background

Defines the background color.

# 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.

## 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.

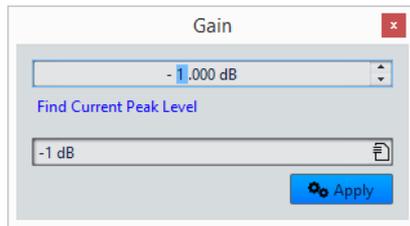
### PROCEDURE

1. In the wave window, make a selection.
2. In the **Audio Editor**, select the **Process** tab.
3. Select the type of processing that you want to apply.
4. If a dialog opens, make the settings and click **Apply** to render the effect to file.

## Gain Dialog

In this dialog, you can apply a gain to change the level of an audio file.

- To open the **Gain** dialog, select the **Process** tab in the **Audio Editor**, and click **Gain** in the **Level** section.



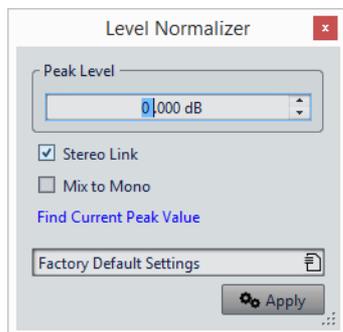
Click **Find Current Peak Level** to obtain a report on the peak level of the audio selection, or the whole file if there is no selection. This is useful if you want to calculate how much you can increase the overall gain of a file without clipping (exceeding 0 dB), for example.

This processor also lets you add clipping. Clipping is when the gain is raised to a point where distortion is added. While this is normally not intended, mild clipping can add some punch, for example, to accentuate the attack of a drum sound.

## 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.



### Peak Level

Enter the peak level (in dB) that you want the audio selection to have.

### Stereo Link

Applies the gain to both channels.

### 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.

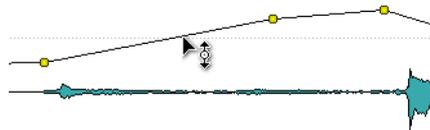
### Find Current Peak Value

Creates a report on the peak level of the current audio selection or the whole audio file if there is no selection.

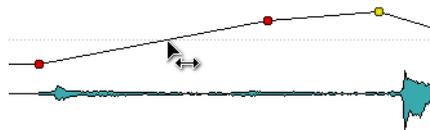
## Basic Envelope Operations

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.

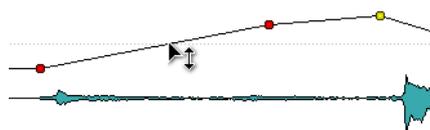
- To add a point, double click the envelope curve.
- To select a point, click it.
- To select several points, click and drag the selection rectangle.
- To move a point, click and drag it. If more than one point is selected, all points are moved.
- To move the whole curve up or down, click the envelope curve, and drag up or down.



- To move the curve segments vertically, click the curve 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]/[Command], 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 a Fade In and Fade Out

---

### PROCEDURE

1. In the wave window, make a selection.
  2. In the **Audio Editor**, select the **Process** 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.
- 

## Crossfades

A crossfade is a gradual fade between two sounds, where one is faded in and the other faded out. You can automatically create a crossfade when pasting an audio section into another.

## Creating Crossfades

The material that you want to crossfade can either be in two different sections of the same audio file or in two different audio files.

---

### PROCEDURE

1. In the wave window, select the section that you want to fade in.
  2. Select the **Edit** tab.
  3. In the **Clipboard** section, click **Copy**.
  4. Select the section that you want to fade out.

The length of this selection determines the length of the actual crossfade (check the length on the status bar). The section can be within the selected audio file or in another wave window. However, the selection must not be longer than the selection that you just copied.
  5. Select the **Edit** tab.
  6. Depending whether you want to create a fade in or a fade out, select one of the following options in the **Clipboard** section:
    - To apply the default crossfade type, click the **Paste and Crossfade** icon.
    - To select another crossfade type, click **Paste and Crossfade** below the crossfade icon. From the pop-up menu, select the type of crossfade that you want to create.
-

#### RESULT

The crossfade is created. Any material that originally appeared after the selection in the file into which you paste, is moved so that it now appears after the pasted material.

Any excess material in the copied selection appears after the fade at full level.

#### NOTE

If both files already have full level sections in the crossfade area (for example, if you have normalized both files), clipping and distortion might occur. If this happens, reduce the amplitude of both files by 3 dB to 6 dB and try again.

---

#### AFTER COMPLETING THIS TASK

Play back the file and adjust the crossfade if necessary.

## Paste and Crossfade Options

These options allow you to select a crossfade type for pasting.

- Select the **Edit** tab in the **Audio Editor**, and click **Paste and Crossfade** in the **Clipboard** section.

#### Linear (Equal Gain)

Level changes linearly.

#### Sinus (Equal Power)

Level changes according to a sine curve, the power of the mix remains constant.

#### Square-Root (Equal Power)

Level changes according to a square-root curve, the power of the mix remains constant.

## 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 the audio file, create a selection range in the wave window.
  2. In the **Audio Editor**, select the **Process** tab.
  3. In the **Other** section, click **Invert Phase**.
- 

## 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 wave window.
  2. In the **Audio Editor**, select the **Process** tab.
  3. In the **Time & Pitch** section, click **Reverse**.
- 

## DC Offset

A DC offset is when there is a too large DC (direct current) component in the signal. This most often appears 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

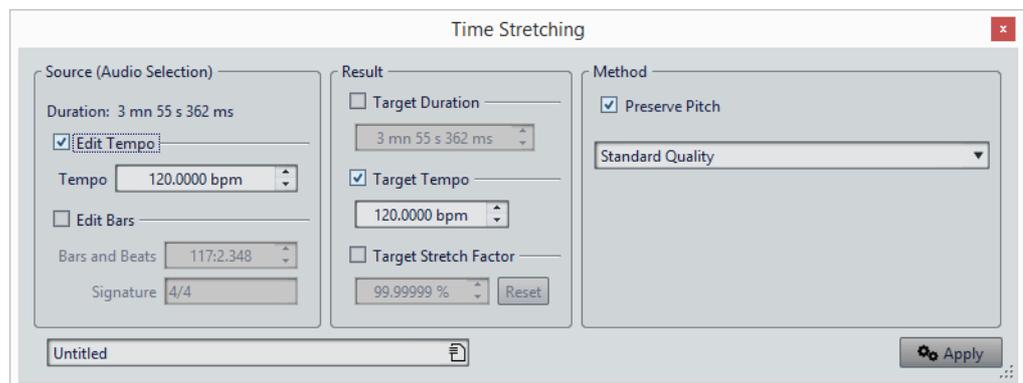
Time stretching is an operation that allows you to change the length of a recording without affecting its pitch.

With time stretching you can make audio material longer or shorter. This function is most often used to make a section of audio fit in with some other material. You select the material to be stretched and use the options in the **Time Stretching** dialog to find a stretch factor. This is done by specifying a length or a tempo, according to what the situation requires.

## 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.



## 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 according the stretch factor is automatically updated.

## 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.

### Quality pop-up menu

Select whether you want to use the **Standard Quality** or the **Quick Process**.

## 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  $\pm 30\%$  range provide good results.
- For composite music, try to limit the range to  $\pm 10\%$ .
- For sensitive material, like solo piano, try to limit the range to  $\pm 3\%$ .

## ZTX Time Stretching Processor

The ZTX engine is a high quality time stretcher. It produces the best quality results possible, but takes longer to process.

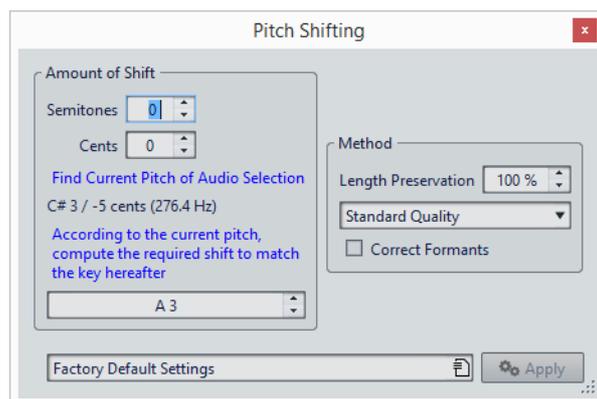
## Pitch Shift

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.

## Pitch Shifting Dialog

In this dialog, you can change the pitch of a sound.

- To open the **Pitch Shifting** dialog, select the **Process** tab in the **Audio Editor**, and click **Pitch Shifting** in the **Time & Pitch** section.



### Semitones

Specifies the amount of pitch change in semitones.

### Cents

Specifies 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.

### According to the current pitch, compute the required shift to match the key hereafter

Click to adjust **Amount of Pitch** parameters automatically, based on the detected pitch and the pitch specified in the value field below this button.

### Pitch field

Specifies the resulting pitch.

### 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.
- Intermediate values give results in between these two extremes.

For large transposition values, the lower this setting, the better the quality of the effect.

### Quality pop-up menu

Select whether you want to use the **Standard Quality** or the **Quick Process**.

### 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.

---

## Resample

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** to change 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.

---

## Converting a 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**.
-

# Audio Montage

The audio montage is a multitrack non-destructive editing environment that allows you to arrange, edit, play back, and record audio clips.

Non-destructive means that when you delete or change a part of an audio file, the audio is not deleted or permanently changed. Instead, a set of pointers keeps track of all the edits, so that these can be readily reversed.

The non-destructive editing functions include both track- and clip-based effects, volume and pan automation, as well as wide-ranging fade and crossfade functions.

The audio montage is a great tool for audio CD creation, mastering, multimedia work, radio spot production, etc.

## Basic Terminology

Audio montages can contain up to 3 stereo or mono audio tracks. You can use them to structure your work graphically.

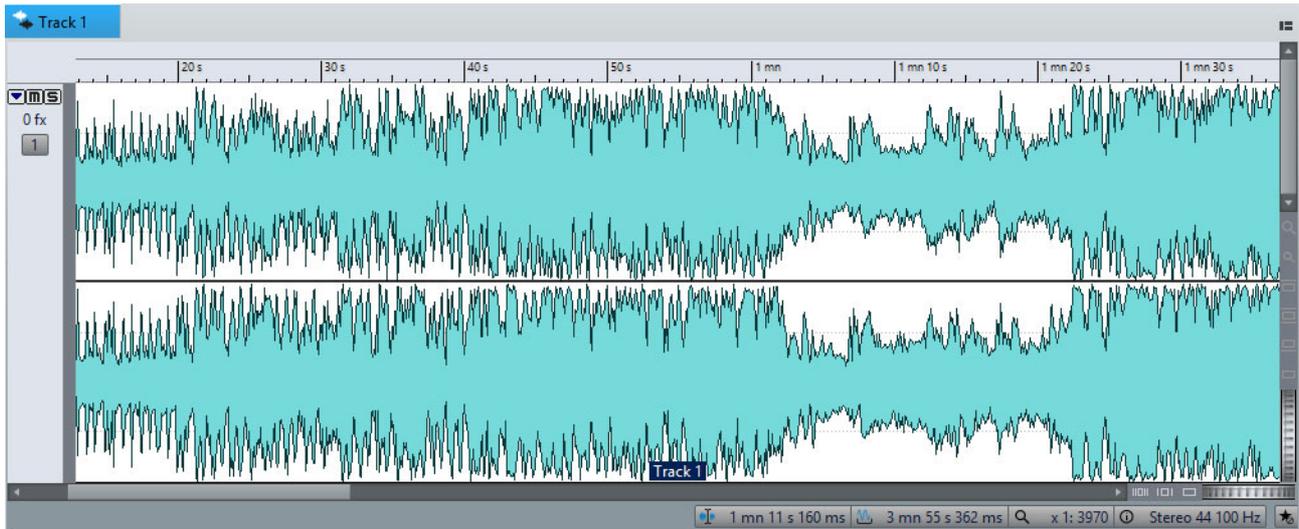
On an audio track, you can place any number of clips. Clips are containers for the audio, and include a number of settings and functions such as volume and pan curves, fades, etc.

A clip contains a reference to a source audio file on your hard disk, as well as 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.

## Montage Window

The montage window is where you assemble your audio montage. This is where you view, play back, and edit audio montages.

The montage window gives you a graphical representation of the tracks and clips.



## Track Control Area

The track control area offers several options regarding the track.



### Fold/Unfold Track

Folds/Unfolds the track.

### Mute

Mutes the track.

### Solo

Solos the track.

### FX

Opens the **Effects** pop-up menu where you can select effects for the track. A blue icon indicates that a track has track effects.

### Track number button

Opens the track menu that contains track-related options.

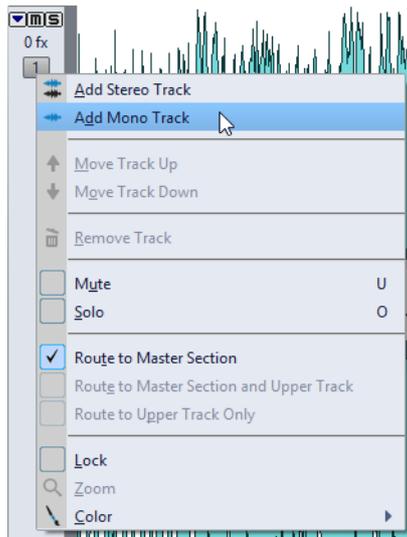
### Track Name

Opens the **Track Name** dialog where you can enter a name for the track.

## Track Pop-up Menu

This pop-up menu contains all track-related options.

- To open the **Track** pop-up menu, click the number button of a track in the track control area.



### Add Stereo Track

Adds a stereo track below the active track.

### Add Mono Track

Adds a mono track below the active track.

### Move Track Up

Moves the track one position up in the track list.

### Move Track Down

Moves the track one position down in the track list.

### Remove Track

Deletes the active track.

### Mute

Mutes the active track.

### Solo

Solos the active track.

### Route to Master Section

Routes the audio signal of the active track to the **Master Section** input.

### Route to Master Section and Upper Track

Routes the audio signal of the active track to the **Master Section** input and to the modulation input of the **Ducker** clip plug-in.

### Route to Upper Track Only

Routes the audio signal of the active track to the modulation input of the **Ducker** clip plug-in.

### Lock

If this option is activated, you cannot edit the track.

## Zoom

Shows the active track in the full available height.

## Color

Opens a submenu where you can select a color for the active track.

### RELATED LINKS

[Ducker 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, make zoom settings, analyze the audio, and render the audio montage.

## View Tab



## Navigate

### Backwards/Forwards

Navigates to the previous/next cursor position, zoom factor, and selection range.

## Zoom

### Zoom

Activates the **Zoom** tool that 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.

To edit the zoom factor, click **Edit Zoom Factor**. This opens the **Zoom Factor** dialog, where you can edit the following settings:

- **Set Time Range** allows you to specify the time range that you want to display.

- **Samples per Screen Point** allows you to specify how many audio samples are summarized in each screen point.
- **Screen Points per Sample** allows you to specify how many screen points are used to 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 with a lower/higher level.

### **Level**

Adjusts the zoom to only display samples below the selected dB value.

### **Reset Zoom to 0dB**

Adjusts the zoom to display audio levels up to 0dB.

## **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.

### **Cursor**

Displays the cursor position.

## **Playback**

### **Steady View**

Deactivates 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.

## **Clip**

### **Color**

Allows you to apply a color to the active clip.

## **Tracks**

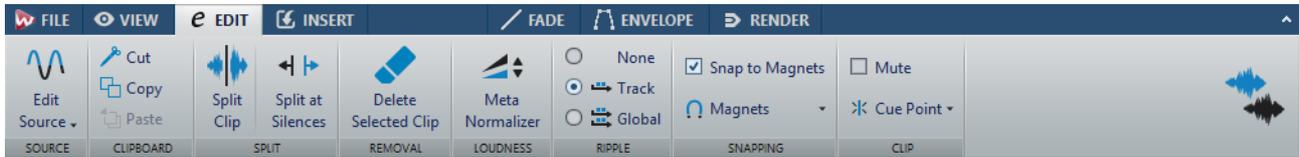
### **Display More Tracks/Display Fewer Tracks**

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.

## Edit Tab



### Source

#### Edit Source

Opens source file of the clip in the **Audio Editor**.

#### Edit Cubase Project

Opens the Cubase project relating to the clip.

### Clipboard

#### Cut

Cuts the active clip to the clipboard.

#### Copy

Copies the active clip to the clipboard.

#### Paste

Pastes the clipboard content.

### Split

#### Split at Silences

Splits the files so that each non-silent section becomes a separate region. 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.

### Removal

#### Delete Selected Range

Deletes the part of the clip that lies inside the selection range on the selected track and moves the right section of the clip to the left to fill the gap.

### Ripple

#### None

Deactivates the auto-shift function.

### Track

If this option is activated and you move a clip horizontally, all clips on the selected track that are located to the right of the edited clip are also moved. This option also applies when moving or resizing clips, and when inserting or pasting more than one clip at the same 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 the same time.

## Snapping

### Snap to Magnets

If this option is activated, moved elements such as clip edges, time selection edges, cursor, and markers snap to the magnets that are activated on the **Magnets** pop-up menu.

### Magnets

This pop-up menu allows you to select which items should be magnetic.

## Clip

### Mute

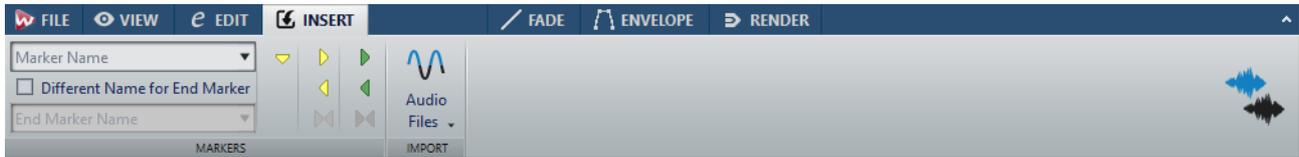
Mutes the active clip.

### Cue Point

This pop-up menu allows you to make cue point settings.

- **Set at Cursor** sets the cue point to a fixed position from the start of the clip.
- **Set at Default Gap Position** sets the cue point before the start of the clip, at a distance governed by the default pre-gap position.
- **Follows Fade In End Point** sets the cue point to the fade in end point.
- **Follows Fade Out Start Point** sets the cue point to the fade out start point.
- If **Custom Cue End** is activated, you can set the end cue point at a custom position from the end of the clip. This option allows you to edit the gap individually for each clip.  
If this option is deactivated, a 2 seconds default gap is used.
- **End Offset** opens the **End Cue Point Offset** dialog that allows you to set the end cue point at a custom position from the end of the clip.

## Insert Tab



## Markers

### Marker Name

Lets you enter the name of the start and end marker. If nothing is entered, 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

If this option is activated, you can enter a different name for the end marker.

If this option is deactivated, the name of the start marker is also used for the end marker.

### Create Marker

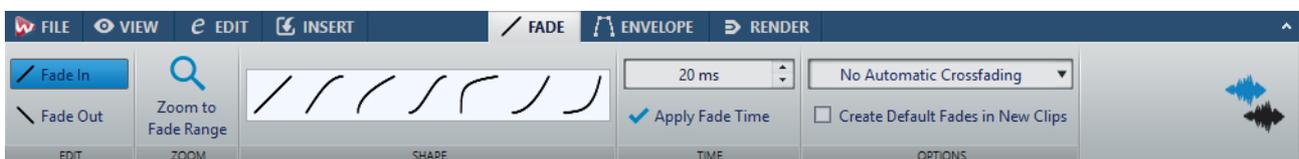
Allows you to create markers and marker pairs at the edit cursor position.

## Import

### Audio Files

Allows you to select one or more audio files to insert at the edit cursor position on the selected track.

## Fade Tab



## 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.

## 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.

## Options

### Overlaps

This pop-up menu allows you to set the automatic crossfading behavior.

- If **No Automatic Crossfading** is activated, no automatic crossfading is performed when clips overlap.
- If **Free Overlaps** is activated, automatic crossfades are created when a clip overlaps another clip on the same track. The length of the overlap determines the length of the crossfade.

### Create Default Fades in New Clips

If this option is activated, all new clips get 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.

## Envelope Tab



### Selector

#### Envelope Type

Sets the type of the envelope. Depending on the selected type, different options are available.

#### Pan Law

Lets you select a pan mode. This option is only available if the **Pan** envelope type is selected.

### Zoom

#### Zoom to Envelope Range

Adjusts the view to display the active envelope of the active clip.

### Level

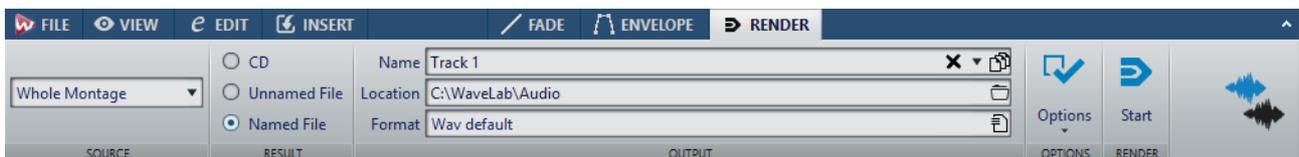
#### Reset All

Resets the envelope to its neutral form.

#### Reset to 0dB

Replaces the segments between the fade in and fade out points with a single neutral segment.

## Render Tab



### Source

#### Whole Montage

Processes and renders the whole audio range.

### Specific Region

Processes and renders a specific audio range to an independent file.  
Specify the region to process on the pop-up menu.

## Result

### CD

Allows you to burn a CD from the audio montage.

### Unnamed File

If this option is activated, the rendered file is named `untitled`.

### Named File

If this option is activated, you can 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.

### Location

Allows you to select a destination folder for the rendered files.

### Format

Opens a pop-up menu where you can select a file format.

## Options

Depending on the selected source, different options are available.

### Bypass Master Section

If this option is activated, the plug-ins and gain of the **Master Section** are bypassed when rendering.

### Exclude Master Section Bypassed Plug-ins

If this option is activated, the plug-ins that are bypassed in the **Master Section** during playback are not used for rendering.

### No Reverb Tail

If this option is activated, the audio tail produced by effects such as reverb is not included in the rendered file.

Some plug-ins do not transfer information on the tail duration to WaveLab. 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, the markers that are included in the range to process are copied to the rendered file.

### Open Resulting Audio File

If this option is activated, every rendered file is opened in a new window.

### Bypass Master Section on Resulting Audio File

If this option is activated, playback of the resulting audio file bypasses the entire **Master Section**. This setting can be toggled by clicking the button at the bottom right of the wave window or montage window.

#### NOTE

It is recommended to activate this option, because this way, you do not monitor new files through the effects that have already been applied to them.

### Upload to SoundCloud

If this option is activated, the rendered file is uploaded to SoundCloud.

## Render

### Start

Starts the rendering process.

## Signal Flow in the Audio Montage

The audio signal flow passes through the various sections of WaveLab Elements in a certain way.

- 1) The audio samples are read.
- 2) Clip envelope
- 3) Clip effects
- 4) Clip pan
- 5) Individual clip gain (**CD** window)
- 6) Clips are mixed into the track slot (for example, overlapping clips).
- 7) Track effects
- 8) Track level settings
- 9) Each track is mixed into a stereo bus.
- 10) The stereo channel is processed through the plug-ins of the montage output.
- 11) The stereo bus is sent to the **Master Section** input.

## Signal Flow in the Master Section

- 1) Channels/sample rate can change at each plug-in slot.
- 2) **Master Section** meters
- 3) **Final Effect/Dithering** pane in the **Master Section**
- 4) Independent meters
- 5) Playback or file format rendering

## Creating New Audio Montages

---

### PROCEDURE

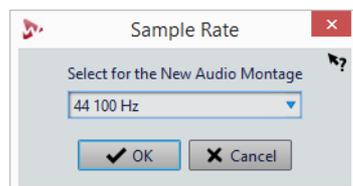
1. Select **File > New**.
  2. Select **Audio Montage > Custom**.
  3. Specify the audio properties and click **Create**.
- 

## Audio Montage Properties

You can set the sample rate of the audio montage.

You can set the sample rate when you create a new audio montage.

- To change the sample rate for the selected audio montage, select the **File** tab and click **Info**, or click the **Audio Montage Properties** button at the bottom right of the montage window.



## Alternative Ways of Creating New Audio Montages

There are several ways to create a new audio montage.

- Import audio CD tracks to an audio montage
- Convert wave files to an audio montage
- Press [Ctrl]/[Option] and drag a montage tab on the tab bar.
- Double-click an empty section of the tab bar

### RELATED LINKS

[Audio Montage Duplicates on page 164](#)

## Audio Montage Duplicates

### 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]/[Command], drag a tab, and drop it on the tab bar to create a exact duplicate of an audio montage.

#### RELATED LINKS

[Duplicating Audio Montages on page 164](#)

## 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)**
  5. Click **Create**.
- 

#### RESULT

A duplicate of the audio montage opens in another tab.

## Creating an Audio Montage from an Audio File

You can export audio files to an audio montage, including all markers that you have set in the audio file.

---

### PROCEDURE

1. In the **Audio Editor**, open the audio file that you want export to an audio montage.
  2. Optional: If you want to use a specific time range of the audio file, create a selection range in the wave window.
  3. Select **File > New**.
  4. Select **Audio Montage > From Current File**.
  5. In the **From Current Audio File** section, click **Insert Audio File in New Montage**.
  6. Click **Create**.
  7. In the **Create Audio Montage from Audio File** dialog, select whether to import the whole file or the selected audio range.
  8. Optional: Decide if you want to perform any of the following marker operations:
    - **Import Markers**
    - **Split at Generic Region Markers**
  9. Click **OK**.
- 

## Import Options for Audio Montages

You can import audio files and Audio CD tracks into your audio montage.

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 selected 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 access the following import options, select **File > Import**.

- To import audio files, click **Audio Files to Montage**, select the audio files that you want to import, and click **Import**.

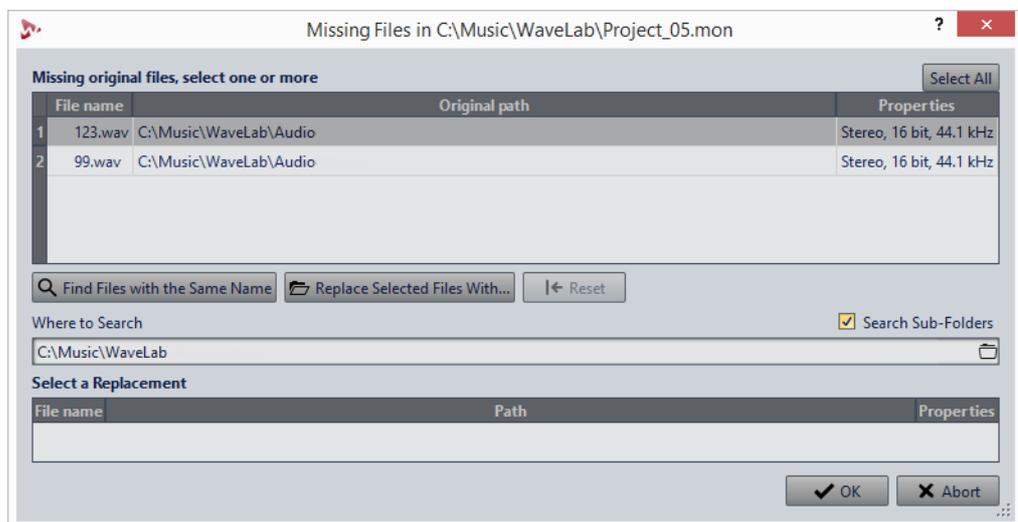
- To open audio files that have an unknown format, click **Unknown Audio**. Via the **Special File Format** dialog, you can specify how to interpret the format of the audio file that you want to open.
- To import CD tracks from an audio CD, click **Audio CD**. Via the **Import Audio CD** dialog, browse for the audio CD tracks to extract.

RELATED LINKS

[Mismatched Sample Rates When Inserting Audio Files on page 171](#)

## Missing Files in the Audio Montage 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 Elements 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/Mac OS Finder.

## Assembling the Audio Montage

You assemble your audio montage by adding tracks and clips.

In the audio montage, only one track can be selected at a time. This selected track has a different color for the track control area. Some WaveLab Elements functions are always applied to the selected track.

## Tracks

Tracks are the structure used to organize clips. The tracks can be mono or stereo audio tracks.

- Audio tracks allow you to add clips to an audio montage.

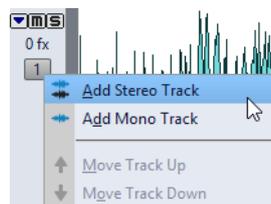
## Adding Tracks

You can add stereo tracks and mono tracks.

---

### PROCEDURE

1. In the **Audio Montage** window, click the number button of a track to open the **Track** pop-up menu.



2. Select the track type that you want to add to your audio montage.
- 

### RESULT

The new track is added below the selected track. If you want to place it above the selected track, press [Ctrl]/[Command] when adding the new track.

## Moving Tracks in the Track View

You can change the order of the tracks in the montage window.

---

### PROCEDURE

1. In the **Audio Montage** window, click the number button of a track.
  2. On the pop-up menu, select **Move Track Up** or **Move Track Down**.
- 

## Removing Tracks

Removing a track with clips also removes the clips. However, the audio files to which the clips refer are not affected.

---

### PROCEDURE

1. In the **Audio Montage** window, click the number button of the track that you want to remove.
  2. On the pop-up menu, select **Remove Track**.
- 

## Folding and Unfolding Tracks

To save screen space, you can fold tracks that do not need to be visible.

- To fold a track, click the arrow button at the top left corner of the track control area.

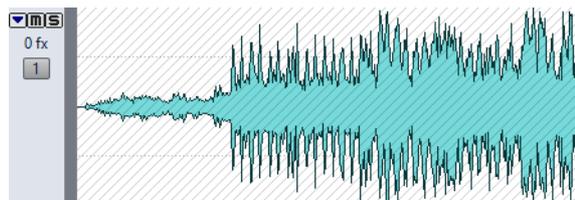


- To unfold a folded track, click the button again, or double-click anywhere on the folded track.

## Locking and Unlocking Tracks

You can lock tracks to prevent them from being accidentally moved, edited, or deleted.

- To lock a track, click the number button of the track and activate **Lock**.



- To unlock a track, click the locked track, or click the number button of the track, and deactivate **Lock**.

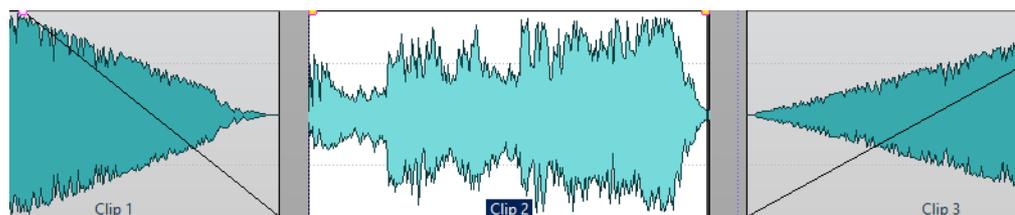
## Clips

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 **CD** window.



3 clips on a track

## Adding Audio Clips to the Audio Montage

You create clips by inserting audio into the audio montage. There are several ways to do this.

### NOTE

You cannot add a mono clip to a stereo track or vice versa.

---

## Dragging Audio from the Wave Window

---

### PROCEDURE

1. In the wave window of the **Audio Editor**, select the audio section that you want the clip to refer to.
  2. Drag the selection onto a track of the audio montage.  
If you want to add the whole audio file, drag the tab on a track.
- 

### RESULT

A clip is created, named after the original file.

## Inserting Audio from Open Wave Windows Using the Insert Menu

---

### PROCEDURE

1. In the montage window, right-click an empty area of a track.
  2. From the pop-up menu, select the audio file that you want to insert as clip.
- 

## Inserting Audio Using Copy and Paste

---

### PROCEDURE

1. In the wave window of 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]/[Command]-[C].
  3. In the 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]/[Command]-[V].
  5. Select an insert option from the pop-up menu.
- 

## Dragging Audio Files From the File Browser Tool Window

---

### NOTE

The following can also be done from the File Explorer/Mac OS 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.
-

## Dragging Regions From the File Browser Tool Window

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 to which you want the clip to refer.  
On the right side of the **File Browser** window, a list shows the available audio regions of the selected file.
3. Drag any region to the track.

---

### RELATED LINKS

[File Browser Window on page 27](#)

## Importing Audio Files

---

### PROCEDURE

1. In the montage window, select the track on which you want to insert the clip. The clip insert position is indicated by the edit cursor.
2. Right-click an empty area on the track, and select **Insert Audio Files** from the pop-up menu.

## Copying Clips From Another Audio Montage

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.

## Mismatched Sample Rates When Inserting Audio Files

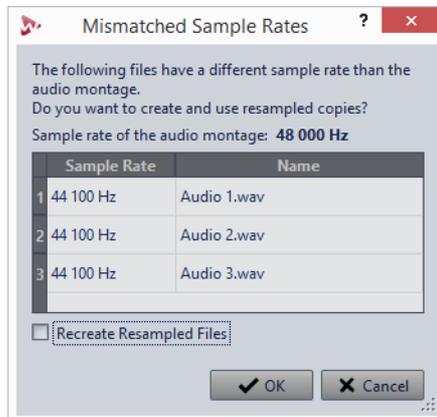
When inserting audio files with a different sample rate than the sample rates of the audio montage, WaveLab Elements can create and use resampled versions of the files.

The resampled file versions are created in the `Data` subfolder. The name of the file is the name of the original file name with the new sample rate as suffix. If the resampled file already exists, it is not recreated. However, you can also activate the option **Recreate Resampled Files** in the **Mismatched Sample Rates** dialog.

This creates a 32-bit float file without any dithering process.

## Mismatched Sample Rates Dialog

This dialog opens when you insert an audio file with a different sample rate than the sample rate of the audio montage. It allows you to create a resampled copy of the audio file.



### Recreate Resampled Files

If this option is activated and a resampled file exists, it is recreated. Otherwise, the existing version is used. Activate this option if the original audio file has been modified and you want to recreate its resampled version.

## Rearranging Clips

You can freely arrange clips in the montage window.

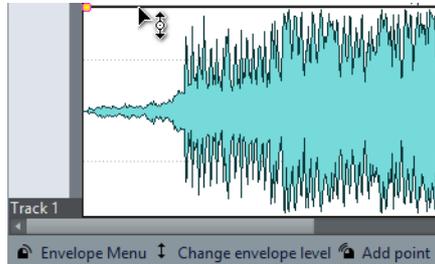
## Selected and Active Clips

There is a distinction between selected and active clips. Some editing functions can only be processed on an individual clip or active clip, while others can be processed on multiple clips or selected clips.

- A selected clip is a clip that you have selected using any of the selecting clips procedures. Several clips can be selected at the same time. This allows you to edit multiple clips at the same time using functions such as copy, delete, move, etc. Selected clips have a different background color. Right-clicking a clip opens the **Clip Selection Region** menu.
- An active clip is the clip that you selected, clicked, or edited last. Only one clip can be active at a time. By default, the active clip is distinguished by a highlighted name label. Some functions can only be processed on a active clip. Right-clicking a clip opens the **Active Clip** menu.

## 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.



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]/[Command]-click



Indicates that you can [Ctrl]/[Command]-click for an additional function.

### [Alt]/[Option]-click



Indicates that you can [Alt]/[Option]-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

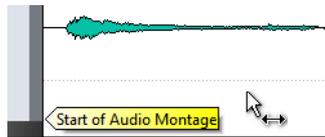


Indicates that you can use combined modifier keys.

## 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 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.

## 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**.
- 

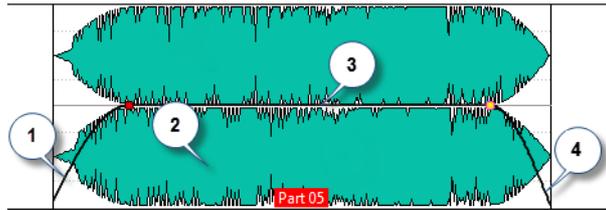
## Selecting Clips

You can edit multiple selected clips at once.

- To select a clip, click it. Selected clips are displayed in a different color.
- To select multiple clips, [Ctrl]/[Command]-click the lower clip areas.
- To select a range of clips, [Shift]-click them.

## 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) **Any area of a clip**  
Opens the **Active Clip** pop-up menu where you can edit the active clip.
- 3) **Sustain section**  
Opens the **Envelope** pop-up menu where you can edit the envelope.
- 4) **Fade out section**  
Opens the **Fade Out** pop-up menu where you can edit the fade out.

## Clip Editing

All clips are displayed in the **CD** 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

[CD Window on page 198](#)

## Reordering Clips in Audio Montages By Dragging

In the **CD** window, you can re-order clips by dragging them to another position in the list.

---

### PROCEDURE

1. Open the **CD** window.
2. In the clip list, drag a clip to another position in the list.  
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.

---

### RELATED LINKS

[CD Window on page 198](#)

## Moving and Crossfading Clips

You can let clips overlap other clips, move them, and create crossfades between clips.

### Moving Clips

#### 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. Click the clip area, and drag the clips in any direction.  
While dragging, the info line displays the current start position of the clip.
- 

### 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.
- There are crossfading options that automatically adjust the level envelope curves when you overlap clips.

### Options for Moving and Crossfading Clips

There are several options that help you when moving and crossfading clips.

#### Ripple

The ripple options are available in the **Edit** tab of the **Audio Montage** window.

##### Track

If this option is activated and you move a clip horizontally, all clips on the selected track that are located to the right of the edited clip are also moved. This option also applies when moving or resizing clips, and when inserting or pasting more than one clip at the same 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 the same time.

## Crossfading

The following crossfading options are available in 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 when clips overlap.
- If **Free Overlaps** is activated, automatic crossfades are created when a clip overlaps another clip on the same track. The length of the overlap determines the length of the crossfade.

### Options

- If **Create Default Fades in New Clips** is activated, all new clips get 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.

## Duplicating Clips

### NOTE

The channel configuration of the clip must match the destination track.

---

### PROCEDURE

1. In the montage window, select one or more clips.
  2. Click the upper clip area and drag the clips in any direction.  
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.  
The ripple settings are taken into account.
- 

## Duplicating with Ripple

If you duplicate more than one clip, the ripple settings affect the result.

The following options are available on the **Edit** tab, in the **Ripple** section:

- If **Track** is activated and you move a clip horizontally, all clips on the selected track that are located to the right of the edited clip are also moved.

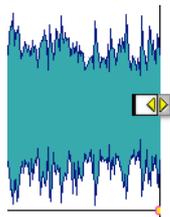
- If **Group** is activated and you move a clip a clip horizontally, all clips on all tracks that are located to the right of the edited clip are also moved.

## Clip Resizing

In this context, resizing usually means moving the start and end points of a clip. This reveals more or less of the original audio file.

To resize a clip, click the left or right edge of the clip, and move the start or end point to the left or to the right. You cannot drag the edge of a clip past the start or end point of the audio file it refers to.

If you press [Alt]/[Option] when resizing, all selected clips are resized by the same amount.



RELATED LINKS

[Options for Moving and Crossfading Clips on page 176](#)

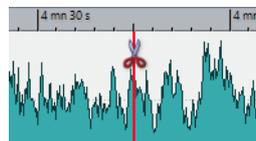
## Splitting Clips

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. Position the mouse cursor on the edit cursor position in the top clip area. The cursor becomes a pair of scissors.



3. Double-click.

RESULT

The clip is split in two. 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.

To split clips on all tracks, select the **Edit** tab, right-click **Split Clip** in the **Split** section, and select **Split Clips on All Tracks**.

RELATED LINKS

[Split Clip at Silences Dialog on page 179](#)

## Split Clip at Silences Dialog

You can remove silent clip parts and create a new clip at the cut position.

- To open the **Split Clip at Silences** dialog, select the **Edit** tab in the **Audio Montage** window, and click **Split at Silences** in the **Split** section.

### Minimum Clip Length

Sets the minimum length of the resulting regions after splitting. Non-silent sections shorter than this length are not split.

### Minimum Silence between Regions

Sets the minimum length of a silent region. Silent regions shorter than this length will not create split regions.

### Silence Is Defined as a Signal Below (RMS)

Allows you to set the threshold level for silence detection. Levels below this value are considered silent.

### Automatic Level Detection (Two-Stage Analysis, Slower)

If this option is activated, the file is analyzed and automatically split where WaveLab Elements detects silence. The file is read twice.

### Separate Resulting Clips by a Fixed Gap

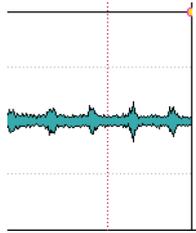
If this option is activated, the resulting clips are separated from each other using the default gap. If this option is deactivated, the gaps between the resulting clips are determined by the length of the removed silence.

## Deleting Clips

- Right-click a clip and select **Delete**.
- Select a clip and press [Delete].

## 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. 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.

---

## 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, open the **Cue Point** pop-up menu.
  4. 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.
- 

## Track Activity Indicator

The track activity indicator shows the volume level for audio tracks. It is located on the right side of the track control area in the **Audio Montage** window.



The track activity indicator provides an overview of which tracks are playing back audio at what approximate level.

## Envelopes for Clips

For clips in the audio montage, you can create envelopes for level and fades, and for panning.

You can create an independent level envelope curve to automate level, to create fades and crossfades, and to mute clip sections.

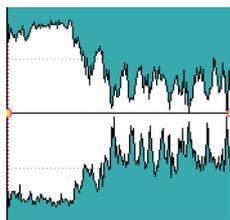
You can also draw pan envelopes to automate pan settings for clips. For mono clips, pan governs the left/right position in the stereo field. For stereo clips, pan sets the left/right balance.

Edit the envelope settings in the **Envelope** tab, or by right-clicking an envelope curve. The settings menu is different, depending on whether you click the fade in part, the fade out part, or the sustain part.

## How Envelopes are Displayed

By default, all clips display a level envelope curve. You can view the envelope as three separate envelopes: 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 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.

## Selecting Envelopes

You can select volume/fade envelopes and pan envelopes.

---

### PROCEDURE

1. In the montage window, select a clip.
  2. Select the **Envelope** tab.
  3. In the **Selector** section, open the **Envelope Type** pop-up menu, and select which envelope to edit.
- 

## Hiding Envelope Curves

All clips display envelopes by default. You can hide these envelopes. However, hidden envelopes are still active.

---

### PROCEDURE

1. In the montage window, select a clip.
  2. Select the **Envelope** tab.
  3. In the **Selector** section, open the **Envelope Type** pop-up menu, and select **Hide All**.
- 

## Clip Envelope Editing

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.

## Editing Curve Points

Many of the editing operations that are commonly used in the context of your computer operating system can be applied when editing curve points. On top of these, a number of specific procedures apply.

- To add a curve point, double-click the envelope curve.
- 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 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 select a range of points, [Alt]/[Option]-click and drag to create a selection rectangle.
- 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]/[Command]-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]/[Option], 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]/[Command]-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]/[Option], and edit the envelope with the mouse.

## Resetting Curve Points

You can reset curve points to the default level 0dB.

- To reset a single point to 0dB, 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 0dB**.

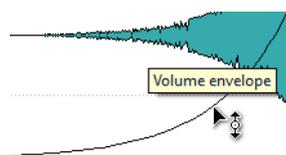
## Changing Overall Level Envelopes of Clips

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.
-

## Pan Modes

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 modes.

Experiment with the modes to hear which fits best. The pan modes can be set for tracks, clips, and the montage output.

- To set the pan modes for clips, use the **Pan Law** pop-up menu in the **Envelope** tab, or use the **Pan Law** pop-up menu and knob in the **Effects** window.
- To set the pan modes for tracks and the montage output, use the **Pan Law** pop-up menu and knob in the **Effects** window.

The following pan modes are available:

### Channel Damp (0dB/Mute)

This mode does not compensate for power loss at all. If a signal is panned hard left or right, the power of the sum of the channels drops by 3 dB.

### Constant Power (+3dB/Mute)

This is the default mode. Regardless of the pan position, the power of the sum of the channels remains constant.

### Channel Boost (+4.5dB/Mute)

If this mode 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 (+6dB/Mute)

If this mode 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.

## Modulating Audio With Other Audio

You can use the audio signal of one track to modulate the compression factor of another track. The signal of the upper audio track (clip) is usually called the carrier signal, because it contains the audio to be transmitted.

The **Ducker** clip plug-in is used for this purpose as it lowers the volume of one signal whenever another signal is present.

## 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.

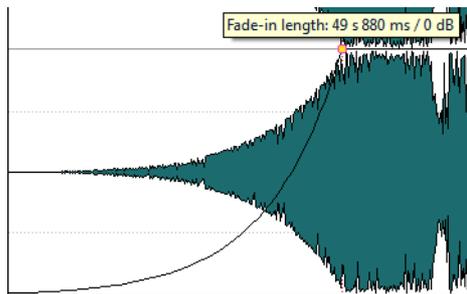
## Creating Fades

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]/[Command] while dragging.
- To create a crossfade, move a clip on another. A crossfade is automatically created at the junction point.

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.



## 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

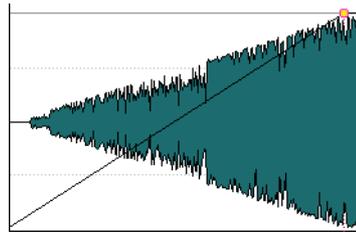
Adjusts the view to mainly display the fade in/fade out part of the active clip.

### Paste

Replaces the fade in/fade out shape and length with the shape and length that was copied to the clipboard.

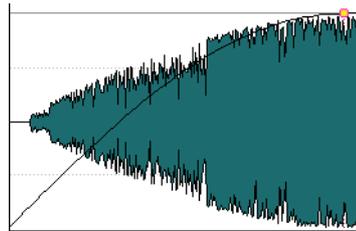
### Linear

Changes the level linearly.



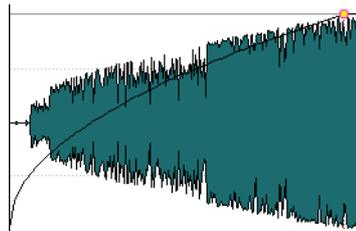
**Sinus (\*)**

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.



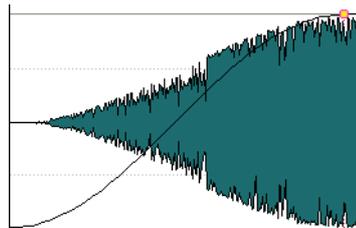
**Square-root (\*)**

Changes the level according to the square-root curve. When used in a crossfade, the loudness (RMS) remains constant during the transition.



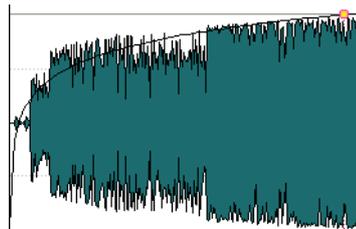
**Sinusoid**

Changes the level according to a half period part of the sine curve.



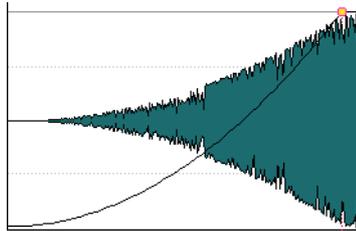
**Logarithmic**

Changes the level logarithmically.



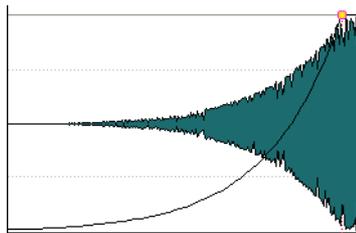
### Exponential

Changes the level exponentially.



### Exponential+

Changes the level strongly exponential.



## 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**.
- 

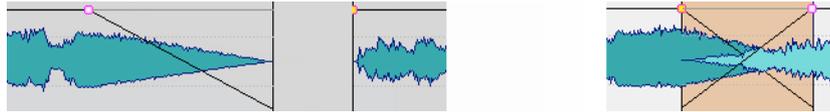
## Crossfade Editing

You can create crossfades with independent shapes and lengths for the fade in and fade out curves.

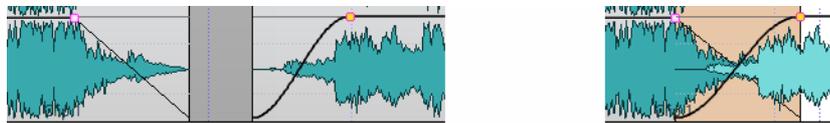
The default automatic crossfade is linear. It uses the same shape and fade lengths for fade in and fade out. The following rules apply:

- 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]/[Command], 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.
- 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.



RELATED LINKS

[Options for Moving and Crossfading Clips on page 176](#)

## Effects for Tracks, Clips, and the Montage Output

You can add VST effect plug-ins to individual clips, tracks, or the output of an audio montage. Clip effects affect individual clips only, track effects affect all clips on a track, and the montage output affects the whole audio montage.

Only VST 2 and VST 3 plug-ins can be used in the audio montage. Each clip, audio track, and the montage output can be independently processed by up to 2 VST effect plug-ins.

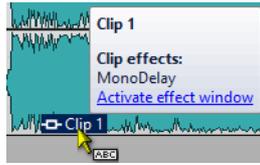
Effects are configured as follows:

- 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 it 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.

## 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.

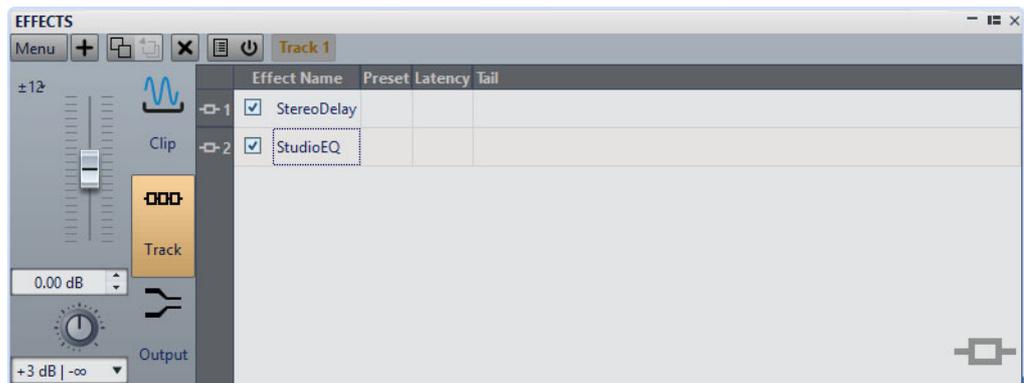
#### NOTE

If you want to use a dithering plug-in, place it in the montage output.

## Effects Window

In this window, you can add effect plug-ins to tracks, clips, and the master output, and edit pan and gain settings.

- To open the **Effects** window, open an audio montage and select **Tool Windows > Effects**.



## Menu

### Clip Effects

Displays the plug-ins of the active clip.

### Track Effects

Displays the plug-ins of the active track.

### Output Effects

Displays the plug-ins of the montage output.

### Add Slot

Adds a slot into which an audio plug-in can be inserted.

### Remove Selected Plug-ins

Removes the selected plug-ins.

### Copy

Copies the selected plug-in and its settings to the clipboard.

### Copy All

Copies the settings of all plug-ins 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.

### Close All Windows

Closes all plug-in windows that relate 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 and tracks that are using them.

### Customize Command Bar

Opens the **Customize Commands** dialog which contains options to hide or show specific command bar buttons.

## Effects List

The effects list displays the effect plug-ins of the selected track, clip, or montage output. In the list, you can replace effect plug-ins, change the effect order, and edit the **Tail** of effects.

|    | Effect Name                                     | Preset | Latency | Tail |
|----|---|--------|---------|------|
| -1 | <input checked="" type="checkbox"/> StereoDelay |        |         | 0 s  |
| -2 | <input checked="" type="checkbox"/> StudioEQ    |        |         | 0 s  |

### Plug-in window icon

Opens the plug-in window.

### Effect Name

Clicking an effect name opens the **Plug-ins** menu where you can select a new effect. The checkbox allows you to activate/deactivate the clips.

### Preset

Shows the preset that is used by the plug-in. If no preset is used, this field is empty.

### Latency

Shows the latency in the audio path. Plug-ins with latency cannot be used for adjusting the send level.

### Tail (clip effects only)

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.

## Gain/Pan Section

In this section, you can edit **Gain** and **Pan** settings for each clip and track.



## Global Gain Section

In this section, you can set the global gain for the active audio montage. This gain can be applied before or after the montage output, depending on the setting of the pre/post button on the left of this section. Pre is the default setting.



RELATED LINKS

[Pan Modes on page 184](#)

## Adding Effects to a Track, a Clip, or to the Montage Output

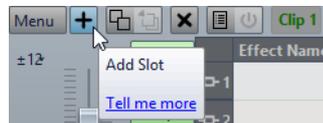
You can add effect plug-ins to every track and clip of the audio montage, and to the output of the audio montage.

### Adding Effects Via the Effects Window

---

PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows > Effects**.
3. In the **Effects** window, select the **Clip**, **Track**, or **Montage** section.
4. Click **Add Slot**.



5. In the **Effect Name** column, select the added slot.
6. Select a plug-in.

---

RESULT

The selected effect opens in a window.

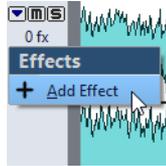
NOTE

You can add effects during playback. However, if you add an effect with a latency larger than zero, it is better to stop and restart playback to avoid timing discrepancies. In addition, a small number of VST plug-ins may change its latency depending on the parameter settings. If that is the case, make sure to stop and restart playback after the latency is changed.

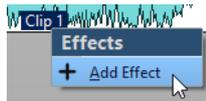
---

## Additional Ways of Adding Effects

- To add an effect to a track, click the **FX** button in the track control area, select **Add Effect**, 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.



## Removing Effects from Tracks, Clips, or the Montage Output

---

### PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows > Effects**.
3. In the **Effects** window, select the **Clip** section, **Track** section, or **Output** section.
4. Click the effect that you want to remove, and select **Remove Plug-in**.

---

### RESULT

The effect is removed from the slot.

## Copying Effect Settings to Tracks, Clips, or the Montage Output

You can copy the effect and its settings of a track, a clip, or the montage output to other tracks, clips, or the montage output of the same or another audio montage.

---

### PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows > Effects**.
3. In the **Effects** window, select the effect from which you want to copy the settings.
4. Select **Menu > Copy**.
5. Decide whether you want to paste the effect settings to a new slot or replace an existing effect.

- To paste the effect settings to a new slot, add a new slot, and select **Menu > Paste (Insert)**.
  - To replace an existing effect, select the effect, and select **Menu > Paste (Replace)**.
- 

## Undoing Effect Changes

You can undo/redo changes to the effect settings. However, WaveLab Elements only registers the changes when the **Effects** window loses focus.

---

### 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, click **Undo** or **Redo**.
- 

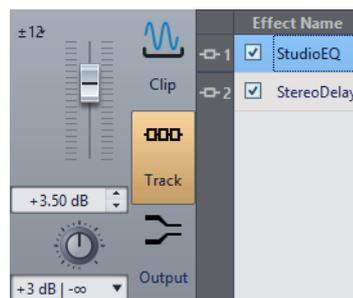
## Setting Pan and Gain for Effects

You can set the **Pan** and the **Gain** of the effects for each clip and track individually.

---

### PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows > Effects**.
3. In the **Effects** window, select a clip or track.
4. Adjust the **Pan** and the **Gain** using the controls on the left of the **Effects** window.



## Setting the Global Gain for Effects

You can set a global gain for the montage output effects of your audio montage and apply it before or after the montage output effects.

---

### PROCEDURE

1. Open an audio montage.
2. Select **Tool Windows > Effects**.
3. In the **Effects** window, select **Output**.
4. Adjust the global gain using the fader on the left of the **Effects** window.



5. Click the pre/post button to apply the global gain before  or after  the montage output effects.  
If you use a dithering plug-in, set the gain to be pre-master.
- 

## Plug-in Window

In this window, you can display the effect plug-ins that are used for a track, clip, or the montage output.



Single plug-in window

When you add a new effect plug-in to a track, 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.

## Opening the Plug-in Window

You can open the plug-in window from different locations.

- To open the plug-in window from the **Effects** window, in the effects list, click the plug-in window icon to the left of a plug-in.

- To open the plug-in window for a clip from the montage window, right-click 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 **FX** button in the track control area.

## Adding Effects From Within the Plug-in Window

Effects that are added to a clip, track, or the montage output in the **Effects** 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. Open the plug-in window for the clip, track, or montage output to which you want to add an effect.
2. In the plug-in window, click the **Add Plug-in** button.



3. Select an effect from the menu.  
The effect is added at the end of the plug-in chain.
  4. 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, 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.

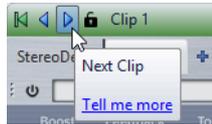


3. Optional: If you want to move the changed effect in a plug-in chain window, drag it to another position.
-

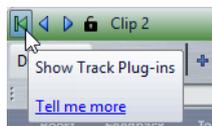
## Switching Between Track, Clip, and Montage Output Effects in Plug-in Windows

In the plug-in window, you can switch between the effect chains of clips, tracks, and the montage output.

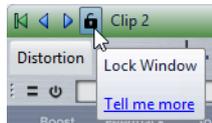
- To skip through the clip and track effects of the active audio montage, use the left and right arrow icons.



- 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.



## Closing All Plug-in Windows

---

### PROCEDURE

1. Open an audio montage.
  2. Select **Tool Windows > Effects**.
  3. In the **Effects** window, select **Menu > Close All Windows**.
- 

## About the CD Window

The **CD** window displays the clips of the active audio montage, and lets you write the audio montage to an audio CD.

### NOTE

Each clip in the audio montage corresponds to a **CD** track in the **CD** window.

---

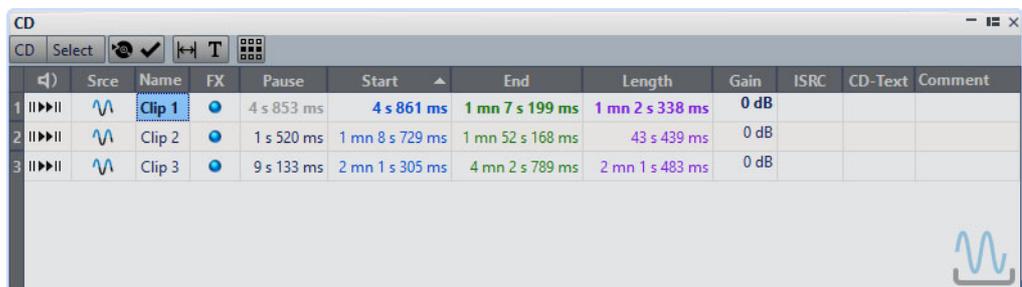
You can also adjust pauses between clips, check the conformity to the Red Book standards, add and edit CD-Text, and add UPC/EAN and ISRC codes. When selecting a clip in the montage window, the corresponding clip is highlighted in the **CD** window.

You can reorder CD tracks in the CD track list using drag and drop.

## CD Window

In this window, you can create an audio CD.

- To open the **CD** window, open an audio montage and select **Tool Windows > CD**.



## Track List

### From Start with Pre-Roll ||▶

Plays back the corresponding track from the start with a pre-roll.

You can also press [Alt]/[Option] and click ||▶ to play back the corresponding track from the start with a short pre-roll.

### From Start ▶||

Plays back the corresponding track from the start.

You can also hold [Ctrl]/[Command] and double-click a CD track start marker triangle to start playback from the marker position.

### Name

Shows the track name. To change the name, double-click in the corresponding cell, and enter a new value.

### FX

Displays whether the corresponding clip uses effects.

### Pause

Shows the pause between two tracks.

### Start

Shows the start position of the track.

### **End**

Shows the end position of the track.

### **Length**

Shows the time value from the CD track start position to the corresponding end or splice marker.

### **Gain**

Lets you set the gain for the clip.

### **ISRC**

Lets you enter an ISRC code. To change the code, double-click the corresponding cell, and enter a new value.

### **CD-Text**

Lets you 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. To enter a comment, double-click a cell.

## **CD Menu**

### **Write Audio CD**

Opens a dialog that allows you to write a CD.

### **Check CD Conformity**

Verifies that the settings for the audio montage are in accordance with the Red Book standard.

### **Adjust Pauses between Clips**

Opens a dialog where you can adjust the pauses between clips. The following options are available:

- **Set Specific Pause Time**
- **Round Existing Pauses to Closest Second**

### **Edit CD-Text**

Opens the **CD-Text Editor** that allows you to enter descriptive text for the tracks that are written on CD.

### **Assign UPC/EAN Code**

Opens a dialog where you can assign a UPC/EAN code to a clip.

## **Select Menu**

This menu allows you to select clips. The following options are available:

- **Select All Clips**
- **Select Clips Located Before the Cursor (on Selected track)**

- **Select Clips Located After the Cursor (on Selected Track)**
- **Deselect All Clips**

## Creating Audio CD Tracks From Clips

You can use the **Check CD conformity** option to check whether the audio montage is ready for writing to audio CD.

---

### PROCEDURE

1. Make sure that the audio montage contains the material that you want on the audio CD.  
CD tracks must have a length of at least 4 seconds.
  2. Audition the tracks in the **CD** window, and make corrections if necessary.
  3. In the **CD** window, select **CD > 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.
- 

## Mixing Down – The Render Function

The **Render** function allows you to mix down the whole audio montage or a region of it to a single audio file.

A mixdown is necessary to produce an audio file from the audio montage.

### RELATED LINKS

[Rendering on page 222](#)

## Loudness Meta Normalizer

This tool is a key mastering component to ensure that all songs get the same loudness and to prevent clipping. It allows you to adjust the loudness of each clip in the audio montage so that they all have the same loudness. It is also possible to adjust the loudness of the audio montage mixdown as well as the loudness at the **Master Section** output.

This tool operates on gains. It does not affect the underlying audio files or use any audio compressor.

If it is not possible to modify the loudness of a particular clip without clipping, the level of the other clips is reduced so that all clips still achieve the same loudness. This does not happen if the **Ignore Peaks** option on the **Peaks** pop-up menu in the **Loudness Meta Normalizer** dialog is selected.

To avoid clipping at the **Master Section** stage, you can limit the mixdown output of the audio montage before it goes into the **Master Section** and/or the **Master Section** output.

NOTE

- The audio path in the audio montage uses 32-bit floating point processing. You can therefore overload it, for example, use levels above 0dB in clips, without causing clipping in the signal path. The only section of the audio path that can introduce clipping is the output of the **Master Section** or the output of the audio montage. Both of these issues can also be solved by the Loudness Meta Normalizer.
- Because loudness requires several seconds of audio to be correctly calculated, this tool should not be used for very short clips (under 3 seconds).

## Loudness Meta Normalizer Dialog

In this dialog, 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.

- 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, Master Section Output, and Audio Montage Output

- If **Clips** is activated, the gain settings of all clips in the audio montage are adjusted individually so that all clips play back at equal loudness.
- If **Audio Montage Output** is activated, the gain setting of the audio montage is modified so that the audio montage mixdown matches a specific loudness.
- If **Master Section Output** is activated, the **Master Section** gain is adjusted so that the audio montage mixdown that is processed through all **Master Section** plug-ins matches a specific loudness. The audio montage itself is not modified by this operation.

The following options are available for the gain settings of clips, the audio montage output, and the **Master Section** output.

#### Match loudness menu

Select whether the audio montage output should match a specific loudness. The following options are available:

- **Do Not Change Loudness**
- **Match Loudest Clip**
- **Match Loudness of Active Clip**
- **Equalize Peak Levels**  
The highest peak is used as reference.

### Peaks menu

Select whether WaveLab Elements should limit the sample values (digital peaks), or ignore the peaks.

### Maximum Peak

Determines the maximum peak value that must not be exceeded.

### Force Equal Loudness

If **Limit True Peaks** or **Limit Digital Peaks** is selected, some clip might not reach the required gain for the reference loudness. In that case, activate **Force Equal Loudness** to reduce the loudness of the clip that is used as a reference to achieve equal loudness across all clips.

## Additional Options

### Exclude Audio Montage Effects

If this option is activated, audio montage effects are not taken into account when you use the Loudness Meta Normalizer for processing.

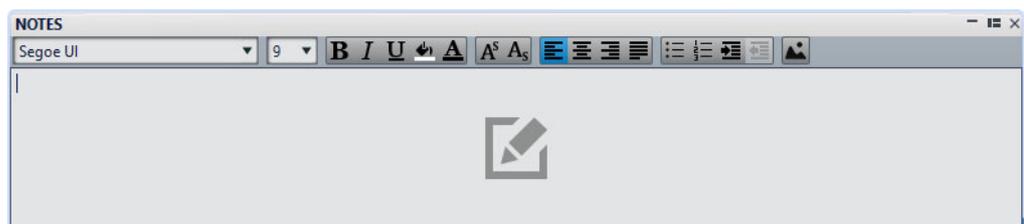
### Only Selected Clips

If this option is activated, only the selected clips are processed with the Loudness Meta Normalizer.

## 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.

# Recording

You can record audio in the **Audio Editor** and in the **Audio Montage** window.

## Setting Up the Recording Dialog

Before you start recording, set up the **Recording** dialog.

---

### PROCEDURE

1. In the **Audio Editor** or the **Audio Montage** window, click the **Record** button, or press [\*] on the numeric key pad.
2. In the **File to Create** section, open the pop-up menu, and select whether you want to record a named file or a temporary file.
3. In the **File to Create** section, select a file name and the location where you want to save your file.
4. Select the audio format by doing one of the following:
  - Click the down arrow button to select a preset audio format.
  - Click the audio format text to open the **Audio File Format** dialog, select the format, and click **OK**.
5. Select whether you want to record to an audio file or an audio montage track, by selecting one of the following options:
  - **Create New Audio File Window**
  - **Add to Active Audio File**
  - **Add to Selected Track of Montage**
6. Select whether you want the **Level** or the **Spectrum** display.
7. Optional: Make further settings in the **Options** section, and on the **Options** and **Values** tabs.
8. Click **Record** to start recording.

If you have selected one of the Auto-start options, the recording goes into **Pause** mode until the specified Auto-start criteria are met.

The background of the **Recording** dialog turns red to indicate that you are recording.
9. Optional: Pause the recording by clicking the **Pause** button.
10. Optional: Drop markers during recording by clicking the drop marker buttons.

11. When you have finished recording, click **Stop**.
  12. Optional: If you want to record another take, click **Record** again.
- 

## Dropping Markers During 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. Make your settings and start recording.
  3. Select the type of marker that you want to drop.
    - To drop a numbered generic marker, click the yellow marker button, or press [Ctrl]/[Command]-M.
    - To drop numbered generic region start and end markers, click the white buttons, or press [Ctrl]/[Command]-L/[Ctrl]/[Command]-R.
- 

### RESULT

The markers are 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.

---

## Recording Dialog

In this dialog, you can make recording settings and start recording an audio file.

- To open the **Recording** dialog, open the **Audio Editor** or the **Audio Montage** window, and on the transport bar, click **Record**.

### Main Buttons



#### Record

Starts recording. Depending on the recording options, the **Pause** mode is activated.

### Pause

Pauses recording.

### Stop

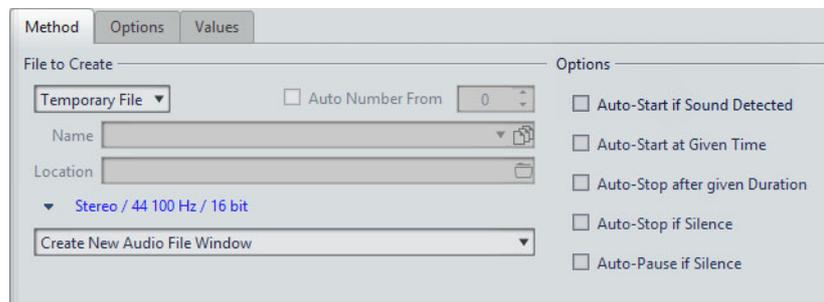
Stops recording.

### Discard

Stops recording and deletes anything recorded so far.

## 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

Specifies 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 window exists, a new one is created).
- If **Add to Selected 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).

#### 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

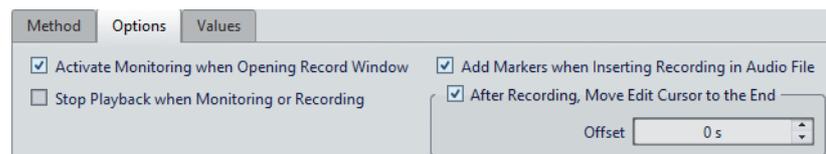
If this option is activated, recording automatically stops when the audio input level drops below a specified threshold level and stays there for a specific amount of time. Specify the level and the duration on the **Values** tab.

#### 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.

## Options Tab

On this tab, you can make additional settings for the recording process.



#### Activate Monitoring When Opening Record Window

If this option is activated, the meters are activated when the **Recording** dialog opens. If this option is deactivated, the meters and the audio thru are displayed when pressing **Record** or activating **Monitor**.

#### Stop Playback When Monitoring or Recording

If this option is activated, playback stops before monitoring or recording starts.

#### 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.

The screenshot shows the 'Values' tab of a recording dialog. It is divided into several sections:

- Auto-Start on Sound:** Includes a 'Threshold (RMS)' dropdown set to -36 dB and a 'Record Previous Samples' dropdown set to 500 ms.
- Recording Programming:** Includes a 'Start' dropdown set to 43 s 200 ms, a 'Duration' dropdown set to Invalid, and an 'On Tomorrow' checkbox.
- Silence Detection:** Includes a 'Threshold (RMS)' dropdown set to -36 dB and a 'Silence Duration Required' dropdown set to 1 s.
- Pause Memory:** A dropdown set to 2 s.

### Auto-Start on Sound – Threshold (RMS)

Specify the sound level that will trigger 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 when the option **Auto-Start at Specific Time** is activated.

### Recording Programming – On Tomorrow

If this option is activated, you can specify a time on the next day (starting midnight).

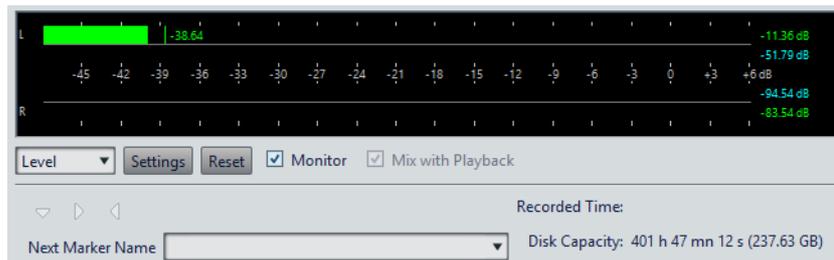
### Recording Programming – Duration

Determines the length of the recording if **Auto-Stop after Specific Duration** is activated.

### 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 which meter to display.

### Settings

Opens the **Level/Pan Meter Settings** dialog, where you can customize the meter settings.

### Reset

Resets the peak values.

### Monitor

If this option is activated, the audio input is also sent to the output ports (not available if Windows MME drivers are used).

### Mix with Playback

If this option is activated and the same audio ports are selected for monitoring and for playback (in the **VST Audio Connections** tab), the signals are mixed. If this is not activated, the monitoring signal has priority.

This allows you to toggle between the auditioning of the recorded signal and the playback signal, and to have full control over the monitor outputs.

### Marker

Allows you to set markers during the recording.

### Next Marker Name

Edit the name of the next marker to insert.

## Meter Display

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.

The meters in the **Recording** dialog are miniature versions of the **Level Meter** and **Spectrometer** windows. Activate the meters by activating the **Monitor** 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.

## 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.

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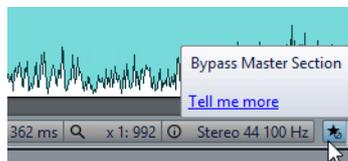
# Master Section

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 writing a CD from an audio montage.

By default, the **Master Section** is active. You can turn it off for each file individually by deactivating the **Bypass Master Section** button at the bottom of the wave/montage window.



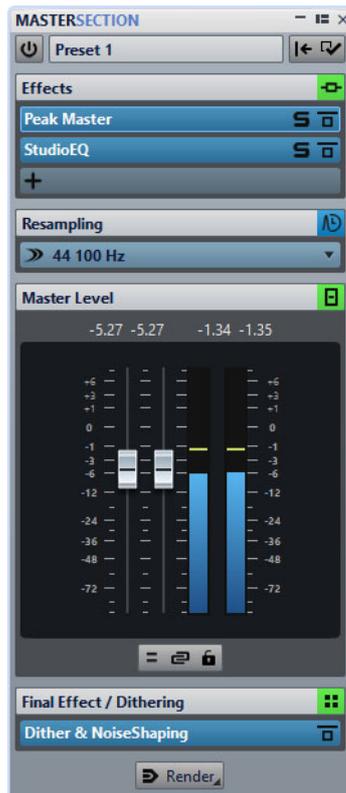
To turn the **Master Section** off globally, deactivate the **Bypass Master Section** button at the top left of the **Master Section**.



## 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**.



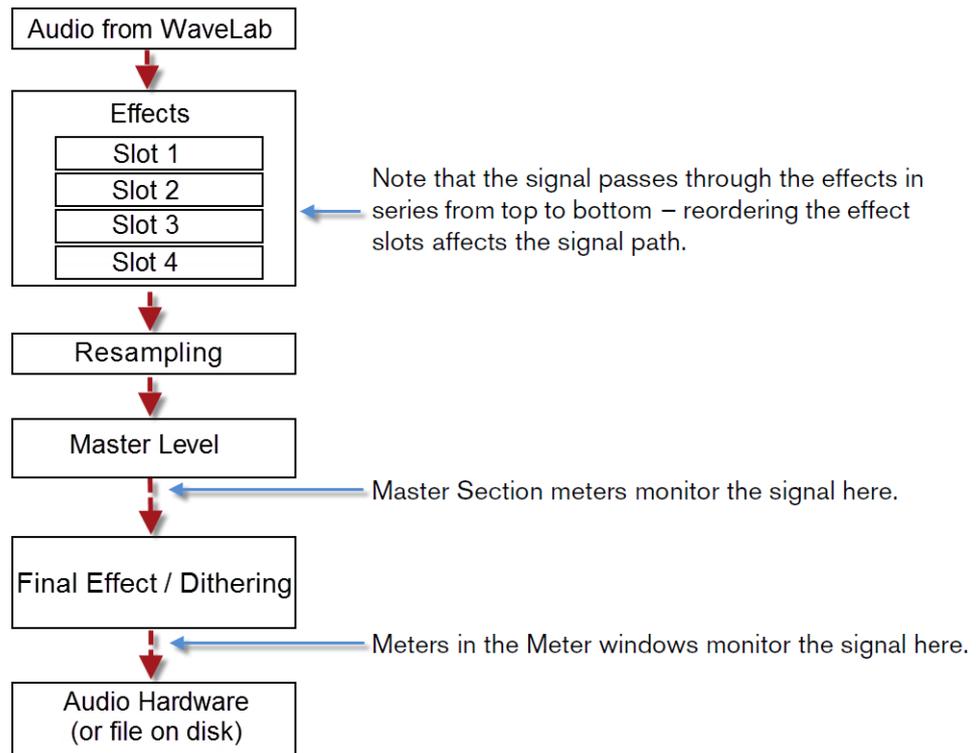
The **Master Section** consists of the following panes:

- **Effects**
- **Resampling**
- **Master Level**
- **Final Effect/Dithering**

## 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:



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.

## Master Section Tools

The tools and options at the top of the **Master Section** window allow you to make various settings before rendering the file, make bypass settings, and decide whether the playback signal passes the **Master Section**.



### Bypass Master Section

If this option is deactivated, the **Master Section** is ignored during playback. However, rendering to file is still possible. If playback is activated when you change this option, it stops and restarts.

### Presets

Lets you save and recall **Master Section** presets. The **Presets** menu offers additional options to save and load default banks and effects.

### Reset Master Section

Removes all active effects from the slots and sets the master output to 0 dB.

### Settings

Opens the **Settings** pop-up menu, where you can make settings 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

If this option is activated, the plug-in configuration and fader positions in the **Master Section** are restored at the next WaveLab Elements start.

### Section Visibility

Allows you to show or hide the **Master Section** sections.

### 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.

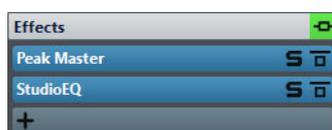
This operation has no effect if playback is already in progress or if there is no active audio file.

#### RELATED LINKS

[Final Effect/Dithering Pane on page 220](#)

## Effects Pane

This pane in the **Master Section** allows you to add up to 5 effect plug-ins in series, and manage them.



### **Fold/Unfold Pane**

Expands or collapses the pane.

### **Bypass All Effects**

Bypasses any effect processing during playback and optionally when rendering.

### **Add Effect**

Allows you to add an effect to an empty effect slot.

### **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**

Lets you save and recall preset settings. The **Presets** pop-up menu offers additional options to save and load default banks and effects.

### **Effect Options pop-up 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.
- **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.

### **Solo (Bypass)**

Soloes the plug-in.

### **Bypass Processing**

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.

## **Supported Effect Plug-in Formats**

WaveLab Elements supports different plug-in standards:  
WaveLab Elements-specific plug-ins, VST 2 plug-ins, and VST 3 plug-ins.

### **WaveLab Elements-specific Plug-ins**

Some specific plug-ins are included in WaveLab Elements, for example, the Resampler plug-in.

## 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 Elements. Other plug-ins can be purchased separately from Steinberg or other manufacturers.

## Setting Up Effects

The number of available effects depends on the number and format of the plug-ins that you have installed.

- To select an effect plug-in for a slot, click the slot, and select an effect from the pop-up menu. When you have selected an effect, it is automatically activated, and its control panel opens.
- To turn off an effect, right-click the slot, and deactivate **Active**. To activate the effect, activate **Active** again.
- To remove an effect plug-in, right-click the slot and select **Remove Plug-in** from the pop-up 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 check the sound of that effect only. 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.

## Master Section Plug-in Window

In the plug-in windows of the **Master Section**, you can make settings for a **Master Section** effect plug-in.

- To show/hide a plug-in window, click the effect slot.



### Bypass Processing

If this option is activated, this plug-in is bypassed during playback, and optionally for a rendering operation. To deactivate an effect when rendering, right-click an effect slot, and deactivate **Active** in the **Effects** pane of the **Master Section**.

### Bypass Modes

Right-click **Bypass Processing** to open the **Bypass Modes** pop-up menu. Here, you can select **Bypass Effect** or **Bypass Source Signal**.

### 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.

### Switch Effect On/Off

If you deactivate a plug-in, it is excluded from both playback and rendering.

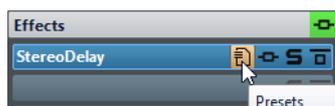
### Presets

Opens a menu to save/load presets for this plug-in.

## Effect Plug-in Presets

With WaveLab Elements comes 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.



## 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/Save Bank

Loads and saves complete sets of presets. The file format is compatible with Cubase.

### Load/Save Default Bank

Loads the default set of presets or saves the current set of presets as the default bank.

### Load/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.

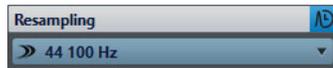
### Preset List

Allows you to select one of the loaded presets.

## 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 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.

### Off

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 **VST 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.

---

### 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

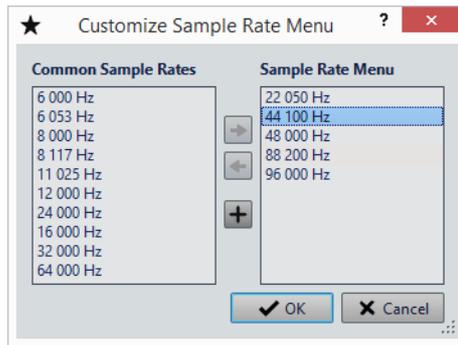
[VST Audio Connections Tab on page 12](#)

[Customize Sample Rate Menu on page 217](#)

## Customize Sample Rate Menu

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

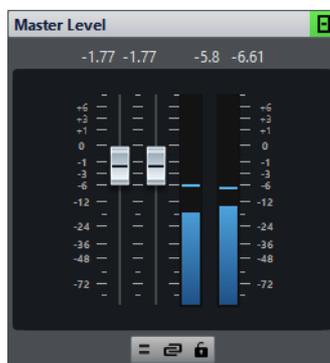
Removes the selected sample rate from the sample rate pop-up menu.

### Add Custom Sample Rate

Opens the **Custom Sample Rate** dialog, where you can specify custom sample rate values.

## 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.

### NOTE

It is important to avoid clipping, especially when mastering. Clipping is indicated by the clip indicators of the **Master Section**.

---

- To lock the faders, activate **Lock Faders** below the fader section. Locked faders cannot be changed with the mouse. Other editing methods, for example via remote control or shortcut, are still possible.

## 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.

## Mixing Stereo Channels into Mono Channels

The **Mix to Mono** option on the **Audio Channel Monitoring** pop-up menu allows you to transform the left and right channels of a stereo track into two mono channels. In this case, the output level is automatically reduced by -6dB to avoid clipping. The **Mix to Mono** option is useful for checking the mono compatibility of stereo mixes, etc.

### NOTE

If **Mix to Mono** is activated, the indicator for the **Master Level** pane is lit, even if the master level is not adjusted. This helps you avoid accidentally leaving **Mix to Mono** activated.

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## Unlink Faders Button

Determines whether you can adjust the faders individually or together.

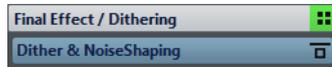
If **Unlink Faders** is deactivated, moving one fader also moves the other by the same amount. Activating **Unlink Faders** allows you to correct improper stereo balancing by adjusting the level of the channels individually.

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.

## Final Effect/Dithering Pane

This pane in the **Master Section** allows you to add a final effect and dithering to the signal before it is sent to the audio hardware or saved as a file on disk.



### Fold/Unfold Pane

Expands or collapses the pane.

### Bypass All Effects

Bypasses the effects in the **Final Effect/Dithering** pane.

### Presets pop-up menu

Lets you save and recall preset settings. The **Presets** pop-up menu offers additional options to save and load default banks and effects.

### Effect Options pop-up 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.
- If **Active** is activated, the effect is active. If **Active** is deactivated, the effect is excluded from playback and rendering.

### Bypass Processing

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.

## 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 allow you to filter this noise to a frequency area less sensitive to the human ear.

In WaveLab Elements, dithering is applied when reducing the number of bits in a recording, for example, when moving from 24 to 16bits, and when applying processing.

NOTE

Dithering should always be applied after the output bus fader stage, and after any kind of audio process.

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RELATED LINKS

[Internal Dithering on page 364](#)

## Dithering Plug-ins

WaveLab Elements comes with an internal dithering plug-in. 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 Effect/Dithering** pane, and select one of the options from the pop-up menu.
- To deactivate the dithering plug-in, open the **Final Effect/Dithering** pop-up menu, and select **Remove Plug-in**.

RELATED LINKS

[Internal Dithering on page 364](#)

## Adding Other Plug-ins to the Final Effect/Dithering Pane

If you want to use another dithering plug-in than the internal dithering, you can add it to the **Final Effect/Dithering** pane.

NOTE

The meters in the **Master Section** monitor the signal before the **Final Effect/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 Effect/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 Effect/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 resolution. 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 resolution, you need to apply dithering if you are using any real-time processing in WaveLab Elements. The reason for this is that WaveLab Elements works with an internal resolution of 32bit (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 resolution instead of the original 16bit or 24bit, 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 resolution 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).

## Rendering

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.

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.

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.

## Rendering Files

### PREREQUISITE

Set up your audio file or audio montage.

---

### PROCEDURE

1. In the **Master Section**, make your settings.
2. On the bottom of the **Master Section**, click **Render**.

3. Make your rendering settings.
  4. In the **Result** section, activate **Named File**.
  5. Click the **Format** field and select **Edit Format**.
  6. Make your settings in the **Audio File Format** dialog and click **OK**.
  7. When you have set up the rendering process, click **Start**.
- 

#### RESULT

The file is rendered.

#### NOTE

Several rendering operations can be performed at the same time when using different files.

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#### RELATED LINKS

[Audio File Format Dialog on page 104](#)

[Creating Audio File Format Presets on page 223](#)

## Creating Audio File Format Presets

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#### 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 104](#)

## In-Place Rendering

In the **Audio Editor**, you can process a section of an audio file or the whole audio file. This is a quick way to process several audio sections in an audio file, or test the effect of different plug-ins on an audio file.

You can select the **Render in Place** function in the following places:

- On the **Render** tab of the **Audio Editor**
- In the **Master Section**, in the context menu of the **Render** button
- In the command bar of a plug-in window



When selecting **Render in Place** via the **Render** tab, you can make additional render settings on the **Options** pop-up menu. When selecting **Render in Place** via the **Master Section** or a plug-in window, the following render settings are always active:

- 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**.

---

An example for using in-place rendering:

Let's say that you are restoring a file and have 3 favorite plug-ins, for example, 3 **DeClicker** plug-ins. Now you want to use the one that gives the best results.

- 1) Load all 3 plug-ins in the **Master Section**.
- 2) Select a region, solo plug-in #1, and play the region.
- 3) Solo plug-in #2, and play the region.
- 4) Solo plug-in #3, and play the region.
- 5) Solo the plug-in that you think sounded the best, and click **Render in Place**, or press [Alt]/[Option]-[A].

RELATED LINKS

[Render Tab on page 99](#)

## Rendering an Audio Selection In-Place

You can render the plug-ins of a section of an audio file or the whole audio file.

PREREQUISITE

In the **Audio Editor**, open the audio file that you want to render, and set up the **Master Section**.

PROCEDURE

1. Optional: If you only want to use some plug-ins of the **Master Section**, solo the plug-ins that you want to use.
  2. In the wave window, select the audio section 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 render settings.
  7. In the **Render** section, click **Start**.
-

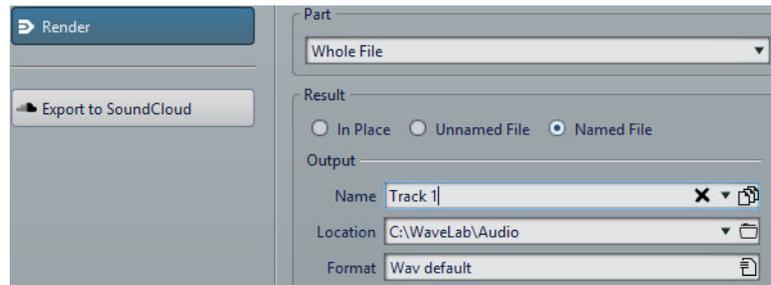
## RESULT

The audio section or the audio file is processed.

## Render Tab

This tab allows you to select which parts of an audio file to render, and into which format.

- To open the **Render** tab, click **Render** at the bottom of the **Master Section**.



The following options are available for rendering audio files and audio montages.

### Part

- **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.

### In Place

If this option is activated, the rendered audio range replaces the source audio range.

### 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 the **Multi Audio File Format** dialog, 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.

### Exclude Master Section Bypassed Plug-ins

If this option is activated, the plug-ins that are bypassed during playback are not used for rendering.

#### NOTE

This applies to the bypass states managed by WaveLab Elements, not any bypass state that is under the control of the plug-ins.

---

### No Reverb Tail

If this option is activated, the audio tail produced by effects such as reverb is not included in the rendered file.

Some plug-ins do not provide a tail duration to WaveLab Elements. 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.

### 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 want to monitor this new file through the effects again when the effects have been applied to a file.

---

### Export to SoundCloud

If this option is activated, the rendered file is uploaded to SoundCloud, after the rendering process is finished.

## Render Tab for Audio Files

The following options on the **Render** tab are exclusive to rendering audio files.

### Part

**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 option on the **Render** tab is exclusive to rendering audio montages.

### Part

**Whole Montage** processes and renders the whole audio montage.

## Saving a Master Section Preset

You can save all settings that are made in the **Master Section** as a preset. This includes which processors are used, which settings are made for each one of them, and the dithering options.

---

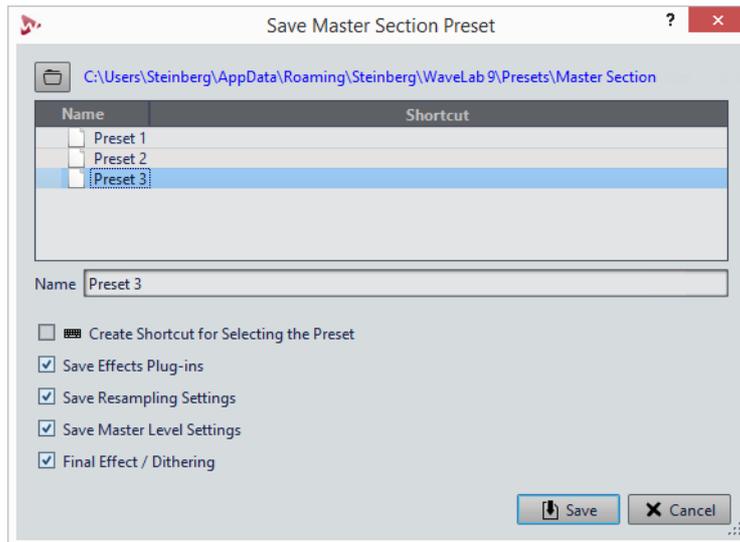
### PROCEDURE

1. Set up 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 save in the preset.
  6. Click **Save**.
- 

## 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**.



### Location

Opens the root folder of the preset in the File Explorer/Mac OS Finder. Here, you can create subfolders in which presets can be saved.

### Presets list

Lists all existing presets.

### Name

Lets you 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 Effect/Dithering Plug-in

If this option is activated, the final effect/dithering plug-in is 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.

## Loading a Master Section Preset

You can load a previously saved **Master Section** preset, a temporarily saved **Master Section** preset, or import WaveLab Elements 4/5/6 presets.

Open the **Presets** pop-up menu at the top of the **Master Section** window.

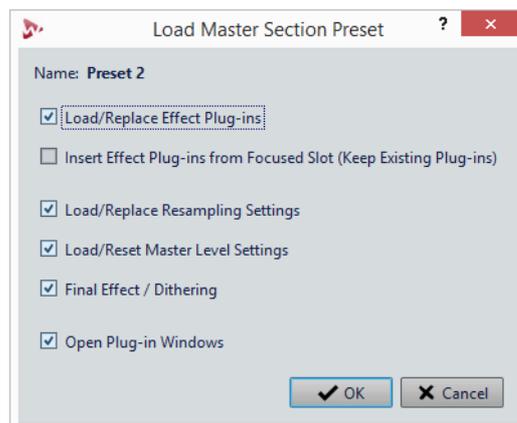
- To load a preset that has been previously saved in the `Presets\Master Section` folder, select a preset from the **Presets** pop-up menu.
- To load a preset from any location, select **Load Preset**, select a preset, and click **Open**.
- To load a temporarily saved preset, open the **Restore** submenu, and select a preset.
- To import a WaveLab Elements 4/5/6 preset, select **Load WaveLab Elements 4/5/6 Preset**, select a preset, and click **Open**.

## 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** menu of the **Master Section**. Open the **Presets** 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 Effect/Dithering Plug-in

If this option is activated, the current final effect/dithering plug-in is removed, and the new plug-in is loaded.

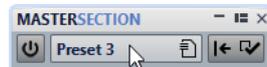
### Open Plug-in Windows

If this option is activated, the plug-in window opens when you load a new **Master Section** preset.

## 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 **Preset** folder of the **Master Section**, where you can rename or delete presets.

### Load Preset

Allows you to load a **Master Section** preset via the File Explorer/Mac OS 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, 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**.

## Monitoring Background Tasks

When rendering, you can monitor the process, and pause or cancel tasks.

A status bar below the wave window and the montage window shows the progress of the current rendering process. You can cancel or pause the rendering with the corresponding buttons.



#### RELATED LINKS

[Global Preferences on page 307](#)

## 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.

# 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.
- Loop sections in an audio file.

There is no limit to the amount of markers that you can have in a file.

## 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.

## Marker Types

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.

### 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.

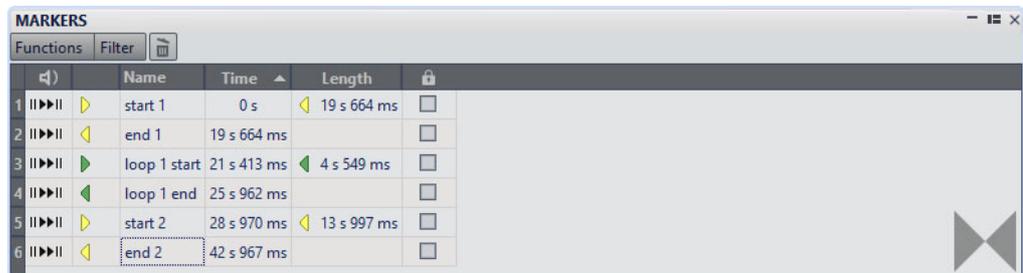
### Loop start and end markers

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.

## Markers Window

In this window, you can create, edit, and use markers while working on an audio file or audio montage.

- To open the **Markers** window, open an audio file or audio montage and select **Tool Windows > Markers**.



## 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 markers from the markers list.

### Marker numbers

Clicking the number of a marker scrolls the waveform to reveal the corresponding marker.

### From Start with Pre-Roll (⏮)

Plays back the audio from the marker position with a pre-roll.

You can also press [Alt]/[Option] and click ⏮ to play back from the marker position with a short pre-roll.

### From Start (▶)

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.

### 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.

### Length

Shows the time between the marker start position and the corresponding end marker.

- To zoom in on the region between a start and 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. This function is only available for markers in the **Audio Editor**.

### 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.

## Functions Menu

Depending on whether the **Audio Editor** or the **Audio Montage** window is open, different options are available. The following options are available for audio files and audio montages:

### Select All

Selects all markers in the markers list.

### Deselect All

Deselects all markers.

### Delete Selected Markers

Deletes all markers that are selected.

### Default Marker Names

Opens the **Default Marker Names** dialog, where you can select default marker names for each marker type.

### Lock Selected Marker

Locks the selected marker. If this option is activated, the marker cannot be moved or deleted.

### 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 files:

### Select in Time Range

Selects the markers located in the selection range in the wave window.

The following options of the **Functions** menu are only available for audio montages:

**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.

**Detach Selected Markers from Their Associated Clip**

Makes the marker position relative to the start of the audio montage.

**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 to hide or show specific command bar buttons.

**Filter Menu**

Use the **Filter** menu to determine which types of markers are displayed in the markers list and on the timeline.

## About Creating Markers

Markers can be created during playback or in stop mode. You can mark a selection range, for example.

You can create specific markers if you already know what you want to mark, or create generic markers.

## Creating Markers

You can create markers in the wave window and montage window in stop mode or during playback.

---

PROCEDURE

1. Do one of the following:
  - Start playback.
  - In the wave/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.
    - Right-click the upper part of the time ruler, and select a marker from the context menu.
    - Press [Insert]/[M]. This creates a generic marker.
- 

## Creating Markers at Selection Start and End

You can mark a selection for looping or review, for example.

---

### PROCEDURE

1. In the wave 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, make a selection range, right-click it, and select one of the marker pairs.
    - In the wave window or the montage window, create a selection range, right-click above the time ruler, and select one of the marker pairs.
- 

## Duplicating Markers

This is a quick way to create a marker from an existing marker.

---

### PROCEDURE

- In the wave window or the montage window, hold down [Shift], click a marker, and drag.
- 

## Deleting Markers

Markers can be deleted in the wave window or the montage window, and in the **Markers** window.

## Deleting Markers in the Wave/Montage Window

- In the wave/montage window, right-click a marker and select **Delete**.
- Drag and drop a marker icon upwards outside the time ruler.

## 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 wave/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**.
- 

## Moving Markers

You can adjust marker positions in the wave window and the montage window.

---

### PROCEDURE

- In the wave/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.
- 

## 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 **Previous Marker/Next Marker**.
- To set the wave cursor to a marker position, in the wave window or the montage window, double-click a marker triangle.

## Hiding Markers of a Specific Type

For a better overview, you can hide marker types.

---

### PROCEDURE

1. In the **Markers** window, select **Filter**.
  2. Deactivate the marker type that you want to hide.  
You can make the markers visible again by activating the corresponding marker type.
- 

## Converting Marker Types

You can convert markers of a specific type to another type.

## Converting the Type of a Single Marker

---

### PROCEDURE

1. In the **Markers** window, click the marker icon that you want to convert.
  2. Select a new marker type from the list.
- 

## Renaming Markers

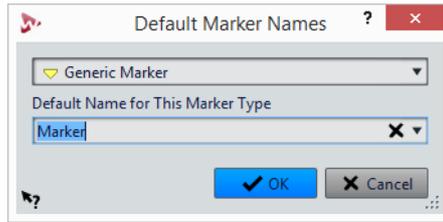
You can change the names of markers.

- 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 markers in the **Markers** window, double-click a marker name in the **Name** column, and enter a new name.
- To edit the default names, in the **Markers** window, select **Functions > Default Marker Names**.

## 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

Lets you select the type of marker for which you want to specify the default name.

### Default Name for This Marker Type

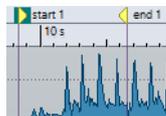
Lets you specify the default name for the selected marker type.

## 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]/[Command] and [Shift] to select multiple markers.

The marker icon changes its background to indicate the selected marker.



## 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 wave window or the 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 wave/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]/[Option], and double-click a marker.

## 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.

When a marker is bound to a clip element, its name is preceded by a blue character.



### RELATED LINKS

[Markers Window on page 233](#)

## How Marker Information is Saved

WaveLab Elements uses MRK files as a way to save information that is independent of the file format. However, to make marker information exchangeable between applications, WaveLab Elements also saves some information in the Wave headers.

This makes saving files quicker if only a marker setting was changed. However, this only applies if **Write Markers in WAV File Header** is deactivated in the **Audio Files Preferences** on the **File** tab. By default, MRK files are created and information are saved in the Wave headers.

- When you import a file for the first time, any loop points are imported and displayed as loop markers.
- When you save a file in the Wave format, the loop points are saved both as part of the actual file and in the MRK file.
- When you open a file that includes markers that were added in WaveLab Elements, and markers that were added in another application, all markers are displayed in WaveLab Elements.

# Metering

WaveLab Elements 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.

## Metering Window

There can only be one instance of each audio meter.

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

[Docking and Undocking Tool Windows and Meter Windows on page 39](#)

## 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**.

## 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.

## Level Meter

The **Level Meter** displays the peak and average loudness/decibel levels of your audio file.

- To open the **Level Meter**, select **Meters > Level Meter**.



The **Level Meter** 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.
- 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.

## Level Meter Settings

In the **Level Meter Settings** dialog, you can adjust the behavior, scale, and color of the meters.

- To open the **Level Meter Settings** dialog, open the **Level Meter** window, and select **Functions > Settings**.

### Peak Meter Section

#### 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's height is too narrow, only the line is displayed.

#### Top/Middle/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.

### VU Meter (Loudness) Section

#### VU Meter (Loudness)

Activates/Deactivates the VU meter.

#### 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.

### 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.

## 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**.



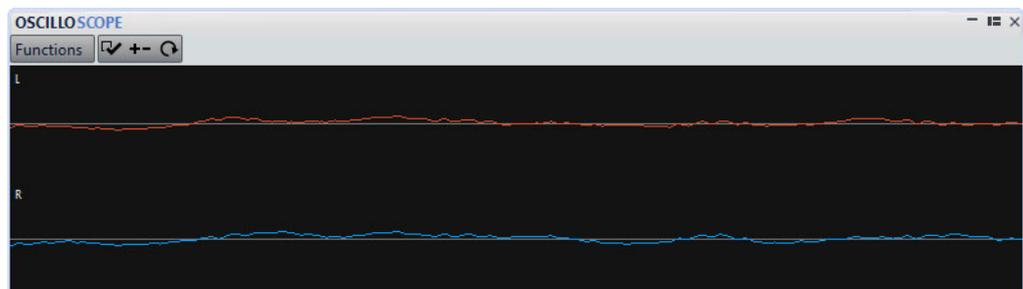
Peak levels are shown as a horizontal lines above the corresponding bands, indicating recent peak/maximum values. The **Spectroscope** offers a quick spectrum overview. For a more detailed analysis of the audio spectrum, use the **Spectrometer**.

On the **Functions** menu, you can specify whether only high audio levels are displayed, or whether medium and low levels are also shown.

## 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**.

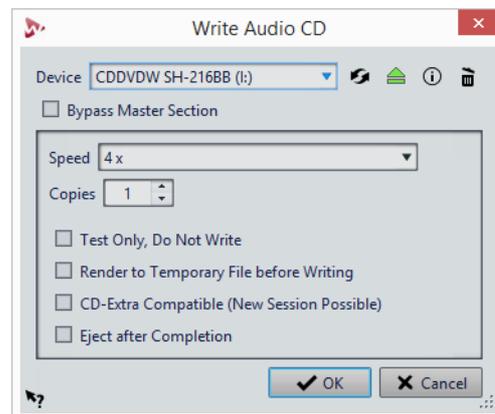
# Writing Operations

This chapter describes the CD/DVD writing processes in WaveLab Elements. This chapter assumes that the preparations have been completed, and that you are ready to run the actual writing process.

## Write Audio CD Dialog

In this dialog, you can write your audio montage to an audio CD.

- When you want to write audio montages to an audio CD, open the **CD** window, and select **Functions > Write Audio CD**.



### Device

Allows you to select the disc writer that you want to use.

#### NOTE

On the Mac, insert a medium in the drive after opening WaveLab Elements. Otherwise, the drive is under the control of the operating system and is not available for WaveLab Elements.

### 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 media to update the **Speed** menu.

#### NOTE

On the Mac, insert a medium in the drive after opening WaveLab Elements. Otherwise, the drive is under the control of the operating system and is not available for WaveLab Elements.

---

### Eject Optical Medium

Ejects the optical medium present in the selected drive.

### Information about Selected Device

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 medium.

### Bypass Master Section

If this option is activated, the audio signal is not processed through the **Master Section** before being written to the medium.

### Speed

Allows you to select the writing speed. The highest speed depends on the capabilities of your writing device and of the medium present in the device.

### Copies

Allows you to enter 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

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 an higher writing speed.

### CD-Extra Compatible (New Session Possible)

If this option is activated, the resulting audio CD is compatible with the CD-Extra format.

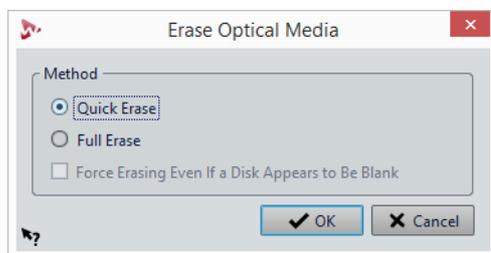
### Eject after Completion

If this option is activated, the medium is ejected after the writing operation.

## 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** 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.

## About Writing Audio Montages

You can write audio montages to an audio CD.

## Writing an Audio Montage to an Audio CD

### PREREQUISITE

Set up your audio montage and make your CD writing settings in the **Global Preferences**.

### NOTE

On the Mac, insert a media in the drive after opening WaveLab Elements. Otherwise, the drive is under the control of the operating system and is not available for WaveLab Elements.

---

### PROCEDURE

1. Optional: In the **CD** 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 **CD** window, select **Functions > Write Audio CD**.
  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 **CD-Extra Compatible (New Session Possible)** if you want the resulting audio CD to be compatible with the CD-Extra format.
    - 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

[Write Audio CD Dialog on page 246](#)

## CD-Text

CD-Text is an extension of the Red Book Compact Disc standard and allows you to save text information such as title, songwriter, composer, and 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.

## CD-Text Editor Dialog

In this dialog, you can specify information such as track title, performer, and songwriter, that is written onto 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.

- To open the **CD-Text Editor** dialog, in the **CD** window, select the track for which you want to edit the CD-Text, and select **Functions > Edit CD-Text**.



### Copy CD Track Marker Name



Copies the name of the CD track marker to this field.

### Copy CD Track Start Marker Name to All CD Track Titles



Copies the name of each CD track start marker to the title field of each CD track.

### Copy Text to All Following Tracks



Copies the text to all tracks that are located after the current one.

### Scrollbar

Allows you to navigate across all CD-Texts. The first position corresponds to the whole CD, other positions to individual tracks.

### Language

Here, 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 the 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.

## Data CD/DVD Projects

A data CD/DVD project can be used to compile and write a data-only CD, DVD, Blu-ray, or to write to ISO image. You can enter a name for your disc and change the disc file structure before writing your data to a CD, DVD, Blu-ray, or ISO image.

## Creating a Data CD/DVD Project

A data CD/DVD project can be used to compile and write a data-only CD, DVD, Blu-ray, or to write to ISO image.

---

### PROCEDURE

1. Select **File > Tools > Data CD/DVD**.
  2. Add files to the project, using one of the following methods:
    - Drag the files from the WaveLab Elements **File Browser** window or from the File Explorer/Mac OS Finder into the **Data CD/DVD** window.
    - Drag an audio file or audio montage tab into the **Data CD/DVD** window.
    - Right-click a file tab, and select **Add to > Data CD/DVD**.
  3. Optional: Click **New Folder** , specify a folder name, and arrange the files by dragging.
- 

## Writing a Data CD/DVD Project

### PREREQUISITE

Open the **Data CD/DVD** dialog, and add the files that you want to write to a data CD/DVD.

---

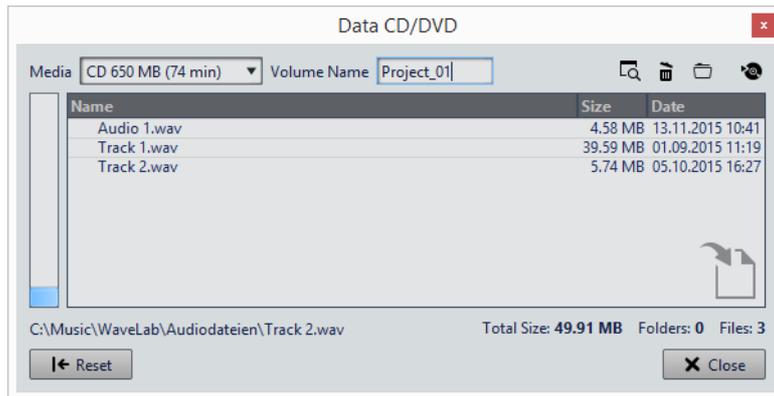
### PROCEDURE

1. Click **Write Data CD/DVD** .
  2. Select a writing device.
    - If you select **ISO Image**, specify a file name and file location.
    - If you select a CD/DVD writer, specify the writing speed and make further settings.
  3. Click **OK**.
- 

## Data CD/DVD Dialog

In this dialog, you can create a data CD/DVD project, and write it to a CD, DVD, Blu-ray, or an ISO image.

- To open the **Data CD/DVD** dialog, select **File > Tools > Data CD/DVD**.



### Media

Allows you to select the media type you want to write. If the media size that you want to use is not listed, select the media type that offers the size closest to your requirements.

### Volume Name

Allows you to specify the volume name of the CD/DVD.

### Open File Explorer/Mac OS Finder

Opens the File Explorer/Mac OS Finder to show the location of the selected file.

### Remove Selected Files and Folders

Removes the selected files and folders from the CD/DVD project.

### New Folder

Creates a folder. You can also create sub-folders.

### Write Data CD/DVD

Opens the **Write Data CD/DVD** dialog from which you can write the media.

### Data CD/DVD list

Shows the contents of the CD/DVD project, and the size creation date, and number of files.

### Available space on media

Indicates how much space is used on the media. The **Total Size** of the data CD/DVD project is shown below the data CD/DVD list.

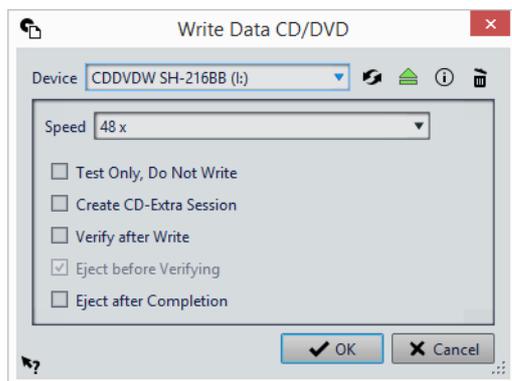
### Reset

Removes all files from the data CD/DVD project.

## Write Data CD/DVD Dialog

In this dialog, you can write a data CD/DVD project to a CD/DVD or an ISO file.

- To open the **Write Data CD/DVD** dialog, open the **Data CD/DVD** dialog and click **Write Data CD/DVD**.



### Device

Allows you to select the disc writer that you want to use or select **ISO Image** to write a file on the hard drive. Writing an ISO image creates a copy of a future optical medium.

#### NOTE

On the Mac, open WaveLab Elements without a media in the drive. Otherwise, the drive is under the control of the operating system and is not available for WaveLab Elements.

### 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 media, 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 Medium/ISO Image

Erases the optical medium present in the selected drive, provided it is a rewritable media. If **ISO Image** is selected, clicking the button deletes the existing ISO file.

### ISO File Name

If **ISO Image** is selected in the **Device** menu, specify the file name and file location of the ISO file in the text field.

### Speed

Allows you to select the writing speed. The highest speed depends on the capabilities of your writing device and of the medium present in the device.

### 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.

### Create CD-Extra Session

If this option is activated, the data is written in a new session, after the audio tracks. This creates a CD Extra, also known as Enhanced CD and CD Plus. For this to work, the CD in the drive must have audio tracks on it, written with the CD Extra option. Otherwise the operation fails.

### Verify After Write

If this option is activated, the data on the medium is automatically verified after the writing process.

### Eject Before Verifying

If this option is activated, the disc is ejected and retracted before the verification process, to force the drive out of the write state.

#### NOTE

This is only possible if the disc can be retracted automatically.

---

### Eject After Completion

If this option is activated, the disc is ejected after the writing operation.

## Audio CD Formats

This chapter provides you with background information on the CD format, to help you better understand how to create your own CDs.

## 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 Elements 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.

---

## CD-Extra Support

CD-Extra is a format that allows for the writing of both audio and data on a single CD, just like Mixed Mode CDs. When writing an audio CD, you can prepare it for CD-Extra support (also known as Enhanced CD or CD Plus).

The difference is that when Mixed Mode CDs are written with the audio placed on the last tracks of the CD, for CDs in the CD-Extra format the audio is contained in the first tracks of the CD, and the data follows subsequently.

All features of the Red Book audio CD are possible with CD-Extra, unlike with Mixed Mode CDs. After an audio CD has been written with CD-Extra support, the data can be added to the CD in a separate session, by creating and writing a data CD project.

### NOTE

Some computer CD drives may not recognize CDs in the CD-Extra format.

---

## 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.

### Track start

There can be up to 99 tracks on one CD. Each is identified by its start point only.

### Track sub-index

On advanced CD players, a track can be divided into sub-indexes (sometimes called only indexes). These are used to identify important positions within a track. There can be 98 sub-indexes in each track. 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 track. Pauses can be of variable lengths. Some CD players indicate the pauses between tracks on their displays.

## 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  $75 \times 588 = 44100$ , and because the sampling frequency of the CD format is 44100Hz (samples per second), this equals one second of audio. When you specify positions on the CD, in WaveLab Elements, 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 effortlessly in WaveLab Elements.

## ISRC Codes

International Standard Recording Code (ISRC) is an identification that is only used on CDs intended for commercial distribution. WaveLab Elements 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.

## 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.

## Disc-At-Once – Writing CD-Rs for Duplication Into Real CDs

WaveLab Elements 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.

## Writing On The Fly vs. CD Images

WaveLab Elements 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.

This chapter describes various operations that are related to looping. Looping is used to simulate the infinite or at least very long sustain of many instrumental sounds. WaveLab Elements has tools for creating smooth loops, even for the most complex types of sounds.

## Basic Looping

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 Elements, loops are defined by loop markers. 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.

---

## Creating a Basic Loop

---

### PROCEDURE

1. In the **Audio Editor**, select the audio section that you want to loop.
  2. Right-click above the ruler and select **Create Loop from Selection**.
  3. On the transport bar, activate **Loop**.
  4. Play back the loop and adjust the position of the markers to change 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.

## Refining Loops

The **Loop Tweaker** tool allows you to refine a region of audio for seamless looping. Use the **Loop Tweaker** 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.

To use the **Loop Tweaker**, you must first define a loop using a pair of loop markers.

### Loop Points Adjustment Tab

Use the **Loop Points Adjustments** tab in the **Loop Tweaker** dialog 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. 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. Note that this movement may not be visible depending on how much you move the markers and on the zoom factor that you have selected.

It may be helpful to activate **Loop** on the transport bar during playback so that you can hear the difference when you adjust the loop markers. If you are not using a crossfade or post-crossfade, you do not have to click **Apply** when tweaking loop points. You can also leave this dialog open and manually adjust the position of the markers in the main waveform windows.

## 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.

## Post-Crossfade Tab

This tab allows you to apply a cross fade 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.

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.

## Refining Loops

You can refine loops using the **Loop Tweaker** tool.

### PREREQUISITE

Set up a basic loop.

---

### 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, refine your loop.
  5. Click **Apply**.
- 

## Moving Loop Points Manually

If your loop still has glitches or bumps at the transition points, you can use the **Loop Tweaker** tool 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 green 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** tool 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 yellow arrow buttons to start the automatic search for a good loop point.  
WaveLab Elements 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** tool.

### 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. Each time that you click **Apply**, the previous loop process is automatically undone. 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

- 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.

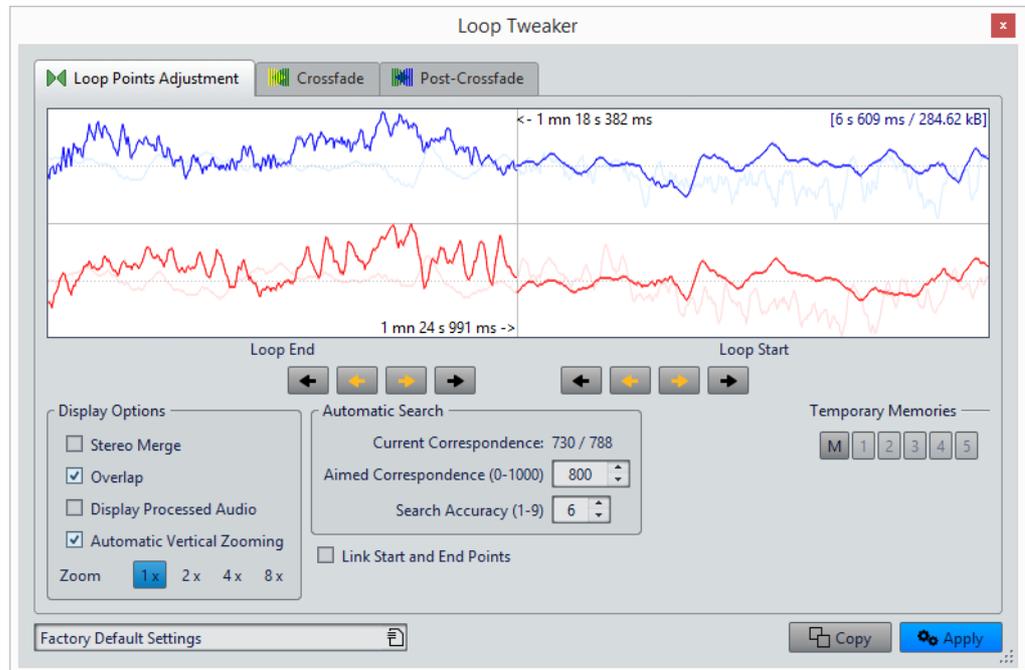
## Loop Tweaker

This dialog allows you to adjust the loop start and end points, and crossfade the loop boundaries. The loop start and end points are specified with the 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, and in the **Loop** section, select **Tweaker**.

## Loop Points Adjustment Tab



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

Move the loop end points to the left/right.

### Loop End – Outer Arrows

Invokes an automatic search for the nearest good 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 good 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**

If this option is activated, the display shows a preview of the waveform after crossfading. If this option is deactivated, you see what the waveform looks like without crossfading. This option only makes sense after you have applied a crossfade.

### **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 few samples near the loop points. The higher the values, the better the match.

### **Aimed Correspondence (0-1000)**

Sets up the automatic search for good 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% perfect match.

### **Search Accuracy**

Determines how many samples should be taken into account by the auto-find analysis. Higher values result in greater accuracy, but also in longer processing times.

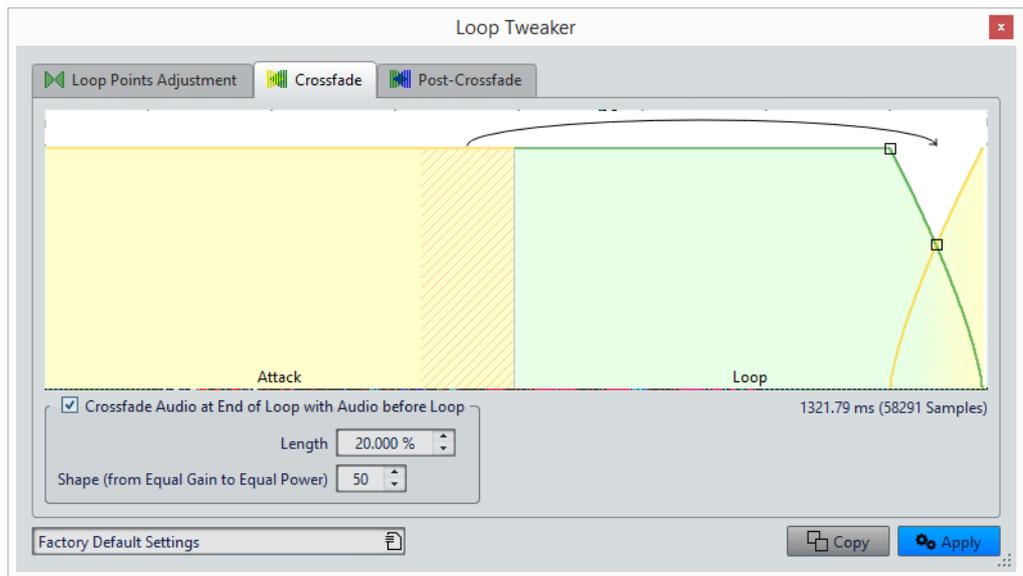
### **Link Start and End Points**

If this option is activated, both the start and end points move simultaneously when you adjust the loop points manually. That is, 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 this button, then on one of the buttons 1-5.

## Crossfade Tab



### 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.

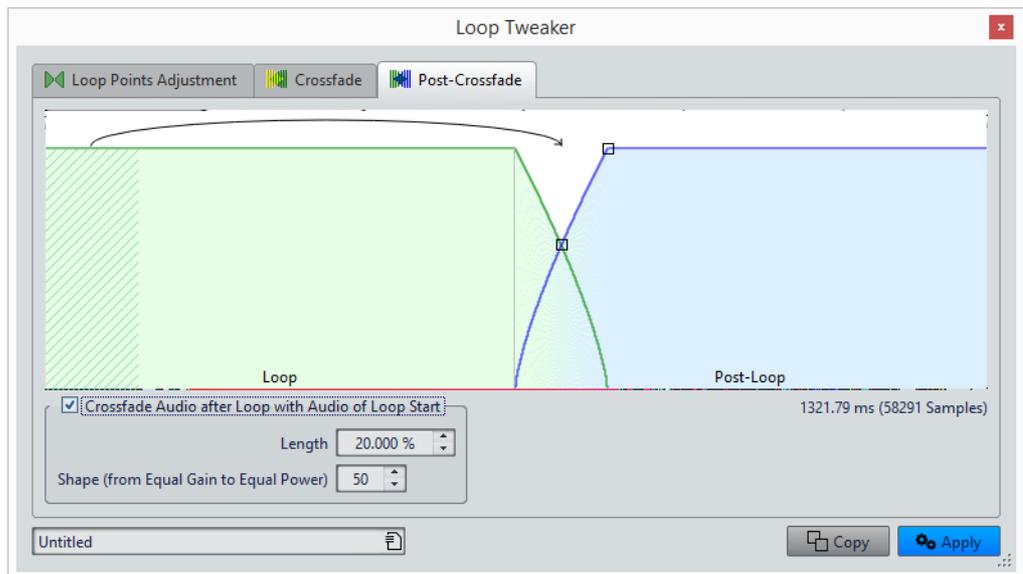
#### NOTE

- 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



### 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 less, 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.

## 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** allows you to create loops from these kind 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.

## Looping Seemingly Unloopable Audio

---

### PROCEDURE

1. In the **Audio Editor**, set up a basic loop.
2. Select the **Process** tab.
3. In the **Loop** section, click **Tone Uniformizer**.
4. In the **Loop Tone Uniformizer** dialog, make sure that either **Slice Mixing** and/or **Chorus Smoothing** is activated and make the settings.
5. Optional: Select the **Pre-Crossfade** tab, and set up a crossfade.
6. 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

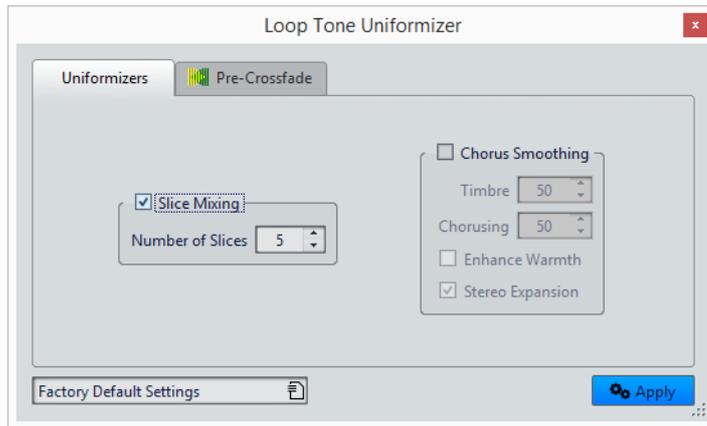
After using the **Loop Tone Uniformizer**, the transition between the end of the loop and the end of the file might not sound very natural. This can be fixed by creating a post-crossfade using the **Loop Tweaker**.

## Loop Tone Uniformizer

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

Cuts 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 20ms.

For example, if you specify eight slices, the loop is cut up 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.

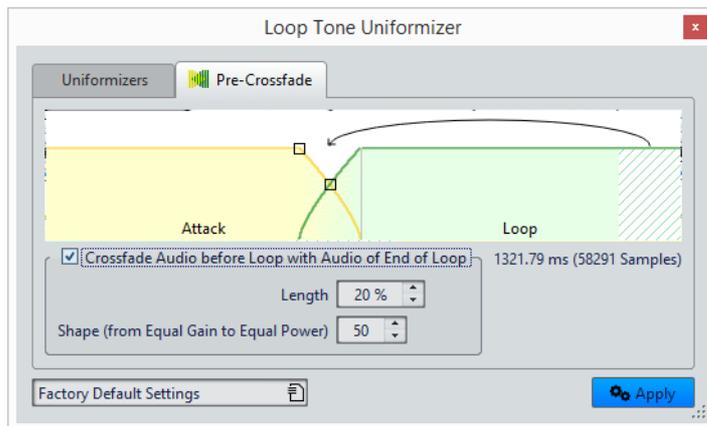
### Chorus Smoothing – Enhance Warmth

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:

#### NOTE

- 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.

## 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.

NOTE

Depending on your sampler and the protocol that you use for communicating, the sample attributes may not be supported.

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## Editing Sample Attributes

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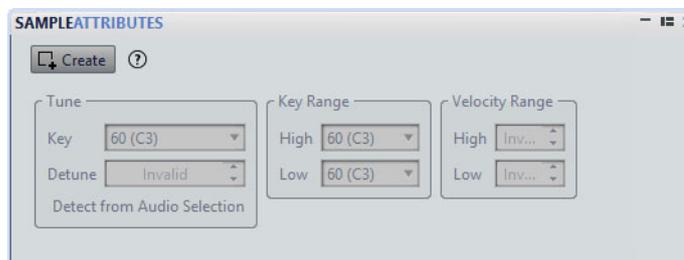
PROCEDURE

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  $\pm 50\%$  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.

# Importing Audio CD Tracks

You can read audio tracks from regular CDs and save them as a digital copy in any audio format on your hard disk.

Although WaveLab Elements 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 Elements supports as many of these methods as possible, but there are no guarantees that it works with any particular drive. This applies for CD-Text and ISRC.
- Observe and respect any copyright notices on the CDs from which you are importing tracks.

When importing tracks, they are named “Track XX” by default, where XX is a number starting at 01. The numbering scheme can be changed.

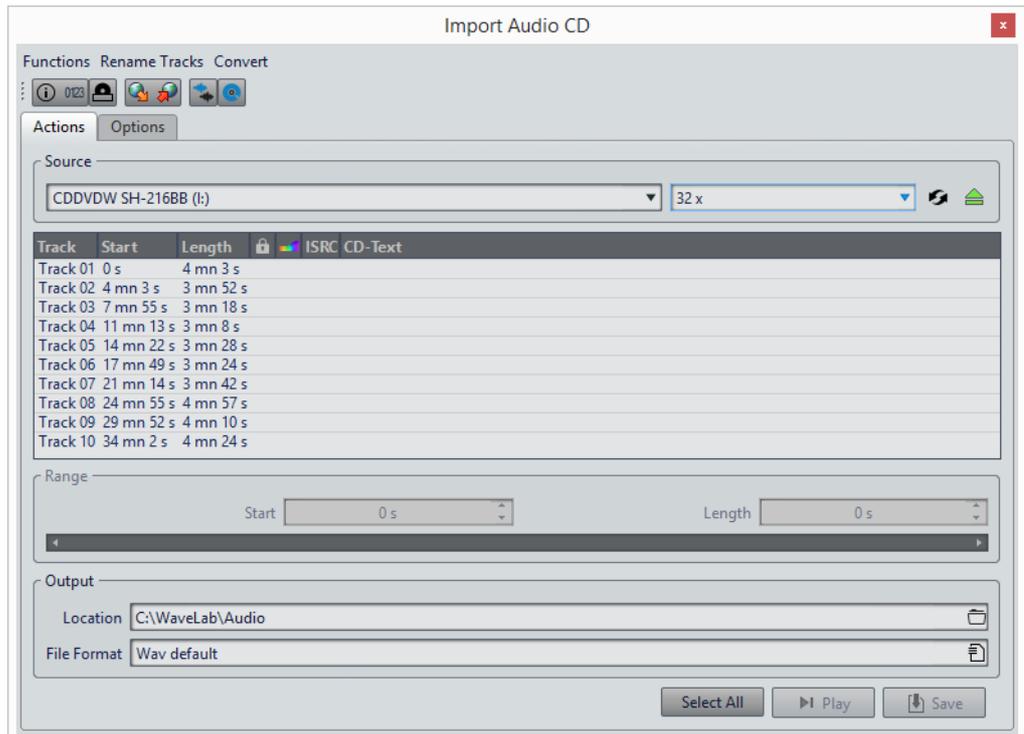
## NOTE

Importing audio CD tracks 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.

## Import Audio CD Dialog

In this dialog, you can import one or more tracks 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 track list. 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 track list.

## Rename Tracks Menu

### Name

Renames the tracks according to the selected renaming scheme.

### Search Track Names on the Internet (FreeDb)

Searches track names from an Internet database. If the album is found, the CD track list is updated.

### Submit Track Names to the Internet (FreeDb)

Submits the information about the audio CD to the FreeDb database of CD information.

## Convert Menu

### Convert All Tracks to Audio Montage

Extracts all audio CD tracks and uses them to create an audio montage.

### Convert Selected Tracks to Audio Montage

Extracts the selected audio CD tracks and uses them to create an audio montage.

## Actions Tab

### Source

Select the CD drive from which you want to import audio CD tracks.

### Speed

Allows you to set the writing speed. The highest speed depends on your writing device and on of the media 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.

### Track List

Shows the tracks on the CD.

### Range – Start/Length

If you want to import only a section of a track, 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 CD tracks in the track list.

### Play

Plays back the selected CD track.

## Options Tab

### Trim Silence

If this option is activated, silence between imported tracks 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 Elements checks for the presence of a new CD in the drive several times a second. If a new CD is found, the track 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, track 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 track, it is extracted together with the first track. This way, you can import hidden bonus tracks.

### **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 Meta-Data**

If this option is activated when importing tracks into an audio format supporting meta-data (for example, MP3 and WMA), the titles of the tracks and the CD-Text are automatically added to the file header.

### **Ultra-Safe Mode (Slow)**

If this option is activated, each CD track is read several times until the same result is found (checksums are used). Specify the number of times that a track must be read with the same result before it is saved to disk.

### **Real Audio Before and After Tracks**

You can ensure that tracks are imported in their entirety by defining how much audio should be read before and after each CD track.

## Importing Audio CD Tracks

---

### PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.
  2. Select **File > Import**.
  3. Click **Import 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 tracks must have unique names if you want to import them all.
  6. Optional: On the **Options** tab, in the **Read Audio Before and After Tracks** section, define how much audio should be read before and after each CD track.
  7. In the track list, select the tracks 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 track.
  9. In the **Output** section, click the folder icon, and select an output location.  
You can also drag one or more CD tracks 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 tracks are imported to the specified location.

## Searching Track Names on the Internet

You can search for information about your CDs using the FreeDb database of CD information.

### PREREQUISITE

You must be connected to the Internet to use the FreeDb function.

---

### PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.
  2. Select **File > Import**.
  3. Click **Import Audio CD**.
  4. In the **Import Audio CD** dialog, select **Rename Tracks > Search Track Names on the Internet (FreeDb)**.
-

## Submitting Track Names to the Internet

You can submit information about an audio CD to the FreeDb database of CD information.

### PREREQUISITE

You must be connected to the Internet to use the FreeDb function.

---

### PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.
2. Select **File > Import**.
3. Click **Import Audio CD**.
4. In the **Import Audio CD** dialog, rename each track.
5. Select **Rename Tracks > Submit Track Names to the Internet (FreeDb)**.
6. In the **Submit CD Information** dialog, fill out the text fields and enter an E-Mail address.

### NOTE

An E-Mail address is required to report submission errors. It will not be saved.

The FreeDb database does not offer the possibility to enter different artists or genres for individual tracks. If the artists differ from track to track, you can write the track title in the following way:

Title/Artist

7. Click **OK**.
- 

## Ultra-Safe Mode

Sometimes, a small bit of a CD track 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 CD track must be read with the same result, before it is saved to disk.

## Converting Audio CD Tracks to an Audio Montage

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### PROCEDURE

1. Insert a CD into the CD-ROM/CD-R device.
2. Select **File > Import**.

3. Click **Import 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 tracks or all tracks.
    - To convert only selected tracks, select **Convert > Convert Selected Tracks to Audio Montage**.
    - To convert all tracks, select **Convert > Convert All Tracks to Audio Montage**.
- 

#### RESULT

When the conversion is finished, the imported files open in the **Audio Montage** window.

# WaveLab Exchange

You can use WaveLab Elements as an external editor for Cubase and vice versa.

## IMPORTANT

- WaveLab Exchange is only available for Cubase Pro 8.5.10 or higher and Cubase Artist 8.5.10 or higher.
- WaveLab Exchange supports the file formats Wave and Wave 64.

## WaveLab Elements as External Editor for Cubase

You can open Cubase events in WaveLab Elements. This allows you to use the editing capabilities of WaveLab Elements and apply them to Cubase events.

For example, the following editing options are exclusively available in WaveLab Elements:

- Audio error correction
- Independent channel editing and processing
- Analysis meters, global analysis (EBU R-128 recommendation), and 3D frequency analysis
- Sonnox restoration toolkit (DeBuzzer, DeClicker, DeNoiser)
- MasterRig

## Editing Cubase Audio Events in WaveLab Elements

### PREREQUISITE

Open your Cubase project in Cubase.

### PROCEDURE

1. In the Cubase **Project** window, select the audio event that you want to edit in WaveLab Elements.  
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 Elements, edit the audio event.
  4. When you have finished the editing, click **Trigger Cubase Update** on the command bar.
- 

#### RESULT

The changes to the audio event are applied to the Cubase project.

## Cubase as External Editor for WaveLab Elements

When you are working on an audio file or clip in WaveLab Elements, you can open the project of the audio file in Cubase. This allows you to correct issues that you have identified during mixing and correct these issues in the audio file in Cubase.

When you then export the audio file in Cubase, and you use the same file name, the audio file or clip is automatically updated in WaveLab Elements.

## Preparing the Cubase Project for WaveLab Exchange

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#### PROCEDURE

1. In Cubase, 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 the Audio File in Cubase

#### PREREQUISITE

The Cubase project is prepared for WaveLab Exchange.

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#### PROCEDURE

1. In WaveLab Elements, open the audio file in the **Audio Editor**.  
A yellow line above the file tab indicates that the file has been rendered in Cubase.
2. Select the **Edit** tab.
3. In the **Source** section, click **Edit Project**.  
The Cubase project that contains the audio file opens.
4. In Cubase, 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.

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7. Click **Export**.
- 

#### RELATED LINKS

[Preparing the Cubase Project for WaveLab Exchange on page 281](#)  
[Tab Colors on page 62](#)

# Podcasts

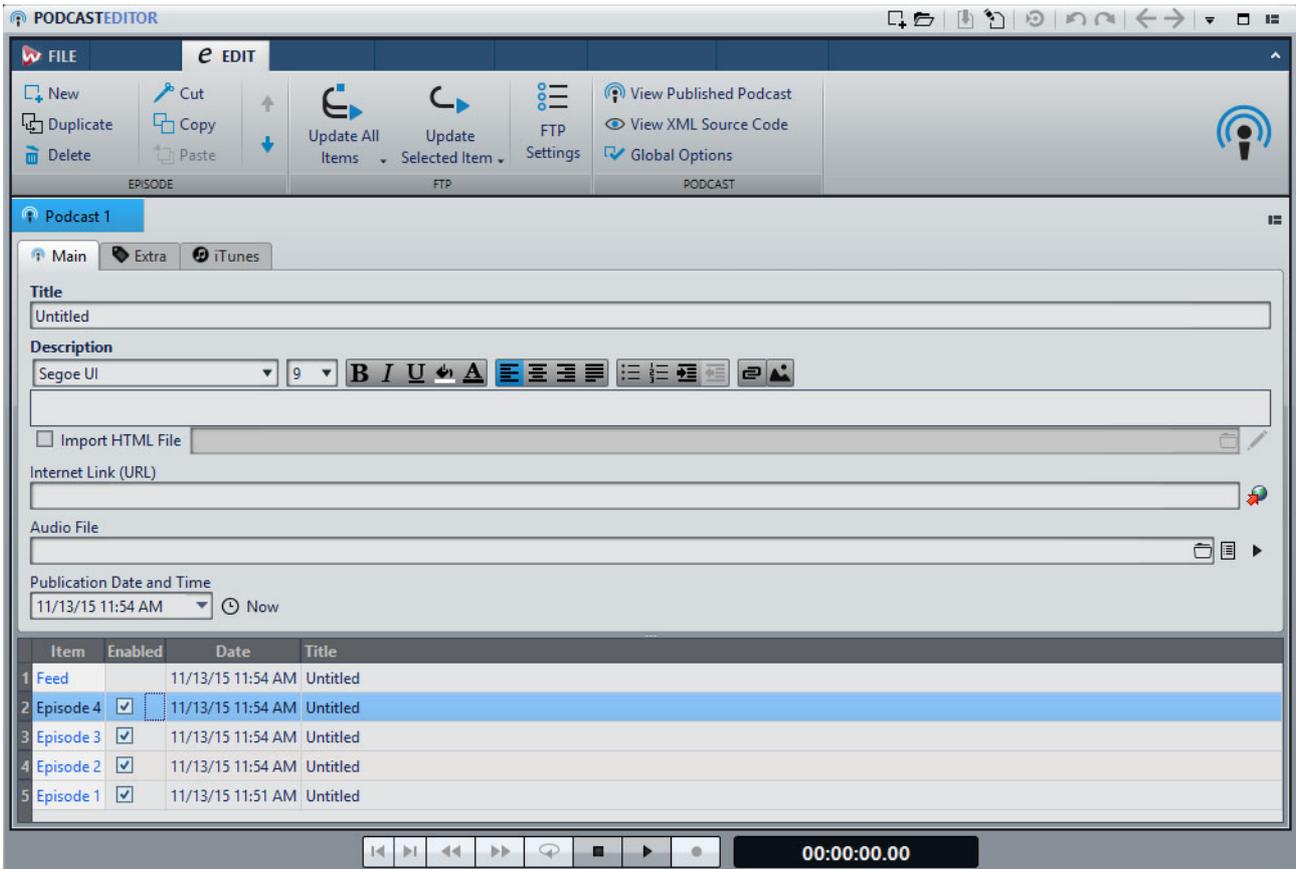
Podcasting is a method of distributing multimedia files over the Internet, for example, for playback on mobile devices and personal computers.

A podcast can be downloaded automatically, using software that is capable of reading RSS feeds. RSS (Really Simple Syndication) is a standard for distributing news and other information via the Internet. An RSS news feed sends short messages on a specific topic from a specific web site. In order to read the messages, the user employs a program that has the ability to monitor multiple feeds and automatically download new messages on a regular basis. This can be special feed readers or an Internet browser, for example.

A podcast is an RSS feed including data content, such as audio or video files. This can be a show of which new episodes are released regularly. The file formats .mp4a, .mp3, and .ogg are commonly used for podcasts.

## Podcast Editor

The **Podcast Editor** is divided into two panes. The upper pane shows the information for the feed or an episode, depending on the item that is selected in the list below. This is where you can add files, Internet links, or textual information to the podcast feed and its episodes. The lower pane shows an item list of the basic feed and all episodes that are included in the podcast.



## Episode Section

In the **Episode** section, you can create, delete, and move individual podcast episodes.

### New

Adds a new untitled episode.

### Duplicate

Adds a new episode, copying all the information from the existing episode to the new one.

### Delete

Deletes the selected episode. Alternatively, you can exclude an Episode from the podcast by deactivating the **Enabled** box.

### Cut/Copy/Paste

Cuts, copies, and pastes the selected episode.

### Move Up/Move Down

Moves the selected episode one position up or down in the list. Alternatively, use drag and drop.

## FTP Section

In the **FTP** section, you can define where your podcast is going to be uploaded via FTP.

### Update All Items

Uploads/updates the XML podcast file on the FTP server. It also uploads all associated media files, but only if they are not yet available on the FTP server. This is the most common function to upload and update your podcast.

### Update Selected Item

Uploads/updates the XML podcast file on the FTP server. It also uploads the media file of the selected item in the list, but only if it is not yet available on the FTP server.

### Upload/Replace All Items

This is the same as above, but it always uploads/replaces all of the media files belonging to the item. This is useful if you have changed the audio data, for example.

### Upload/Replace Selected Items

This is the same as above, but it always uploads/replaces the media file of the selected item in the list. This is useful if you have changed the audio data, for example.

### FTP Settings

Opens the **FTP Settings** dialog, which allows you to edit the FTP settings that are related to this podcast.

## Podcast Section

### View Published Podcast

Opens your podcast (via the URL that is specified in your FTP site settings) using your default browser.

### View XML Source Code

Opens an XML editor to display the source code of the podcast.

### Global Options

Edit the automatic picture resizing, set a time offset with Greenwich Mean Time, and specify the path of the HTML editor.

## Main Tab

On the **Main** tab, you can assign parameters to your podcast. The available parameters change, depending on whether you select a feed or an episode. Field labels in bold letters mark fields that are mandatory to fill.

### Title

Sets the title of the feed, for example, the topic of your podcast.

### Description

Gives space for a further description of the feed content.

### Import HTML File (only available for episodes)

Lets you browse for an HTML document that replaces the description.

### Internet Link (URL)

The main link of the feed that the user sees. Use this to direct people to a web site that is related to your feed. Clicking the world icon opens the specified URL in your default Internet browser.

### Audio File (only available for episodes)

This sets the path to the audio file that you want to add to the episode. The audio file can be of any file type that is supported by the media reader of your browser. An MP3 file provides best compatibility. Click the icon to list the audio files that are already open in WaveLab Elements. Select one for your episode.

Alternatively, you can drag the list icon of an audio file into the audio file pane. Click the play icon to open the specified file in the default media player or viewer of your system, for previewing or checking purposes.

### Picture (only available for feeds)

According to the RSS standard, this picture may not be larger than 144 x 400 pixels, so the picture is automatically resized. Clicking the picture icon  opens the specified picture in your default image viewer of your system.

### Publication Date and Time

Sets the publication date and time of the feed or episode. Clicking the **Now** button transfers current date and time of your system.

### As Most Recent Episode (only available for feeds)

If this option is activated, the date and time of the most recent episode are automatically matched.

## Extra Tab

On the **Extra** tab, you can assign parameters to your podcast. The available parameters change, depending on whether you select a feed or an episode.

The following parameters are available for a feed:

- Webmaster (Email Address)
- Editor (Email Address)
- Copyright
- Category
- Related Domain (URL)
- Language
- Frequency of Updates

- Skip Hours (0 to 23, Comma Separated)
- Time to Live (Number of Minutes)

The following parameters are available for an episode:

- Author (Email Address)
- Comments (URL)
- Category
- Related Domain (URL)
- Title
- Original Domain (URL)

## iTunes Tab

On the **iTunes** tab, you can activate the iTunes extension that allows you to specify additional feed and episode information. The available parameters change, depending on whether you select a feed or an episode.

The following parameters are available for a feed:

- Subtitle
- Summary
- Categories
- Keywords (Comma Separated)
- Author
- Owner Name
- Picture
- New URL of Feed
- Hide in iTunes
- Explicit Material

The following parameters are available for an episode:

- Subtitle
- Summary
- Keywords (comma separated)
- Author
- Duration
- Hide in iTunes
- Explicit material

## Global Podcast Options

Some additional options are valid for all **Podcast Editor** tabs.

- To open the **Global Podcast Options** dialog, open the **Podcast Editor**, select the **Edit** tab, and click **Global Options**.

### Automatic Picture Resizing (Not for iTunes)

Defines what to do if specified pictures exceed the maximum size allowed by the RSS standard. If pictures need resizing, the original images on your hard disk is not modified.

### Time Offset with GMT (Greenwich Mean Time)

The displayed dates and times are local. If your system is properly set up, WaveLab Elements automatically adjusts the time offset in relation to GMT. However, if you want to have time and date relative to a different time zone, adjust the value with this option.

### HTML Editor

Sets the path to the external HTML editor that is launched when you click the pen  button in the **Import HTML File** section.

## Creating a Podcast

There are several ways to create a new podcast feed or episode.

- To create a new podcast, select **File > New** and click **Create Podcast**.
- To add a new untitled episode to a podcast, in the **Podcast Editor**, select the **Edit** tab, and click **New**.
- To add an audio file to the selected episode, select the **Main** tab, click in the **Audio File** field, and select **Select File Using Standard Selector**. Select the audio file in the file browser and click **Open**.

You can also drag an audio file from the **File Browser** window to the **Audio File** field.

- To duplicate the selected episode, select the **Edit** tab, and click **Duplicate**. This adds a new episode, and copies all information from the existing episode to the new one.

## Setting Up a FTP for Podcast Publishing

To be able to upload a podcast to your FTP server, you must enter the FTP server details first.

---

### PROCEDURE

1. In the **Podcast Editor**, select the **Edit** tab.
  2. In the **Podcast** section, click **FTP Settings**.
  3. In the **FTP Settings** dialog, enter the following details:
    - The log-in details for your FTP server.
    - The relative path and file name of the podcast (extension `.xml`).
    - Your web site address including the path to the feed.
  4. Click **OK**.
- 

## Publishing a Podcast

You can upload a podcast from within WaveLab Elements to your FTP server.

### PREREQUISITE

Set up your FTP settings within WaveLab Elements.

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### PROCEDURE

1. In the **Podcast Editor**, select the **Edit** tab.
  2. In the **FTP** section, select one of the following options:
    - Update All Items
    - Update Selected Item
    - Upload/Replace All Items
    - Upload/Replace Selected Items
  3. In the **FTP Settings** dialog, check if the FTP settings are correct, and click **OK**.
- 

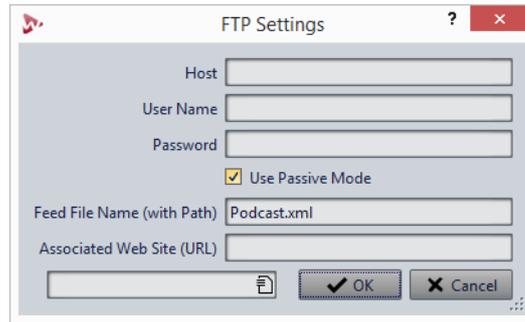
### RESULT

The podcast is uploaded to your FTP site.

## FTP Settings Dialog

In the **FTP Settings** dialog, you can manage all required information for the podcast upload process.

- To open the **FTP Settings** dialog, open the **Podcast Editor**, select the **Edit** tab, and click **FTP Settings**.



### Host

The host name or IP address of the FTP server.

### User Name

The login name to your FTP server.

### Password

The password to the login.

### Use Passive Mode

Keep this activated and only change this if you experience problems with the FTP connection.

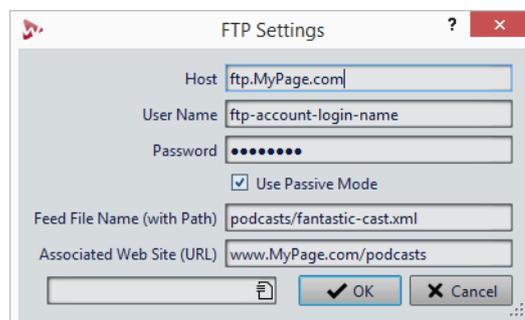
### Feed File Name (with Path)

The podcast file name that is displayed on your FTP server (extension .xml), including the relative path. File name and path are part of the final public Internet address of the podcast, so you may want to avoid long names.

### Associated Web Site (URL)

Your own web site address including the path to the feed.

## FTP Settings Example



- Your FTP host address is “ftp.MyPage.com”, your public web site address is “www.MyPage.com”.
- The feed file name setting is “podcasts/fantastic-cast.xml”, the associated web site setting is “www.MyPage.com/podcasts”.

- The media files of the podcast will be uploaded to the FTP server at “ftp.MyPage.com/podcasts”.
- The podcast file itself and the Internet address to be distributed will be found at “www.MyPage.com/podcasts/fantastic-cast.xml”.

Each podcast saves its own complete FTP site information. It is also possible to save and recall FTP site presets using the **Preset** functions at the bottom of the dialog.

## Checking the Podcast

After creating and publishing a podcast, you can check if the upload was successful.

- To visualize the contents of the feed XML file in your default XML editor, open the **Podcast Editor**, select the **Edit** tab, and click **View XML Source Code**.
- To open your default Internet browser and receive the podcast that you have just published from the Internet, open the **Podcast Editor**, select the **Edit** tab, and click **View Published Podcast**.

# Customizing

Customizing means making settings so that the program behaves and looks the way that you want it to.

## Customizing the Wave Window and the Montage Window

You can set up the wave/montage window by adjusting colors of waveforms, background, cursor lines, etc., and changing the look of the ruler and other window 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.

## Assigning Custom Colors to the Wave Window or the Montage Window

---

### PROCEDURE

1. Depending on whether you want to customize the colors of the wave window or the montage window, do the following:
    - For the wave window, select **File > Preferences > Audio Files** and select the **Style** tab.
    - For the 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.
-

## 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 wave window or the montage window, do one of the following:
    - For the wave window, select **File > Preferences > Audio Files** and select the **Style** tab.
    - For the 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**.
- 

## Copying Color Settings

You can copy the color settings of one part, or all parts of a custom color schema.

- 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**.

## Customizing Shortcuts

In WaveLab Elements, 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 Elements.

Shortcuts that cannot be edited are grayed out. The shortcuts that you created are displayed in blue in the editor.

You can create a new shortcut by specifying a key sequence of up to four keys that must be pressed in a specific order to invoke the operation.

RELATED LINKS

[Shortcuts Tab on page 296](#)

## 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.

| Command Name               | Key Sequence |
|----------------------------|--------------|
| Navigation (Numeric Pad)   |              |
| Activate Control Window #1 | 1 then W     |
| Activate Control Window #2 | 2 then W     |
| Activate Control Window #3 | 3 then W     |
| Activate Control Window #4 | 4 then W     |
| Activate File Group #1     | 1 then G     |
| Activate File Group #2     | 2 then G     |
| Activate File Group #3     | 3 then G     |
| Activate File Group #4     | 4 then G     |
| Activate File Group #5     | 5 then G     |
| Activate File Group #6     | 6 then G     |
| Activate File Group #7     | 7 then G     |
| Activate File Group #8     | 8 then G     |
| Activate File Group #9     | 9 then G     |

- 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 your keyboard and then press [M].

If you want to jump to the 10th file tab, press [10] on your keyboard and then press [F].

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RELATED LINKS

[Shortcuts Tab on page 296](#)

## Editing Shortcuts

You can see the list of all shortcuts in the **Shortcuts** tab, and edit and assign 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**.
- You can define one key shortcut per command. Each shortcut can be a sequence of up to four keystrokes.
- To reset some or all types of shortcuts to their factory default use the **Reset** button.

## Defining Key Sequences

You can define key sequences for a keyboard.

### PREREQUISITE

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 14](#)

## Generating a List of All Shortcuts

You can generate an HTML file or print out a list that contains all shortcuts.

### PREREQUISITE

If you want to print out the list, make sure a printer is connected to your system.

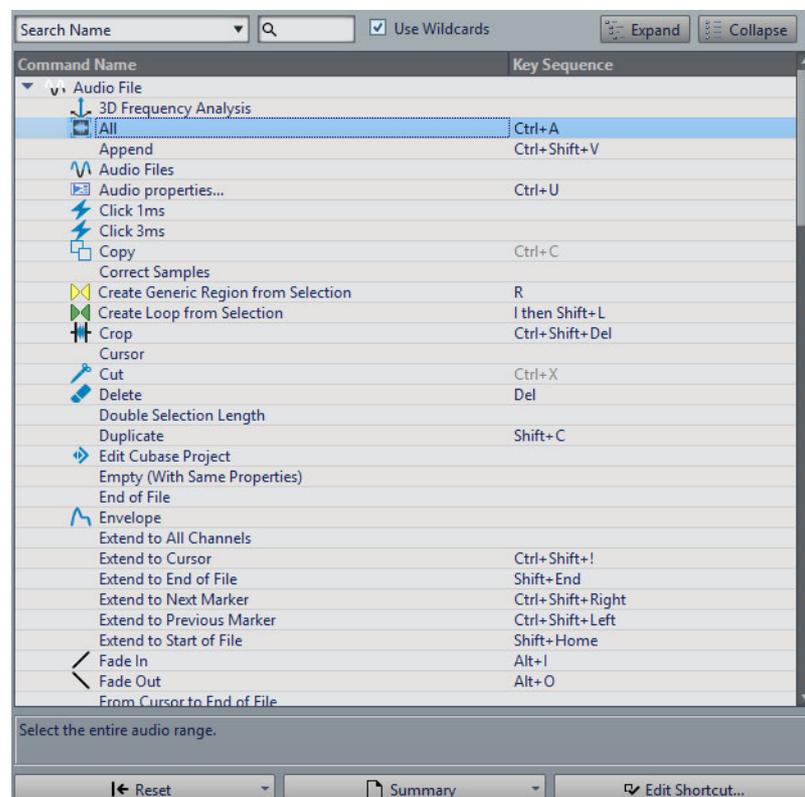
### PROCEDURE

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**.

## Shortcuts Tab

This tab allows you to customize your own shortcuts for WaveLab Elements. It shows a list of the assigned shortcuts for WaveLab Elements 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 any 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.

### 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 print out.

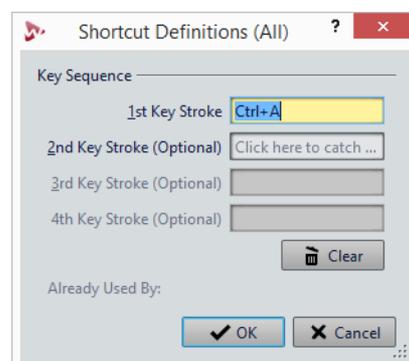
### Edit Shortcut

Opens the **Shortcut Definitions** dialog where you can edit the shortcuts for the selected command.

## 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 one.

### Clear

Erases all key event fields.

## 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 Elements 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 Elements 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 Elements 64bit and vice versa.

RELATED LINKS

[Plug-ins Preferences on page 302](#)

## Deactivating Plug-ins

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b`gYŹ e [ | ShW\$T 7^W\_ Wfež

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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 deactivate.
  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 deactivate the plug-in on the plug-in selection menus, deactivate the checkbox in the **Effect** column.
    - To deactivate the plug-in on the **Final Effect/Dithering** panel of the **Master Section**, deactivate the checkbox in the **Final** column.
    - To deactivate the plug-in on the **Playback-Processing** panel of the **Master Section**, deactivate the checkbox in the **Play** column.
    - To deactivate 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.
- 

## 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**

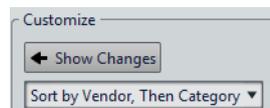
If the **Favorites** menu is empty, it does not appear in plug-in selection menus.

---

## 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 the **Show Changes** button.



- 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 Specific)** section, click the folder icon, and navigate to the folder that contains the VST plug-ins that you want to add.
- 

## Excluding Plug-ins

You can specify a list of plug-ins that WaveLab Elements does not open.

---

### PROCEDURE

1. Select **File > Preferences > Plug-ins**.
  2. Select the **General** tab.
  3. In the **Do Not Load the Following Plug-ins** section, type in the name of the plug-in that you do not want to open:
    - Enter the exact file name, without path and without file extension.
    - Enter one name per line.
    - If you put "\*" in front of the name, any plug-in that contains the name is ignored.
-

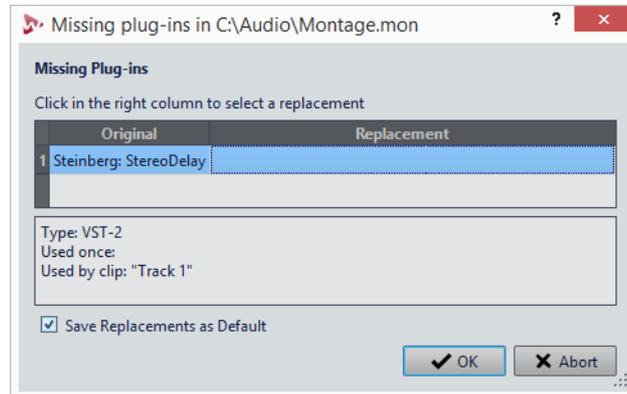
## Replacing Missing Plug-ins

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 Preferences

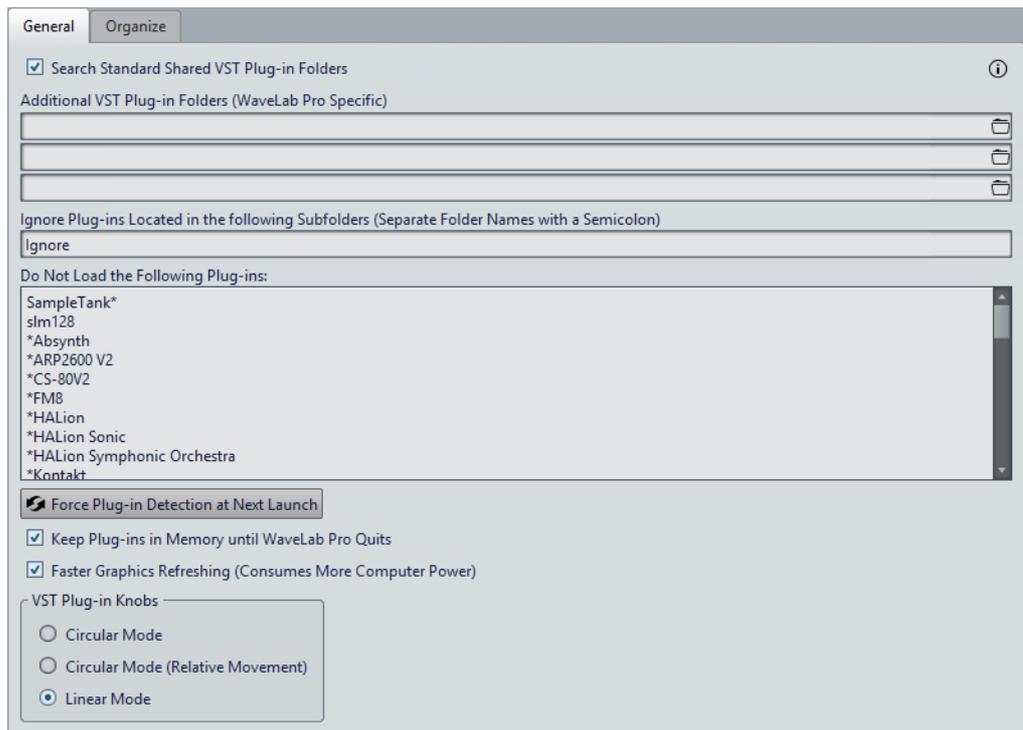
On this tab, you can access a number of options for managing your VST plug-ins.

You can specify where WaveLab Elements 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 Elements.

- To open the plug-in preferences, select **File > Preferences > Plug-ins**.

## General Tab

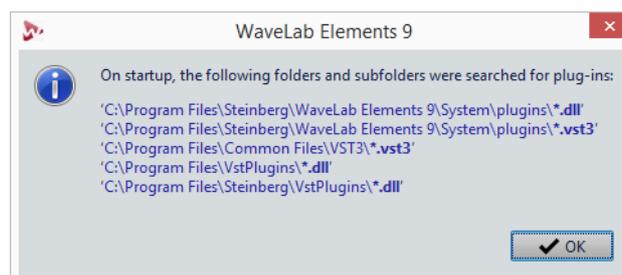


### Search Standard VST Plug-in Shared Folders

If this option is activated, WaveLab Elements searches for VST plug-ins in the default VST plug-in folders.

### Information About the Searched Folders

Click on the info icon to see in which folders WaveLab Elements searched for plug-ins when it was launched. If you cannot find a plug-in in WaveLab Elements, this helps you to determine whether you have specified the correct folder, for example.



### Additional VST Plug-in Folders (WaveLab Elements Specific)

Lets you specify additional folders where VST plug-ins can be found.

### Ignore Plug-ins Located in the following Subfolders (Separate Folder Names with a Semicolon)

Lets you specify folder names that WaveLab Elements skips when searching for VST plug-ins.

### Do Not Load the following Plug-ins

Lets you specify plug-ins that WaveLab Elements does not open. Enter the file names, without path and without file extension. Write each plug-in 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 Elements the next time. To reduce the start time of WaveLab Elements, the plug-ins are not analyzed every time WaveLab Elements is started. However, WaveLab Elements keeps a list of plug-ins and updates this automatically when a date or size change is detected.

### Keep Plug-ins in Memory until WaveLab Elements Quits

If this option is activated, the plug-ins are kept in memory even when they are no longer used. This results in a faster reopening of plug-ins. However, if you use many plug-ins, too much memory could be used after a specific time, which slows down the application.

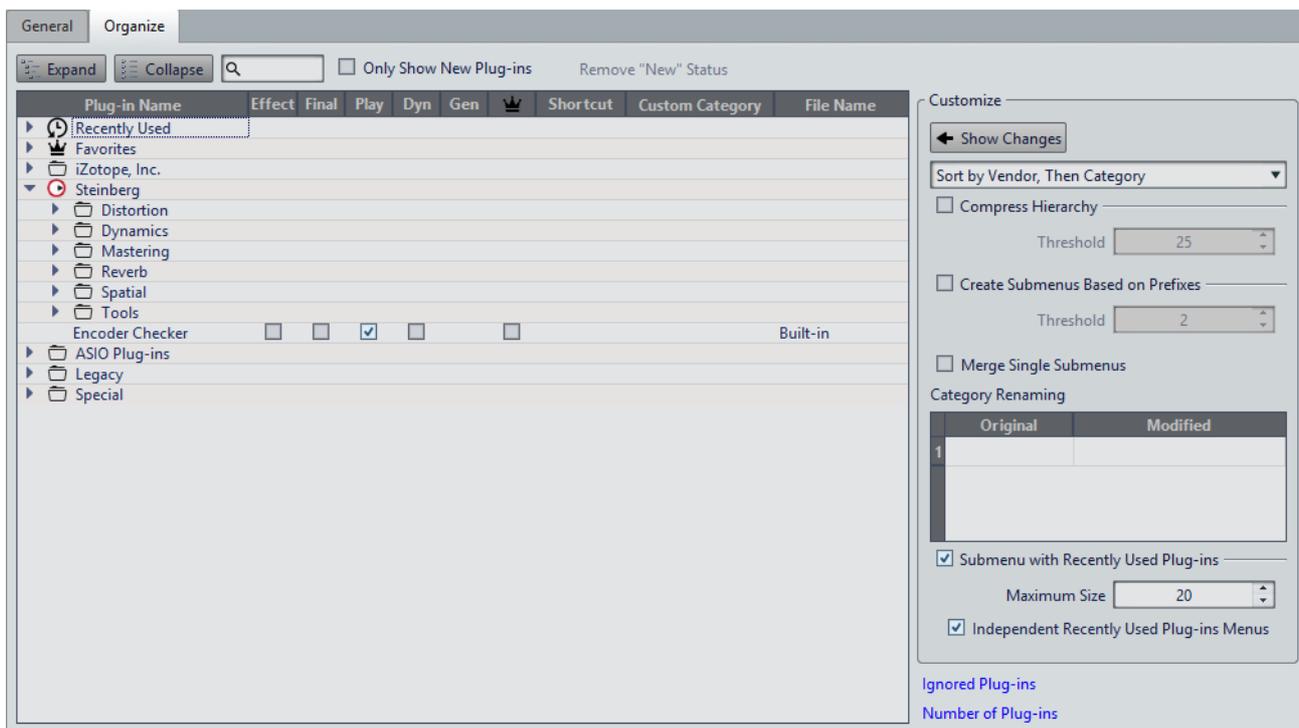
### Faster Graphics Refreshing (Consumes More Computer Power)

Refreshes the graphics of VST plug-ins more quickly.

### VST Plug-in Knobs

Lets you set the mode for using knobs in plug-ins. You can set the mode to **Circular**, **Circular Mode (Relative Movement)**, and **Linear**.

## Organize Tab



### Plug-ins list

Displays the hierarchy of the plug-ins in WaveLab Elements. Here, you can specify whether a plug-in is available on the plug-in selection menus and/or the **Final Effect/Dithering** panel and **Playback-Processing** panel 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.

### 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]/[Command]-[F].

### Only Show New Plug-ins

If this option is activated, only the recently detected plug-ins are displayed.

### 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. The 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 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 Menu** 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 plug-ins which were not loaded. This dialog lets you instruct WaveLab Elements to rescan these plug-ins at the next launch. This is faster than a full rescan.

### Number of Plug-ins

Shows the number of plug-ins that are available in WaveLab Elements.

# Configuring the Software

You can configure WaveLab Elements according to your needs.

## NOTE

The settings that you make in the preferences are applied when you switch to another WaveLab Elements window.

## Global Preferences

Global preferences are preferences that apply throughout WaveLab Elements. Before you start working with WaveLab Elements, it is recommended to edit these preferences to configure WaveLab Elements according to your needs.

- To open the global preferences, select **File > Preferences > Global**.

## General Tab

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.

### 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

Lets each user on this computer make their own preferences settings.

#### 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

Lets you specify where the preference settings are saved.

### Synchronize at Every Launch

If this option is activated, the settings are synchronized whenever WaveLab Elements is launched.

### Synchronize at Next Launch

If this option is activated, the settings are synchronized the next time that WaveLab Elements 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)

Lets you specify which preset folders you want to ignore when synchronizing the settings. For example, to ignore the VST Audio Connections settings, add "VST Audio Connections" to the field.

### Update Master

If you click this button, the settings that were used when launching WaveLab Elements are used to update the master folder.

#### NOTE

This procedure should only be run by the system administrator if multiple WaveLab Elements workstations are used.

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## Display Tab

This tab allows you to change many aspects of the user interface that apply across the whole application. These options provide information and usability functions but can be deactivated to streamline the interface.

### Theme

#### Theme

Allows you to switch between the WaveLab Elements color schemes.

### Miscellaneous Options

#### Use the System File Selector to Open Files

If this option is activated, the standard file selector opens when you select the **Save As** option.

#### Open Quick File Selector When Saving Files

If this option is activated and you save a file via the save shortcut, a dialog opens instead of the **File** tab.

#### Show WaveLab Elements Logo on Startup

Determines whether the WaveLab Elements logo is displayed during initialization.

#### Show Tooltips

If this option is activated, tooltips are displayed when you move the mouse cursor over markers or command bar buttons.

#### 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.

### History

#### Maximum Number of Items in Recent File Menus

Sets the maximum number of files that are listed in recent file menus.

## Formats Tab

This tab allows you to adjust settings for some of the audio formats and units that WaveLab Elements uses.

## 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.

### Pitch of A3 (Used in Frequency To Note Conversions)

Sets the reference pitch in WaveLab Elements. The frequency-to-note conversions take this pitch into account.

## MIDI Note Display

The options in this section allow you to choose whether to display the different key values in WaveLab Elements 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.

## CD Writing Tab

This tab allows you to set a number of parameters for 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 Elements to attempt writing more data (max. 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.

## Options Tab

This tab allows you to control application-wide start-up options. You can also reset the default message boxes.

### Alternative External File Browser

Allows you to specify an alternative external file browser that opens when you use the **Reveal Folder in File Explorer/Mac OS Finder** or **Reveal Files in File Explorer/Mac OS Finder** options in WaveLab Elements.

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.

### Reset Default Answers

Resets all message box options to their default settings. For example, all “Do not show again” options are deactivated.

## Audio Files Preferences

This dialog allows you to define settings for editing in the **Audio Editor**. However, these settings also effect other parts of WaveLab Elements. You can choose defaults for editing and playback, adjust the visual appearance of the waveform displays, and determine how WaveLab Elements works with audio and peak files.

- To open the **Audio Files Preferences** dialog, select **File > Preferences > Audio Files**.

## Editing Tab

### Display

#### Save View Settings in Companion File

If this option is activated, zoom settings, ruler settings, and optionally the **Master Section** preset that is associated with the audio file are saved in a companion file. If the audio file is reopened, these settings are used. Deleting a companion file does not alter the audio contents.

#### Save in an Independent Folder

If this option is activated, the companion file is not saved in the same folder as the related audio file but in a folder that you can specify.

### **Edit**

Opens the **Folders** dialog that allows you to specify where to save the companion files.

### **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.

### **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**

Lets you specify the time range to display when opening an audio file for the first time. WaveLab Elements 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.

## **Editing**

### **Select All Channels with the Mouse**

If this option is activated and you select a range with the mouse in a stereo file, both channels are selected. To select the channels individually, press [Shift] while selecting. To switch from one channel selection to the other, press [Tab].

### **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.

## **Playback Scrubbing**

### **Restrict to Play Tool**

If this option is activated, this function only works if the **Play Tool** is used.

### **Sensitivity**

Lets you 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**

Lets you define how far WaveLab Elements searches a zero-crossing point in the left and right direction.

## **File Tab**

### **Default Sample Rate for Files without Header**

Lets you specify the sample rate of audio files that do not have a header describing this property.

### **Create Peak Files in an Independent Folder**

If this option is activated, peak files are not saved in the same folder as the related audio file. To specify the folder location, click **Edit**.

## **Style Tab**

This tab allows you to specify custom colors for parts of the wave window.

### **Styles**

Lets you 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)**

Lets you edit the degree of transparency of the selected element.

### **Element Size (for specific parts only)**

Lets you edit the size of the selected element.

### **Change Both Channels**

Allows you to make separate color settings for the left and the right side 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 make separate color settings for 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**

Lets you 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**

Lets you 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**

Lets you 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 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 Resolution Is in the Range**

If this option is activated, the color style is applied to files that have a bit resolution 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.

## Color Elements in the Audio Editor

You can assign custom colors to various elements of the **Audio Editor**. Depending on the selected element, additional settings can be made for transparency, appearance, or whether a line should be dotted, for example.

### Left/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.

#### Cursor (Edit)

The color of the edit cursor, its width, and transparency.

#### Cursor (Edit, No Focus)

The color of the edit cursor for a file that does not have the focus.

### **Cursor (Play)**

The color of the cursor during playback.

### **Marker Line**

The color of the marker lines and an optional transparency.

### **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.

## **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**.

## **Style Tab**

This tab allows you to specify custom colors to clips and parts of a clip in the montage window.

### **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.

### **Redo**

Allows you to redo changes that were undone.

### **Hide**

Hides the selected part.

### **Change Both Channels**

It is possible to make separate color settings 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**

Lets you 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**

Lets you 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**

Lets you 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 Resolution Is in the Range**

If this option is activated, the color style is applied to clips referencing a file that has a bit resolution 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.

## **Color Elements in the Audio Montage**

You can assign custom colors to various elements of the 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.

### **Locked**

The colors used for fully locked clips.

### **Muted**

The colors used for muted clips.

### **Custom**

These options correspond to the items on 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**

The background colors of the clip. The resulting display backgrounds are gradient fades from the top colors to the bottom colors.

### **Waveform (Normal/Selected)**

The waveform color for selected and unselected clips.

### **Waveform Outline (Normal/Selected)**

The color of the waveform outline for selected and unselected clips.

### **Edge**

The left and right edge of the clip.

### **Edge (Selected)**

The left and right edge of a selected clip.

### **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.

### Cursor (Edit)/Cursor (Edit, No Focus)/Cursor (Playback)

The color of the corresponding cursor.

### 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.

### Time Grid Lines

The color of the time grid if activated in the menu of the time ruler.

## Settings Management

You can make some reference settings available to other WaveLab Elements installations. These settings can then be used by other WaveLab Elements 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 Elements stations in your studio or in your school, for administration, etc., you can set up one WaveLab Elements 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 Elements 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.

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## Setting Up a Multi-User Setup

You can use the settings that you have made on a master WaveLab Elements station for other slave WaveLab Elements stations.

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### PROCEDURE

1. Set up a WaveLab Elements station with all settings and presets that you want to use on other WaveLab Elements stations.
  2. Assign read-only access to the settings folder of the master WaveLab Elements station.
  3. Open WaveLab Elements 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 Elements.
  8. Copy the `startup.ini` (Windows) or `startup.plist` (Mac) of the slave WaveLab Elements station to the settings folder of the other slave WaveLab Elements stations.
- 

### RESULT

All slave WaveLab Elements stations use the settings of the master WaveLab Elements station.

# Plug-in Reference

Steinberg created Virtual Studio Technology (VST) to allow effect plug-ins to be integrated with audio editors, such as WaveLab Elements. VST uses Digital Signal Processing (DSP) to closely simulate the effects of familiar recording studio hardware in software.

A vast number of plug-ins are available, from freeware to high-end commercial products.

The order of processing is significant. You can change the order in which effects are processed by moving the effect icons by dragging them between slots. WaveLab Elements provides slots for up to ten plug-ins.

Most plug-ins provide a custom GUI, often displaying controls similar to the physical switches and knobs of audio hardware. Other plug-ins rely on the host application for their UI.

## Built-in Plug-ins

These plug-ins use the plug-in format of WaveLab Elements, and cannot be used with other applications.

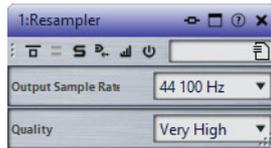
- WaveLab Elements specific plug-ins can only be used in the **Master Section**. However, some WaveLab Elements effects are also included as VST plug-ins, available as track or clip effects in audio montages.
- You can specify which plug-ins should be available on the **Effects** pane and the **Final Effect/Dithering** pane of the **Master Section** by using the **Plug-in Settings** dialog.

## Resampler

This plug-in is a professional sample rate converter providing exceptional transparency and preservation of the frequency content. It is only available in the **Master Section**.

### NOTE

This plug-in is very CPU consuming, especially in high quality modes.



### Output Sample Rate

Defines the output sample rate while the input sample rate is determined by the sample rate of the active audio file or audio montage.

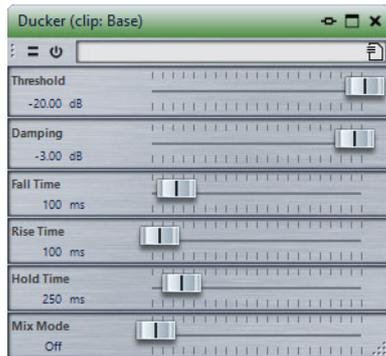
### Quality

Defines the quality of the algorithm that is used (**Preview (Fast)** or **Standard**).

## Ducker

This plug-in lets you control (modulate) the volume of clips placed on a track with the signal of one or more clips placed on the next adjacent track below it. The Ducker plug-in can only be used as a clip effect in the audio montage.

It uses the **Route to** options that can be found on the **Track** menu. You can use mono or stereo tracks for both the modulating and the upper track.



### Threshold

Sets the loudness threshold that triggers the Ducker. Clips on the modulator track with levels above the threshold will cause the level of a clip on the upper track to be lowered.

### Damping

Sets the amount of level reduction that is applied to the clip on the upper track.

### Fall Time

Sets the time it takes for the level to change from 0dB to the set damping level.

### Hold Time

When the modulating signal falls below the set threshold, this setting determines how long the level will stay reduced before it starts rising to normal level again.

### Rise Time

Sets the time after which the reduced level rises to the normal level when the modulating signal falls below the set threshold (after the **Hold Time**).

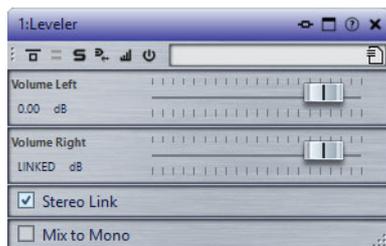
### Mix Mode

If this is activated, the Ducker outputs a mix of the two tracks. This is only useful if the **Route to Upper Track Only** option has been activated for the modulating track. Then this feature can be used for processing several clips through the same plug-in chain if more plug-ins have been assigned after the Ducker on the upper track.

Note that the mixed output is controlled by the upper track. If this is not playing a clip, both of the tracks will be silent.

## Leveler

This plug-in is useful for correcting an imbalance or adjusting levels between stereo channels, or for mixing down to mono.



### Volume Left/Volume Right (-48dB to 12dB)

Governs how much of the signal is included in the left and/or right channel of the output bus.

### Stereo Link

If this option is activated, **Volume Right** delivers the gain that is set for **Volume Left**.

### Mix to Mono

If this option is activated, a mono mix of the stereo channels is delivered to the output bus.

## MasterRig

MasterRig allows you to master audio material in an intuitive and creative way. It offers high-class sound quality, accuracy, flexibility, and control.

## Main Layout

### Module Chain

The module chain contains the mastering modules. You can add up to 5 modules.



The following settings are available for each module:

#### Bypass

Bypasses the module. This allows you to compare the sound of the unprocessed signal to that of the processed signal.

#### Solo

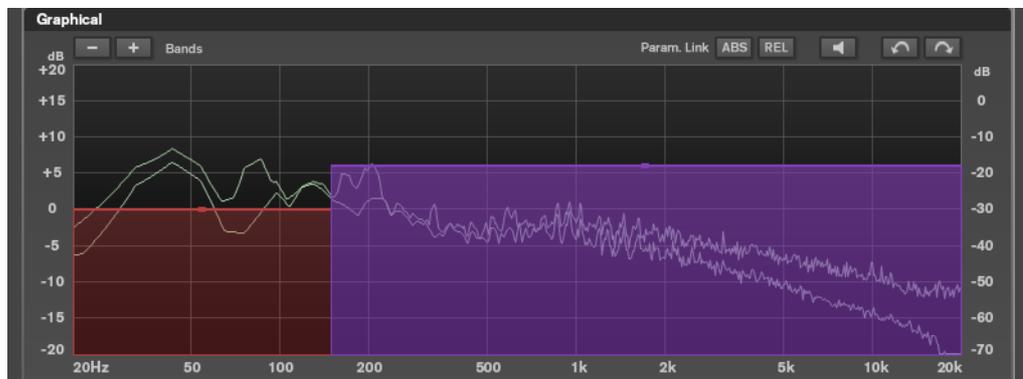
Solos the module. Only one module can be soloed at a time.

#### Remove

Removes the module from the module chain.

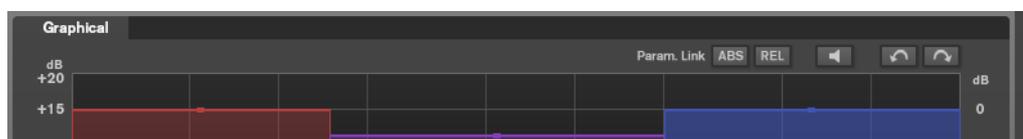
### Spectrum Display

The spectrum display in the upper half of the panel is where you set the width of the frequency bands. The vertical value scale to the left shows the gain level of each frequency band. The horizontal scale shows the frequency range.



- To define the frequency range of the different frequency bands, use the handles at the sides of each frequency band.
- To attenuate or boost the output level of each frequency band by  $\pm 15$  dB, use the handles on top of each frequency band.

### Settings



## Parameter Linking

Links the parameters of the same type in all bands in a module. This allows you to edit parameter values of all bands in a module simultaneously. Two link modes are available: **Absolute** and **Relative**.

- If **Absolute Mode** is activated and you edit a parameter value in one band, the corresponding parameter values in the other bands are set to the same value.
- If **Relative Mode** is activated and you edit a parameter value in one band, the corresponding parameter values in the other bands keep their relation.

## Auto Listen for Filters

If this option is activated and you edit a parameter of a module, the corresponding filter or band is soloed. This allows you to locate unwanted frequencies in your audio and helps you to focus on a particular band or filter. Once you stop editing the parameter, **Solo** is deactivated.

## Undo/Redo

Undoes/Redoes the last operation.

## Input/Output Meter



The input/output meter provides a combined peak level, with peak-hold functionality and RMS meter. Between the meters for input and output is the gain reduction meter for the **Limiter**.

The maximum values for input/output peak level, RMS, and gain reduction are displayed above the meter display. To reset all maximum values, click any of the values.

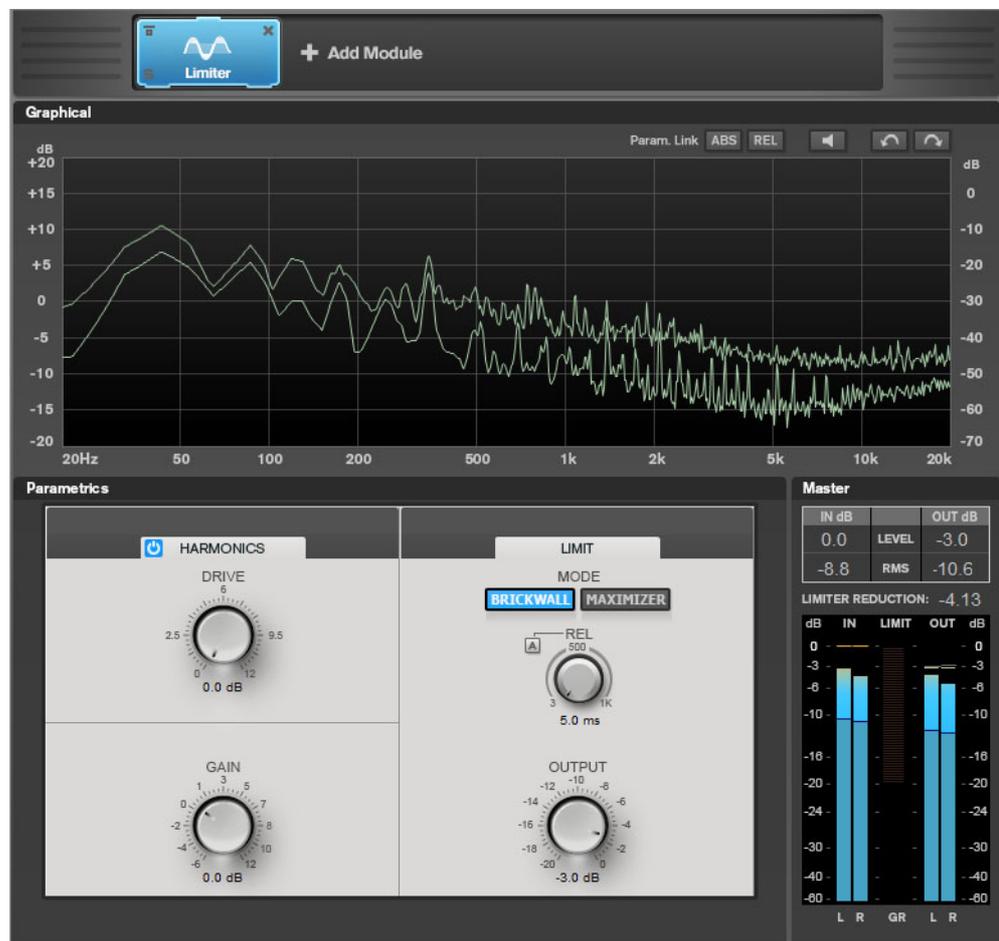
## Modules

Modules allow you to create a mastering chain. Some modules can be used only once and some in two instances in the module chain. You can rearrange modules in the module chain to change the processing order.

- To add a module to the module chain, click **Add Module** in the modules section and click a module.
- To remove a module, click the corresponding **Remove** button.
- To bypass a module, click the corresponding **Bypass** button.
- To solo a module, click the corresponding **Solo** button.
- To change the order of the modules, drag a module to another position in the module chain.

## Limiter

The **Limiter** module makes sure that the output level never exceeds a set output level, to avoid clipping in following devices.



## Band Settings

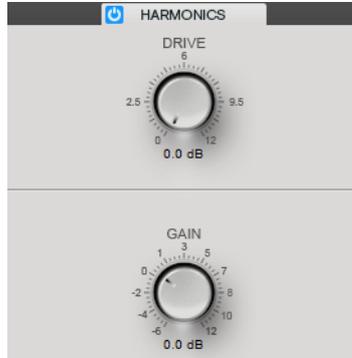


### On/Off

Activates/Deactivates the corresponding section.

## Harmonics

If the **Harmonics** section is activated, the **Limiter** module starts limiting the signal softly. At the same time, harmonics are generated, adding a warm, tube-like characteristic to the audio material.



### Drive

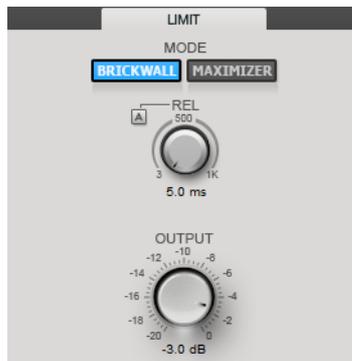
Allows you to adjust the amount of gain boost for the signal to raise the amount of soft-clipping.

### Gain

Sets the amount of attenuation.

## Brickwall

Due to its fast attack time, **Brickwall Limiter** can reduce even short audio level peaks without creating audible artifacts. The limiting amount is displayed between the input and the output meter.



### Release

Sets the time after which the gain returns to the original level when the signal drops below the threshold. If **Auto Release** is activated, the plug-in automatically finds the best release setting for the audio material.

### Output

Sets the output level.

## Maximizer

**Maximizer** raises the loudness of audio material without the risk of clipping. The limiting amount is displayed between the input and the output meter.



### Optimize

Determines the loudness of the signal.

### Output

Sets the output level.

## Compressor

The **Compressor** module allows a signal to be split into two frequency bands. You can specify the level, bandwidth, and compressor characteristics for each band.



## Band Settings



### On/Off

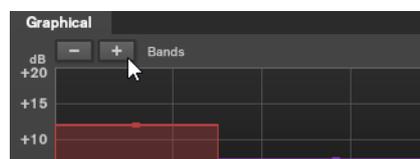
Activates/Deactivates the corresponding section.

### Soloing Frequency Bands

To solo a frequency band, activate the **S** button in each section. Only one band can be soloed at a time.

### Add/Remove Band

Allow you to add and remove bands.



## Standard

Allows you to create smooth compression effects.



### THRESH (-60 to 0dB)

Signal levels above the set threshold trigger the compressor.

### ATT (0.1 to 100ms)

Determines how fast the compressor responds. If the attack time is long, more of the initial part of the signal passes through unprocessed.

### REL (10 to 1000ms)

Sets the time after which the gain returns to its original level. If **Auto Release** is activated, the plug-in automatically finds a suitable release setting for the audio.

### Ratio

Sets the amount of gain reduction applied to signal above the set threshold.

### Mix

Sets the level balance between the dry signal and the wet signal.

### Compressor curve display

Graphically illustrates the compressor curve that is shaped according to the **Threshold** and **Ratio** parameter settings.

### Output

Sets the output gain.

## Tube

This versatile compressor with integrated tube-simulation allows you to produce smooth and warm compression effects.



### Input

In combination with the **Output** setting, this parameter determines the compression amount. The higher the input gain setting and the lower the output gain setting, the more compression is applied.

### ATT (0.1 to 100ms)

Determines how fast the compressor responds. If the attack time is long, more of the initial part of the signal passes through unprocessed.

### REL (10 to 1000ms)

Sets the time after which the gain returns to its original level. If **Auto Release** is activated, the plug-in automatically finds the best release setting for the audio.

### Drive

Controls the amount of tube saturation.

### Mix

Sets the level balance between the dry signal and the wet signal.

### Output

Sets the output gain.

## Equalizer

The **Equalizer** module is a high-quality 4-band parametric stereo equalizer with 4 fully parametric mid-range bands. The low band can act as either shelving filter, as peak filter (band-pass), or as cut filter (low-pass, band 1 only).



## Band Settings



### On/Off

Activates/Deactivates the corresponding section.

## Equalizer Section



### Type

You can choose between the EQ types **Low Shelf**, **Peak**, **High Shelf**, and **Notch**. For band 1, you can also select the types **Cut 12**, **Cut 24**, and **Cut 48**.

- **Low Shelf** boosts or attenuates frequencies below the cutoff frequency by the specified amount.
- **High Shelf** boosts or attenuates frequencies above the cutoff frequency by the specified amount.
- **Peak** boosts or attenuates frequencies at the set frequency value with a bell shaped filter.
- **Notch** boosts or attenuates frequencies at the set frequency value with a very narrow filter.
- **Cut** attenuates frequencies below the set frequency. You can choose between different slopes: 12 dB, 24 dB, or 48 dB per octave.

### FREQ (20 to 20000 Hz)

Sets the frequency of the corresponding band.

### Q

Controls the width of the corresponding band.

### Gain (-15 to +15 dB)

Sets the amount of attenuation/boost for the corresponding band.

## Saturator

The **Saturator** module allows you to simulate the sound of analog tubes, and the saturation and compression effect when recording on analog tape machines.



## Band Settings



### On/Off

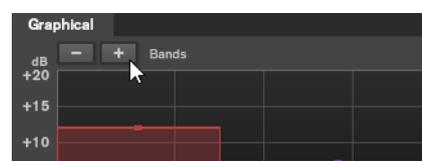
Activates/Deactivates the corresponding section.

### Soloing Frequency Bands

To solo a frequency band, activate the **S** button in each section. Only one band can be soloed at a time.

### Add/Remove Band

Allow you to add and remove bands.



## Saturator Section



### Tape/Tube

Allows you to switch between tube saturation and tape saturation.

- Tube saturation simulates the saturation of analog tube compressors.
- Tape saturation simulates the saturation and compression effect of analog tape machine recordings.

### Drive

Controls the amount of saturation.

### Mix

Sets the level balance between the dry signal and the wet signal.

### Output

Sets the output gain.

## Imager

The **Imager** module allows you to expand or reduce the stereo width of your audio in up to two bands. This way you can independently adjust the stereo image in defined frequency domains.



## Band Settings



### On/Off

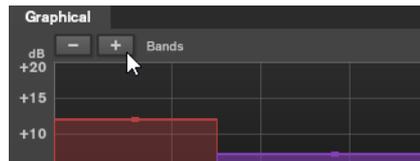
Activates/Deactivates the corresponding section.

### Soloing Frequency Bands

To solo a frequency band, activate the **S** button in each section. Only one band can be soloed at a time.

### Add/Remove Band

Allow you to add and remove bands.



## Imager Section



### Width

Allows you to control the stereo width per band.

### Pan

Allows you to pan the signal left/right.

### Output

Sets the output level for each band.

## Peak Master

This is a basic plug-in that minimizes peaks in your audio file, allowing a louder mix without clipping. It is useful in taming dynamic instruments.

It is primarily used as a brickwall limiter. For example, you can limit audio peaks without altering the rest of the audio signal. In this case, set **Input Gain** to 0dB and **Out Ceiling** to 0dB, to achieve a clip-free audio signal. When used in this way, **Peak Master** is an excellent plug-in to succeed a resampler plug-in, and to proceed a dithering plug-in.



### Input Gain

Values range from -12dB to 24dB.

### Out Ceiling

This is the maximum level of the output signal. Values range from -18dB to 0dB.

### Softness

This governs the speed at which the signal becomes unaffected after limiting has been triggered on some samples. Values range from -5 to +5.

## Silence

This plug-in provides a simple way of inserting a precise period of silence at the start or at the end of an audio file. Use this plug-in to add silence at the end of a file, so that the tail of a reverb plug-in does not cut immediately at the end of the file.



### Start

Use the slider to insert from 0 to 60,000ms of silence at the start of the file.

### End

Use the slider to insert from 0 to 60,000ms of silence at the end of the file.

## Stereo Expander

This plug-in is a stereo width enhancer that makes a stereo signal sound wider. It gives better results from real stereo material, as opposed to mono channels panned to different positions in the stereo image.



### Width

Higher values result in a greater stereo width. Usually, you set **Width** to values between 0% and 20%. Higher values can be used for special effects.

## Steinberg VST3 Plug-ins

In WaveLab Elements there is no limitation to the use of VST plug-ins. They can be used wherever plug-ins can be inserted.

- You can specify which VST plug-ins should be available in the **Effects** pane and **Final Effect/Dithering** pane of the **Master Section** by using the **Plug-in Settings** dialog.
- VST plug-ins have their own preset handling. You can save or load effect programs (presets).

### AutoPan

This plug-in is a simple auto-pan effect. It can use different waveforms to modulate the left-right stereo position (pan), using manual modulation speed settings.



#### Rate

Sets the auto-pan speed.

#### Sync

Activates/Deactivates tempo sync.

#### Width

Sets the depth of the auto-pan effect, that is, how far out to the left/right speaker the sound should move.

#### Waveform Shape selector

Allows you to select the modulation waveform. **Sine** produces a smooth sweep. **Triangle** creates a ramp, that is, a sweep from one speaker to the other and then a quick jump back.

## Brickwall Limiter

Brickwall Limiter ensures that the output level never exceeds a set limit.



Due to its fast attack time, Brickwall Limiter can reduce even short audio level peaks without creating audible artifacts. However, this plug-in creates a latency of 1 ms. Brickwall Limiter features separate meters for input, output, and the amount of limiting. Position this plug-in at the end of the signal chain, before dithering.

### Threshold (-20 to 0dB)

Determines the level where the limiter kicks in. Only signal levels above the set threshold are processed.

### Release

Sets the time after which the gain returns to the original level when the signal drops below the threshold. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

### Link

If this button is activated, Brickwall Limiter uses the channel with the highest level to analyze the input signal. If the button is deactivated, each channel is analyzed separately.

### Detect Intersample Clipping

If this option is activated, Brickwall Limiter detects and limits signal levels between two samples to prevent distortion when converting digital signals into analog signals.

#### NOTE

Brickwall Limiter is designed for the reduction of occasional peaks in the signal. If the Gain Reduction meter indicates constant limiting, try raising the threshold or lowering the overall level of the input signal.

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## Channel Extractor

This plug-in allows you to only keep the left or the right channel of a stereo stream.

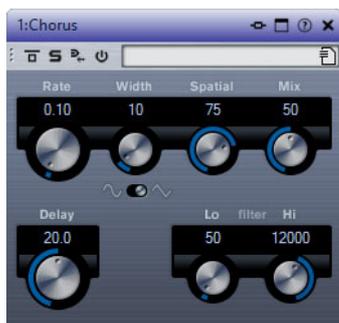


### Channel

Lets you select whether to keep the left or the right channel of the stereo stream.

## Chorus

This plug-in is a single-stage chorus effect. It works by doubling the audio that is sent into it with a slightly detuned version.



### Rate

If tempo sync is deactivated, this sets the sweep rate.

### Sync

Activates/Deactivates tempo sync.

### Width

Sets the depth of the chorus effect. Higher settings produce a more pronounced effect.

### Spatial

Sets the stereo width of the effect. Turn clockwise for a wider stereo effect.

### Mix

Sets the level balance between the dry signal and the wet signal. If the effect is used as a send effect, set this parameter to the maximum value as you can control the dry/effect balance with the send.

### Waveform Shape selector

Allows you to select the modulation waveform, altering the character of the chorus sweep. A sine and a triangle waveform are available.

## Delay

Affects the frequency range of the modulation sweep by adjusting the initial delay time.

## Filter Lo/Hi

Allow you to roll off low and high frequencies of the effect signal.

### NOTE

If side-chaining is supported, the modulation can also be controlled from another signal source via the side-chain input. If the side-chain signal exceeds the threshold, the modulation is controlled by the side-chain signal's envelope. For a description of how to set up side-chain routing, see the Operation Manual.

# Compressor

This plug-in reduces the dynamic range of the audio, making softer sounds louder or louder sounds softer, or both.



**Compressor** features a separate display that graphically illustrates the compressor curve shaped according to the **Threshold** and **Ratio** parameter settings. Compressor also features a **Gain Reduction** meter that shows the amount of gain reduction in dB, **Soft knee/Hard knee** compression modes, and a program-dependent auto feature for the **Release** parameter.

## Threshold (-60 to 0dB)

Determines the level where the compressor kicks in. Only signal levels above the set threshold are processed.

## Ratio

Sets the amount of gain reduction applied to signals above the set threshold. A ratio of 3:1 means that for every 3 dB the input level increases, the output level increases by 1 dB.

## Soft Knee

If this button is deactivated, signals above the threshold are compressed instantly according to the set ratio (hard knee). If **Soft Knee** is activated, the onset of compression is more gradual, producing a less drastic result.

### Make-up (0 to 24dB or Auto mode)

Compensates for output gain loss, caused by compression. If the **Auto** button is activated, the knob becomes dark and the output is automatically adjusted for gain loss.

### Attack (0.1 to 100 ms)

Determines how fast the compressor responds to signals above the set threshold. If the attack time is long, more of the early part of the signal passes through unprocessed.

### Hold (0 to 5000ms)

Sets the time the applied compression affects the signal after exceeding the threshold. Short hold times are useful for DJ-style ducking, while longer hold times are required for music ducking, for example, when working on a documentary film.

### Release (10 to 1000ms or Auto mode)

Sets the time after which the gain returns to its original level when the signal drops below the threshold. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

### Analysis (Pure Peak to Pure RMS)

Determines whether the input signal is analyzed according to peak or RMS values, or a mixture of both. A value of 0 is pure peak and 100 pure RMS. **RMS** mode operates using the average power of the audio signal as a basis, whereas **Peak** mode operates more on peak levels. As a general guideline, **RMS** mode works better on material with few transients such as vocals, and **Peak** mode works better for percussive material with a lot of transient peaks.

### Live

If this button is activated, the look-ahead feature of the effect is deactivated. Look-ahead produces more accurate processing, but adds a specific amount of latency as a trade-off. If **Live** mode is activated, there is no latency, which is better for live processing.

## Distortion

Distortion adds crunch to your tracks.



### Boost

Increases the distortion amount.

### Feedback

Feeds part of the output signal back to the effect input. Higher settings increase the distortion effect.

### Tone

Lets you select a frequency range to which to apply the distortion effect.

### Spatial

Changes the distortion characteristics of the left and right channels, thus creating a stereo effect.

### Output

Sets the output level.

## Gate

Gating, or noise gating, silences audio signals below a set threshold. As soon as the signal level exceeds the threshold, the gate opens to let the signal through.



### Threshold (-60 to 0dB)

Determines the level where the gate is activated. Signal levels above the set threshold trigger the gate to open, and signal levels below the set threshold close the gate.

### State LED

Indicates whether the gate is open (LED lights up in green), closed (LED lights up in red) or in an intermediate state (LED lights up in yellow).

### Filter buttons (LP, BP, and HP)

If the **Side-Chain** button is activated, you can use these buttons to set the filter type to low-pass, band-pass, or high-pass.

### Side-Chain

Activates the internal side-chain filter. The input signal can then be shaped according to the filter parameters. Internal side-chaining is useful for tailoring how the gate operates.

### Center (50 to 20000Hz)

If the **Side-Chain** button is activated, this sets the center frequency of the filter.

### Q-Factor

If the **Side-Chain** button is activated, this sets the resonance or width of the filter.

### Monitor

Allows you to monitor the filtered signal.

### Attack (0.1 to 1000ms)

Sets the time after which the gate opens when it is triggered.

#### NOTE

Deactivate the **Live** button to make sure that the gate is already open when a signal above the threshold is played back.

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### Hold (0 to 2000ms)

Determines how long the gate remains open after the signal drops below the threshold level.

### Release (10 to 1000ms or Auto mode)

Sets the time after which the gate closes (after the set **Hold** time). If the **Auto** button is activated, Gate automatically finds the best release setting for the audio material.

### Analysis (Pure Peak to Pure RMS)

Determines whether the input signal is analyzed according to peak or RMS values, or a mixture of both. A value of 0 is pure peak and 100 pure RMS. **RMS** mode operates using the average power of the audio signal as a basis, whereas **Peak** mode operates more on peak levels. As a general guideline, **RMS** mode works better on material with few transients such as vocals, and **Peak** mode works better for percussive material with a lot of transient peaks.

### Live

If this button is activated, the look-ahead feature of the effect is deactivated. Look-ahead produces more accurate processing, but adds a specific amount of latency as a trade-off. If **Live** mode is activated, there is no latency, which is better for live processing.

## Limiter

This plug-in is designed to ensure that the output level never exceeds a set output level, to avoid clipping in following devices.



Limiter can adjust and optimize the **Release** parameter automatically according to the audio material, or it can be set manually. Limiter also features separate meters for the input, output and the amount of limiting (middle meters).

### **Input (-24 to 24dB)**

Sets the input gain.

### **Output (-24 to 6dB)**

Sets the maximum output level.

### **Release (0.1 to 1000ms or Auto mode)**

Sets the time after which the gain returns to its original level. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

## **Maximizer**

This plug-in raises the loudness of audio material without the risk of clipping.

### **Output (-24 to 6dB)**

Sets the maximum output level.

### **Optimize**

Determines the loudness of the signal.

### **Soft Clip**

If this button is activated, Maximizer starts limiting or clipping the signal softly. At the same time, harmonics are generated, adding a warm, tube-like characteristic to the audio material.

## **MonoDelay**

This is a mono delay effect that can either be tempo-based or use freely specified delay time settings.



### Delay

If tempo sync is activated, this sets the base note value for the delay. If tempo sync is deactivated, the delay time can be set freely in milliseconds.

### Sync

Activates/Deactivates tempo sync.

### Feedback

Sets the number of repeats for the delay.

### Filter Lo

Affects the feedback loop of the effect signal and allows you to roll off low frequencies. The button below the knob activates/deactivates the filter.

### Filter Hi

Affects the feedback loop of the effect signal and allows you to roll off high frequencies. The button below the knob activates/deactivates the filter.

### Mix

Sets the level balance between the dry signal and the wet signal. If the effect is used as a send effect, set this parameter to the maximum value as you can control the dry/effect balance with the send.

## RoomWorks SE

RoomWorks SE is a smaller version of the RoomWorks plug-in. This plug-in delivers high quality reverberation, but has fewer parameters and is less CPU demanding than the full version.



### Pre-Delay

Determines how much time passes before the reverb is applied. This allows you to simulate larger rooms by increasing the time it takes for the first reflections to reach the listener.

### Reverb Time

Allows you to set the reverb time in seconds.

### Diffusion

Affects the character of the reverb tail. Higher values lead to more diffusion and a smoother sound, while lower values lead to a clearer sound.

### Hi Level

Affects the decay time of the high frequencies. Normal room reverb decays quicker in the high- and low-frequency range than in the mid-range. Lowering the level percentage causes high frequencies to decay quicker. Values above 100% cause high frequencies to decay more slowly than the mid-range frequencies.

### Lo Level

Affects the decay time of the low frequencies. Normal room reverb decays quicker in the high- and low-frequency range than in the mid-range. Lowering the level percentage causes low frequencies to decay quicker. Values above 100% cause low frequencies to decay more slowly than the mid-range frequencies.

### Mix

Sets the level balance between the dry signal and the wet signal. When using RoomWorks SE inserted in an FX channel, you most likely want to set this to 100%.

## StereoDelay

StereoDelay has two independent delay lines with freely specified delay time settings.



### Delay

If tempo sync is activated, this sets the base note value for the delay. If tempo sync is deactivated, the delay time can be set freely in milliseconds.

### Feedback

Set the number of repeats for each delay.

### Filter Lo

Affects the feedback loop of the effect signal and allows you to roll off low frequencies. The button below the knob activates/deactivates the filter.

### Filter Hi

Affects the feedback loop of the effect signal and allows you to roll off high frequencies. The button below the knob activates/deactivates the filter.

### Pan

Set the stereo position for each delay.

### Mix

Sets the level balance between the dry signal and the wet signal. If the effect is used as a send effect, set this parameter to the maximum value as you can control the dry/effect balance with the send.

## StereoEnhancer

This plug-in expands the stereo width of (stereo) audio material. It cannot be used with mono files.



### Width

Controls the width or depth of the stereo enhancement. Turn clockwise to increase the enhancement.

### Delay

Increases the amount of differences between the left and right channels to further increase the stereo effect.

### Color

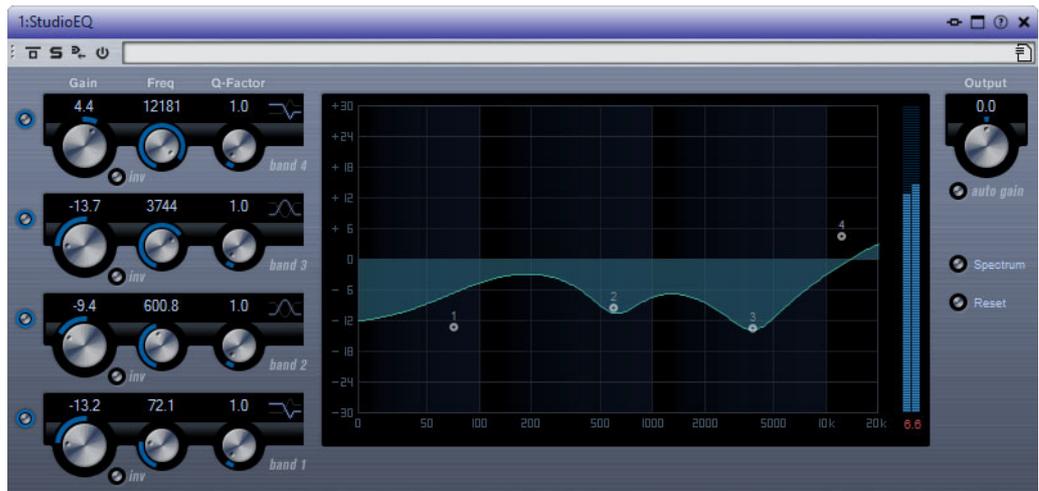
Generates additional differences between the channels to increase the stereo enhancement.

### Mono

Switches the output to mono, to check for possible unwanted coloring of the sound which sometimes can occur when enhancing the stereo image.

## StudioEQ

Studio EQ is a high-quality 4-band parametric stereo equalizer with two fully parametric mid-range bands. The low and high bands can act as either shelving filters (three types), or as peak filter (band-pass), or as cut filter (low-pass/high-pass).



### Gain (-20 to +24 dB)

Sets the amount of attenuation/boost for the corresponding band.

### Inv

Inverts the gain value of the filter. Use this button to filter out unwanted noise. When looking for the frequency to omit, it sometimes helps to boost it in the first place (set the filter to positive gain). After you have found the frequency of the noise, you can use the **Inv** button to cancel it out.

### Freq (20 to 20000Hz)

Sets the frequency of the corresponding band. You can set the frequency either in Hz or as a note value. If you enter a note value, the frequency is automatically changed to Hz. For example, a note value of A3 sets the frequency to 440Hz. When you enter a note value, you can also enter a cent offset. For example, enter A5 -23 or C4 +49.

#### NOTE

Ensure that you enter a space between the note and the cent offset. Only in this case, the cent offsets are taken into account.

### Q-Factor

Controls the width, or resonance, of the corresponding band.

### Filter mode

For the low and high band, you can choose between three types of shelving filters, a peak filter (band-pass), and a cut filter (lowpass/high-pass). If **Cut** mode is selected, the **Gain** parameter is fixed.

- **Shelf I** adds resonance in the opposite gain direction slightly above the set frequency.
- **Shelf II** adds resonance in the gain direction at the set frequency.
- **Shelf III** is a combination of **Shelf I** and **II**.

### Output (-24 to +24dB)

This knob on the top right of the plug-in panel allows you to adjust the overall output level.

### Auto Gain

If this button is activated, the gain is automatically adjusted, keeping the output level constant regardless of the EQ settings.

### Spectrum

Shows the spectrum before and after filtering.

### Reset

Resets the EQ settings.

## Tube Compressor

This versatile compressor with integrated tube-simulation allows you to achieve smooth and warm compression effects. The VU meter shows the amount of gain reduction. Tube Compressor features an internal side-chain section that lets you filter the trigger signal.



### Drive (1.0 to 6.0)

Controls the amount of tube saturation.

### Input

Determines the compression amount. The higher the input gain, the more compression is applied.

### Limit

Increases the ratio of the compressor for a limiting effect.

### Output (-12 to 12dB)

Sets the output gain.

### Attack (0.1 to 100ms)

Determines how fast the compressor responds. If the attack time is long, more of the initial part of the signal passes through unprocessed.

### **Release (10 to 1000ms or Auto mode)**

Sets the time after which the gain returns to its original level. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

### **Mix**

Adjusts the mix between dry signal and wet signal preserving the transients of the input signal.

### **In/Out Meters**

Show the highest peaks of all available input and output channels.

### **VU Meter**

Shows the amount of gain reduction.

### **Side-Chain**

Activates the internal side-chain filter. The input signal can then be shaped according to the filter parameters. Internal side-chaining is useful for tailoring how the gate operates.

### **Filter buttons (LP, BP, and HP)**

If the **Side-Chain** button is activated, you can use these buttons to set the filter type to low-pass, band-pass, or high-pass.

## **Side-chain section**

### **Center (50 to 20000Hz)**

If the **Side-Chain** button is activated, this sets the center frequency of the filter.

### **Q-Factor**

If the **Side-Chain** button is activated, this sets the resonance or width of the filter.

### **Monitor**

Allows you to monitor the filtered signal.

## **VintageCompressor**

VintageCompressor is modeled after vintage type compressors.

This compressor features separate controls for **Input** and **Output** gain, **Attack**, and **Release**. In addition, there is a **Punch** mode which preserves the attack phase of the signal and a program-dependent **Auto** feature for the **Release** parameter.

### **Input**

Determines the compression amount. The higher the input gain, the more compression is applied.

### Output (-48 to 24dB)

Sets the output gain.

### Attack (0.1 to 100ms)

Determines how fast the compressor responds. If the attack time is long, more of the initial part of the signal passes through unprocessed.

### Punch

If this is activated, the early attack phase of the signal is preserved, retaining the original punch in the audio material, even with short **Attack** settings.

### Release (10 to 1000ms or Auto mode)

Sets the time after which the gain returns to its original level. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

### VU Meter

Shows the amount of gain reduction.

### In/Out Meters

Show the highest peaks of all available input and output channels.

## VSTDynamics

VSTDynamics is an advanced dynamics processor. It combines three separate processors: Gate, Compressor, and Limiter, covering a variety of dynamic processing functions.



The window is divided into three sections, containing controls and meters for each processor. Activate the individual processors using the buttons **Gate**, **Compressor**, and **Limiter** at the bottom of the plug-in panel.

### Gate Section

Gating, or noise gating, is a method of dynamic processing that silences audio signals below a set threshold. As soon as the signal level exceeds the threshold, the gate opens to let the signal through. The Gate trigger input can also be filtered using an internal side-chain signal.

The following parameters are available:

### **Threshold (-60 to 0dB)**

Determines the level where the gate is activated. Signal levels above the set threshold trigger the gate to open, and signal levels below the set threshold close the gate.

### **State LED**

Indicates whether the gate is open (LED lights up in green), closed (LED lights up in red) or in an intermediate state (LED lights up in yellow).

### **Side-Chain**

Activates the internal side-chain filter. The input signal can then be shaped according to the filter parameters. Internal side-chaining is useful for tailoring how the gate operates.

### **Filter buttons (LP, BP, and HP)**

If the **Side-Chain** button is activated, you can use these buttons to set the filter type to low-pass, band-pass, or high-pass.

### **Center (50 to 20000Hz)**

If the **Side-Chain** button is activated, this sets the center frequency of the filter.

### **Q-Factor**

If the **Side-Chain** button is activated, this sets the resonance or width of the filter.

### **Monitor**

Allows you to monitor the filtered signal.

### **Attack (0.1 to 100ms)**

Determines how fast the compressor responds to signals above the set threshold. If the attack time is long, more of the early part of the signal passes through unprocessed.

### **Hold (0 to 2000ms)**

Determines how long the gate remains open after the signal drops below the threshold level.

### **Release (10 to 1000ms or Auto mode)**

Sets the time after which the gate closes after the set **Hold** time. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

### **Range**

Adjusts the attenuation of the gate when it is shut. If **Range** is set to minus infinite **-∞**, the gate is completely shut. The higher the value, the higher the level of the signal that passes through the shut gate.

### Input Gain Meter

Shows the input gain.

## Compressor Section

The compressor reduces the dynamic range of the audio, making softer sounds louder or louder sounds softer, or both. The compressor features a separate display that graphically illustrates the compressor curve shaped according to your settings.

### Threshold (-60 to 0dB)

Determines the level where the compressor kicks in. Only signal levels above the set threshold are processed.

### Ratio

Sets the amount of gain reduction applied to signals above the set threshold. A ratio of 3:1 means that for every 3dB the input level increases, the output level increases by 1 dB.

### Make-up (0 to 24dB or Auto mode)

Compensates for output gain loss, caused by compression. If the **Auto** button is activated, the knob becomes dark and the output is automatically adjusted for gain loss.

### Attack (0.1 to 100ms)

Determines how fast the compressor responds to signals above the set threshold. If the attack time is long, more of the early part of the signal (attack) passes through unprocessed.

### Release (10 to 1000ms or Auto mode)

Sets the time after which the gain returns to its original level when the signal drops below the threshold. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

### Graphical display

Use the graphical display to graphically set the threshold and ratio values. To the left and right of the graphical display, you find two meters that show the amount of gain reduction in dB.

## Limiter Section

The limiter ensures that the output level never exceeds a set threshold, to avoid clipping in following devices. Conventional limiters usually require very accurate setting up of the attack and release parameters to prevent the output level from going beyond the set threshold level. The limiter adjusts and optimizes these parameters automatically according to the audio material.

### Output (-24 to 6dB)

Sets the maximum output level.

### Soft Clip

If this button is activated, the signal is limited when the signal level exceeds -6dB. At the same time, harmonics are generated, adding a warm, tube-like characteristic to the audio material.

### Release (10 to 1000ms or Auto mode)

Sets the time after which the gain returns to its original level. If the **Auto** button is activated, the plug-in automatically finds the best release setting for the audio material.

### Meters

The three meters show the input gain (IN), the gain reduction (GR) and the output gain (OUT).

## Module Configuration Button

Using the **Module Configuration** button in the bottom right corner of the plug-in panel, you can set the signal flow order for the three processors. Changing the order of the processors can produce different results, and the available options allow you to quickly compare what works best for a given situation. Simply click the **Module Configuration** button to change to a different configuration. There are three routing options:

- C-G-L (Compressor-Gate-Limit)
- G-C-L (Gate-Compressor-Limit)
- C-L-G (Compressor-Limit-Gate)

## Sonnox Restoration Toolkit

The Sonnox Restoration Toolkit consists of the De-Clicker, De-Noiser, and De-Buzzer tools. The tools are for restoring old material, removing clicks, pops, buzzes, and background noise that can occur in new recordings.

### Sonnox DeBuzzer

Sonnox DeBuzzer allows you to remove hum and buzz noises from audio material.



#### Sonnox Menu Options button

Opens a menu where you can select the following options:

- Duration of the input/output meter clip lights hold (indefinitely, 2s, 5s)
- Knob behavior
- Information about the version number and build date

#### Input Level meter

This meter is designed to give exactly 1 dB per LED for the top 18 dB of dynamic range, and 2 dB per LED thereafter. This gives a clear and intuitive impression of the working headroom.

#### Trim Input Level

Allows you to adjust the input signal level by up to  $\pm 12$  dB.

#### Frequency Knob and touch pad (Hz)

The DeBuzzer has an active frequency range for the buzz fundamental of between 20 and 440 Hz. In **Auto** mode, this knob sets the frequency from which the buzz detection circuit starts to hunt for buzz components. In **Freeze** mode, this knob sets the exact frequency of the buzz fundamental. The knob is graduated around the circumference, and clicking on any labeled graduation sets the frequency to that graduation.

### Fine Adjust button

Enables fine tuning of the buzz frequency control. The graduations around the circumference of the frequency knob re-draw to a finer scale, and scrolling the touch pad enables very quick fine tuning of a hunt frequency. Scrolling past an end-stop continues to scroll the frequency and the marked graduations re-draw appropriately.

**Fine Adjust** mode forces **Freeze**, so that the selected frequency can be specified exactly, without the **Auto** circuitry hunting for a stronger fundamental. If entering **Fine Adjust** mode from **Auto**, the **Freeze** button flashes and the plug-in reverts to **Auto** when **Fine Adjust** mode is exited.

### Tone On button

Enables an audible tone generator, which can be used to aid location of the buzz fundamental. While the **Tone** button is on, a touch pad opens above the button and becomes a **Tone** level control. It defaults to -18dB, and has a range of -6 dB to -96 dB.

### Sensitivity knob and touch pad (%)

Controls the sensitivity of the buzz detection circuit. Fully sensitive might allow the detection circuit to lock to inaudible and possibly undesirable frequencies. Stronger buzzes, which typically would be removed first, require a less sensitive setting.

### Hum/Buzz Mode button

Control switches between **Hum** mode and **Buzz** mode. In **Hum** mode the bandwidth limit for harmonic removal is 0 to 800Hz. In **Buzz** mode the bandwidth limit for harmonic removal is 0 to 4000Hz. **Hum** mode is less damaging, and should be used when possible.

### Enable button

Enables the buzz removal processing. It allows glitch-less comparisons with and without the buzz removal. When **Enable** is deactivated, the buzz detection circuit is still enabled and the Detect display still shows the degree of buzz detection.

### Reduction display

Indicates the level of audio that is being removed from the signal.

### Attenuation knob and touch pad (dB)

Determine the level of attenuation that the buzz removal circuit apply, up to a maximum of 96dB. Generally this should be set so that the buzz is just inaudible. Excessive use of attenuation can degrade the signal unnecessarily.

### Auto button

Enables **Auto** mode for the buzz detection circuit. In this mode the buzz detection is continually calculated and a slow drift in the buzz fundamental frequency automatically follows. This mode is useful for material with a time-varying buzz component. In this mode the removal filters follow the detected frequency.

### Freeze button

Enables **Freeze** mode for the buzz detection circuit. In this mode the buzz fundamental is fixed to the frequency shown in the touch pad window. This mode is useful for material with fluctuating buzz level, but with a constant buzz frequency. In this instance, **Auto** mode would suffer when the buzz level drops and would typically re-hunt for a different buzz fundamental. In this mode the removal filters follow the nominal frequency.

### Detect display

Indicates the degree of detection that the buzz detection circuit has achieved.

### Output Level meter (dB)

This meter is designed to give exactly 1 dB per LED for the top 18 dB of dynamic range, and 2 dB per LED thereafter. There is a peak-hold feature that holds the highest peak, helping to give a better impression of the working dynamic range.

### Trim Output Level

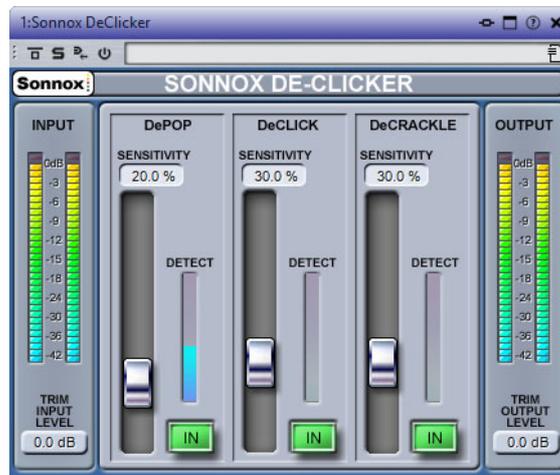
Allows you to reduce the output level by up to 12 dB. Dithering is applied after output gain control, so it may be necessary to reduce this value by a small amount to avoid clipping.

## Using the Sonnox DeBuzzer

- Find the nominal frequency. Start with **Sensitivity** and **Attenuation** controls at the default positions (90% and -48 dB).
- If you know the rough frequency of the nominal, select that frequency using either the knob or by typing into the touch pad.
- In **Auto** mode, allow the detector time to drift towards the actual fundamental. The **Detect** display indicates confidence of hum detection. **Auto** mode should be used if the fundamental drifts over time.
- **Freeze** mode should be used to select a specific frequency that might be variable in strength. **Fine Adjust** (which forces **Freeze** mode) can be used to increase the resolution of selecting the fundamental.
- If you are still having difficulty finding the fundamental, use the **Tone** control.
- The **Hum** mode removes harmonics up to 800 Hz. If you can hear harmonics that are higher in frequency, select **Buzz** mode, which removes harmonics up to 4000 Hz. If there are no harmonics above 800 Hz, be sure to use **Hum** mode to preserve as much original audio as possible.
- In order to cause as little damage to the audio as possible, back off the attenuation until you can just hear the buzz, then increase it until the buzz is inaudible.
- Then reduce the sensitivity until the buzz is inaudible.

## Sonnox DeClicker

Sonnox DeClicker allows you to remove clicks from audio material.



### Sonnox Menu Options Button

Opens a menu where you can select the following options:

- Duration of the input/output meter clip lights hold (indefinitely, 2s, 5s)
- Information about the version number and build date

### Input Level Meter

Gives exactly 1 dB per LED for the top 18 dB of dynamic range, and 2 dB per LED thereafter. This gives a clear and intuitive impression of the working headroom.

### Trim Input Level

Allows you to adjust the input signal level by up to  $\pm 12$  dB.

### Sensitivity Fader and Touch Pad (%) (DePop, DeClick, DeCrackle)

Controls the sensitivity of the detection circuits. Fully sensitive might allow the detection circuit to react to low level signals and possibly mis-classify programme as pops or clicks. Stronger pops and clicks require a less sensitive setting.

### In Button (DePop, DeClick, DeCrackle)

Enables the pop, click or crackle removal processing. When **In** is deactivated, the pop, click, or crackle detection circuit is still enabled and the detect display still shows the degree of event detection.

### Detect Meter Display (DePop, DeClick, DeCrackle)

Combines two indications. The main rising column indicates the sum of the energy of events that have been detected. With the **In** button de-selected (i.e. the repair circuit disabled), this column is colored orange/red. With the repair circuit active the column is colored blue. The bottom segment of the meter is an indication of each individual detected event.

### Output Level Meter (dB)

Gives exactly 1 dB per LED for the top 18 dB of dynamic range, and 2 dB per LED thereafter. There is a peak-hold feature that holds the highest peak, helping to give a better impression of the working dynamic range.

### Trim Output Level

Allows you to reduce the output level by up to 12 dB. Dithering is applied after output gain control, so it can be necessary to reduce this value by a small amount to avoid clipping.

## Using the Sonnox DeClicker

- We recommend repair the larger and more energetic events first.
- If there are large displacement events in the programme material, enable the DePop section and raise the sensitivity fader until the largest events are detected and repaired.
- For clicks, enable that section and raise the sensitivity fader until they are detected and repaired.
- Finally, if there is crackle left, enable that section and raise its fader to remove the crackle.
- There is necessarily some degree of overlap in the detection circuits of clicks and crackle. Decreasing the DeClick sensitivity can increase the apparent detection of crackle and increasing the DeClick sensitivity can indicate less crackle. Best results are likely if the two controls are balanced.

## Sonnox DeNoiser

Sonnox DeNoiser removes wide-band noise from audio material.



### Sonnox Menu Options button

Opens a menu where you can select the following options:

- Duration of the input/output meter clip lights hold (indefinitely, 2s, 5s)
- Knob behavior
- Information about the version number and build date

### Graphical display

Shows the real-time frequency/gain curve of the program material. It is graduated from 0 to 20kHz and from 0 to -144dB. The yellow line is the calculated noise spectrum level, and in **Adapt** mode continually follows the noise in real time. Everything below this contour is assumed to be noise, and everything above the line is program signal.

### Input Level meter

This meter is designed to give exactly 1 dB per LED for the top 18dB of dynamic range, and 2dB per LED thereafter. This gives a clear and intuitive impression of the working headroom.

### Trim Input Level

Allows you to adjust the input signal level by up to  $\pm 12$ dB.

### Sensitivity fader and Trim touch pad (dB)

The sensitivity fader defaults to 0.0dB, which is the midpoint of its travel. It adjusts the sensitivity of the noise detection circuit, and the visible effect of this is to move the yellow noise contour line up and down. The sensitivity level can be changed by up to  $\pm 18$ dB.

To reduce the sensitivity and make the DeNoiser less reactive to the noise component, move the fader down. The noise contour displaces downwards, showing less noise component in the detection circuit. If the sensitivity is set too low, little noise reduction occurs.

To increase the sensitivity and make the DeNoiser more reactive to the noise component, move the fader up. The noise contour displaces upwards, showing more noise component in the detection circuit. The default setting is for the noise contour to lie just below the peaks of the signal. Making the detection circuit more sensitive to noise decreases the signal component, possibly pushing the contour up towards the peaks of the signal. In this case, it is likely that processing artifacts are heard, as the noise removal circuit acts on the signal component as well as the noise component.

### Adapt button

Enables **Adapt** mode for the noise detection circuit. In this mode the noise fingerprint is continually calculated and updated. This mode is useful for material with a time-varying noise component.

### Freeze button

Enables **Freeze** mode for the noise detection circuit. In this mode the noise fingerprint is calculated. This mode is useful for material with a constant noise component, and would typically be sampled when the signal is absent and only the noise component is present.

### In button

Enables the noise removal processing. It allows glitch-less comparisons with and without the noise reduction. When **In** is deactivated, the noise detection circuit is still enabled and the graphical display still shows the real-time frequency display and the noise contour line.

### HF Limit knob and touch pad (Hz)

Displays and controls the frequency beyond which the attenuation is applied nondynamically. Scrolling the frequency down from the default of 22kHz shows a red region in the frequency display that has a fixed attenuation. To the left of the HF Limit line the noise removal circuit behaves as normal. To the right the signal is attenuated by a fixed amount set by the attenuation fader. This mode is useful for band-limited program material.

A good example is a low bitrate encoded signal, which might be band limited to 12kHz. Due to the sharp discontinuity, the noise removal circuit can introduce audible artifacts around the band limit, and setting the HF Limit frequency slightly lower than the band limit removes those artifacts.

### Attenuation fader and touch pad (dB)

Determine the level of attenuation that the noise removal circuit applies in the range 0 to -18dB. Generally this should be set so that the noise reduction is pleasing. Excessive use of attenuation can degrade the signal unnecessarily.

### Output Level meter (dB)

This meter is designed to give exactly 1 dB per LED for the top 18 dB of dynamic range, and 2 dB per LED thereafter. There is a peak-hold feature that holds the highest peak, helping to give a better impression of the working dynamic range.

### Trim Output Level

Allows you to reduce the output level by up to 12dB. Dithering is applied after output gain control, so it can be necessary to reduce this value by a small amount to avoid clipping.

## Using the Sonnox DeNoiser

- Start with **Sensitivity** and **Attenuation** controls at the default positions (0.0dB and -4.5dB).
- Select **Adapt** mode if the noise varies in time. Select **Freeze** for a defined and static noise fingerprint.
- Adjust the **Sensitivity** to find the correct balance between being too low (not enough noise is removed) and too high (too much signal is removed).
- Adjust the **Attenuation** to find the most pleasing audio. Too much attenuation can impair the audio, either by reducing brightness or by introducing low-level distortion.

You might be working with bandwidth-limited material, possibly as a result of sample rate conversion or lossy compression (for example, limited at around 10 kHz). If you experience distortion around the limit try reducing the **HF Limit** control. Adjust until it lies just to the lower frequency side of the limit (around 9.5 kHz in our example).

## Legacy Plug-ins

Under Windows, a set of plug-ins is provided for compatibility with audio projects that referenced these effects when using earlier versions of WaveLab Elements. An audio montage which referenced these plug-ins would otherwise require cumbersome user intervention to open, for example.

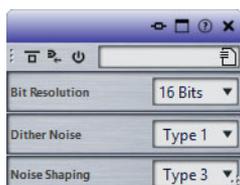
Their use with new audio projects is not recommended and they are not documented.

## Dithering Plug-ins

Dithering plug-ins add 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.

## Internal Dithering

This is a built-in plug-in that provides a simple way of adding a small amount of noise to the rendered signal to improve the apparent signal-to-noise ratio of the output.



The following parameters are available when selecting **Internal Dithering**.

### Noise Type

Sets the noise type for adding to the signal.

- In **No Noise** mode, no dithering is applied.
- The **Noise Type 1** mode is the most all-round method.
- The **Noise Type 2** mode emphasizes higher frequencies more than **Noise Type 1**.

### **Noise Shaping**

Increases the apparent signal to noise ratio by altering the spectrum of the low-level audio signal which results from lowering the number of bits. The higher the number you select here, the more the noise is moved out of the ear's mid-range.

### **Bit Resolution**

Allows you to specify the intended bit resolution for the final audio, after dithering, regardless of whether you want to render the settings or play back in real-time.

Dithering changes the sample resolution, but not the sample size. For example, when dithering 24bit to 16bit, the file will still be 24bit in size, although only 16bits of information will have significance. When rendering to a 16-bit file, specify the file resolution to avoid wasting space.

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