

**Getting into the details**



# **WAVELAB ELEMENTS<sub>7</sub>**

Personal Audio Editing System

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# Chapter 1

## WaveLab Elements 7 Help

Welcome to the WaveLab Elements Help browser. You can expand the tree structure in the panel on the left (under the Contents tab) to find individual Help topics. You can also use the Index and Bookmarks tabs, in addition to a powerful Search feature (under the Search tab).

Please see [Getting Help](#) for more ways of using the Help browser and other help features available throughout WaveLab Elements.

For a quick overview of the features provided in WaveLab Elements see [Features Overview](#).

### Top-level topics

[Getting Help](#)

[Using the interface](#)

[WaveLab Elements Concepts](#)

[Audio File editing](#)

[Audio Montages](#)

[Podcasts](#)

[Master Section](#)

[Interface Elements](#)

[Audio Plug-ins](#)

[Utilities](#)

[How do I...](#)

[Glossary](#)



# Chapter 2

## Getting Help

WaveLab's detailed help system makes it easy to look up interface features and get information from within the program. There are three main types of help available:

### What is this?

Access this by clicking on the  icon, or the question mark icon in a dialog window titlebar, or by holding down **[Shift]+[F1]**. Once activated, the cursor changes to a question mark. Click on an interface feature for information on what it does and details of any settings/-values/functions involved. This is a quick way to learn about the more detailed features of WaveLab Elements.

When a Context menu is open, holding down **[Shift]+[F1]** allows the "What is This?" mode to activate while the menu is open, and this is actually the only way to get help for Context menu features.

It is worth noting too that "What is This?" help is sometimes available for sub-parts of controls, such as List headers.

### Tooltips

Hold your cursor over a button to show a brief description of its function wherever available.

### Help window

This window provides you with detailed information on WaveLab's features and functionality. You can access this help window in several ways:

- via the Help menu. See [Help menu](#).
- from each dialog window provided with a Help button. This opens the Help window at the relevant entry.
- by pressing **[F1]/[Command]+[?]**. If a window is active, the Help window opens to the relevant entry. If a dialog box is open, the dialog is described.

## Related topics

[Help menu](#)

[Command bars](#)

## 2.1 Help menu

The Help menu gives you a convenient point of access to WaveLab's Help system.

- **Help about the active window...**

Select this (or press [F1]/[Command]+[?]) to give help on the active window. If a dialog box is open, the dialog is described.

- **Contents...**

This lists the Help contents as a "tree structure" in the Contents window. Like many WaveLab Elements windows, you can make this a floating window, if you want to park it in a convenient place on screen.

- **Index...**

This accesses an Index to Help entries. Type in the "Look for:" box, or scroll down the alphabetical list. If there is more than one entry for the Index item, you'll be given a choice of entries to be displayed, in the "Choose Topic" box.

- **Search...**

Type the name of the topic you wish to find in the "Search for:" box. If more than one topic is found to match the search string, a list is displayed: click on the most likely entry to display the topic. If there are too many entries, you can refine the search by clicking on [+] "Advanced search".

- **Bookmarks...**

Click the [+] Add button to add the displayed topic to the list of Bookmarked favorites. Now you can return to the entry speedily.

- **What is this?**

This gives a short "Tooltip" explanation by pointing and clicking on the interface feature you need information on. This can also be used to get help on any menu item. Activate the question mark icon by selecting "What is this?" from the Help system; using [Shift]+[F1]; or by selecting  from the command bar button.

- **Steinberg on the internet** - This fly-out menu opens a window on your browser with the appropriate URL to support, update, upgrade or register WaveLab Elements. You can also access the Steinberg Home Page.

## Related topics

[Getting Help](#)

# Chapter 3

## Using the interface

This section gives information on interface features that may not be obvious and which may help to speed up your workflow, especially as your experience with WaveLab Elements increases.

WaveLab Elements is incredibly flexible in the ways that you can set up your working environment. Interface elements can be arranged to suit your workflow, the type of project you are creating and the size and number of your displays.

You can move, reorder and detach windows and tabs from frames and tear off groups of buttons in the Toolbar. You can slide and quickly partition different panes (areas) of the WaveLab Elements window. WaveLab Elements has distinct Workspaces where you can work on a "session". Each Workspace lets you collect a number of files that you want to keep together. This could be all of the Audio Files used in a single song for instance, or all the Audio Files that go to make up a Podcast episode.

**Tip:** If you're a user of Nuendo (a Steinberg product), don't forget that you can drag files directly from within WaveLab.

### Related topics

[About Tool Windows](#)

[Adjusting Envelopes](#)

[Command bars](#)

[Context menus](#)

[Docking windows](#)

[Double clicking](#)

[Dragging operations](#)

[Playback shortcuts](#)

[Select-clicking](#)

[Shortcut system](#)

[Sliders](#)

[Status Bar](#)

[Switcher window](#)

[Tab Groups](#)

[Transport controls](#)

[Value editing](#)

[Workspaces](#)

[Zooming and scrolling](#)

## 3.1 About Tool Windows

Throughout WaveLab Elements there are various tool windows available that enable you to view, analyze and edit the current active document. Generally the content of a tool window is synchronized with the active document, with the exception of the audio meters which can display information related to other documents.

There are two types of Tool windows:

- **Specific tool windows** - these are dedicated to a given Workspace type. The File Browser and Marker windows are examples of specific tool windows.
- **Shared tool windows** - Only one instance of these windows can exist at any one time in WaveLab, and it can be shared between Workspaces. The Master Section is an example of a shared window and as such there is only ever one instance of it.

All tool windows can be accessed via the Workspace menu. See [Docking windows](#) for information on docking and undocking tool windows.

### Specific Tool windows

Specific tool windows are specific to the current Workspace and are dedicated to that Workspace type. They perform useful tasks in the active Workspace. The File Browser and Marker windows are examples of specific tool windows.

Specific tool windows can be docked and un-docked anywhere within their Workspace. They can also float as standalone windows in a specific Workspace.

### Shared tool windows

Shared tool windows are shared between certain Workspaces and are independent of any one Workspace. Like specific tool windows, they can be docked and un-docked. The Master Section is an example of a shared window.

The main difference with Specific tool windows is that only one instance of a Shared tool window can exist at any one time in WaveLab. When you open a shared tool window that is referenced in another Workspace it will "move" from the other Workspace to the active one.

A shared tool window can be moved and docked exactly like a specific tool window, however in addition Shared tool windows can "float as an independent window", that is, independent of any Workspace. Each shared tool window has a menu entry to allow this floating mode.

### Differences between Mac and Windows

Floating windows behave slightly differently on Apple Mac and Windows, due to some basic differences between the platforms:

- **Mac** - On the Mac, a tool window is always on top of all other windows and a floating window remains visible even if its dependent Workspace is not active or is minimized. If WaveLab is no longer the active application, all its floating windows are hidden.
- **Windows** - A floating window is hidden when its dependent Workspace is minimized or covered by another window. If WaveLab is no longer the active application, all its independent floating windows are hidden.

### Related topics

[Workspaces](#)

[Shared tool windows](#)

[Specific tool windows](#)

## 3.2 Adjusting Envelopes

At various places in WaveLab Elements, envelopes are used to constrain the way effects are expressed. Some offline processes such as [Level Envelope](#), use envelopes to adjust an effect over time. You can edit the profile of these envelopes quickly and easily.

### Adjusting an envelope

Edit the envelope using the envelope editor window in the following ways:

- Create and erase points by double clicking.
- Select points by clicking on them.
- To select more than one point, press **[Ctrl]/[Command]** when clicking - you can then move them together. Selected points don't have to be contiguous. You can also click anywhere in the window and drag the cursor over the envelope points to select them.
- You can drag any segment to move the whole envelope profile up and down.
- You can drag a single segment vertically by pressing **[Ctrl]/[Command]** and move the segment up and down.
- You can drag a single segment horizontally by pressing **[Ctrl]/[Command] + [Shift]** and move the segment left and right.

You can also use the controls at the top of the editor window to delete or reset points in the envelope. Use the envelope smoothing button to toggle the envelope points between a linear (polygonal) or a curved path. The envelope is not applied until you click "Apply".

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Level envelope](#)

[Time stretching](#)

[Pitch correction](#)

## 3.3 Command bars

Commonly used tools, shortcuts and commands are represented by "Command buttons", each with their own icon. Related buttons are grouped into various Command bars. You can dock Command bars to any window edge and rearrange them. Each Workspace has an appropriate set of command bars that are available to be displayed. All the commands accessed via the Command buttons can also be found in the menus.

### Hiding and displaying Command bars

To view a list of available command bars right-click on an empty part of the top edge of the Workspace. More precisely, on Windows computers right click anywhere along the window's top menu, on Apple Macintosh computers right click in the window's caption bar. This displays the Peripheral Windows context menu, which you can use to select which Command bars are displayed. You can also choose which individual Command buttons are displayed from the [Customize commands dialog](#).

### To move a set of Command bar tools

Drag on the left side of the command, or at top for vertical command bars - the pointer changes to  when you have "grip". Drag the group of Commands to any side of the application window and release the mouse button. The application window and other Command bars will automatically make space for the Command bar in its new position.

By default, Command bars are docked and don't float. You can make them float individually or not, by right clicking and selecting the desired option from the menu. Once the option has been selected, move the command bar.

You can drag Command groups below an existing row to form a new row (or next to an existing column, to form a new column). You can also reorder their position within a row or column, to customize your layout.

If a Command bar does not have room to display all of its icons, it will have a double right (or down) arrow >>. Click on the double arrow to reveal any obscured Command buttons.

### Finding out what a Command button does

Hover over an individual Command button to display its tooltip. If no tooltip appears, make sure "Show tips when mouse stays over buttons" is activated in **Preferences... > Global Preferences > Display tab**.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Global Preferences](#)

[Customize Commands](#)

[Context menus](#)

## 3.4 Context menus

Throughout WaveLab Elements there are various Context menus available. These menus group together a range of commands and/or options specific to the window you are working in. They appear when clicking with the right mouse button in certain places and may be useful for speeding up your workflow.

Some Context menus have colored title bars (these were formerly known as "Speed menus" in WaveLab 6), and their title indicates the part of the interface they relate to.

### Using Context Menus

To bring up a context menu, right-click in the desired area. This is normally somewhere along the edges of a window, or in some cases anywhere on the window itself or its title. Right-clicking on a File tab, for example, shows a context menu with some relevant file options. Right-clicking on the waveform window header brings up the Time Ruler context menu allowing you to access a number of options for changing the Time Ruler display format.

**Tip:** Most context menu commands can be found on the normal menu bar but **some unique commands are only found in context menus**. As they are not always obvious, when searching for a function, it may be worth checking for a Context menu in the window in which you are working by right-clicking on it, or around its edges.

### Related topics

[Shortcut system](#)

## 3.5 Docking windows

All of WaveLab's [tool windows](#) can be used as docked windows or as stand-alone "floating" windows. They can be freely dragged around and docked at various locations. Command bars can also be freely moved around and docked along the edges of most windows. See [Command bars](#) for more information.

## Undocking a window

Double-click on the title bar. This works with all tool windows, Specific and Shared.

## About Specific tool windows

To undock a Specific tool window use one of the following methods:

- double-click on the title bar.
- click on the small double window icon which is located at the top left hand corner of the window.
- click and drag the window by its title bar.

Once un-docked, you can freely drag the window around by clicking and dragging on the window's title header bar.

To dock the window again, drag it to any location where you are visually prompted to release the window. Around the edges and the top of the Workspace is where this normally occurs. Most windows can be docked horizontally or vertically, but some can only be docked in one direction, because of the nature of their contents. To dock the window again, you can also double-click in the title bar.

**Tip:** To move a window and prevent it from docking, hold down **[Ctrl]/[Command]** before you begin to undock the window. This will avoid the window docking again and allow you to place it anywhere. Once you begin to drag, you can release **[Ctrl]/[Command]**.

## About Shared tool windows

[Shared tool windows](#) such as the meters and the Master Section are slightly different to other tool windows as there is only ever one of them available and it can only appear in one Workspace at a time. As such, when you open a shared tool window from the menus in another Workspace it undocks and moves from its original Workspace. An empty tab container with a vertical title bar will remain in its previous Workspace.

To retrieve a window again from another Workspace use the  button at the top left of these empty containers. For example, if you have the VU Meter displayed in the Audio Montage Workspace and you wish to display it in the Audio File Workspace, you can simply click the blue button and the VU Meter window will move back into its tab container.

You can choose to deactivate the default moving behavior by deselecting **Workspace > Auto move shared tool windows**. Shared tool windows do not then move when you switch between Workspaces.

## Related topics

[Tab Groups](#)

[About Tool Windows](#)

[Command bars](#)

## 3.6 Double clicking

A double click is the act of pressing the mouse button twice quickly without moving the mouse.

Throughout WaveLab Elements you can achieve the following by double clicking in certain places:

- **Create a new empty document** - double click on the empty part of a tab bar. See [Tab Groups](#) for more information.
- **Edit a marker name** - double click at the right side of a marker's icon (in the Audio File or Montage Workspace) above the time ruler.
- **Select a region (Audio File Workspace)** - double click to select the whole Audio File. Where markers exist, the region between the markers is selected. If markers exist and you wish to select the entire file you can triple-click to select the whole file.
- **Set zoom to display entire waveform (Audio File/Montage Workspace)** - double click on the horizontal zoom wheel to reset the zoom to display the whole Audio File.
- **Set zoom to default value (Audio File/Montage Workspace)** - double click on the vertical zoom wheel to reset the zoom to its default value.
- **Center the waveform (Audio File Workspace)** - double click on the vertical scroll bar to center the waveform around the horizontal axis.
- **Start playback (Audio File/Montage Workspace)** - double click in the time line to start playback from that point.

In addition to these specific examples, in various places throughout WaveLab Elements, double-clicking can be used to begin editing certain values. Depending on the context the type of editing triggered will vary. In most list views for example, double-clicking in a cell will allow you to edit its value.

### Related topics

[Tab Groups](#)

[Select-clicking](#)

## 3.7 Dragging operations

WaveLab Elements makes much use of "drag-and-drop" techniques to perform various operations, some of which can't be performed otherwise. These are referred to as drag operations in this documentation.

To drag an object, press and hold down the left mouse button while over the object and drag it to the desired destination. Drop the object by releasing the button.

Many types of objects can be dragged between different source and destination locations including files, text, Clips, the playback head and markers.

**Tip:** This help entry describes some of the most important drag and drop operations. There are many other possibilities, especially within the various list views for example where you can possibly drag from the list to an external window, drag a file into the list (to import), or reorder, these vary of course according to the context). Therefore we encourage you to try drag and drop wherever you feel it may make sense.

### Within Workspaces

Drag objects within and between Workspaces to perform the following functions:

- **Docking a tool window** - drag a window's title bar to any side of the Workspace, beside or above an existing tool window, to dock the window at a new place.
- **Moving a Command bar** - drag the bar grip at the left-hand end of a command bar and reposition it. See [Command bars](#) for more information.
- **Moving a Document Tab** - drag the tab to a new location within its own tabbed group to reorder. You can also drag a tab to another group of tabs.
- **Open a file** - drag a compatible file from the WaveLab Elements's File Browser, from the operating system's file browser or from another application to the tab bar.
- **Insert a file in another Workspace** - drag an Audio File by its title bar tab between the Audio File and Audio Montage Workspaces. You can also use the Switcher window to drag any object to another Workspace. Drag the object over the corresponding Workspace icon in the Switcher window and wait until the new Workspace becomes active. Then you can release the file in the target Workspace.

### Within the Audio File Workspace

Drag objects within the Audio File Workspace to perform the following functions:

- **Paste an Audio File** - drag a document's title bar tab or document button  onto the waveform area of another file, to copy and paste its audio content. You can also drag a compatible file directly from the File Browser, the operating system's file browser, or from another application.
- **Delete/Move a marker** - drag the marker along the time ruler to change its position. Drag while pressing the **[Shift]** key to create a copy of this marker. Drag above the time ruler to delete the marker.
- **Copy an audio selection** - drag a selected region of audio onto the waveform area of the same file, or of another file. Left, right or both channels can be copied.
- **Create a new file from an audio selection** - drag a selected region of audio onto the empty space of a tab bar to create a new copy of the audio. If dragging happens right after double clicking, the selection is quantized and extended up to the marker's "region" under the mouse.

- **Modify a selection** - drag left or right to change the extent of the selection.
- **Move the waveform** - drag anywhere above the time ruler to move it horizontally.
- **Create a marker from selected text** - drop text that you have selected in an external application onto the time ruler to create a generic marker there. The text becomes the marker's name.
- **Scroll the waveform** - drag the cursor to the left or right sides of the waveform area to display the region before or after.
- **Mix to Mono** - by holding down [Control + Alt]/[Command + Alt] while dragging the file to a new tab, you can quickly mix a stereo file to mono.
- **Convert from Mono to Stereo** - by holding down [Control + Alt]/[Command + Alt] while dragging the file to a new tab, you can quickly convert a mono file to stereo .

**Tip:** When aligning some objects in the waveform area, labeled prompts will help you to snap to other locations in the waveform (for example, the end points of Audio Files, markers or cursors).

### Audio Montage Workspace

Drag objects within the Audio Montage Workspace to perform the following functions:

- **Paste an Audio File** - drag a document's title bar tab or document button  onto the Montage area of another file, to copy and paste its audio content. You can also drag a compatible file directly from the File Browser, the operating system's file browser, or from another application.
- **Delete/Move a marker** - drag the marker along the time ruler to change its position. Drag while pressing the **[Shift]** key to create a copy of this marker. Drag above the time ruler to delete the marker.
- **Create a marker from selected text** - drop text that you have selected in an external application onto the time ruler to create a generic marker there. The text becomes the marker's name.
- **Scroll the Montage** - drag the cursor to the left and right sides of the Montage to display what comes before or after.
- **Paste a Clip** - drag a document's title bar tab or document button  onto the Montage area to copy and paste its audio content. You can also drag a compatible file directly from the File Browser, the operating system's file browser, or from another application.

### Within the Podcast Workspace

You can drag episodes in the Episodes list to reorder them.

### Within the Master Section

You can drag effects between different Effects slots to change the order of processing (which takes place from top to bottom).

### Related topics

[Docking windows](#)

[Switcher window](#)

## 3.8 Playback shortcuts

Playing back audio is a common repetitive task in WaveLab Elements. In addition to the playback command buttons in the [Transport controls](#), there are a few extra commands that can only be accessed via special keyboard shortcuts. These shortcuts can be used even when the audio window is not the active window. These special keyboard shortcuts cannot be customized. They are:

- **Space bar** - Start/Stop
- **0** or **F7** - Stop. When pressed while already stopped, the cursor jumps to the previous playback start position. A further "0" returns the cursor to the start of the file.
- **Enter (Numeric Pad)** or **F8** - Start
- **[Ctrl]/[Command] + F6** - Plays from the beginning to the end of the selection, if any. Where there are markers it plays between them. If there are no markers it plays from the beginning to the end of the Audio File.
- **[Win]/[Ctrl] + F6** - As above, but playback starts with a preroll **before** the region and stops at its end.
- **[Shift] + F6** - As above, but playback ends with a postroll **after** the region.
- **[Win]/[Ctrl] + [Shift] + F6** - As above, but playback starts with a preroll **before** the region and ends with a postroll **after** the region.

### Related topics

[Transport controls](#)

## 3.9 Select-clicking

Select-clicking is the act of selecting an object with the mouse and while it is selected, clicking again. This is a common interface interaction when renaming a file or folder in your computer's native file browser.

Throughout WaveLab Elements there are places where you need to select-click fields to edit values. In some lists such as the Basic Audio CD window, you need to select-click cells to edit a track name or ISRC code. Generally if a value can be edited, a double click selects all characters in that cell and allows you to begin editing; if not, then try select-clicking the cell instead.

### Related topics

[Tab Groups](#)

[Double clicking](#)

## 3.10 Shortcut system

Throughout WaveLab Elements there are many predefined shortcuts and custom commands that can be used to speed up your workflow. The offline process "Fade-in", for example can be triggered from its menu entry, from its command bar icon, using a custom key sequence. Each shortcut is restricted to its specific Workspace, which means you can re-use the same shortcut in different Workspaces. When a command is available from more than one Workspace, then the shortcut applies to all Workspaces and cannot be reused.

Not all commands are restricted to a Workspace, for example, all Master Section commands are global to the application, and Record commands (Record dialog) are active only when the Record dialog has focus. In addition, a few specific Global shortcuts can be defined from **Preferences... > Global Preferences > Global shortcuts tab**.

Shortcuts are defined and can be edited in the [Customize commands dialog](#). There are various places where you can access this dialog, and each dialog restricts editing of the shortcut to the related context. You can generate a summary of custom commands in a Print preview or HTML format from the dialog's "Summary" button.

There are several types of shortcuts available in WaveLab Elements:

### Key sequences

You can define a sequence of up to four keys to trigger a desired action. Note that these keys must be pressed/released one after the other, and the action is performed when the last key has been pressed. Key stroke sequences give you a very large choice of combinations, which is useful in an application with a large feature set. There are however possible pitfalls, if for example:

Shortcut #1 is defined with the sequence: Control+D, Control+E

Shortcut #2 is defined with the sequence: Control+D

The application watches for key strokes, and when Control+D is pressed, Shortcut #2 won't be triggered because Control+D is also used in a longer sequence (the application can't know if it should wait for Control+E or not).

**Note:** A few very basic shortcuts cannot be redefined. If this is the case, the relevant edit field is disabled. On the Mac, only the first key of native menus can be displayed.

## Other shortcuts

There are many other shortcuts in WaveLab Elements that are accessed using the mouse. These are described in [Double clicking](#), [Dragging operations](#) and [Tab Groups](#). Clicking the right button on the mouse in certain places will produce a Context menu which offers quick access to relevant commands.

## Related topics

[Customize Commands](#)

[Definition of shortcut\(s\)](#)

[Double clicking](#)

[Dragging operations](#)

[Tab Groups](#)

[Context menus](#)

## 3.11 Sliders

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

- Turn the mouse wheel over the slider (no click is required). Press **[Ctrl]/[Command]** simultaneously to scroll faster. This modifier also applies to the zoom wheels.
- Left click on the button to move it.
- Left click outside the button to move the button directly to that position.
- Right click before or after the button, to move the button step by step. Keep the mouse button pressed to automatically step to the next value.
- Middle click anywhere to reset the slider to the default value (if a default is available).
- Left click and press **[Ctrl]/[Command]** anywhere to reset the default value (if a default value is available).
- Double click on the button to reset the default value (if a default value is available).

## Related topics

[Adjusting Envelopes](#)

## 3.12 Status Bar

The Status bar is normally displayed at the bottom of the screen and shows information about the active window using the units specified in the rulers.

The Wave and Mouse cursor time positions are shown using the same units of time as in the rulers and dialog boxes. Level positions are always shown in dB. This information is updated depending on the cursor position and whether you have a region of audio selected. In the case of the Audio File Workspace it gives the following information about the Audio File. From left to right:

- **Time/Level (dB)** - at the mouse cursor position.
- **Wave cursor Time** - displays the time at the position of the Wave cursor. This information changes when you click to reposition the cursor. Click on this status bar field to show the Cursor position dialog, which you can use to accurately position the cursor.
- **Audio selection indicator** - displays the length of the current selection, or the total length of the Audio File if there is no selection. Right-click on this to display the entire audio range.
- **Zoom indicator** - displays the current zoom factor. Click this to edit the zoom factor; right-click to display a pop-up menu (equivalent to selecting **View > Zoom**).
- **File format details** - displays the number of audio channels, bit resolution and sample rate; Click to display [Audio properties dialog](#).
- **Document button** -  allows you to click and drag the current Audio File into another document (for example, in the Audio Montage Workspace). This is equivalent to dragging the file Tab.
- **Sample Key indicator** - indicates the key of the current Audio File (if defined) and opens the [Sample Attributes](#) window. The status bar also indicates the progress of some background operations, such as rendering an effect. The operation can be paused or canceled using the buttons provided.

The "Play through Master Section" buttons  and  allow you to completely bypass the Master Section for playback, or not, with a setting for each file (Audio File and Montage).

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Time Format dialog](#)

[Zoom factor](#)

[Audio properties dialog](#)

### 3.13 Switcher window

This small floating window allows you to switch between each of the main Workspaces in WaveLab Elements, and also to open and create documents.

It is visible at all times and floats above all other windows. You can choose which Workspace buttons are visible and adjust its transparency in [Global Preferences](#). You can resize, rotate and move the Switcher window anywhere on your monitor(s).

- It is useful to use a file in a different Workspace. For example, you can drag an Audio File from the Audio File Workspace over the Audio Montage icon in the Switcher window and wait until the Audio Montage Workspace becomes active before inserting the file in a montage.
- To switch between Workspaces: click on a Workspace button and if the Workspace is not already open, a menu opens and offers several options.
- To create a new document in any Workspace: click + **[Ctrl]/[Command]** on a Workspace button.
- To open a document in any Workspace: click + **[Shift]** on a Workspace button.
- To display a menu listing the files used recently in a particular Workspace, click on any Workspace icon and hold the button down. This means that with just one click you can access the history of a document from any Workspace. From the same menu, you can also create a new document or open the file selector box. If you click on the icon of the active workspace, you don't need to hold the button down. Alternatively, you can right click to show a menu instantly.

#### Related topics

[Workspaces](#)

[Docking windows](#)

### 3.14 Tab Groups

A tab group is a region within a Workspace that contains windows that can be activated by a tab, each with its own content and title bar. Only one tab can be active at a time.

In an editing Workspace, a tab group contains one or more documents (e.g. Audio Files). To activate a tab, simply click on the title bar of the tab you wish to work on.

#### Using Tabs for editing audio

Tabs have a variety of useful behaviors depending on the type of window contained by the tab group. Tabs that contain Audio Files (in the Audio File Workspace) symbolize a whole Audio File and where applicable allow you to perform many other useful functions:

- **Reorder the tab bar** - by dragging and dropping the tab at a new position on the tab bar.
- **Paste it into an Audio File** - by dragging and dropping the tab onto the waveform display at the cursor position you want to insert the copied audio.
- **Paste it into another application** - by dropping the tab into the relevant window of the other application. The result depends on the target application.

**Tip:** You can also achieve the same actions by dragging the Audio File from the document button  on the status bar at the bottom right of each window.

Other useful functions can be accessed using tab groups:

- **Create a new empty document** - by double clicking on an empty part of the tab bar (on the right normally). The new file is created by using the active file as template (for example, Sample rate).
- **Display the document file path** - by keeping the mouse over a tab for a small moment. This displays a popup that indicates the full file path of the associated document.
- **Access additional tab functions** - by right clicking on a tab.
- **Access the Recent file list** - by Right-clicking in the empty tab area.
- **Move a file between tab groups** - by dragging a tab from one tab group to another.
- **Copy a file** - by holding down **[Ctrl]/[Command]** to create a copy by dragging the file elsewhere in the tab area.
- **Mix to Mono** - (Audio File Workspace) by holding down **[Control + Alt]/[Command + Alt]** to mix a stereo file to mono while dragging the file to a new tab.
- **Convert from Mono to Stereo** - (Audio File Workspace) by holding down **[Control + Alt]/[Command + Alt]** to convert a mono file from mono to stereo while dragging the file to a new tab.
- **Quickly switch between tabs** - by moving the mouse wheel while over the tab bar. This switches the focus between the different tabs.

**Tip:** An option in global preferences allows you to hide the title bar if there is only one tab open **Global preferences > User Interface > Show tab if there is a single window.**

### Related topics

[About Tool Windows](#)

[Docking windows](#)

## 3.15 Transport controls

The transport controls allow you to control playback within an Audio File or montage, and to open the record window. It can be accessed via the Transport menu or the Transport toolbar. See [Command bars](#) for more information.

The Transport menu gives access to (and shows keyboard shortcuts to) the same functions that are available in the transport toolbar.

The Transport toolbar gives quick access to most of these functions. If the toolbar is hidden, select **Workspace > Command bars > Transport commands**. Transport functions operate on the current Audio File.

The basic transport functions are:

- **Loop On/Off**  - Toggles looping on/off for the currently selected Audio File or montage.
- **Start of file**  / **End of File**  - Move the cursor to the beginning or end of the currently selected Audio File.
- **Skip forward**  / **Skip backward**  - Skip the cursor forwards or backwards within the currently selected Audio File.
- **Play**  - Begin playback of the current Audio File.
- **Stop**  - Stop playback of the current Audio File. A second click moves the cursor to the beginning of the last start position. A further click returns the cursor to the start of the file.
- **Record**  - Opens the recording window from which you can start recording.

Additional transport functions such as start, skip and stopping playback options are also available from the transport command bar. In WaveLab Elements additional playback speed and jog/shuttle shortcuts are also provided.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Recording Dialog](#)

[Command bars](#)

## 3.16 Value editing

At various places in WaveLab Elements, numerical values can be edited using a combination of text fields and spin controls.

These values are sometimes made of several parts, for example, 12 mn 30 sec 120 ms. Each value can be edited using the following methods:

- With the value selected, type a new value.
- Use the up and down arrow keys to change the value by one unit at a time.
- Use the page up and page down keys to change the value by several units.
- Use the home and end keys to jump to the maximum and minimum values.
- Use the left and right arrow keys to move from one part to another.
- Click on the small button arrows (the spin controls), to change the value.
- Move the mouse cursor over the desired section. Now use the mouse wheel to change the value, **without** clicking. The hovered section will be highlighted when the wheel spins.
- Move the mouse cursor over the part you wish to change. Click and drag up and down to change the value.

**Tip:** Right clicking on the edit control may display a context menu, where additional functions are available.

### Related topics

[Sliders](#)

## 3.17 Workspaces

A Workspace is a window that provides an editing and playback environment for a particular audio document type. Each type of Workspace presents the functions related to the specific file types it is made for; this reduces clutter in the user interface.

In WaveLab Elements there is a Workspace for each main type of file to edit:

-  **Audio File Workspace** - for viewing and editing Audio Files. See [Audio File editing](#)
-  **Audio Montage Workspace** - for assembling and editing audio montages. See [Audio Montages](#)
-  **Podcast Workspace** - for preparing and uploading Podcasts. See [Podcasts](#)

A Workspace is highly customizable, to match your workflow, experience and screen setups (which may vary from a studio-based multi-screen DAW to a single-screen laptop on the road). A Workspace can appear in a wide variety of styles, from a simple window with a single menu in its most uncluttered form, to a sophisticated arrangement of Command bars, tool windows, Tab groups and active meters. When a file is opened from a given Workspace, it is added to the active tab group of this Workspace. You can drag files between Workspaces if they both share compatible formats. For example, you can drag an Audio File from the Audio File Workspace and drop it into the Audio Montage Workspace by using its tab bar or its document button  (this is located on the status bar at the bottom right of the Workspace). For more information on using shortcuts to speed up your workflow in different Workspaces see [Dragging operations](#) and [Tab Groups](#).

### Elements of a Workspace

Each Workspace is comprised of:

- A **Menu bar**. Each Workspace has a different Menu bar, but certain menus are shared among all Workspaces and each menu can be customized in various ways. The Workspace menu has a sub-menu to show/hide the available Command bars and tool windows. Alternatively, you can right-click in the menu (Windows) or caption bar (Mac) area to access the Peripheral Windows Context menu.
- One or more **Command bars**, for quick access to functions via buttons. Command bars can be customized extensively. See [Customize Commands](#).
- **Tab groups**, to host the document(s) to edit. This is a central part of the Workspace: you can reorder the tab bar, move it to another Workspace, create a new empty document, display the document filepath and access other functions by right-clicking. See [Tab Groups](#).
- A set of **Specific tool windows**. The specific tools offered vary according to the Workspace; their display can be turned on or off individually, and the windows can float or be docked. See [Specific tool windows](#).
- A set of **Shared tool windows**. The shared tools offered vary according to the Workspace; their display can be turned on or off individually, and the windows can float or be docked. See [Shared tool windows](#).

**Tip:** To switch easily between different Workspaces use the floating [Switcher window](#).

### Related topics

[Audio File editing](#)

[Audio Montages](#)

[Podcasts](#)

[Customize Commands](#)

[Specific tool windows](#)

[Shared tool windows](#)

[Command bars](#)

[Tab Groups](#)

[Docking windows](#)

[Switcher window](#)

## 3.18 Zooming and scrolling

In WaveLab Elements you can use several mouse and keyboard shortcuts for scrolling and zooming in the Audio File and Audio Montage Workspaces.

### Scrolling with the Mousewheel

- With the cursor in the wave window you can scroll the view horizontally using the mouse wheel.

### Zooming with the Mousewheel

- With the cursor in the wave window hold down **[Ctrl]/[Command]** while rotating the mouse wheel. The view will zoom horizontally; if you hold down **[Shift]** the view will zoom vertically.

### Activating the zoom tool

- Activate the zoom tool by holding down **[Ctrl]/[Command]** and click on the waveform ( **[Ctrl]/[Command]** must be pressed first).

### Zooming with the Mouse

- Holding your cursor over the Time Ruler and moving the mouse up and down also zooms the view horizontally. Hold down the **[Shift]** key to do the same thing while maintaining the edit cursor in the same position.
- Zoom by dragging the thumb edges of the scroll bars in the Audio File and Montage windows.
- Zoom by acting on the wheel controls in the bottom right corners of the Audio File and Montage windows, by click and drag or using the mouse wheel.
- Zoom and scrolling can be undone or redone by the **View > Navigate backwards/-forwards** commands.

### Changing the Zoom level

- you can make quick changes to the zoom level using the View All  or Zoom In 1:1 buttons in the control bar. Scrubbing the vertical or horizontal Zoom Wheel (located in the bottom right hand corner of Main wave window) also alters the zoom level.

### Related topics

[Shortcut system](#)



## Chapter 4

# WaveLab Elements Concepts

WaveLab Elements is an incredibly powerful tool and has many features which can be used for a wide variety of audio editing, mastering and mixing purposes. This section provides you with links to some of the main concepts used throughout WaveLab Elements. Understanding these concepts can help you to get the most out of WaveLab Elements.

### Related topics

[Features Overview](#)

[Analysis](#)

[Authoring CDs and DVDs](#)

[Markers](#)

[Metering](#)

[Offline processing](#)

[Presets](#)

[Rendering](#)

## 4.1 Features Overview

### WaveLab 7 Elements - Audio Editing and Mastering Suite

WaveLab 7 Elements combines state-of-the-art audio technology from the award-winning WaveLab 7 with a streamlined workflow and a full complement of editing and mastering features targeted at project studios and musicians. It includes the same sample accurate 32-bit audio engine and a wide range of advanced tools with the pristine audio quality originally engineered for top mastering and editing professionals in WaveLab 7 Pro. The Elements version provides many of its next-generation features and capabilities to make it one of the world's best editing and mastering solutions in its price range.

- Sample accurate audio editor with crystal clear audio processing at up to 192 kHz and 32-bit floating point resolution

- For the first time available for both the Mac and PC platforms, ideally suited to multi-screen setups
- Stereo and multi-channel non-destructive editing with versatile Clip grouping over multiple lanes, pencil tool (for audio restoration)
- Powerful real-time engine with integration of Clip-based, track-based and global effect plug-ins
- All major Audio File formats are supported
- Superior audio processors including DIRAC time stretch and pitch correction tools
- Tools for auto split, loop markers and locking markers, editing meta-data tags and batch file conversion
- Tools for global analysis, 3D-spectrum analysis, VU meter, spectroscope and oscilloscope
- 30 state-of-the-art audio plug-ins are provided, including Sonnox DeClicker and DeNoiser, with four slots for plug-ins, Red Book compatible PQ editing including Audio-in-Pause, CD-Text and track sheet export, CD burning, enhanced CD grabbing, ability to burn montages directly to CD and label editing
- Spectrogram View for quick overview of the frequency structure of the Audio File, simultaneous aligned use of Wave, Loudness and Spectrum View
- Batch file conversion utility

WaveLab 7 Elements will meet the requirements of all but the most serious audio editing and mastering tasks. For the ultimate in multi-channel or audio mastering capabilities, check out the features available in WaveLab.

## 4.2 Analysis

WaveLab Elements provides you with a comprehensive set of tools for analyzing your audio and diagnosing any errors. You can view your Audio File in many different ways using the suite of audio meters, via its frequency spectrum, or even in three dimensions. There are also several tools to interrogate any sample of your audio and find any errors or anomalies. Below you can find links to some of these tools used in WaveLab Elements. Most of them can be found in the **Analysis** menu. The meters can be found in the **Meters** menu or via the **Workspace > Shared tool windows**. More specialized tools also exist as part of some offline processing dialogs, such as the "Find current peak level" command in the Change level dialog, or the "Eliminate DC Offset" dialog, for example.

### Related topics

[Global analysis](#)

[3D Frequency Analysis](#)

[VU Meter](#)

[Spectroscope](#)

[Oscilloscope](#)

[Metering](#)

[Audio File editing](#)

[Offline processing](#)

### 4.2.1 Global analysis

This dialog allows you to perform advanced analysis on your audio to identify areas with specified properties. It can be used to find problem areas such as glitches or clipped samples, or just to check general information such as the pitch of a sound.

**How it works** When you analyze a section of an Audio File, WaveLab Elements scans it and extracts information which it displays in the dialog. It also "pin-points" sections of the file that meet specific characteristics, for example, sections being very loud or almost silent. You can then browse between these points, set markers or zoom in on them.

**Types of analysis** On most of the tabs, you will find settings determining exactly how the analysis will be performed. Each tab focuses on a particular analysis area:

- **Peaks** - this tab is for finding individual samples with very high decibel values.
- **Loudness** - this tab is for finding sections that are perceived by the human ear as louder or weaker in volume. WaveLab uses an accurate method (RMS - Root Mean Square), to measure a consecutive section of samples and then average their value.
- **Pitch** - this tab is used for finding the exact average pitch of a section of audio. The method works best on monophonic material (single notes, without chords or harmonies) and assumes the analyzed section has a relatively stable pitch. As a general rule try to analyze the sustain portion of a sound, rather than the attack.
- **Extras** - this tab is for informing you about DC offsets and the significant bit resolution of the file. This can be useful, for example, if you wanted to check whether a 16 bit file really uses 16 bits (or if it was actually recorded with only 8 bit resolution and then upscaled to 16 bits).
- **Errors** - this tab is to help you find glitches and sections where the audio has clipped (gone beyond 0 dB). **Checking and browsing the results** Checking the results on the Pitch and Extra tabs is simple, since only one value is returned for the whole section of analyzed audio. For all the other tabs, the analysis methods returns a series of exact points ("hot points") in the file or section of audio. Use the relevant buttons in each tab to select the "hot points" you wish to look at in more detail. Using the slider you can then browse or skip between these points, adding markers or focusing the waveform display at that particular point in the file.

You can access this dialog in the Audio File Workspace via **Analysis > Global Analysis...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[3D Frequency Analysis](#)

### 4.2.2 3D Frequency Analysis

This function in WaveLab Elements allows you to view a wave file in both the frequency and time domains. Although a wave display (time domain) tells you a lot about where one sound starts or ends in a file, for example, it doesn't tell you anything about the timbral contents of the file. A frequency graph (frequency domain) allows you to investigate the individual frequency components of an Audio File. With the addition of the time dimension you can follow these frequencies in your Audio File over time and pick out individual snare hits or vocal notes in a song, for example. The graph used in WaveLab Elements is sometimes called a 3D-Spectrogram.

#### Displaying and viewing the graph

You can choose to analyze a selection of audio or an entire file. If you select a stereo recording, a mix of the two channels will be analyzed. Once you have your region selected or no region (in the case you wish to analyze the whole file) choose **Analysis > 3D Frequency Analysis....** The graph window will appear.

There is a scrub wheel that allows you to rotate the view around and a settings button that displays the range of frequencies currently displayed. Click on this button to open the [settings dialog](#) and edit the frequency range displayed, as well as to access other options.

**Tip:** The length of the selection affects the accuracy of the analysis. For short selections the result will be very detailed. For longer selections (over a minute or so) the results are generally less detailed as the harmonic content may vary between "measuring points", and as such are not included in the graph. You might for example make a separate analysis of the attack (beginning) of a sound, since the most drastic variations usually occur there.

#### Some example uses for 3D Frequency Analysis

The 3d Frequency Analysis graph in WaveLab Elements can be used for many purposes, for example:

- to see how the frequency spectrum is distributed in a mix.
- as a basis for EQ-ing, so that you know which frequencies to reduce or boost.
- to see which parts of the audio spectrum a certain background noise occupies (for removing by filtering).
- for educational purposes - these graphs tell you a lot about how different sounds are "built".

## Related topics

[Frequency range](#)

[Metering](#)

### 4.2.3 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions > Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.
- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips (0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

#### Related topics

[Metering](#)

### 4.2.4 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

## Related topics

[Metering](#)

### 4.2.5 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

## Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

## Related topics

[Metering](#)

## 4.3 Authoring CDs and DVDs

WaveLab Elements provides extensive tools for authoring both audio and data disks. Depending on your connected optical hardware you can burn CD-R, CD-RW and DVD-R/DVD+R disks. WaveLab Elements allows you to author professional audio CD disks with control over track indexes, CD-Text, ISRC codes etc. You can validate your disks before burning to make sure they conform to valid CD standards (such as the Red Book standard) or choose to author using newer formats with CD-Text support. When it comes to outputting your final disk you can burn it straight from within WaveLab Elements.

### Important note for Mac OSX users

When using the CD-R/DVD-R drive on Apple OSX computers for importing or burning it is important to note the following. If you insert a optical CD or DVD disk in the drive while the drive is not selected in WaveLab Elements for import or burning, WaveLab Elements will not be able to "see" the drive. The disk drive is "taken over" by other applications under Mac OSX and is not seen by WaveLab Elements when this happens. To avoid this occurring, make sure there is no disk in the drive when opening any CD window within WaveLab Elements.

### Audio CD authoring basics

To begin authoring an audio CD in WaveLab Elements you simply add audio Clips to the Audio Montage Workspace to automatically create CD tracks. One audio Clip is the equivalent to one CD track, so keep this in mind when organizing your Clips. You can add Clips to an Audio Montage in a variety of ways - see [Audio Montages](#) for more information on adding audio to a montage.

Each time you add a Clip a new CD track is created and appears in the [CD](#) window. This specific tool window is the basis of CD authoring in WaveLab Elements and provides a number of tools for authoring and burning CDs. You can use the [CD](#) window to precisely edit track start and end times, audition each track using the track audition buttons, add ISRC codes, change the gain of individual tracks, and adjust the pauses between Clips. You can even [add and edit CD-Text](#), check the conformity of your disk to common standards and once you are happy with your CD layout burn a CD directly via the [Write Audio CD](#) window.

### Burning your CD/DVD

Once you have compiled an audio CD you can burn it by choosing the  button which opens the [Write Audio CD](#) dialog. Here you can choose the device you wish to burn with and choose standard options as to how the disk will be burnt. For more information see [Write Audio CD](#).

### Authoring a data disk

You can also burn data CDs or DVDs using the [Data CD/DVD](#) window throughout WaveLab Elements (if you wish to back up all your session files, for example). You can access this window via **Utilities > Data CD/DVD....** You can add any file to a new data CD or dvd at anytime via the **File > Special > Add to DATA CD/DVD** function in both the Audio File and Audio Montage Workspaces. Note that all files referenced by the data disk must be saved before attempting to create a data CD/DVD. For more information see [Data CD/DVD](#).

### CD burning preferences

Some preferences for CD burning are set in Global Preferences. Select **Preferences... > Global preferences > CD Burning**.

### Related topics

[Write Audio CD](#)

[Data CD/DVD](#)

[CD](#)

## 4.4 Markers

Markers are visible indicators that can be used to save and name specific time positions in an audio or audio montage file. In WaveLab Elements, markers can be used for adding

comments, editing, synchronizing, defining loops, and defining CD/DVD-A tracks. Markers can be used in pairs as well as individually to mark regions or places for future reference. Once you have defined some markers in your file you can quickly move the playhead to a marker during editing, or select the audio between two markers. Markers can also be used to identify an audio cue, or the beginning or end of a filter or effect.

### About marker types

There are many types of markers, all of which, in addition to visually marking locations in a file, can be used to assist editing and playback. Some like the Loop and CD Track markers have a unique function. For information on each type and how to use them see [Marker types](#).

### Adding markers

The most common way to create markers is from the [Marker window](#). If this is not visible make sure that "Markers" is ticked in the menu **Workspace > Specific tool windows > Markers**. Add markers by:

#### Placing a single marker

Play back the wave. When the cursor is at the position where you want a marker:

- Press [Insert] on the PC or 'M' on the Mac (there is no Insert key on the Mac) to insert a generic marker.
- Click a marker button on the Marker window toolbar. Tooltips for each type of marker are shown when hovering the cursor over its button.
- Select a marker of a specific type from the Marker Window Insert menu.

#### Placing a pair of markers

Some markers come in pairs. To create a pair of markers make a selection around the audio region where you wish to define a start and end:

- Click a marker pair button on the Marker window toolbar. The types of marker are shown when hovering the cursor over each button.
- Select "Create region type from selection" from the Marker Window Insert menu, choosing the type of marker pair you wish to use. You need to specify a region for these marker types to become available.

Some types of markers can be added during recording via the recording dialog. You can also create a marker by dragging a selection of text from a text application to a Time Ruler.

### Moving markers

Once placed, markers can be dragged into a new position in the Waveform windows. If you hover the mouse cursor over a marker, the exact time position is displayed. Dragging the marker with the left mouse button held down causes the time display to be updated as you drag. You can also move a marker by editing its time entry in the Marker window.

### Removing markers

In the Waveform window, click on the head of the marker you want to delete. Drag the marker vertically out of the wave window - a delete symbol is shown as confirmation. You can also use the "Delete selected markers" function from the Marker Window Functions menu.

### Using markers for editing and playback

Once you have defined one or more markers in an audio montage or Audio File you can use them to:

- **Control playback** - you can access various commands to start at, stop at, loop between and skip markers during playback via the Transport menu. These can also be accessed from the Transport toolbar.
- **Define a selection** - you can use markers to help you make selections in a waveform. These can be accessed by various selection commands in the Edit > Select menu.

### About importing and saving loop markers

There is an important point to consider when importing files with loops into WaveLab Elements. Both Wave and AIFF file formats can store limited information about markers (e.g. loop points) in the Audio File, but WaveLab Elements can store much more information (such as extended marker types and comments) in external ".mrk" files that are independent of file formats. Because loop markers may be stored in two ways, there is a potential risk for conflict:

- When you import a file that has never been used in WaveLab Elements before, and which contains loops, the loops are "imported" and displayed as loop markers.
- When you then save the file in AIFF or Wave format, the loop points are stored, both as part of the actual file (so that other applications can read them) and in the ".mrk" file (for WaveLab Elements).
- When you open a file that has been used in WaveLab Elements before, loop tags that were originally in the file, (before you used it in WaveLab Elements) are ignored. Only the loop information in the ".mrk" file is used.

### Using markers in the Audio Montage Workspace

There are some additional marker functions that are specific to the Audio Montage Workspace which allow you to bind selected markers to individual Clips. These functions are useful as they allow you to freely move Clips about and perform editing functions without fear of losing the exact position of a marker. These additional marker functions are located in the [Marker Window](#) when editing in the Audio Montage Workspace:

-  **Bind selected marker to start of focused clip**
-  **Bind selected marker to end of focused clip**
-  **Detach selected marker from its associated clip**

## Related topics

[Marker types](#)

[Marker Window](#)

### 4.4.1 Marker types

Markers have a variety of uses in editing and playback, such as indicating cue points, absolute time locations, highlighting "problem" sections and for visually separating tracks.

#### Basic markers

-  **Generic markers** - these are mainly used for locating certain important positions and for editing (for selecting all the audio between two points, for example). Generic markers can be created directly during recording.

#### Editing/Navigation markers

-   **Region start and end markers** - these markers can be created directly during recording; they can be used to define start and end points for generic regions. Editing/Navigation markers must be used as a pair.

#### Loop markers

-   **Loop start and end markers** - These are used for defining loop points and are required to access loop editing functions in the Process menu of the Audio File Workspace: they are directly connected to the playback Loop mode. These markers are often useful during editing and for creating loops before transferring a sound to a sampler. Loop markers must be used as a pair.

## Related topics

[Markers](#)

[Marker Window](#)

## 4.5 Metering

WaveLab Elements contains a variety of audio meters to help in monitoring and analyzing audio. Meters can be used to monitor audio during playback. There are three different audio meters in WaveLab Elements, each with its own separate window. The meters are accessed via the Analysis menu, the Shared Tool windows menu, or from the Meters control bar.

## Monitor Modes

You can choose the audio source and the mode for displaying information in the meters. You can access the following monitoring functions from the Meters menu or via the Meters command bar:

-  **Monitor Playback** - the meters display the audio output of the Master Section **after the dithering section, unlike the Master Section's own meter.**
-  **Monitor Audio Input** - the meters display the audio input you have chosen in the [Audio Streaming Settings](#). This is useful for monitoring audio while recording.
-  **Monitor File Rendering** - the meters display what is being written to disk during file rendering, taking into account Master Section settings, with average, minimum and maximum peak values computed. After rendering, the meter(s) freeze, and remain frozen until you refresh or change the monitor mode.
-  **Monitor Edit cursor position** - the meters display static information about the audio beneath the edit cursor. Note that the Master Section settings are not taken into account in this mode.
-  **Analyze audio selection** - this allows you to make a selection and have the meters display the average values over the selected range as a static display. The Master Section settings are not taken into account in this mode. When you change the selection, you need to update the meter displays by selecting  "Refresh selection analysis" from the Meters menu (or by clicking the Refresh button on the Meters control bar).

If you have one of the continuous display modes chosen, you can also select to freeze the meters at any time using the  "Freeze meters" command.

## Using meter windows

There can only be one instance of each Audio Meter. For example, if you dock one meter in a Workspace, it will be automatically removed from the place where it was previously located.

Audio Meters can appear in the Audio File, Audio Montage Workspaces as well as the Control Window. They can be used:

- as a docked window in a Workspace
- as a tabbed window in the control window
- as an independent floating window. In this mode, it can be useful to make the window "frameless" from **Window > Hide frame**, to save screen space. In this case, the whole menu is accessed by right-clicking.

The axis of most Audio Meters may be rotated, to view the graphics horizontally or vertically.

Some meters can also have their visual style and display parameters customized via their corresponding settings dialog. This can be accessed through the **Functions > Settings...** menu in each meter window, or by using the  icon.

## Related topics

[VU Meter](#)

[Spectroscope](#)

[Oscilloscope](#)

### 4.5.1 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.
- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips (0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

## Related topics

[Metering](#)

### 4.5.2 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are

shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

## Related topics

[Metering](#)

### 4.5.3 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

## Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

## Related topics

[Metering](#)

## 4.6 Offline processing

Offline processes are used for a variety of editing purposes and creative effects. Offline processing refers to functions that are only performed when saving the file.

"Offline" means the process can't be monitored during playback, either because they require too much processing power or because they require an analysis pass prior to processing. Note that WaveLab Elements only writes temporary files when applying an effect, so the original Audio File is safe. Only when saving the original is the original audio possibly modified.

These offline processes differ to realtime processes (such as listening to effects via the Master Section for example), which only temporarily render an effect while audio is played "through" them.

## Applying processing

Processing can be applied to a selection or to a whole Audio File. For certain processing operations processing the entire file is necessary. This will be indicated by the effects respective dialog. If "Process whole file if there is no selection" is selected in the [Audio File editing preferences](#) editing tab, the whole file will automatically be processed if no selection exists.

To apply processing to some audio, proceed as follows:

1. Make a selection. If the file is in stereo, you can apply processing to either channel or both, by selecting one channel or both.
2. Select the desired offline process from the Process menu.
3. If a dialog appears, make the appropriate settings. If the dialog uses presets, you can load one of them to fill out the settings automatically.
4. When you have finished with the settings in the dialog, click the Apply/Paste/Process button to permanently render the effect to file.

In some cases a status bar dialog is displayed showing the progress of the operation. If you need to interrupt a long process, click the "Cancel" button on the status bar dialog.

## Undo/Redo processing

Even though offline processes appear to alter the file permanently, you can always reinstate a previous version using WaveLab's "undo" feature. The number of Undo/Redo commands is limited only by your available hard drive space. Access the Undo and Redo commands via **Edit > Undo** or **Edit > Redo**.

## Tips for using Offline Processing

Processing dialogs are non-modal - meaning that they stay open and on screen even after processing has been applied. This means that you can still playback audio and access undo/redo commands to audition the results of your effect and make any further adjustments to any settings. You can also use key commands and access any other menu commands while leaving the offline process dialog open. Remember that using and saving presets when you have settings you are happy with can also save you time.

WaveLab Elements contains a powerful array of offline processing tools including the following:

[Change Level](#)

[Level envelope](#)

[Normalize Level](#)

[Silence Generator](#)

[Loop Tone Uniformizer](#)

[Pitch correction](#)

[Time stretching](#)

[Loop Tweaker](#)

## Related topics

[Presets](#)

[Rendering](#)

### 4.6.1 Change Level

This dialog allows you to apply a gain to change the level of an Audio File.

You can also use "Find current peak level" to obtain a report on the peak level of the current audio selection (or the peak level in the whole file, if "Process whole file if there is no selection" is selected in the preferences). This can be useful if you wish to calculate how much you can increase the overall gain of a file without introducing clipping (exceeding 0dB), for example.

To change the level, enter the desired gain and click Apply.

You can access this dialog by choosing **Process** > **Change level...** in the Audio File Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File editing](#)

[Value editing](#)

### 4.6.2 Level envelope

This dialog allows you to create a volume envelope which can be applied to a selected range or a whole Audio File. This could be useful if you need to even-out loud and quiet parts, for example.

You can edit the envelope by:

- Double clicking on the line to add a point: double click on a point to remove it.
- Selecting multiple points (using **[Shift]** click) allows you to move the selection as a group.

You can also use the controls to delete or reset points in the envelope. Use the envelope smoothing button to toggle the envelope points between a straight (polygonal) line or a curved path.

Click Apply to apply the envelope to the audio selection or file.

You can access this dialog in the Audio File Workspace via **Process** > **Level envelope...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File editing](#)

[Adjusting Envelopes](#)

### 4.6.3 Normalize Level

This dialog allows you to change the peak level of your Audio File.

Enter the desired peak level (in dB) that you wish the audio selection to have. You can also use "Find current peak level" to obtain a report on the peak level of the current audio selection (or the peak level in the whole file, if "Process whole file if there is no selection" is selected in the preferences). You can choose to apply the same gain to both stereo channels (Stereo Link) or mix down to a mono file (Mix to Mono) with the assurance that no clipping will occur when both channels are mixed together.

To normalize the selected audio, enter the desired peak level and click Apply.

You can access this dialog by choosing **Process > Level Normalizer...** in the Audio File Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Audio File editing](#)

[Value editing](#)

### 4.6.4 Silence Generator

This dialog allows you to generate "silence", either by replacing an audio selection, or by specifying a duration.

You can also specify a cross fade at each end of the silent region, for a smoother transition. Radio buttons determine where the silent period is placed in the audio.

You can access this dialog in the Audio File Workspace via **Edit > Silence (advanced)...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Silence](#)

### 4.6.5 Loop Tone Uniformizer

This dialog allows you to create sounds that will loop, from audio that is seemingly "un-loopable". These are normally sounds that constantly decay in level or continuously change in timbre. 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 could be useful for creating looped samples for a softsynth or hardware sampler.

To use the Loop Tone Uniformizer you need to have a loop defined using a pair of loop markers ▶ ◀. The original length of the loop is not changed.

### Uniformizers

This tab allows you to specify the method/s used to even out the sound you wish to loop. Choose between "Slice mixing" and/or "Chorus smoothing". For a full explanation of how each of these methods operate use the "What's this?" help function.

For slice mixing, you may need to experiment to see how many slices are needed. Generally the more slices you use, the more natural the sound will be (up to a certain point).

### Pre Cross fade

The Loop Tone Uniformizer also includes the option to cross fade the end of the loop with the start of the newly processed section so that transition into the newly looped section is smoother during playback. Use the envelope drag points or value sliders to adjust the cross fade.

### A note about Post Cross fading

If you have used the Loop Tone Uniformizer within a region of an Audio File, the transition from the end of the loop into the original file in many cases won't be very natural. This can be fixed as follows:

1. Close the Loop Tone Uniformizer and open the Loop Tweaker.
2. Click on the Cross fade tab and deactivate the Cross fade option (the check box).
3. Click on the Post Cross fade tab and make sure Cross fade is activated.
4. Set up the post cross fade parameters and click Apply.

It can also be a useful tip to lock the loop markers after you use this command on a selection within an Audio File. Once the loop is processed in place, moving the loop markers will upset playback of the loop.

You can access this dialog in the Audio File Workspace via **Process > Loop Tone Uniformizer....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Markers](#)

[Adjusting Envelopes](#)

## 4.6.6 Pitch correction

This dialog allows you to detect and change the pitch of a sound without affecting its length.

- **Amount of Shift** - use these controls to find out the current pitch of the audio and if desired, calculate the required shift to match a specific pitch.
- **Method** - use these controls to adjust the method and quality you wish to use when processing the pitch change. You can also choose how the length of the sound is

affected by the operation. By default this process will not change the length of the sound.

This tool could be useful for fixing an off-key vocal note in a live recording, or tuning the pitch of a kick drum sample to fit a particular song, for example.

You can access this dialog from the Audio File Workspace via **Process** > **Pitch Correction....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Adjusting Envelopes](#)

## 4.6.7 Time stretching

This dialog allows you to change the duration of an audio selection (usually without changing its pitch).

You can view exact time information on the original audio selection you wish to stretch and choose the amount you wish to "stretch" it in seconds, beats per minute or as a percentage. You can also choose which method WaveLab uses to stretch the audio and the quality/speed of the processing.

When choosing a method, it is useful to experiment with the different algorithms available to find which one suits your source material the best. Use "What's this?" to find out more information on each method and determine which one will produce the best time stretch without introducing unwanted artifacts.

This function is useful if you want to speed up or slow down a recording to match other material, such as matching the tempo of two drum beats, or fitting an audio track to a section of video, for example.

You can access this dialog from the Audio File Workspace by choosing **Process** > **Time stretching....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Adjusting Envelopes](#)

## 4.6.8 Loop Tweaker

This dialog allows you to refine a region of audio to loop seamlessly.

The Loop Tweaker can just be used to "tweak" an existing loop selection so that it loops perfectly or you can also use it to create a loop from material which does not naturally repeat. To use the Loop Tweaker you must first have a loop defined using a pair of loop markers .

The Loop Tweaker consists of the following tabs:

### Loop points adjustment

This is a visualization of the beginning and end of the waveform between the loop markers. You use this dialog to manually refine a loop selection by dragging on the waveform left/right or using the automatic search buttons to find the nearest "good" loop point. The aim is to align the waveforms so they meet in the middle at a [zero-crossing point](#) with the waveforms matching as closely as possible, being "in phase". When you adjust your loop start and end points within the dialog the start and end loop markers in the main waveform window will adjust accordingly. Note that this movement may or may not be visible depending on the amount you move the markers and the zoom factor you have selected.

It is helpful to have the transport looped during playback so you can hear the difference when you adjust the loop markers within the dialog. Use the Display options to adjust how the Loop Tweaker waveform is visualized. You can also use the temporary memory buttons to capture a number of different loop "candidates" and audition them one by one. Note that if you are not using a cross fade or post cross fade you do not need to click Apply when just tweaking loop points. You can also leave this dialog window open and manually adjust the position of the markers in the main waveform windows if you need to make large adjustments.

### Cross fade

This tab allows you to apply a cross fade at the end of a loop by mixing a copy of the beginning of the loop with it. This can be useful to smooth the transition between the end of a loop and its beginning - especially when using material that doesn't naturally loop. Use the envelope drag points or value sliders to adjust the cross fade envelope. Click Apply to process the cross fade.

### Post cross fade

This tab allows you to cross fade the loop back into the audio after the end of the loop. This is done by mixing a copy of the loop back into the audio. Use the envelope drag points or value sliders to adjust the cross fade envelope. Click Apply to process the post cross fade.

Using the "Copy" button you can insert multiple copies of the loop into the active Audio File, creating a smooth audio sequence, since copies will loop without an audible transition.

You can access this dialog by choosing **Process > Loop Tweaker...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Markers](#)

[Adjusting Envelopes](#)

[Zero crossing](#)

## 4.6.9 Presets

WaveLab's powerful preset system allows you to create your own presets to store commonly used settings. They are available every time you open WaveLab Elements. Presets can be saved for many parameters such as plug-in settings, Audio File Formats or File Attributes, for example. You can access the Presets pop-up menu wherever you see one of these icons:

 or  . Presets are saved as local files on your hard drive, allowing you to conveniently back-up or copy them for use on another computer.

### Working with Presets

When working with Presets you save/edit and load them from their own pop-up menu. Depending on the context, the available functions sometimes vary but generally you can:

- **Save/Save As...** - creates a new Preset file by saving the currently selected settings to your hard disk.
- **Explore presets...** - opens the folder where any existing Presets are stored. This allows you to delete, duplicate and organize your settings into sub-folders using the flexibility of the operating system's file browser.
- **Restore factory settings** - restores the current settings to the factory default.
- **Preset list** - select a Preset from the list of those currently available.
- **Store/restore temporary presets** - when available, use the temporary slots provided to save your settings for the duration of the session. This is useful if you want to quickly test and compare different settings. Select the option "Store temporarily" and from the submenu select the number under which you want to save (#1 - #5). To quickly load the saved settings again, select the corresponding number from the "Restore" submenu.

### VST-2 Presets

VST plug-ins have their own preset handling. When you click the preset button for this type of effect the following options are available:

- **Load/Save Bank** - this allows you to load and save complete sets of presets. The file format is compatible with Cubase.
- **Load/Save Default Bank** - this loads the default bank of presets, or saves the current set of presets as the default bank.
- **Load/Save Effect** - this loads or saves one preset at a time. The file format is again compatible with Cubase.
- **Edit name of current program** - allows you to define or edit the name for the currently selected preset.
- **Preset list** - select a Preset from the list of those currently available.

VST-3 plugins have a simplified list of options.

### About Preset files

Each preset is stored as an individual file inside WaveLab's main presets folder. This makes it easy to back them up or copy them to another computer. You can change the location of this main Presets folder via **Global Preferences > Setting location**. You have the choice of the following locations:

- a standardized location that can be accessed by all users of the computer. That is, all users will share the same settings.
- a standardized location accessed by the current user (the default). That is, each user has his/her own private settings.
- any specific location of your choice. This allows you to customize it for your own requirements.
- a location relative to the application. This allows you to use the application from an USB dongle.

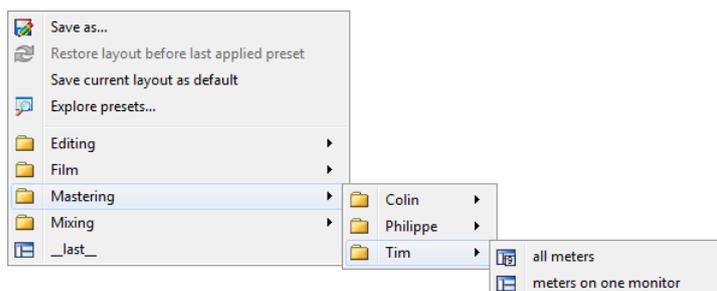
**Default locations** - By default the main Presets folder is found at:

- **Windows 7** - *C:\Users\[User Name]\AppData\Roaming\Steinberg\WaveLab 7\Presets*
- **Windows XP** - *C:\Documents and Settings\[User Name]\Application Data\Steinberg\WaveLab 7\Presets*
- **Mac OS X** - *root/[User Name]/Library/Prefences/WaveLab 7/Presets/*

You can also find this folder by using the "Open active settings folder" link in the preferences pane. This opens your file browser to wherever the main Presets folder is currently located.

Inside this Presets folder each type of preset file has its own folder. For example, all the presets for the Normalizer are stored within *C:\Users\[User Name]\AppData\Roaming\Steinberg\WaveLab 7\Presets\Normalizer\* on Windows 7. When you open the Normalizer dialog and choose a preset via the pop-up menu, the files in this directory will appear as available presets. The reason each preset type has its own dedicated folder is so that WaveLab Elements can locate them automatically when you open the preset pop-up menu.

You can organize your presets into sub-folders so they appear as sub-menus. This can be useful if you wish to organize a lot of presets into your own categories. You can continue to nest folders inside one another to build a standard tree structured menu system. Below is an example of how this looks for a set of window layout presets:



## Related topics

### 4.6.10 Rendering

To Render effects into a temporary or final file, you use the Render function (note that the "Save" function from the File menu does not Render!). The Render function is part of the [Master Section](#) and in other applications is sometimes referred to as "bouncing down" or "mixing down".

Rendering a file "prints" all audible settings and effects that the audio is being routed through in the Master section, to the resultant Audio File. This includes any plug-ins, the level of the faders and any dithering you have set in the Master Section. In WaveLab Elements you normally use the Render function to:

- Mix down a file in a Wave window to a new Audio File, complete with Master Section effects, dithering and other settings.
- Mix down a complete Audio Montage to an Audio File.
- "Apply" all settings in the Master Section to a file in a Wave window.

When you render a file you can choose the format of the new Audio File and whether you wish to create a new file or render the file in place. When the file is rendering you will see a progress bar in the status bar. This allows you to monitor the progress of rendering, pause and if necessary cancel the rendering process.

## Rendering tips

When you are new to the rendering process in WaveLab Elements there are a few things to note:

- when rendering a file with the default option "Bypass Master Section on resulting Audio File" selected in the [Render dialog](#), the Master Section will be bypassed completely when the new file has finished rendering. If this option is **not** selected you will hear the Master Section effects being played back on top of the newly rendered effects. You can check if the Master Section has been bypassed by checking the status of the  "Play through Master Section" button, which is located at the bottom right hand corner of the status bar.
- the Master Section's  "Bypass" switch affects playback only. So even if you can't hear effects when you are playing back your audio, any applied effects are still rendered.
- the  "Effect on/off" switch for each individual plug-in affects both playback and Rendering.
- if you are working with an Audio File/montage that contains lots of effects and/or tracks and you experience playback problems, it can be useful to mix down a copy of your montage/audio file to free up some processing power. You can then continue editing the resultant file with the effects rendered. Remember to save a copy of your session before doing this so you can go back and edit any levels or effects if you need to.

For more information about choosing settings when rendering see the [Render Wave window](#) and [Render Montage window](#). For more information on applying effects see the [Master Section](#).

### Related topics

[Render Wave window](#)

[Render Montage window](#)

[Master Section](#)

[Audio Plug-ins](#)

## 4.7 Presets

WaveLab's powerful preset system allows you to create your own presets to store commonly used settings. They are available every time you open WaveLab Elements. Presets can be saved for many parameters such as plug-in settings, Audio File Formats or File Attributes, for example. You can access the Presets pop-up menu wherever you see one of these icons:  or . Presets are saved as local files on your hard drive, allowing you to conveniently back-up or copy them for use on another computer.

### Working with Presets

When working with Presets you save/edit and load them from their own pop-up menu. Depending on the context, the available functions sometimes vary but generally you can:

- **Save/Save As...** - creates a new Preset file by saving the currently selected settings to your hard disk.
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VST-3 plugins have a simplified list of options.

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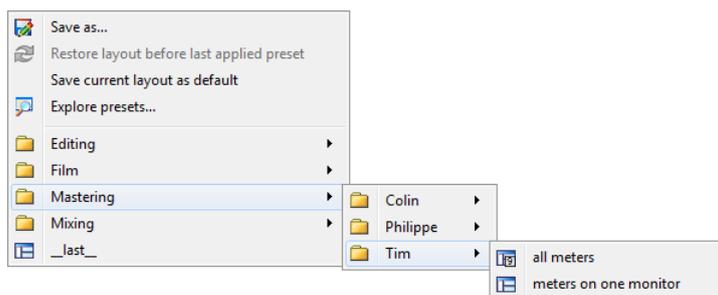
- **Windows 7** - *C:\Users\[User Name]\AppData\Roaming\Steinberg\WaveLab 7\Presets*
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## Related topics

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For more information about choosing settings when rendering see the [Render Wave window](#) and [Render Montage window](#). For more information on applying effects see the [Master Section](#).

### Related topics

[Render Wave window](#)

[Render Montage window](#)

[Master Section](#)

[Audio Plug-ins](#)

# Chapter 5

## Audio File editing

The Audio File Workspace's Wave window is the heart of WaveLab's audio editing capabilities. This is where you view, play back and edit individual Audio Files.

The Wave window gives you a graphical representation of an Audio File. It consists of two parts:

- The upper waveform (**Overview**)  
This is mainly used for navigating through long files. Since you can have different zoom factors in the two areas, the Overview can display the entire wave while the Main view only shows you a detailed portion for precise editing.
- The lower waveform area (**Main view**)  
This is where the audio editing action takes place. You can perform various operations on the wave such as copying, cutting, pasting, moving and deleting.

### Waveform views

In the Audio File Workspace, the main wave editing window and the overview can independently be set to display one of three display modes:

- **Wave** - this is the default waveform display.
- **Loudness** - this displays the average loudness of an Audio File, which can be useful in many circumstances. For example, this display mode gives you an overview of the amount of compression applied to a song. The more dips in the curve, the more dynamics in the audio material. An even curve with few dips indicates that the material is compressed with a limited dynamic range (which is common for modern pop/dance music). Up to four different curves can be shown simultaneously in the Loudness envelope display. These curves have different colors and represent the average loudness of the signal in different areas of the frequency spectrum. This can be useful to visualize where in the frequency domain the loudness is "spread" at a given time, or to display the loudness of a specific part of the spectrum. The curves can be shown individually or in any combination.

## Rulers

There are both time and level rulers. These can be hidden and displayed (see the Ruler and Wave Display context menus). You can also set which units of time and level they show. To access the settings for both rulers, right-click anywhere on the relevant ruler.

## Editing Tools

Precise editing of your audio is achieved in the main (lower) waveform window. There are three main tools that are used for directly editing an Audio File:

 **Time Selection cursor** - This is the default cursor and allows you to select and resize regions of audio you wish to edit. Click and drag in the main waveform window to make a selection. You can modify the selected region by click-dragging on the edges of the selection. You can also modify a selected audio region by holding down **[Shift]** and clicking on the waveform. The selection extends/shrinks to the clicked point. If you hold the cursor over one channel of a stereo file you can make selections in that individual channel. You can double-click inside a region to select it then drag the mouse to select the next or previous regions, that is, you snap to markers while dragging.

 **Pen tool** - this tool allows you to redraw the waveform directly in the wave window. It can be used to quickly repair waveform errors by hand. The Pen tool can only be used if the [Zoom resolution](#) is set to at least 1:8 (one pixel on the screen equals 8 samples) or higher. If you wish to redraw the waveform of both channels in a stereo file at once, press **[Shift]** while drawing.

Once you have defined an audio selection there are many editing tools available in the **Edit** menu of the Audio File Workspace for you to explore. These range from basic editing commands such as Copy and Paste to special functions which can perform tasks such as trimming, muting, crossfading, appending, prepending, silencing and repeating an audio selection, for example. It is well worth exploring the tools available in this menu.

There a number of options available that affect editing in the waveform window. See [Audio File editing preferences](#) for more information on the various preferences available.

## Editing Shortcuts

You can navigate through your Audio File by dragging the Time Selection cursor. Alternatively you can use the following keyboard shortcuts:

- Use the [Left Arrow] and [Right Arrow] to move the cursor one pixel in either direction.
- Use **[Ctrl]/[Command]** + [Left Arrow] and [Right Arrow] to move the cursor twenty pixels in either direction. You can also use the [Page up] and [Page Down] keys.
- Use the [Home] and [End] keys to navigate to the beginning and end of the wave.

You can also scroll and zoom within the Audio File Workspace using several other mouse and keyboard shortcuts. See [Zooming and scrolling](#) for more detailed information.

To audition your Audio File hold down **[Alt]/[Option]** and click anywhere in the waveform to begin playback.

Dragging can also be used with several editing functions in the Audio File Workspace. See Audio File Workspace in [Dragging operations](#) for more information.

## Related topics

[Offline processing](#)

[Analysis](#)

[Metering](#)

[Transport controls](#)

[Specific tool windows](#)

[Shared tool windows](#)

[Mix dialog](#)

[Zoom factor](#)

[Peak Files](#)

## 5.1 Offline processing

Offline processes are used for a variety of editing purposes and creative effects. Offline processing refers to functions that are only performed when saving the file.

"Offline" means the process can't be monitored during playback, either because they require too much processing power or because they require an analysis pass prior to processing. Note that WaveLab Elements only writes temporary files when applying an effect, so the original Audio File is safe. Only when saving the original is the original audio possibly modified.

These offline processes differ to realtime processes (such as listening to effects via the Master Section for example), which only temporarily render an effect while audio is played "through" them.

### Applying processing

Processing can be applied to a selection or to a whole Audio File. For certain processing operations processing the entire file is necessary. This will be indicated by the effects respective dialog. If "Process whole file if there is no selection" is selected in the [Audio File editing preferences](#) editing tab, the whole file will automatically be processed if no selection exists.

To apply processing to some audio, proceed as follows:

1. Make a selection. If the file is in stereo, you can apply processing to either channel or both, by selecting one channel or both.
2. Select the desired offline process from the Process menu.
3. If a dialog appears, make the appropriate settings. If the dialog uses presets, you can load one of them to fill out the settings automatically.
4. When you have finished with the settings in the dialog, click the Apply/Paste/Process button to permanently render the effect to file.

In some cases a status bar dialog is displayed showing the progress of the operation. If you need to interrupt a long process, click the "Cancel" button on the status bar dialog.

## Undo/Redo processing

Even though offline processes appear to alter the file permanently, you can always reinstate a previous version using WaveLab's "undo" feature. The number of Undo/Redo commands is limited only by your available hard drive space. Access the Undo and Redo commands via **Edit > Undo** or **Edit > Redo**.

## Tips for using Offline Processing

Processing dialogs are non-modal - meaning that they stay open and on screen even after processing has been applied. This means that you can still playback audio and access undo/redo commands to audition the results of your effect and make any further adjustments to any settings. You can also use key commands and access any other menu commands while leaving the offline process dialog open. Remember that using and saving presets when you have settings you are happy with can also save you time.

WaveLab Elements contains a powerful array of offline processing tools including the following:

[Change Level](#)

[Level envelope](#)

[Normalize Level](#)

[Silence Generator](#)

[Loop Tone Uniformizer](#)

[Pitch correction](#)

[Time stretching](#)

[Loop Tweaker](#)

## Related topics

[Presets](#)

[Rendering](#)

### 5.1.1 Change Level

This dialog allows you to apply a gain to change the level of an Audio File.

You can also use "Find current peak level" to obtain a report on the peak level of the current audio selection (or the peak level in the whole file, if "Process whole file if there is no selection" is selected in the preferences). This can be useful if you wish to calculate how much you can increase the overall gain of a file without introducing clipping (exceeding 0dB), for example.

To change the level, enter the desired gain and click Apply.

You can access this dialog by choosing **Process > Change level...** in the Audio File Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File editing](#)

[Value editing](#)

### 5.1.2 Level envelope

This dialog allows you to create a volume envelope which can be applied to a selected range or a whole Audio File. This could be useful if you need to even-out loud and quiet parts, for example.

You can edit the envelope by:

- Double clicking on the line to add a point: double click on a point to remove it.
- Selecting multiple points (using **[Shift]** click) allows you to move the selection as a group.

You can also use the controls to delete or reset points in the envelope. Use the envelope smoothing button to toggle the envelope points between a straight (polygonal) line or a curved path.

Click Apply to apply the envelope to the audio selection or file.

You can access this dialog in the Audio File Workspace via **Process > Level envelope...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File editing](#)

[Adjusting Envelopes](#)

### 5.1.3 Normalize Level

This dialog allows you to change the peak level of your Audio File.

Enter the desired peak level (in dB) that you wish the audio selection to have. You can also use "Find current peak level" to obtain a report on the peak level of the current audio selection (or the peak level in the whole file, if "Process whole file if there is no selection" is selected in the preferences). You can choose to apply the same gain to both stereo channels (Stereo Link) or mix down to a mono file (Mix to Mono) with the assurance that no clipping will occur when both channels are mixed together.

To normalize the selected audio, enter the desired peak level and click Apply.

You can access this dialog by choosing **Process > Level Normalizer...** in the Audio File Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File editing](#)

[Value editing](#)

### 5.1.4 Silence Generator

This dialog allows you to generate "silence", either by replacing an audio selection, or by specifying a duration.

You can also specify a cross fade at each end of the silent region, for a smoother transition. Radio buttons determine where the silent period is placed in the audio.

You can access this dialog in the Audio File Workspace via **Edit > Silence (advanced)...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Silence](#)

### 5.1.5 Loop Tone Uniformizer

This dialog allows you to create sounds that will loop, from audio that is seemingly "un-loopable". These are normally sounds that constantly decay in level or continuously change in timbre. 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 could be useful for creating looped samples for a softsynth or hardware sampler.

To use the Loop Tone Uniformizer you need to have a loop defined using a pair of loop markers . The original length of the loop is not changed.

#### Uniformizers

This tab allows you to specify the method/s used to even out the sound you wish to loop. Choose between "Slice mixing" and/or "Chorus smoothing". For a full explanation of how each of these methods operate use the "What's this?" help function.

For slice mixing, you may need to experiment to see how many slices are needed. Generally the more slices you use, the more natural the sound will be (up to a certain point).

#### Pre Cross fade

The Loop Tone Uniformizer also includes the option to cross fade the end of the loop with the start of the newly processed section so that transition into the newly looped section is smoother during playback. Use the envelope drag points or value sliders to adjust the cross fade.

#### A note about Post Cross fading

If you have used the Loop Tone Uniformizer within a region of an Audio File, the transition from the end of the loop into the original file in many cases won't be very natural. This can be fixed as follows:

1. Close the Loop Tone Uniformizer and open the Loop Tweaker.

2. Click on the Cross fade tab and deactivate the Cross fade option (the check box).
3. Click on the Post Cross fade tab and make sure Cross fade is activated.
4. Set up the post cross fade parameters and click Apply.

It can also be a useful tip to lock the loop markers after you use this command on a selection within an Audio File. Once the loop is processed in place, moving the loop markers will upset playback of the loop.

You can access this dialog in the Audio File Workspace via **Process > Loop Tone Uniformizer...**

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### Related topics

[Markers](#)

[Adjusting Envelopes](#)

## 5.1.6 Pitch correction

This dialog allows you to detect and change the pitch of a sound without affecting its length.

- **Amount of Shift** - use these controls to find out the current pitch of the audio and if desired, calculate the required shift to match a specific pitch.
- **Method** - use these controls to adjust the method and quality you wish to use when processing the pitch change. You can also choose how the length of the sound is affected by the operation. By default this process will not change the length of the sound.

This tool could be useful for fixing an off-key vocal note in a live recording, or tuning the pitch of a kick drum sample to fit a particular song, for example.

You can access this dialog from the Audio File Workspace via **Process > Pitch Correction...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Adjusting Envelopes](#)

## 5.1.7 Time stretching

This dialog allows you to change the duration of an audio selection (usually without changing its pitch).

You can view exact time information on the original audio selection you wish to stretch and choose the amount you wish to "stretch" it in seconds, beats per minute or as a percentage. You can also choose which method WaveLab uses to stretch the audio and the quality/speed of the processing.

When choosing a method, it is useful to experiment with the different algorithms available to find which one suits your source material the best. Use "What's this?" to find out more information on each method and determine which one will produce the best time stretch without introducing unwanted artifacts.

This function is useful if you want to speed up or slow down a recording to match other material, such as matching the tempo of two drum beats, or fitting an audio track to a section of video, for example.

You can access this dialog from the Audio File Workspace by choosing **Process > Time stretching...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Adjusting Envelopes](#)

### 5.1.8 Loop Tweaker

This dialog allows you to refine a region of audio to loop seamlessly.

The Loop Tweaker can just be used to "tweak" an existing loop selection so that it loops perfectly or you can also use it to create a loop from material which does not naturally repeat. To use the Loop Tweaker you must first have a loop defined using a pair of loop markers .

The Loop Tweaker consists of the following tabs:

#### Loop points adjustment

This is a visualization of the beginning and end of the waveform between the loop markers. You use this dialog to manually refine a loop selection by dragging on the waveform left/right or using the automatic search buttons to find the nearest "good" loop point. The aim is to align the waveforms so they meet in the middle at a [zero-crossing point](#) with the waveforms matching as closely as possible, being "in phase". When you adjust your loop start and end points within the dialog the start and end loop markers in the main waveform window will adjust accordingly. Note that this movement may or may not be visible depending on the amount you move the markers and the zoom factor you have selected.

It is helpful to have the transport looped during playback so you can hear the difference when you adjust the loop markers within the dialog. Use the Display options to adjust how the Loop Tweaker waveform is visualized. You can also use the temporary memory buttons to capture a number of different loop "candidates" and audition them one by one. Note that if you are not using a cross fade or post cross fade you do not need to click Apply when just tweaking loop points. You can also leave this dialog window open and manually adjust the position of the markers in the main waveform windows if you need to make large adjustments.

#### Cross fade

This tab allows you to apply a cross fade at the end of a loop by mixing a copy of the beginning

of the loop with it. This can be useful to smooth the transition between the end of a loop and its beginning - especially when using material that doesn't naturally loop. Use the envelope drag points or value sliders to adjust the cross fade envelope. Click Apply to process the cross fade.

### Post cross fade

This tab allows you to cross fade the loop back into the audio after the end of the loop. This is done by mixing a copy of the loop back into the audio. Use the envelope drag points or value sliders to adjust the cross fade envelope. Click Apply to process the post cross fade.

Using the "Copy" button you can insert multiple copies of the loop into the active Audio File, creating a smooth audio sequence, since copies will loop without an audible transition.

You can access this dialog by choosing **Process > Loop Tweaker...**

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### Related topics

[Markers](#)

[Adjusting Envelopes](#)

[Zero crossing](#)

## 5.1.9 Presets

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When working with Presets you save/edit and load them from their own pop-up menu. Depending on the context, the available functions sometimes vary but generally you can:

- **Save/Save As...** - creates a new Preset file by saving the currently selected settings to your hard disk.
- **Explore presets...** - opens the folder where any existing Presets are stored. This allows you to delete, duplicate and organize your settings into sub-folders using the flexibility of the operating system's file browser.
- **Restore factory settings** - restores the current settings to the factory default.
- **Preset list** - select a Preset from the list of those currently available.
- **Store/restore temporary presets** - when available, use the temporary slots provided to save your settings for the duration of the session. This is useful if you want to quickly

test and compare different settings. Select the option "Store temporarily" and from the submenu select the number under which you want to save (#1 - #5). To quickly load the saved settings again, select the corresponding number from the "Restore" submenu.

### VST-2 Presets

VST plug-ins have their own preset handling. When you click the preset button for this type of effect the following options are available:

- **Load/Save Bank** - this allows you to load and save complete sets of presets. The file format is compatible with Cubase.
- **Load/Save Default Bank** - this loads the default bank of presets, or saves the current set of presets as the default bank.
- **Load/Save Effect** - this loads or saves one preset at a time. The file format is again compatible with Cubase.
- **Edit name of current program** - allows you to define or edit the name for the currently selected preset.
- **Preset list** - select a Preset from the list of those currently available.

VST-3 plugins have a simplified list of options.

### About Preset files

Each preset is stored as an individual file inside WaveLab's main presets folder. This makes it easy to back them up or copy them to another computer. You can change the location of this main Presets folder via **Global Preferences > Setting location**. You have the choice of the following locations:

- a standardized location that can be accessed by all users of the computer. That is, all users will share the same settings.
- a standardized location accessed by the current user (the default). That is, each user has his/her own private settings.
- any specific location of your choice. This allows you to customize it for your own requirements.
- a location relative to the application. This allows you to use the application from an USB dongle.

**Default locations** - By default the main Presets folder is found at:

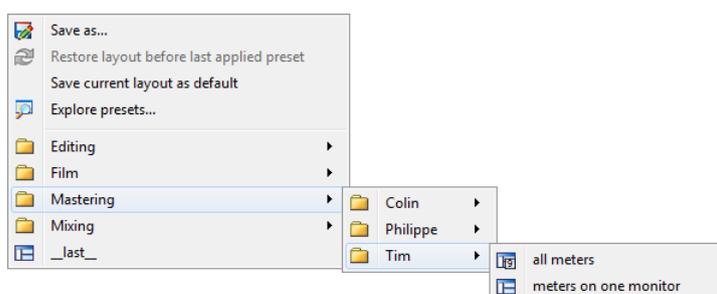
- **Windows 7** - `C:\Users\[User Name]\AppData\Roaming\Steinberg\WaveLab 7\Presets`

- **Windows XP** - *C:\Documents and Settings\[User Name]\Application Data\Steinberg\WaveLab 7\Presets*
- **Mac OS X** - *root/[User Name]/Library/Prefences/WaveLab 7/Presets/*

You can also find this folder by using the "Open active settings folder" link in the preferences pane. This opens your file browser to wherever the main Presets folder is currently located.

Inside this Presets folder each type of preset file has its own folder. For example, all the presets for the Normalizer are stored within *C:\Users\[User Name]\AppData\Roaming\Steinberg\WaveLab 7\Presets\Normalizer\* on Windows 7. When you open the Normalizer dialog and choose a preset via the pop-up menu, the files in this directory will appear as available presets. The reason each preset type has its own dedicated folder is so that WaveLab Elements can locate them automatically when you open the preset pop-up menu.

You can organize your presets into sub-folders so they appear as sub-menus. This can be useful if you wish to organize a lot of presets into your own categories. You can continue to nest folders inside one another to build a standard tree structured menu system. Below is an example of how this looks for a set of window layout presets:



## Related topics

### 5.1.10 Rendering

To Render effects into a temporary or final file, you use the Render function (note that the "Save" function from the File menu does not Render!). The Render function is part of the [Master Section](#) and in other applications is sometimes referred to as "bouncing down" or "mixing down".

Rendering a file "prints" all audible settings and effects that the audio is being routed through in the Master section, to the resultant Audio File. This includes any plug-ins, the level of the faders and any dithering you have set in the Master Section. In WaveLab Elements you normally use the Render function to:

- Mix down a file in a Wave window to a new Audio File, complete with Master Section effects, dithering and other settings.
- Mix down a complete Audio Montage to an Audio File.
- "Apply" all settings in the Master Section to a file in a Wave window.

When you render a file you can choose the format of the new Audio File and whether you wish to create a new file or render the file in place. When the file is rendering you will see

a progress bar in the status bar. This allows you to monitor the progress of rendering, pause and if necessary cancel the rendering process.

### Rendering tips

When you are new to the rendering process in WaveLab Elements there are a few things to note:

- when rendering a file with the default option "Bypass Master Section on resulting Audio File" selected in the [Render dialog](#), the Master Section will be bypassed completely when the new file has finished rendering. If this option is **not** selected you will hear the Master Section effects being played back on top of the newly rendered effects. You can check if the Master Section has been bypassed by checking the status of the  "Play through Master Section" button, which is located at the bottom right hand corner of the status bar.
- the Master Section's  "Bypass" switch affects playback only. So even if you can't hear effects when you are playing back your audio, any applied effects are still rendered.
- the  "Effect on/off" switch for each individual plug-in affects both playback and Rendering.
- if you are working with an Audio File/montage that contains lots of effects and/or tracks and you experience playback problems, it can be useful to mix down a copy of your montage/audio file to free up some processing power. You can then continue editing the resultant file with the effects rendered. Remember to save a copy of your session before doing this so you can go back and edit any levels or effects if you need to.

For more information about choosing settings when rendering see the [Render Wave window](#) and [Render Montage window](#). For more information on applying effects see the [Master Section](#).

### Related topics

[Render Wave window](#)

[Render Montage window](#)

[Master Section](#)

[Audio Plug-ins](#)

## 5.2 Analysis

WaveLab Elements provides you with a comprehensive set of tools for analyzing your audio and diagnosing any errors. You can view your Audio File in many different ways using the suite of audio meters, via its frequency spectrum, or even in three dimensions. There are also several tools to interrogate any sample of your audio and find any errors or anomalies. Below you can find links to some of these tools used in WaveLab Elements. Most of them can be found in the **Analysis** menu. The meters can be found in the **Meters** menu or via the

**Workspace > Shared tool windows.** More specialized tools also exist as part of some offline processing dialogs, such as the "Find current peak level" command in the Change level dialog, or the "Eliminate DC Offset" dialog, for example.

### Related topics

[Global analysis](#)

[3D Frequency Analysis](#)

[VU Meter](#)

[Spectroscope](#)

[Oscilloscope](#)

[Metering](#)

[Audio File editing](#)

[Offline processing](#)

## 5.2.1 Global analysis

This dialog allows you to perform advanced analysis on your audio to identify areas with specified properties. It can be used to find problem areas such as glitches or clipped samples, or just to check general information such as the pitch of a sound.

**How it works** When you analyze a section of an Audio File, WaveLab Elements scans it and extracts information which it displays in the dialog. It also "pin-points" sections of the file that meet specific characteristics, for example, sections being very loud or almost silent. You can then browse between these points, set markers or zoom in on them.

**Types of analysis** On most of the tabs, you will find settings determining exactly how the analysis will be performed. Each tab focuses on a particular analysis area:

- **Peaks** - this tab is for finding individual samples with very high decibel values.
- **Loudness** - this tab is for finding sections that are perceived by the human ear as louder or weaker in volume. WaveLab uses an accurate method (RMS - Root Mean Square), to measure a consecutive section of samples and then average their value.
- **Pitch** - this tab is used for finding the exact average pitch of a section of audio. The method works best on monophonic material (single notes, without chords or harmonies) and assumes the analyzed section has a relatively stable pitch. As a general rule try to analyze the sustain portion of a sound, rather than the attack.
- **Extras** - this tab is for informing you about DC offsets and the significant bit resolution of the file. This can be useful, for example, if you wanted to check whether a 16 bit file really uses 16 bits (or if it was actually recorded with only 8 bit resolution and then upscaled to 16 bits).
- **Errors** - this tab is to help you find glitches and sections where the audio has clipped (gone beyond 0 dB). **Checking and browsing the results** Checking the results on the Pitch and Extra tabs is simple, since only one value is returned for the whole section

of analyzed audio. For all the other tabs, the analysis methods returns a series of exact points ("hot points") in the file or section of audio. Use the relevant buttons in each tab to select the "hot points" you wish to look at in more detail. Using the slider you can then browse or skip between these points, adding markers or focusing the waveform display at that particular point in the file.

You can access this dialog in the Audio File Workspace via **Analysis > Global Analysis....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[3D Frequency Analysis](#)

### 5.2.2 3D Frequency Analysis

This function in WaveLab Elements allows you to view a wave file in both the frequency and time domains. Although a wave display (time domain) tells you a lot about where one sound starts or ends in a file, for example, it doesn't tell you anything about the timbral contents of the file. A frequency graph (frequency domain) allows you to investigate the individual frequency components of an Audio File. With the addition of the time dimension you can follow these frequencies in your Audio File over time and pick out individual snare hits or vocal notes in a song, for example. The graph used in WaveLab Elements is sometimes called a 3D-Spectrogram.

#### Displaying and viewing the graph

You can choose to analyze a selection of audio or an entire file. If you select a stereo recording, a mix of the two channels will be analyzed. Once you have your region selected or no region (in the case you wish to analyze the whole file) choose **Analysis > 3D Frequency Analysis....** The graph window will appear.

There is a scrub wheel that allows you to rotate the view around and a settings button that displays the range of frequencies currently displayed. Click on this button to open the [settings dialog](#) and edit the frequency range displayed, as well as to access other options.

**Tip:** The length of the selection affects the accuracy of the analysis. For short selections the result will be very detailed. For longer selections (over a minute or so) the results are generally less detailed as the harmonic content may vary between "measuring points", and as such are not included in the graph. You might for example make a separate analysis of the attack (beginning) of a sound, since the most drastic variations usually occur there.

#### Some example uses for 3D Frequency Analysis

The 3d Frequency Analysis graph in WaveLab Elements can be used for many purposes, for example:

- to see how the frequency spectrum is distributed in a mix.
- as a basis for EQ-ing, so that you know which frequencies to reduce or boost.

- to see which parts of the audio spectrum a certain background noise occupies (for removing by filtering).
- for educational purposes - these graphs tell you a lot about how different sounds are "built".

### Related topics

[Frequency range](#)

[Metering](#)

### 5.2.3 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.
- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips (0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

### Related topics

[Metering](#)

### 5.2.4 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

#### Related topics

[Metering](#)

### 5.2.5 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

#### Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

#### Related topics

[Metering](#)

## 5.3 Metering

WaveLab Elements contains a variety of audio meters to help in monitoring and analyzing audio. Meters can be used to monitor audio during playback. There are three different audio meters in WaveLab Elements, each with its own separate window. The meters are accessed via the Analysis menu, the Shared Tool windows menu, or from the Meters control bar.

## Monitor Modes

You can choose the audio source and the mode for displaying information in the meters. You can access the following monitoring functions from the Meters menu or via the Meters command bar:

-  **Monitor Playback** - the meters display the audio output of the Master Section **after the dithering section, unlike the Master Section's own meter.**
-  **Monitor Audio Input** - the meters display the audio input you have chosen in the [Audio Streaming Settings](#). This is useful for monitoring audio while recording.
-  **Monitor File Rendering** - the meters display what is being written to disk during file rendering, taking into account Master Section settings, with average, minimum and maximum peak values computed. After rendering, the meter(s) freeze, and remain frozen until you refresh or change the monitor mode.
-  **Monitor Edit cursor position** - the meters display static information about the audio beneath the edit cursor. Note that the Master Section settings are not taken into account in this mode.
-  **Analyze audio selection** - this allows you to make a selection and have the meters display the average values over the selected range as a static display. The Master Section settings are not taken into account in this mode. When you change the selection, you need to update the meter displays by selecting  "Refresh selection analysis" from the Meters menu (or by clicking the Refresh button on the Meters control bar).

If you have one of the continuous display modes chosen, you can also select to freeze the meters at any time using the  "Freeze meters" command.

## Using meter windows

There can only be one instance of each Audio Meter. For example, if you dock one meter in a Workspace, it will be automatically removed from the place where it was previously located.

Audio Meters can appear in the Audio File, Audio Montage Workspaces as well as the Control Window. They can be used:

- as a docked window in a Workspace
- as a tabbed window in the control window
- as an independent floating window. In this mode, it can be useful to make the window "frameless" from **Window > Hide frame**, to save screen space. In this case, the whole menu is accessed by right-clicking.

The axis of most Audio Meters may be rotated, to view the graphics horizontally or vertically.

Some meters can also have their visual style and display parameters customized via their corresponding settings dialog. This can be accessed through the **Functions > Settings...** menu in each meter window, or by using the  icon.

## Related topics

[VU Meter](#)

[Spectroscope](#)

[Oscilloscope](#)

### 5.3.1 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.
- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips (0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

## Related topics

[Metering](#)

### 5.3.2 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are

shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

### 5.3.3 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

### Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 5.4 Transport controls

The transport controls allow you to control playback within an Audio File or montage, and to open the record window. It can be accessed via the Transport menu or the Transport toolbar. See [Command bars](#) for more information.

The Transport menu gives access to (and shows keyboard shortcuts to) the same functions that are available in the transport toolbar.

The Transport toolbar gives quick access to most of these functions. If the toolbar is hidden, select **Workspace** > **Command bars** > **Transport commands**. Transport functions operate on the current Audio File.

The basic transport functions are:

- **Loop On/Off** 
  - Toggles looping on/off for the currently selected Audio File or montage.

- **Start of file**  / **End of File** 
  - Move the cursor to the beginning or end of the currently selected Audio File.
- **Skip forward**  / **Skip backward** 
  - Skip the cursor forwards or backwards within the currently selected Audio File.
- **Play** 
  - Begin playback of the current Audio File.
- **Stop** 
  - Stop playback of the current Audio File. A second click moves the cursor to the beginning of the last start position. A further click returns the cursor to the start of the file.
- **Record** 
  - Opens the recording window from which you can start recording.

Additional transport functions such as start, skip and stopping playback options are also available from the transport command bar. In WaveLab Elements additional playback speed and jog/shuttle shortcuts are also provided.

*For an explanation of each parameter and interface feature, click on  , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Recording Dialog](#)

[Command bars](#)

## 5.5 Specific tool windows

Specific tool windows are windows that are specific to the current Workspace. They can perform useful tasks in the active Workspace.

They can be docked and un-docked.

### Audio File Workspace specific tool windows

The following specific tool windows are available within the Audio File Workspace:

[Metadata window](#)

[Sample attributes](#)

[Marker Window](#)

[File Browser](#)

### 5.5.1 Metadata window

This specific tool window displays any Meta-data tags belonging to the currently active file.

This usually consists of a set of tags that describe the audio contents. For example it might include the title of the track, the author, and the date it was created. This data will vary depending on the file type, and not all file types store this information so it may be blank. To edit the file's meta-data tags click anywhere in the window. This will open the corresponding file attributes dialog.

You can access this dialog in the Audio File Workspace via **Workspace > Specific tool windows > Meta-Data**.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Specific tool windows](#)

### 5.5.2 Sample attributes

This dialog allows you to define settings for an audio sample before loading it into a hardware or software sampler.

The settings do not process the sample in any way, they just give the file properties that the receiving sampler can use. This includes information about the pitch of the sample (which can be detected automatically by WaveLab Elements), the key range that the sample should span, and the velocity range to occupy. For WAV and AIFF files, this information is stored in the file's header.

By default, there are no sample attributes in an Audio File. Therefore you must explicitly create this information by clicking on the "Create" button first. This dialog is useful if your sampler can take advantage of these additional tags. If supported by your sampler, it can save you time by allowing you to both edit and define a samples properties from within WaveLab Elements.

You can access this dialog via **Workspace > Specific tool windows > Sample Attributes...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

### 5.5.3 Marker Window

The marker window is a specific tool window that allows you to create, edit and use markers while working on an audio waveform.

## The Marker list

The marker window contains a list of any markers placed in the currently active file along with their corresponding details. Click on a column header to sort the list in ascending or descending order based on the values in that column. You can also use the Filter menu to toggle which types of markers are displayed in the list.

From this list of markers you can use the fields, controls and menus to:

- **Create a new marker at the playback head position** - click on a marker icon (at the top of the window) or choose a marker type from the Insert menu to drop a marker at the current playhead location.
- **Create a pair of markers from a selection** - make a selection in the waveform and then click on a pair of marker icons (at the top of the window) or choose a "Create region" command from the Insert menu to drop a pair of markers at either side of the current selection.
- **Start playback** - It is possible to start playback at the selected marker position, with or without pre-roll, by clicking on the leftmost icons. Click on  in the "audition" column to play the wave from that marker position with a pre-roll. Click on the right hand button to play the wave exactly from the marker position.
- **Change marker types** - You can change a marker type by (left) clicking on its icon and choosing another marker type from the pop-up list that appears.
- **Edit a marker's name/time/comments** - double click in a cell to edit a value (to align the marker to an exact time, for instance). You can edit the name of the marker, its time position and any comments.
- **Lock a marker's position** - select the checkbox to lock the marker. This prevents it from being accidentally dragged to a new position in the Waveform window.

For more information on using markers see [Markers](#). For details on the different marker types and their uses see [Marker types](#). Note that there are more marker features available in the Montage version compared to the Audio File version. See "Using markers in the Audio Montage Workspace" in [Markers](#) for more details.

You can access this specific tool window within the Audio Files and Audio Montage Workspaces via **Workspace > Specific tool windows > Markers**.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Specific tool windows](#)

[Markers](#)

[Marker types](#)

### 5.5.4 File Browser

This dialog allows you to browse files directly from within WaveLab Elements rather than using your operating system's file browser.

It provides you with all the standard browsing functions (such as List and Icon views) You can use it to open or insert an entire file or a specific region of a file by dragging and releasing the file in the location you wish to insert the file. In the Audio Montage Workspace you can also choose to only view certain types of WaveLab Elements specific files. The File Browser can be very useful in speeding up the process of auditioning a long list of sound files. It can also be used to drag to windows such as Data CD/DVD, including dragging folders.

#### The playback functions

**Play file**  Once you have selected a file in the File Browser list, you can audition it by clicking Play in the File Browser's toolbar. Click again to stop.

**Auto-play**  You can also have files play back automatically as soon as they are selected. To do this, activate Auto-Play mode.

**Tip:** To audition a long list of Audio Files, enable Auto-play and use the UP and DOWN cursor keys to step through each Audio File in quick succession.

#### Opening and inserting a file or region

Once you have chosen a file you wish to open, double-click it to open the file in the current Workspace. You can also open it by dragging it onto an empty tabbed group, or onto the tab bar of a tabbed group.

You can also drag the file over a wave view to **insert** it at a given point. When you drag a file over a wave view, a beam is displayed so as to clearly display the insertion point.

You can access this dialog via **Workspace > Specific tool windows > File Browser**.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Specific tool windows](#)

## 5.6 Shared tool windows

Shared tool windows are windows that can only exist in one place at a time and are shared between Workspaces. They perform useful tasks in the active Workspace.

They can be docked and un-docked. [VU Meter](#)

[Oscilloscope](#)

[Spectroscope](#)

[Master Section](#)

## Related topics

[About Tool Windows](#)

[Metering](#)

[Docking windows](#)

### 5.6.1 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.
- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips (0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

## Related topics

[Metering](#)

### 5.6.2 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

### Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 5.6.3 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 5.7 Peak Files

A peak file is a small file with the extension ".gpk" that is automatically created by WaveLab each time a file is modified or opened in WaveLab for the first time.

The peak file contains information about the waveform and determines how it is drawn in the wave window. The purpose of the peak file created by WaveLab Elements is to speed up the time it takes to draw a file's waveform.

By default, the peak file is stored in the same location as the Audio File whose waveform it represents. You can choose to store a peak file in another location and/or delete it when you close an Audio File. These settings are found in the [Audio File editing preferences](#).



## Chapter 6

# Audio Montages

The WaveLab Elements Audio Montage Workspace is a non-destructive editing environment that allows you to arrange, edit, play back audio Clips. Features include both track effects, volume and pan automation, and wide-ranging fade and cross fade functions. The Audio Montage is a great tool for creating music CDs, mastering, multimedia work, radio spot production, etc. You can create intricate multi-track compositions and author professional audio CDs.

### Basic terminology

The Audio Montage window is where you assemble audio "Clips" into a montage. Once imported, you can arrange, edit and play back Clips on up to two stereo or mono tracks. These provide a way for the user to structure the work graphically, but they should not be viewed as "virtual tape tracks".

On an audio track, you can place any number of Clips. These 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 (allowing Clips to play back smaller sections of their source Audio Files). Any number of Clips can reference the same source file.

### Creating a Montage

To create a blank new montage file choose **File > New...** and choose the sample rate to use for your new montage. The default setup is a stereo 44.1kHz montage. If you wish to change the sample rate at a later stage you can by opening this dialog again via **Edit > Audio Montage properties...**

You can also generate a new montage automatically. If you are working in the Audio File Workspace you can choose **Edit > Create Montage from Audio File...** to create a new Audio Montage from an Audio File.

### Tracks and Clips

The main montage window is divided in up to two horizontal "tracks" which you can add and remove. Tracks can be mono or stereo audio tracks. You layout your Clips on audio tracks

to create your montage. Each Clip corresponds to a CD track and as you add Clips, their corresponding CD tracks appear in the [CD](#) window. (See "CD Preparation" below for a further explanation on creating CDs in the Audio Montage Workspace). Before you begin importing audio Clips and laying them out you need to first create at least one mono or stereo audio track.

### Adding new tracks

You can add new tracks of any type:

- by using the **Track > Add [track type]** menu, or
- by clicking on a track's number button to bring up the Track context menu and choosing "Add [track type] track".

See "Managing tracks" below for more information on working with tracks.

### Adding new Clips

You then import audio to your audio tracks to begin assembling them as Clips in your montage. You can create Clips by copying audio selections from the Audio File Workspace into the Audio Montage as well as importing external files directly. Add an Audio File/s to a track:

- by using drag and drop from the Audio File Workspace (via a tab or the document icon).
- by dragging an Audio File directly from your operating system's file browser.
- by copying and pasting audio from an Audio File in the Audio File Workspace and pasting it into a track.
- by dragging from the [File Browser](#) window.
- by dragging a track from the [CD](#) window.

## Editing a Montage

### Editing/arranging Clips

Once you have imported your audio Clips you can begin laying them out and editing them in a multitude of ways. Most of the functions for editing Clips are accessible via the [Focused Clip window](#) and via right-clicking on a Clip to reveal the Clip context menu. You can cut, copy, paste, delete, move, and split any Clip in your montage. By dragging the edges of two Clips on the same track up against other you can automatically add a cross fade. The cross fade type can be adjusted and you can also add envelope points for volume and pan. See the [Focused Clip window](#) for more information.

### Modes

The Modes menu provides you with an array of options to help you when moving and cross-fading Clips. You can choose how you wish Clips to be handled when moving and adjust whether automatic fades are created or not and how they react when moving Clips.

### Editing context menus

There are many context menus in the Audio Montage Workspace to help you while editing your montages. They exist for managing tracks (Track) , Clips (Clip) and inserting Audio

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Files into your montage (Insert). Dragging can be used with several editing functions in the Montage Workspace. See [Dragging operations](#) for more information.

### Tip: Editing multiple envelopes

When editing a cross fade length with the mouse, or the envelope level, you can press **[Alt]/[Option]** at the same time, and this will adjust the fade of all selected Clips.

**Getting around the Audio Montage window** In addition to some of the standard zooming and playback controls present in the Audio File Workspace there are some that are unique to the Audio Montage Workspace. There are two magnifying glass icons near the scroll wheel which allow you to zoom in and out in the track window. Clicking each icon will display more or less tracks. The active track is zoomed in while the remaining tracks shrink down to allow you to concentrate on one track. See [Zooming and scrolling](#) for more information.

### Focused Clip versus Select Clips

It is important to note that there is a difference between a "focused" Clip and a "selected" Clip. Some editing functions can only be executed on an individual Clip or "focused Clip", while some others can be executed on multiple Clips or "selected Clips".

- **Focused Clip** - there can only ever be one or no focused Clip at a time. The focused Clip's name is displayed in red. It's necessary to identify the Clip as focused because there are certain functions that can only be executed on a single Clip. You use the Focused Clip window to perform these functions.
- **Selected Clip** - there can be many selected Clips. This allows you to edit multiple Clips at the same time. You can perform functions such as copy, delete, move, etc. Selected Clips have a different background color.

### Managing tracks

Managing tracks is done mainly in the area to the left of each track in the main window. In the middle of this area is a button with the number of the track. Clicking this button brings up the track pop-up menu, which contains most of the track functions. There are also controls for:

- **Minimizing/folding a track** - use the small drop-down arrow to save screen space by toggling the track between a zoomed to closed "folded" view.
- **Soloing a track** - the small diamond-shaped button allows you to solo a track so that all other tracks are muted but it is heard.
- **Muting a track** - the small round shaped button allows you to mute/unmute a track. Gray means the mute button is engaged and the track is not audible. Green means that mute is off and the track is audible.
- **Adjust track's volume** - the two small channel faders allow you to adjust that track's volume on both left and right channels (for a stereo track). Holding down **[Ctrl]/[Command]** will reset the sliders to 0dB. In a stereo track holding down **[Shift]** or right-clicking and dragging on either the left or right fader will allow you to adjust the balance of one channel at a time. Use **[Shift]** or right-click and **[Ctrl]/[Command]** to reset a single fader to 0dB.

## Playing back and using effects

Playback in the Audio Montage works in much the same way as in the Audio File Workspace. There are however some additional points to note:

### Audio tracks are routed through the Master Section

This allows you to add global effects to the Audio Montage or use the Render function to create a mixdown Audio File.

### Effects can be added to Clips

Each independent Clip in the Montage can be independently processed by up to two VST effect plug-ins. Effects are configured as Inserts, when all sound is processed by the effect.

## Using markers in the montage

Markers work in much the same way as in the Audio File Workspace however there are some additional functions available that are useful for working with Clips. You can for example, bind a marker to a Clip so that it moves with the Clip. For more information use "What's this?" or see "Using markers in the Audio Montage Workspace" in [Markers](#) for more details.

## Mixing down – The Render function

The Render function in the Master Section allows you to "mix down" the whole Montage (or sections of it) to a single Audio File. This can be useful for example when you wish to "print" any effects to file. The Render function is useful if you want to burn a CD from a CPU-intensive Montage, as it allows you to first render all track and Clip effect processing and then burn the CD in a second pass.

For more information see [Rendering](#) and [Render Montage window](#).

## CD Preparation

The Audio Montage Workspace is an especially powerful tool when it comes to authoring professional Audio CDs. Each Clip in WaveLab Elements corresponds to a CD track, so to create a new CD track simply create or add an audio Clip to your Montage - the CD tracks will appear as a list of tracks in the [CD](#) window. This window contains a variety of tools for authoring and burning CDs, including the ability to [add and edit CD-Text](#), and check the conformity of your disk to common standards. You can use the [CD](#) to precisely edit track start and end times, audition each track using the track audition buttons, and add ISRC codes. Once you are happy with your CD layout you can burn a CD directly from the CD window using the [Write Audio CD](#) window.

For more information on burning CDs see [Authoring CDs and DVDs](#) and the [CD](#) window.

## Related topics

[Metering](#)

[Transport controls](#)

[Specific tool windows](#)

[Shared tool windows](#)

[Utilities](#)

[Audio Montage Colors](#)

[Clip](#)

## 6.1 Metering

WaveLab Elements contains a variety of audio meters to help in monitoring and analyzing audio. Meters can be used to monitor audio during playback. There are three different audio meters in WaveLab Elements, each with its own separate window. The meters are accessed via the Analysis menu, the Shared Tool windows menu, or from the Meters control bar.

### Monitor Modes

You can choose the audio source and the mode for displaying information in the meters. You can access the following monitoring functions from the Meters menu or via the Meters command bar:

-  **Monitor Playback** - the meters display the audio output of the Master Section **after the dithering section, unlike the Master Section's own meter.**
-  **Monitor Audio Input** - the meters display the audio input you have chosen in the [Audio Streaming Settings](#). This is useful for monitoring audio while recording.
-  **Monitor File Rendering** - the meters display what is being written to disk during file rendering, taking into account Master Section settings, with average, minimum and maximum peak values computed. After rendering, the meter(s) freeze, and remain frozen until you refresh or change the monitor mode.
-  **Monitor Edit cursor position** - the meters display static information about the audio beneath the edit cursor. Note that the Master Section settings are not taken into account in this mode.
-  **Analyze audio selection** - this allows you to make a selection and have the meters display the average values over the selected range as a static display. The Master Section settings are not taken into account in this mode. When you change the selection, you need to update the meter displays by selecting  "Refresh selection analysis" from the Meters menu (or by clicking the Refresh button on the Meters control bar).

If you have one of the continuous display modes chosen, you can also select to freeze the meters at any time using the  "Freeze meters" command.

### Using meter windows

There can only be one instance of each Audio Meter. For example, if you dock one meter in a Workspace, it will be automatically removed from the place where it was previously located.

Audio Meters can appear in the Audio File, Audio Montage Workspaces as well as the Control Window. They can be used:

- as a docked window in a Workspace
- as a tabbed window in the control window
- as an independent floating window. In this mode, it can be useful to make the window "frameless" from **Window > Hide frame**, to save screen space. In this case, the whole menu is accessed by right-clicking.

The axis of most Audio Meters may be rotated, to view the graphics horizontally or vertically.

Some meters can also have their visual style and display parameters customized via their corresponding settings dialog. This can be accessed through the **Functions > Settings...** menu in each meter window, or by using the  icon.

## Related topics

[VU Meter](#)

[Spectroscope](#)

[Oscilloscope](#)

### 6.1.1 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions > Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.
- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips

(0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

### Related topics

[Metering](#)

## 6.1.2 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 6.1.3 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

### Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 6.2 Transport controls

The transport controls allow you to control playback within an Audio File or montage, and to open the record window. It can be accessed via the Transport menu or the Transport toolbar. See [Command bars](#) for more information.

The Transport menu gives access to (and shows keyboard shortcuts to) the same functions that are available in the transport toolbar.

The Transport toolbar gives quick access to most of these functions. If the toolbar is hidden, select **Workspace > Command bars > Transport commands**. Transport functions operate on the current Audio File.

The basic transport functions are:

- **Loop On/Off** 
  - Toggles looping on/off for the currently selected Audio File or montage.
- **Start of file**  / **End of File** 
  - Move the cursor to the beginning or end of the currently selected Audio File.
- **Skip forward**  / **Skip backward** 
  - Skip the cursor forwards or backwards within the currently selected Audio File.
- **Play** 
  - Begin playback of the current Audio File.
- **Stop** 
  - Stop playback of the current Audio File. A second click moves the cursor to the beginning of the last start position. A further click returns the cursor to the start of the file.
- **Record** 
  - Opens the recording window from which you can start recording.

Additional transport functions such as start, skip and stopping playback options are also available from the transport command bar. In WaveLab Elements additional playback speed and jog/shuttle shortcuts are also provided.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Recording Dialog](#)

[Command bars](#)

## 6.3 Specific tool windows

Specific tool windows are windows that are specific to the current Workspace. They perform useful tasks in the active Workspace.

They can be docked and un-docked.

### Audio Montage Workspace specific tool windows

The following specific tool windows are available within the Audio Montage Workspace: [File Browser](#)

[Focused Clip window](#)

[Marker Window](#)

[CD](#)

[Notes](#)

### 6.3.1 File Browser

This dialog allows you to browse files directly from within WaveLab Elements rather than using your operating system's file browser.

It provides you with all the standard browsing functions (such as List and Icon views) You can use it to open or insert an entire file or a specific region of a file by dragging and releasing the file in the location you wish to insert the file. In the Audio Montage Workspace you can also choose to only view certain types of WaveLab Elements specific files. The File Browser can be very useful in speeding up the process of auditioning a long list of sound files. It can also be used to drag to windows such as Data CD/DVD, including dragging folders.

#### The playback functions

**Play file**  Once you have selected a file in the File Browser list, you can audition it by clicking Play in the File Browser's toolbar. Click again to stop.

**Auto-play**  You can also have files play back automatically as soon as they are selected. To do this, activate Auto-Play mode.

**Tip:** To audition a long list of Audio Files, enable Auto-play and use the UP and DOWN cursor keys to step through each Audio File in quick succession.

#### Opening and inserting a file or region

Once you have chosen a file you wish to open, double-click it to open the file in the current Workspace. You can also open it by dragging it onto an empty tabbed group, or onto the tab bar of a tabbed group.

You can also drag the file over a wave view to **insert** it at a given point. When you drag a file over a wave view, a beam is displayed so as to clearly display the insertion point.

You can access this dialog via **Workspace > Specific tool windows > File Browser**.

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

[Specific tool windows](#)

### 6.3.2 Focused Clip window

The Focused Clip window is an accordion control that contains some sophisticated editing commands. Each collapsible panel can be expanded by clicking on its title and allows you to access a range of tools for working with the selected or "focused" Clip.

#### Using the Focused Clip window

To use the Focused Clip window you first need to select a Clip. Once you have selected a Clip with your cursor its name will highlight in red. You can now choose one of the Focused Clip accordion's tabs. The accordion will open to reveal options for that particular pane's selection of editing shortcuts and tools. There are a number of panes including:

- **Edit** - provides you with a range of common playback shortcuts and editing tools for working with Clips.
- **Cue Point** - a cue point is a defined position marker that belongs to a Clip. It helps to align Clips together by making Clips snap to other Clips at the cue point position. Cue points are displayed as dotted vertical lines. This pane provides you with a number of shortcuts for creating and working with Cue Points.
- **Envelope** - allows you to access a number of controls for editing and working with a Clip's different envelopes.
- **Fade-in** - provides you with a range of tools for adjusting a Clip's Fade-in curve.
- **Fade-out** - provides you with a range of tools for adjusting a Clip's Fade-out curve.
- **Colors** - up to 20 colors may be assigned to help distinguish particular Clips visually. Select a Clip then click on a color. Custom colors can be defined with great subtlety from Options > Colors... Select the Custom color to be defined, then the parts to which it is applied, then define the color value using the color wheel (or type a set of RGB - Red, Green, Blue values). See [Audio Montage Colors](#) for more information.

When you choose a different Clip the properties in the Focused Clip window will update. So for example, if you select "Envelope" the corresponding controls will update to reflect the selected Clip's envelope information.

The Focused Clip window can be docked or floated. You can reveal or hide the focused Clip window in the Audio Montage Workspace via **Workspace > Specific tool windows > Focused clip**.

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

[Clip](#)

[Audio Streaming Settings](#)

[Customize Commands](#)

[Audio Montage Colors](#)

### 6.3.3 Marker Window

The marker window is a specific tool window that allows you to create, edit and use markers while working on an audio waveform.

#### The Marker list

The marker window contains a list of any markers placed in the currently active file along with their corresponding details. Click on a column header to sort the list in ascending or descending order based on the values in that column. You can also use the Filter menu to toggle which types of markers are displayed in the list.

From this list of markers you can use the fields, controls and menus to:

- **Create a new marker at the playback head position** - click on a marker icon (at the top of the window) or choose a marker type from the Insert menu to drop a marker at the current playhead location.
- **Create a pair of markers from a selection** - make a selection in the waveform and then click on a pair of marker icons (at the top of the window) or choose a "Create region" command from the Insert menu to drop a pair of markers at either side of the current selection.
- **Start playback** - It is possible to start playback at the selected marker position, with or without pre-roll, by clicking on the leftmost icons. Click on  in the "audition" column to play the wave from that marker position with a pre-roll. Click on the right hand button to play the wave exactly from the marker position.
- **Change marker types** - You can change a marker type by (left) clicking on its icon and choosing another marker type from the pop-up list that appears.
- **Edit a marker's name/time/comments** - double click in a cell to edit a value (to align the marker to an exact time, for instance). You can edit the name of the marker, its time position and any comments.
- **Lock a marker's position** - select the checkbox to lock the marker. This prevents it from being accidentally dragged to a new position in the Waveform window.

For more information on using markers see [Markers](#). For details on the different marker types and their uses see [Marker types](#). Note that there are more marker features available in the Montage version compared to the Audio File version. See "Using markers in the Audio Montage Workspace" in [Markers](#) for more details.

You can access this specific tool window within the Audio Files and Audio Montage Workspaces via **Workspace > Specific tool windows > Markers**.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Specific tool windows](#)

[Markers](#)

[Marker types](#)

## 6.3.4 CD

This specific tool window brings together all the functions for creating an audio CD or DVD-A within WaveLab Elements.

It displays a list of CD tracks along with information about each track. You can edit each track and the CD's playback properties as well as access functions to check its conformity to [Red Book standards](#), add and edit CD-text, add UPC/EAN codes, generate a CD report and burn the CD. There are also controls to preview skipping between each track and a number of other options including the ability to choose the "Audio in Pause" mode to determine whether gaps between track markers are replaced with silence (the normal default) or if they contain sound.

### Adding tracks

To add a track import an Audio File and a track is automatically generated for each audio Clip in the montage For more information on creating a CD or DVD-A see [Authoring CDs and DVDs](#).

### The Track list

Once you have created one or more tracks, the CD window displays a list of all tracks in the currently active montage along with their corresponding properties. From this list of CD tracks you can use the fields, controls and menus to:

- **Audition playback** - It is possible to audition playback at the selected track's start time, with or without pre-roll, by clicking on the leftmost icons. Click on the left hand button  in the "audition" column to play the track from its start time with a pre-roll. Click on the right hand button to play the track exactly from its start time.
- **Edit a tracks' name** - You can add/edit a name for each track. Double click in a cell to edit. Note that to change the track name is to indirectly edit the marker name.
- **Edit a track's start/end time** - You can edit the start and end time for each track. This is the same as moving the track markers physically but can be done with more precision. Double-click in a cell to edit.

- **Pre-gap time** - This displays the gap between the CD track start marker and where the first track's audio actually begins. It can only be edited by physically moving the CD track start marker.
- **Post-gap time** - This displays the gap between the end of the audio of the CD's last track and the CD track end marker. It can only be edited by physically moving the CD track end marker.
- **Copy protection**  - Select the checkbox to include a copy protection flag with the track. This may prevent it from later being imported by software that recognises this flag.
- **Emphasis**  - This setting is used to indicate if the track was recorded with emphasis or not. Please note that this does not apply/remove emphasis from the audio, it is just an indicator as to how the file was created. Normally it is left off.
- **ISRC Code** - This allows you to enter an optional [International Standard Recording Code](#). Double-click in a cell to add/edit a code.
- **CD-Text** - You can optionally enter CD-Text information for each track and the entire CD/DVD-A. Double clicking a cell will open the [CD Text Editor](#).
- **Add/Edit a tracks's comments** - You can add/edit text comments for a track. Double click in a cell to edit. Note that this text comment is for reference only: nothing is burnt on CD.

Note that CD tracks can be reordered by dragging them into new positions: this means Clips and markers are moved accordingly.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Specific tool windows](#)

[Authoring CDs and DVDs](#)

[Write Audio CD](#)

[CD Pre-emphasis](#)

[Red Book CD-DA](#)

[CD Text](#)

[ISRC](#)

[UPC/EAN](#)

### 6.3.5 Notes

This specific tool window allows you to keep notes about the current Audio Montage session.

You can type into the window and use the standard HTML text editor controls to format your text, add images, hyperlinks and lists. These notes are saved along with the Audio Montage file.

You can access this dialog in the Audio Montage Workspace via **Workspace > Specific tool windows > Notes**.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Specific tool windows](#)

## 6.4 Shared tool windows

Shared tool windows are windows that can only exist in one place at a time and are shared between Workspaces. They perform useful tasks in the active Workspace.

They can be docked and un-docked. [VU Meter](#)

[Oscilloscope](#)

[Spectroscope](#)

[Master Section](#)

### Related topics

[About Tool Windows](#)

[Metering](#)

[Docking windows](#)

### 6.4.1 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions > Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.

- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips (0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

### Related topics

[Metering](#)

## 6.4.2 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

### Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 6.4.3 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are

shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 6.5 Audio Montage Colors

You can create and assign different color schemes to different Clips and parts of a Clip, to help you find your way through the Montage.

Default colors are provided, but you can also define custom colors. To define a new color scheme, select the color name to be defined (click once and overtype to rename), select the parts to which it is applied, then define the color value using the color wheel (or type a set of RGB - Red, Green, Blue values).

You can use the Copy color and Paste buttons to transfer colors between various parts of the montage. In addition, you can drag groups of color settings onto another location in the list - you are asked to confirm. You could, for example, copy "Custom 1" to "Custom 3" as a time saver, before customizing details of "Custom 3".

Color settings made in this dialog apply to all montages.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Audio Montages](#)

# Chapter 7

## Podcasts

### About Podcasts

Once set up, you can produce high quality audio podcast episodes directly from WaveLab Elements.

Audio podcasts are ordered and commented sets of digital Audio Files, generally in the form of 'episodes' with a consistent theme or presenter. Episodes may be downloaded from the Internet, usually via an automated feed. Compression is an important consideration in exporting an audio podcast file, since the listener is likely to encounter bandwidth bottlenecks, so the file formats .mp4a, .mp3 and Ogg Vorbis are commonly used for podcasts.

### The Podcast window

The Podcast window is divided into two panes. The upper pane shows the information for the Feed or an Episode, depending on the item selected in the list below. This is where you will be adding 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 included in the Podcast.

### Adding, moving and deleting episodes

There are two ways to add an episode to a Podcast:

- Select "New" from the Podcast window's Episodes menu. This will add a new untitled episode without any information being present.
- Select an existing episode in the Podcast window's item list, then select "Duplicate" from the Episodes menu. This adds a new episode, copying all information from the existing episode to the new one. Episodes can be re-ordered using the "Move up/down" functions in the Episodes menu, or by dragging them to a new location in the item list. See [Dragging operations](#) for more information.

To delete an episode, select it in the item list and use the "Delete selected" function in the Episodes menu. Alternatively, you can exclude an Episode from the Podcast by unchecking the "Enabled" box.

There must be at least one episode present in the Podcast.

## Adding information to the Podcast

The upper pane of the Podcast window shows various fields and settings that are related to the basic Feed or Episode, depending on what you have selected in the lower pane's item list (the fields are slightly different for the Feed and Episodes).

Field labels in bold letters point at a field that is mandatory to fill. For quick publishing of your Podcast it is sufficient to fill these fields only.

The following settings are available for the Feed and Episode items:

- **Title**

This sets the title of the feed (e.g. the topic of your podcast). This is a mandatory field for Feed and Episode.

- **Description**

This gives space for a further description of the feed content. This is a mandatory field for Feed and Episode.

- **Internet link (URL)**

Your feed's main link presented to the user. Use this to direct people to a certain website that is related to your feed. This is a mandatory field. Clicking  will open the specified URL in your system's default Internet browser, so make sure that the link is correct. This is a mandatory field for Feed.

- **Picture (Feed only)**

This picture cannot be larger than 144 x 400 pixels according to the RSS standard, so the picture is automatically resized if required. Clicking  will open the specified picture in your system's default image viewer.

- **Audio file (Episode only)**

This sets the path to the Audio File you want to add to the episode. The Audio File could be any file type that is supported by the web browser's media reader, but an .mp3 file is best for compatibility. Clicking the  button lists the Audio Files already open in WaveLab Elements. Select one for your episode. Alternatively, you can drag the icon of an Audio File into the Audio File pane. Clicking  opens the specified file in your system's default media player or viewer, as a preview or check.

- **Publication date and time**

This sets the publication date and time of the Feed or Episode. Clicking the  "Now" button will transfer your system's current date and time.

For the Feed, if "As most recent episode" is checked, this automatically matches the date and time of the most recent Episode.

## Related topics

[FTP site](#)

[Episodes menu](#)

[Publish menu](#)

[Specific tool windows](#)

## 7.1 FTP site

This dialog allows you to enter information for uploading your Podcast and all related files to an online FTP server.

You must specify all log-in details for your FTP site, the relative path to your podcast XML file and the web site address where the link to your Podcast is found, including the path to the feed. If in doubt about your FTP settings they can normally be supplied by your ISP.

You can access this dialog via **Publish > FTP Site...** in the Podcast Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Podcasts](#)

## 7.2 Episodes menu

This menu provides commands for managing individual Episodes within a Podcast.

- **New**

This adds a new untitled episode without any information being present.

- **Duplicate selected**

This adds a new episode, copying all information from the existing episode to the new one.

- **Delete selected**

To delete an episode, select it in the item list and use this function. Alternatively, you can exclude an Episode from the Podcast by unchecking the "Enabled" box.

- **Move up/down**

Episodes can be re-ordered using this function, or by dragging them to a new position in the item list.

## 7.3 Publish menu

This is where you define where your Podcast is going to be uploaded to via FTP.

### FTP site

The WaveLab Elements's FTP site manager stores all information required for the Podcast upload process. Selecting "FTP site..." from the Podcast window's Publish menu brings up the FTP site dialog. See [FTP site](#) for more information.

## Uploading the Podcast

Once you have specified the FTP site settings, uploading the Podcast is rather simple by using the functions in the Podcast window's Publish menu.

- **Update all items on FTP**

This uploads/updates the XML Podcast file on the FTP; it also uploads all items' media files, but only if they are not already present on the FTP. This is the most common function to upload and update your Podcast.

- **Upload/Replace all items on FTP**

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.

- **Update selected item on FTP**

This uploads/updates the XML Podcast file on the FTP. It also uploads the media file of the currently selected item in the list, but only if it is not already present on the FTP.

- **Upload/Replace selected item on FTP**

This is the same as above, but it always uploads/replaces the media file of the currently selected item in the list. This is useful if you have changed the audio data, for example.

- **View published Podcast**

This opens your Podcast (from the URL specified in your FTP site settings), using your default browser.

### FTP site

This is where you specify your Podcast FTP settings. See [FTP site](#).

### Tip

Please note that "all items" in fact means all items that have their "Enabled" box in the item list checked. If not enabled, these episodes are simply omitted from the Podcast.

### Related topics

[FTP site](#)

## 7.4 Specific tool windows

Specific tool windows are windows that are specific to the current Workspace. They perform useful tasks in the active Workspace.

They can be docked and un-docked.

## Podcast Workspace specific tool windows

The following specific tool windows are available within the Podcast Workspace:

[File Browser](#)

### 7.4.1 File Browser

This dialog allows you to browse files directly from within WaveLab Elements rather than using your operating system's file browser.

It provides you with all the standard browsing functions (such as List and Icon views) You can use it to open or insert an entire file or a specific region of a file by dragging and releasing the file in the location you wish to insert the file. In the Audio Montage Workspace you can also choose to only view certain types of WaveLab Elements specific files. The File Browser can be very useful in speeding up the process of auditioning a long list of sound files. It can also be used to drag to windows such as Data CD/DVD, including dragging folders.

#### The playback functions

**Play file** ▶ Once you have selected a file in the File Browser list, you can audition it by clicking Play in the File Browser's toolbar. Click again to stop.

**Auto-play** 🎵 You can also have files play back automatically as soon as they are selected. To do this, activate Auto-Play mode.

**Tip:** To audition a long list of Audio Files, enable Auto-play and use the UP and DOWN cursor keys to step through each Audio File in quick succession.

#### Opening and inserting a file or region

Once you have chosen a file you wish to open, double-click it to open the file in the current Workspace. You can also open it by dragging it onto an empty tabbed group, or onto the tab bar of a tabbed group.

You can also drag the file over a wave view to **insert** it at a given point. When you drag a file over a wave view, a beam is displayed so as to clearly display the insertion point.

You can access this dialog via **Workspace > Specific tool windows > File Browser**.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Specific tool windows](#)



# Chapter 8

## Master Section

The Master section contains WaveLab's "Real Time Engine" and is the final element in the signal path, before your audio material is passed on to the audio hardware, or before it is rendered to disk as an Audio File. The Master section is where you can set the master volume level and add effects processors.

The Master Section is a "shared tool window". This means there is a unique instance of it: it can only show up at one place at a time. You can access it from Workspace menu > Shared tool windows. If the Master section is not visible, click on  to dock it in the relevant Workspace.

The Master Section includes:

- **Effects slots** For adding real-time effect plug-in processors such as Crystal Resampler, Steinberg Studio EQ, etc. WaveLab Elements provides a number of effects slots. Click on  to access plug-ins. If you need more effects than you have slots available, you can render the tracks and add further effects in a subsequent pass before storing the final Audio File.

Plug-ins can be individually by-passed for playback by toggling  to , but this does not affect the rendering process.

To give priority to a single effect (that is, to switch the other effects off temporarily), press 'S' (Solo bypass).

The  icon allows you to store, access and manage plug-in presets. For Steinberg VST3 effects, an interesting set of Factory presets are provided from the drop-down submenu.

Other buttons in this row allow you to hide or display the effect's control panel and switch an effect on (  ) or off (  ) - for both playback and rendering.

- **Master level faders** The right and left faders are normally linked, but you can press "Unlink" to control the output levels independently. Select "Mono" to sum the audio channels into a single mono output. "Reset peaks" clears the last peak level indicator.

The tools at the bottom pane are:

-  **Reset all** - removes all the active effects from the Effects slots and sets the master output to 0dB.

-  **Settings menu** - provides access to various options.
-  **Rendering functions** - brings up the [Render Wave window](#). This allows you to process the Audio File or Audio Montage with the effects you have selected and create a temporary or final Audio File. By rendering the effects, they become a permanent part of the file, rather than using them in real-time to test a set of effects on the file. The rendering options differ slightly so they are appropriate for Audio Files and Audio Montages.
- **Master section On/Off** - removes the Master section from the signal path. **Note that this is for playback only, not for file rendering.**

**Tip:** When working in the Master Section window, the mouse wheel can be used to adjust the master volume. You have to point the cursor in the Master Section for this to work.

### Docking/Undocking Master Section

The Master Section is a shared tool window and can be docked and un-docked like other Shared tool windows. There are however, some exceptions to its behavior, because of its central importance in WaveLab Elements.

If you dock the Master Section in a Workspace, then close that Workspace, the Master Section will be automatically un-docked and re-displayed as an independent floating window. This is done so that the Master Section remains visible at all times and is not closed with the Workspace (the normal behavior for a Shared tool window). If however, you place it in the Control Window then it is not docked but part of a tab group. As such if you then close the Control Window it will also hide the Master Section.

The "Global" menu (in all menu bars), always has an entry "Master Section", to easily reveal the Master Section if it is ever hidden in this manner. If the Master Section is docked or in a tab group, its main host will be made visible again. The Master Section can be docked in some Workspaces (Audio File, Montage), but not in some others (for example, the Podcast Workspace).

### Related topics

[Render Wave window](#)

[Render Montage window](#)

[Plug-ins settings](#)

[Audio Plug-ins](#)

## 8.1 Render Wave window

This dialog allows you to process the Audio File or selection you are working on, applying any effects you have active.

It applies all active plug-ins to the selected audio region or the whole file, and you can optionally change the format of the rendered file. This process is sometimes also referred to as "mixing" or "bouncing down".

You can select options for which regions of the session are rendered, whether to create a new file or process in place, and whether to mute the effects chain when finished. You can also choose to copy marker locations to the new file.

You can access this dialog in the Audio File Workspace via the  Render button from the Master Section window.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Rendering](#)

[Audio Plug-ins](#)

[Audio File Format Dialog](#)

[Master Section](#)

## 8.2 Render Montage window

This dialog allows you to process the montage session you are working on, mixing down multiple tracks into a mono or stereo file and applying any active plug-in effects you have active. This process is sometimes also referred to as mixing or bouncing down.

You can select options for which regions of the session are rendered, whether to create a named file or a temporary, untitled file, and whether to mute the effects chain when finished.

There are various options to render all or parts of the Montage, into one or more files - use "What's this..."

You can access this dialog in the Audio Montage Workspace via the  Render button from the Master Section window.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Rendering](#)

[Audio Plug-ins](#)

[Audio File Format Dialog](#)

[Master Section](#)

## 8.3 Plug-ins settings

This dialog allows you to 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 knobs respond to mouse interactions and how frequently they are updated visually.

If you use your own file structure to organize and store VST Plug-ins, this dialog allows you to have full control over which ones are loaded or not. This can be particularly useful if you want to disable a particular plug-in that you suspect of not functioning properly, or to only load a certain set of plug-ins for a specific project, for example.

You can access this dialog from the Master Section via **Options > VST Plug-in settings....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### **Related topics**

[Audio Plug-ins](#)

# Chapter 9

## Interface Elements

This section contains links to all of the various types of windows and dialogs within WaveLab Elements.

### Related topics

[Dialogs](#)

[Shared tool windows](#)

[Specific tool windows](#)

### 9.1 Dialogs

There are many dialog windows within WaveLab Elements that allow you to access all its features and processing power. You can get help on a particular dialog by using the  Help button from within the dialog. Using the  "What's this?" tool will help you to access detailed information on a dialog's parameters. See [Getting Help](#) for more information on.

The following is a list of all the dialogs within WaveLab Elements that have help entries available:

[Insert link](#)

[Audio File Format Dialog](#)

[Audio Montage properties](#)

[Audio properties dialog](#)

[Audio Streaming Settings](#)

[Batch Conversion](#)

[CD Text Editor](#)

[CD-Text Browser](#)

[Customize Commands](#)

[Data CD/DVD](#)

[Document list dialog](#)

Folder Preferences dialog  
Frequency range  
FTP site  
Change Level  
File attributes (OGG/WMA)  
Global analysis  
Import Audio CD  
Insert Audio Files  
Level envelope  
Loop Tone Uniformizer  
Global Preferences  
Save Master Section Preset  
Audio Montage Clone  
Audio Montage Preferences  
MP2 encoding  
MP3 attributes  
MP3 encoding  
Normalize Level  
OGG encoding  
Mix dialog  
Pitch correction  
Podcast options  
Repeat Clip  
Recording Dialog  
Rename File dialog  
CD Text Editor  
Render Montage window  
Render Wave window  
Sample attributes  
Modified files dialog  
Save Audio File dialog  
Save Batch Processor  
Save File As  
Save Preset As  
Save picture of active window  
Definition of shortcut(s)

[Silence Generator](#)  
[Special File Format](#)  
[Time Format dialog](#)  
[Time stretching](#)  
[File attributes](#)  
[Audio File editing preferences](#)  
[Write Audio CD](#)  
[WMA encoding](#)  
[Write Data CD/DVD](#)  
[Loop Tweaker](#)  
[Zoom factor](#)

### 9.1.1 Insert link

This dialog allows you to insert a hyperlink to a web page in your podcast episode description. In "Title" enter the text that will form the active link.

In "URL" enter the Uniform Resource Locator (i.e. web address) you wish it to open when clicked. Remember to include the full URL, for example: <http://www.personalwebsite.com/index.html>

You can access this dialog from the Podcast Workspace via **Episode** in the list of Items, then click on  above the "Description" field. The description of the feed content is a mandatory field.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Podcasts](#)

### 9.1.2 Audio File Format Dialog

This dialog allows you to set the type of Audio File to be saved. Some file types will make some options unavailable.

Clicking  in Attributes (meta-data) produces the File Attributes dialog for adding non-audio information associated with a file. This option is only available for Wave, MPEG-1 Layer 3 (MP3), Windows WMA and Ogg Vorbis file types, and for each of these, the Edit command leads to a different dialog box.

You can also save and restore settings. See [Presets](#).

You can access this dialog via **File > Save as...> Output Format** . The dialog is also available from other locations where Audio Files are saved, for example, via the Master Section's render dialog.

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

[Presets](#)

### 9.1.3 Audio Montage properties

This dialog allows you to set/change the audio properties and number of channels of the active montage file. It appears when you first create an audio montage file and can also be edited later. It allows you to select an output mode for your project, choose how many channels you wish to work with and set the sample rate of the montage.

Changing the values in this dialog will not process the audio in your montage in any way. However if you change the sample rate, the file will play back at the wrong pitch.

You can access this dialog from the Audio Montage Workspace by choosing **Edit > Audio Montage properties....** It is also displayed when you create a new audio montage by clicking on the "Create an empty document" icon or via **File > New....**

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

[Workspaces](#)

### 9.1.4 Audio properties dialog

This dialog reports the audio properties of the active Audio File. It allows you to change the number of audio samples per second (the sample rate) and the accuracy of samples in the audio stream (the bit-rate).

Changing the values in this dialog does not process the file in any way (in contrast to using Save as). However, the following rules apply:

- If you change the sample rate, the file will play back at the wrong pitch.
- If you change the bit resolution the file will be converted to the new resolution the next time you save it.

Note that there is no Undo for this operation. If you save with a lower bit resolution, the file is permanently converted.

You can access this dialog in the Audio File Workspace by choosing **Edit > Audio properties....** It is also displayed when you create a new Audio File using **Edit > New....**

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

### 9.1.5 Audio Streaming Settings

This dialog allows you to specify how WaveLab's internal input and output channels 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 setting up connections to external gear such as external effects units. You should select at least two channels for stereo playback and recording.

- **Control Panel** - clicking this will launch your sound card settings application (usually installed with the audio card). In most cases this will provide settings for buffer size, digital formats, additional I/O connections, etc. depending on your sound card and driver.
- **Playback tab** - this allows you to select and name audio ports used for playback.
- **Recording tab** - this allows you to select and name your audio ports used for recording and input monitoring. The inputs you define here will then be available in the recording window.
- **External gear tab** - this allows you to select inputs and outputs to external audio processing equipment. For example, you can use this to buss audio out to an outboard effects unit and back into /app.
- **Options tab** - use this tab to specify the number of buffers and control driver functionality (e.g. release the driver when the application is in the background, so that it can be used by other applications). You can also specify pre-roll and post-roll times.

**Windows MME/Built-In Audio** If you do not have a third-party audio card you can select the Windows MME 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 don't allow Audio Monitoring in the record dialog, and other drivers generally offer better sound quality and performance.

You can access this dialog from Workspaces that support the playback of Audio Files by choosing **Options > Audio Streaming Settings...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Recording Dialog](#)

### 9.1.6 Batch Conversion

This dialog allows you to convert the file format of a group of Audio Files.

This could be useful for example, if you have a large number of Audio Files that you wish to encode as MP3 files, or a group of stereo files that you need to downsample and convert

to mono. You can also take maximum advantage of your computer's architecture if you have a multiple [processor cores](#), by spreading the processing load across them. These settings are selected in the Multitasking tab.

To use the Batch Converter tool:

1. Click on the **+** plus sign icon to add files, (or just drag the files directly into the pane)
2. Define an output file location and file format
3. Choose any options or performance settings from the Options and Multi-tasking tabs
4. Click Start to begin (you can also choose an option to start the process automatically when dragging the file in).

You can access this dialog by choosing **Utilities > Batch conversion of Audio Files...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Audio File Format Dialog](#)

## 9.1.7 CD Text Editor

This dialog allows you to add CD-Text data to an audio CD. CD-Text is an extension of the Red Book Compact Disc standard and allows you to store text information on an audio CD. Information such as the disk title, songwriter, composer and disc ID, can be added for example. The text data you enter is displayed by CD players that support the CD-Text format.

In WaveLab Elements you can add information about the disk itself and each individual track. This information is entered in a series of text fields that scroll together horizontally. There is one pane of fields for the disk itself and a pane for each track. You can scroll between these with a slider bar. Buttons allow you to copy between fields to make entering information easier.

**Tip:** Make sure the "Enable CD-Text Burning" checkbox is ticked before burning an audio CD if you wish to write CD-Text data.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[CD](#)

[Authoring CDs and DVDs](#)

[Write Audio CD](#)

## 9.1.8 CD-Text Browser

This dialog allows you to view CD text information about the selected disk when importing an audio CD using the [Import Audio CD](#) dialog.

You can access this dialog from the [Import Audio CD](#) dialog via **Functions > Examine CD-Text...** You can also access it via its icon in the Import Audio CD window.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Import Audio CD](#)

## 9.1.9 Customize Commands

This dialog allows you to customize your own shortcuts for WaveLab Elements. It shows a list of already assigned shortcuts for WaveLab Elements commands and menu options. Each shortcut is restricted to a specific context, so you can re-use the same shortcut combination in different places. The exception is the Master Section where all shortcuts are global to the application.

To edit shortcuts, double click on the shortcut text or its placeholder, or select a command and click Edit shortcut... See [Definition of shortcut\(s\)](#) for more information.

Please note that some shortcuts cannot be edited, these are unavailable (grayed out). New keyboard shortcuts are displayed in blue.

- **Display in command bar** - For certain commands (those with icons displayed) you can also choose whether to display them in their corresponding command bar. To do this, select/deselect the option in the "Bar" column. You can define one key shortcut per command, each shortcut can be a sequence of up to four keystrokes. Note that for the Macintosh only, if a shortcut is made up of two or more keystrokes, the main menu only displays the first keystroke (this is a Mac OS X limitation).

To reset some or all types of shortcuts to their factory defaults use the "Reset" button.

To generate a reference of your customized shortcuts, use the "Summary" button to either view a webpage summary or to print out a list of all your command shortcuts.

You can access this window from within various other dialogs in WaveLab Elements when you see the  icon, or by choosing **Options > Customize Commands...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Definition of shortcut\(s\)](#)

[Command bars](#)

## 9.1.10 Data CD/DVD

This dialog allows you to arrange files and folders into a structure that you can later write as a "data" disk.

You can prepare a disk for a variety of media (CD-DA, DVD or Blu-ray Disk). The list of media devices displays the amount of data that will fit on each type of disk. As you add files, an indicator on the left (and a text display at the bottom) display how "full" your new disk is. You can enter a name for your disk and change the disk file structure before writing your data to an ISO image or writeable optical disk.

**Note:** Although you can prepare a disk in any format, the types of physical disk you can burn will be limited by the optical drive connected to your computer. If you do not have a Blu-ray Disk writer connected, for example, you will not be able to write a Blu-ray Disk you may have prepared. However, you can still save it as an ISO Disk image and transfer it for remote burning.

To prepare a data disk, follow these steps:

### Adding files

Add files and folders to the disk by:

- dragging them directly from your computer's file browser.
- dragging a file from any Workspace by either dragging it by its title bar tab or using the document button .
- choosing **File > Special > Add to Data CD/DVD** from any of the editing Workspaces to add the currently focused file.

### Removing files

To remove files from the file structure:

- select the files/folders you wish to remove and click on the red cross icon. To remove a group of files, hold down **[Shift]** while selecting the files/folders to remove. Please note that this *does not* delete the files from the computer, only a reference to them.
- to remove all files/folders from the layout choose  **Reset**.

### Editing the file structure

To edit the arrangement of the files in your disk:

- drag files/folders to a different location in the file list pane. To move multiple files/folders hold down **[Shift]** while selecting the files/folders you wish to move.
- drag file/folders over a folder icon to move them into that directory.
- to add a new folder click on the  folder icon.
- to edit the name of a file/folder, double click on its title.

## Burning your disk

Once you are happy with your disk layout you can write it to a disk or disk image:

- select a media type from the list of media devices. This will determine the maximum size and type of medium you will be writing to, whether it be CD, DVD, Blu-ray Disk or an ISO image of any of these. You can change the media type at any stage.
- enter the name that you want your disk to display when it is mounted as a data volume.
- to write your disk, click  write CD/DVD icon. This opens the [write CD/DVD](#) dialog which enables you to burn your data disk to an ISO image or to an optical disk using a connected CD/DVD/Blu-ray Disk writer.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Write Audio CD](#)

[Blu-ray Disk](#)

[ISO image](#)

### 9.1.11 Document list dialog

This dialog allows you to add a file to a document in a different Workspace.

You can add the file to a new or existing Workspace document. Open documents are displayed in the list box, or you can browse to find an existing document, or create a new one.

For example, to add your Audio File to a Podcast, choose **File > Special > Add to Podcast....** The Podcast can be a new or existing Podcast. Open Podcasts are displayed in the list box.

You can access this dialog by choosing **File > Special > Add to [Workspace]....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Podcasts](#)

### 9.1.12 Folder Preferences dialog

This dialog allows you to set the folders where you prefer to save and open files, as well as options about how to automatically update them, or not, while using WaveLab Elements.

Select a folder category from the list and then either type in the path to the directory or browse to select the folder via a standard file dialog.

Each Workspace has its own set of preferred folders, which are set from the Folder Preferences dialog from that Workspace.

To use this dialog, first select a folder category (from the left) and then define its path and options (on the right).

**A note on temporary files** - this folder category specifies where WaveLab Elements should store its temporary files. These are used for operations such as Undo. If you have multiple drives, you should allocate each temporary folder to a unique physical drive. WaveLab Elements then selects the source and destination folders on different physical drives, which speeds up file operations considerably.

You can access this dialog by choosing **Options > Folders...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### 9.1.13 Frequency range

This dialog allows you to adjust the range of frequencies displayed in the [3D Frequency Analysis](#) window. Use the spin controls to adjust the highest and lowest frequencies you wish to view. This can be useful for isolating a particular frequency range which you are trying to analyze.

You can also choose to display frequencies using logarithmic or linear scaling, alter the color of the background and waveform, plus change the scale of the ruler.

You can access this dialog via **Analysis > 3D Frequency Analysis > Edit frequency range** (click on the frequency button).

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[3D Frequency Analysis](#)

[Value editing](#)

### 9.1.14 FTP site

This dialog allows you to enter information for uploading your Podcast and all related files to an online FTP server.

You must specify all log-in details for your FTP site, the relative path to your podcast XML file and the web site address where the link to your Podcast is found, including the path to the feed. If in doubt about your FTP settings they can normally be supplied by your ISP.

You can access this dialog via **Publish > FTP Site...** in the Podcast Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

## Podcasts

### 9.1.15 Change Level

This dialog allows you to apply a gain to change the level of an Audio File.

You can also use "Find current peak level" to obtain a report on the peak level of the current audio selection (or the peak level in the whole file, if "Process whole file if there is no selection" is selected in the preferences). This can be useful if you wish to calculate how much you can increase the overall gain of a file without introducing clipping (exceeding 0dB), for example.

To change the level, enter the desired gain and click Apply.

You can access this dialog by choosing **Process** > **Change level...** in the Audio File Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Audio File editing](#)

[Value editing](#)

### 9.1.16 File attributes (OGG/WMA)

This dialog allows you to enter/edit the meta-tags for an OGG Vorbis (OGG) or Window Media Audio (WMA) encoded file. Double click on the tags provided to edit an entry.

In the Audio File Workspace you can access this dialog by opening a WMA or Ogg Vorbis file and clicking in the Meta-Data specific tool window. You can also access it by choosing **Save as...** > **Output format** > **Attributes** > **Edit...** when saving a WMA or Ogg Vorbis file, and from most places where you are able to select an output file format, like the Render dialog.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Metadata window](#)

[Audio File Format Dialog](#)

[OGG encoding](#)

[Ogg Vorbis files](#)

### 9.1.17 Global analysis

This dialog allows you to perform advanced analysis on your audio to identify areas with specified properties. It can be used to find problem areas such as glitches or clipped samples, or just to check general information such as the pitch of a sound.

**How it works** When you analyze a section of an Audio File, WaveLab Elements scans it and extracts information which it displays in the dialog. It also "pin-points" sections of the file that meet specific characteristics, for example, sections being very loud or almost silent. You can then browse between these points, set markers or zoom in on them.

**Types of analysis** On most of the tabs, you will find settings determining exactly how the analysis will be performed. Each tab focuses on a particular analysis area:

- **Peaks** - this tab is for finding individual samples with very high decibel values.
- **Loudness** - this tab is for finding sections that are perceived by the human ear as louder or weaker in volume. WaveLab uses an accurate method (RMS - Root Mean Square), to measure a consecutive section of samples and then average their value.
- **Pitch** - this tab is used for finding the exact average pitch of a section of audio. The method works best on monophonic material (single notes, without chords or harmonies) and assumes the analyzed section has a relatively stable pitch. As a general rule try to analyze the sustain portion of a sound, rather than the attack.
- **Extras** - this tab is for informing you about DC offsets and the significant bit resolution of the file. This can be useful, for example, if you wanted to check whether a 16 bit file really uses 16 bits (or if it was actually recorded with only 8 bit resolution and then upscaled to 16 bits).
- **Errors** - this tab is to help you find glitches and sections where the audio has clipped (gone beyond 0 dB). **Checking and browsing the results** Checking the results on the Pitch and Extra tabs is simple, since only one value is returned for the whole section of analyzed audio. For all the other tabs, the analysis methods returns a series of exact points ("hot points") in the file or section of audio. Use the relevant buttons in each tab to select the "hot points" you wish to look at in more detail. Using the slider you can then browse or skip between these points, adding markers or focusing the waveform display at that particular point in the file.

You can access this dialog in the Audio File Workspace via **Analysis > Global Analysis....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[3D Frequency Analysis](#)

### 9.1.18 Import Audio CD

This dialog allows you to import one or more tracks from an audio CD.

Once you have identified the source CD, you can select the track or tracks to import. You must specify a folder location and file format before the file or files can be saved to disk.

**Actions tab** Specify the optical disk drive from the drop-down list, and the disk reading speed. The title and track details are automatically completed. If no track names appear, click  to refresh CD reading.

From this list you can select the tracks (or define the start and end points of a single track). The "Rename tracks" menu option automatically adds the track order number to the name in a range of different styles. You can select a track name for text editing by double-clicking.

In "Output", accept the default Folder location or choose another. Clicking  produces the Audio File Format dialog for changing details of the Audio File's format.

**Options tab** This accesses a list of tickable options to refine how the tracks are read and output to file.

You can access this dialog via **Utilities > Import Audio CD tracks...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File Format Dialog](#)

### 9.1.19 Insert Audio Files

This dialog allows you to choose how imported Audio Files will be arranged in the active audio montage.

It displays a list of the Audio Files you have selected to import and allows you to add or remove files, rearrange their order, choose whether to create new tracks for each Clip or lay them out on a single track, and where to insert the Clips. To adjust the spacing between Clips that you import, see [Audio Montage Preferences](#).

This dialog appears when adding two or more Audio Files to a montage. You can access it from the Montage Workspace via **Insert context menu > Insert Audio Files...**, or when you drag Audio Files directly from your computer's file system.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Podcasts](#)

[Audio Montage Preferences](#)

### 9.1.20 Level envelope

This dialog allows you to create a volume envelope which can be applied to a selected range or a whole Audio File. This could be useful if you need to even-out loud and quiet parts, for example.

You can edit the envelope by:

- Double clicking on the line to add a point: double click on a point to remove it.
- Selecting multiple points (using **[Shift]** click) allows you to move the selection as a group.

You can also use the controls to delete or reset points in the envelope. Use the envelope smoothing button to toggle the envelope points between a straight (polygonal) line or a curved path.

Click Apply to apply the envelope to the audio selection or file.

You can access this dialog in the Audio File Workspace via **Process > Level envelope...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File editing](#)

[Adjusting Envelopes](#)

### 9.1.21 Loop Tone Uniformizer

This dialog allows you to create sounds that will loop, from audio that is seemingly "un-loopable". These are normally sounds that constantly decay in level or continuously change in timbre. 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 could be useful for creating looped samples for a softsynth or hardware sampler.

To use the Loop Tone Uniformizer you need to have a loop defined using a pair of loop markers . The original length of the loop is not changed.

#### Uniformizers

This tab allows you to specify the method/s used to even out the sound you wish to loop. Choose between "Slice mixing" and/or "Chorus smoothing". For a full explanation of how each of these methods operate use the "What's this?" help function.

For slice mixing, you may need to experiment to see how many slices are needed. Generally the more slices you use, the more natural the sound will be (up to a certain point).

#### Pre Cross fade

The Loop Tone Uniformizer also includes the option to cross fade the end of the loop with the start of the newly processed section so that transition into the newly looped section is smoother during playback. Use the envelope drag points or value sliders to adjust the cross fade.

#### A note about Post Cross fading

If you have used the Loop Tone Uniformizer within a region of an Audio File, the transition from the end of the loop into the original file in many cases won't be very natural. This can be fixed as follows:

1. Close the Loop Tone Uniformizer and open the Loop Tweaker.
2. Click on the Cross fade tab and deactivate the Cross fade option (the check box).
3. Click on the Post Cross fade tab and make sure Cross fade is activated.
4. Set up the post cross fade parameters and click Apply.

It can also be a useful tip to lock the loop markers after you use this command on a selection within an Audio File. Once the loop is processed in place, moving the loop markers will upset playback of the loop.

You can access this dialog in the Audio File Workspace via **Process > Loop Tone Uniformizer...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Markers](#)

[Adjusting Envelopes](#)

## 9.1.22 Global Preferences

This dialog allows you to view and change options that are common throughout the application's Workspaces.

You can adjust the following settings:

- **General** - this tab allows you to change the location of WaveLab's settings files and the user interface language. You need to restart the application for changes to take effect.
- **Display** - this tab allows you change many aspects of the user interface that apply across the whole application. These options provide useful information and usability functions but can be deactivated to streamline the interface. "Use Window Switcher" is an import panel that controls the appearance of the Window Switcher panel and whether you want particular Workspaces to appear.
- **Formats** - this tab allows you to adjust settings for some of the audio formats and units that WaveLab uses.
- **CD Burning** - this tab allows you to set a number of parameters for CD burning.
- **Options** - this tab allows you to control application-wide start-up options and transport settings. You can also reset default answers. This can be useful for example, if you deactivated any "Don't show this message again" warning messages that you now wish to restore.
- **Global shortcuts** - this tab allows you edit key sequences for shortcuts available across all Workspaces.

You can access this dialog via **WaveLab Elements > Preferences...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Workspaces](#)

### 9.1.23 Save Master Section Preset

This dialog allows you to save the current settings of the Master Section as a preset.

You can choose whether plug-ins, dithering, and master levels are saved or ignored. This can be useful for example, for saving chains of effects plug-ins (and their settings) that you commonly use.

You can access this dialog from the Master Section by choosing  **Master Section preset menu** > **Save as...** You can also access it from the [Status Bar](#).

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Master Section](#)

[Audio Plug-ins](#)

### 9.1.24 Audio Montage Clone

This dialog allows you to clone your active Audio Montage and its associated Audio Files.

You can choose a number of options that determine how WaveLab Elements will consolidate the montage and its related audio Clips when making the clone.

You can access this dialog from the Audio Montage Workspace via **File** > **Save special** > **Clone completely...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

### 9.1.25 Audio Montage Preferences

This dialog allows you to define settings for working in the Audio Montage Workspace.

Using the two tabs you can define settings for both the active audio montage and for all audio montages. You can adjust default settings for how WaveLab works with audio Clips and effects plug-ins in an audio montage, as well as to define backup and display options.

You can access this dialog from the Audio Montage Workspace via **Options** > **Audio Montage preferences...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Workspaces](#)

### 9.1.26 MP2 encoding

This dialog allows you to specify the encoding options when you save an MP2 Audio File. You can select the bit rate and stereo encoding format, as well as define other options.

You can access this dialog via **Save as... > Output Format (select type MPEG-1 Layer 2) > Encoding > Edit...**, and from most places where you can select an output file format, such as the Render dialog.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[MP2 files](#)

### 9.1.27 MP3 attributes

This dialog allows you to enter/edit the meta-tags (ID3 tags) for an MPEG 3 encoded file.

You can access this dialog via **Edit > File attributes...** when you have an MP3 file open in the Audio File Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[MP3 files](#)

### 9.1.28 MP3 encoding

This dialog allows you to specify the encoding options when you save an MP3 Audio File.

You can select which encoder to use and adjust the bit rate and quality of the file. You can also choose the format and method the encoder uses to output the file, as well as select other advanced options.

You can access this dialog by choosing **Save as... > Output Format (select type MPEG-1 Layer 3) > Encoding > Edit...**, and from most places where you can select an output file format, such as the Render dialog.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[MP3 files](#)

### 9.1.29 Normalize Level

This dialog allows you to change the peak level of your Audio File.

Enter the desired peak level (in dB) that you wish the audio selection to have. You can also use "Find current peak level" to obtain a report on the peak level of the current audio selection (or the peak level in the whole file, if "Process whole file if there is no selection" is selected in the preferences). You can choose to apply the same gain to both stereo channels (Stereo Link) or mix down to a mono file (Mix to Mono) with the assurance that no clipping will occur when both channels are mixed together.

To normalize the selected audio, enter the desired peak level and click Apply.

You can access this dialog by choosing **Process > Level Normalizer...** in the Audio File Workspace.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Audio File editing](#)

[Value editing](#)

### 9.1.30 OGG encoding

This dialog allows you to specify the encoding options when you save an Ogg Vorbis Audio File.

You can choose between using an average or variable bit rate to adjust the size and quality of the file.

You can access this dialog via **Save as... > Output Format (select type Ogg Vorbis) > Encoding > Edit...**, and from most places where you can select an output file format, such as the Render dialog.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Ogg Vorbis files](#)

### 9.1.31 Mix dialog

This dialog allows you to specify a change in gain while pasting audio.

You can adjust the gain of the copy of audio contained in the clipboard, and/or the audio at the destination so you can control how the two components mix together.

You can access this dialog from the Audio File Workspace via **Edit > Paste special > Mix...**

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

### 9.1.32 Pitch correction

This dialog allows you to detect and change the pitch of a sound without affecting its length.

- **Amount of Shift** - use these controls to find out the current pitch of the audio and if desired, calculate the required shift to match a specific pitch.
- **Method** - use these controls to adjust the method and quality you wish to use when processing the pitch change. You can also choose how the length of the sound is affected by the operation. By default this process will not change the length of the sound.

This tool could be useful for fixing an off-key vocal note in a live recording, or tuning the pitch of a kick drum sample to fit a particular song, for example.

You can access this dialog from the Audio File Workspace via **Process > Pitch Correction....**

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

[Adjusting Envelopes](#)

### 9.1.33 Podcast options

This dialog allows you to define a number of options for working with Podcasts. You can choose how WaveLab Elements handles pictures added to your Podcast, select a different timezone to publish for, and/or define an external HTML editor.

You can access this dialog from the Podcast Section via **Options > Options....**

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

### 9.1.34 Repeat Clip

This dialog allows you to make a number of copies of a Clip and lay them out at various intervals on the current track of your audio montage. You can specify the number of clones to produce, and control their placement, alignment and spacing.

You can access this dialog in the Audio Montage Workspace by right-clicking on the track's waveform and choosing **Repeat clip...** from the Clip context menu.

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

## Related topics

[Audio Montages](#)

[Clip](#)

### 9.1.35 Recording Dialog

This dialog enables you to set up and record an Audio File from the input device specified in the [Audio Streaming Settings dialog](#).

To set up a recording:

- In the "File to create" section, select Temporary File, or select Named File and browse to the folder where the recorded audio will be saved.
- Click the down arrow to select a preset audio format, or click the audio format text to display the [Audio File Format dialog](#), and set up the format for your recorded audio. Here, you can create new Audio File Format presets, if required, for later use.
- Choose from Level or Spectrum display. If you choose Level, click the Settings button to bring up the Level/Pan Meter Settings dialog.
- Click Record. While the recording is in progress, you can create named markers by clicking on the marker icons in the Actions section.
- Click Stop when the recording is complete. An unsuitable recording is easily discarded, or you can Close the dialog to edit the recorded file in the Audio File Workspace.

In WaveLab Elements you also have further options available:

- **Method** - use this tab to define options for starting/stopping/pausing the recording automatically. You can select an input device and choose to start a recording at a specific time or stop it after a specific duration. In WaveLab Elements you can also choose to drop markers automatically and split a file into while recording.
- **Options** - use this tab to determine various options affecting how the recording dialog window behaves while recording.
- **Values** - use this tab to define numerical values for the various recording options available.

You can access this dialog from the [Transport controls](#)  button or by choosing **Transport > Record**.

For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)

**Related topics**[Audio Streaming Settings](#)[Audio File Format Dialog](#)**9.1.36 Rename File dialog**

This dialog allows you to rename a file, and/or optionally change the folder where it is stored.

The file suffix may be selected from the drop-down list. All open documents that have a reference to the file are updated. Associated peak and marker files are also updated.

This function is particularly useful when renaming Audio Files. If you rename an Audio File outside WaveLab Elements (using your computer's file browser), the next time you open an Audio Montage with a reference to that file, WaveLab Elements will not find it.

To avoid this, use this dialog to rename files and all references to the file from the open Audio Montage are automatically updated to use the newly named file.

You can access this dialog by choosing **File > Rename...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

**Related topics****9.1.37 CD Text Editor**

This dialog allows you to add CD-Text data to an audio CD. CD-Text is an extension of the Red Book Compact Disc standard and allows you to store text information on an audio CD. Information such as the disk title, songwriter, composer and disc ID, can be added for example. The text data you enter is displayed by CD players that support the CD-Text format.

In WaveLab Elements you can add information about the disk itself and each individual track. This information is entered in a series of text fields that scroll together horizontally. There is one pane of fields for the disk itself and a pane for each track. You can scroll between these with a slider bar. Buttons allow you to copy between fields to make entering information easier.

**Tip:** Make sure the "Enable CD-Text Burning" checkbox is ticked before burning an audio CD if you wish to write CD-Text data.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

**Related topics**[CD](#)[Authoring CDs and DVDs](#)[Write Audio CD](#)

### 9.1.38 Render Montage window

This dialog allows you to process the montage session you are working on, mixing down multiple tracks into a mono or stereo file and applying any active plug-in effects you have active. This process is sometimes also referred to as mixing or bouncing down.

You can select options for which regions of the session are rendered, whether to create a named file or a temporary, untitled file, and whether to mute the effects chain when finished.

There are various options to render all or parts of the Montage, into one or more files - use "What's this..."

You can access this dialog in the Audio Montage Workspace via the  Render button from the Master Section window.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Rendering](#)

[Audio Plug-ins](#)

[Audio File Format Dialog](#)

[Master Section](#)

### 9.1.39 Render Wave window

This dialog allows you to process the Audio File or selection you are working on, applying any effects you have active.

It applies all active plug-ins to the selected audio region or the whole file, and you can optionally change the format of the rendered file. This process is sometimes also referred to as "mixing" or "bouncing down".

You can select options for which regions of the session are rendered, whether to create a new file or process in place, and whether to mute the effects chain when finished. You can also choose to copy marker locations to the new file.

You can access this dialog in the Audio File Workspace via the  Render button from the Master Section window.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Rendering](#)

[Audio Plug-ins](#)

[Audio File Format Dialog](#)

[Master Section](#)

### 9.1.40 Sample attributes

This dialog allows you to define settings for an audio sample before loading it into a hardware or software sampler.

The settings do not process the sample in any way, they just give the file properties that the receiving sampler can use. This includes information about the pitch of the sample (which can be detected automatically by WaveLab Elements), the key range that the sample should span, and the velocity range to occupy. For WAV and AIFF files, this information is stored in the file's header.

By default, there are no sample attributes in an Audio File. Therefore you must explicitly create this information by clicking on the "Create" button first. This dialog is useful if your sampler can take advantage of these additional tags. If supported by your sampler, it can save you time by allowing you to both edit and define a samples properties from within WaveLab Elements.

You can access this dialog via **Workspace > Specific tool windows > Sample Attributes....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

### 9.1.41 Modified files dialog

This dialog allows you to save any currently open files that have been modified.

You can choose which files in the active Workspace you wish to save and which to ignore. If you have a large number of currently active files, it can be useful to choose "Select All" and then deselect any items you do not wish to save. Choosing "Cancel" safely returns you to the application without saving the modified files or quitting.

You can access this dialog throughout WaveLab Elements via **File > Save all.**

This dialog is also shown when closing a Workspace with more than one modified file, or when closing the application.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

### 9.1.42 Save Audio File dialog

This dialog allows you to choose the name, file format and the location where you wish to save an Audio File.

The provided default location depends on what path you have specified for the 'Audio File Save folder' in [Folder preferences](#). This can be overtyped, or you can click  to browse folders, browse files, or explore the Operating System browser dialog.

You can also change the type of file format used to encode the file using the [Audio File Format dialog](#). In addition there is an option to remember the file format you use so it appears the next time you save a file.

You can access this dialog from the Audio File Workspace and Montage Workspace via **File** > **Save as....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Folder Preferences dialog](#)

[Audio File Format Dialog](#)

## 9.1.43 Save Batch Processor

This dialog allows you to save a copy of the batch processor file that you currently have open. You can specify a new file name and location. Optionally you can choose to save the list of files in the batch process, along with status of each file.

The default location depends on what path you have specified for the 'Batch Processor - Save folder' in [Folder preferences](#). This can be overtyped, or you can click  to browse folders, browse files or explore the Operating System browser dialog.

You can access this dialog in the Batch Processor Workspace via **File** > **Save as....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Folder Preferences dialog](#)

## 9.1.44 Save File As

This dialog allows you to save a copy of a file that you currently have open. You can specify a new file name and location.

The default location depends on the path you have specified for the active Workspace's 'Save folder' in [Folder preferences](#). This can be overtyped, or you can click  to browse folders, browse files or explore the Operating System browse dialog.

You can access this dialog in various Workspaces in WaveLab Elements via **File** > **Save as....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Folder Preferences dialog](#)

### 9.1.45 Save Preset As

This dialog allows you to save a copy of a preset you have altered with a different name. You can also define and create a root folder to hold for all presets of its kind.

You can access this dialog in various places throughout WaveLab Elements where you choose presets - that is, wherever you see this icon  and a menu containing **Save as...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Presets](#)

### 9.1.46 Save picture of active window

This dialog allows you to save a picture of the active WaveLab Elements window.

You can save the picture with or without the enclosing window frame and the resulting picture can be copied to the clipboard or saved to a file. If the second option is selected, you can specify where the picture is saved and the format: BMP, JPG/JPEG and PNG formats are offered.

You can access this dialog from most Workspaces in WaveLab Elements via **View > Save picture of active window....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

### 9.1.47 Definition of shortcut(s)

This dialog allows you to define your own customized shortcut(s) for a particular function (selected from [Customize Commands](#)). These custom shortcuts can save you time and speed up your workflow in WaveLab Elements.

You can define a shortcut using a:

- **Key sequence** - any existing keyboard shortcut is displayed in the first keystroke field and can be overwritten. There are some standard shortcuts that cannot be redefined; in this case the related edit fields are disabled. Each shortcut is restricted to a specific Workspace, so you can use the same shortcut in different Workspaces.

Press the key combination you wish to use and it will be displayed. If a keyboard shortcut is already used by another command, a warning is given. Use the Clear button to erase any shortcut entries already present.

There are additional spaces to allow you to define sequences containing up to four key strokes. Please note these keys must be pressed/released one after the other, and the action is performed when the last key has been pressed.

You can access this dialog from the [Customize commands window](#) by selecting a command and choosing **Edit shortcut...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Customize Commands](#)

[Command bars](#)

## 9.1.48 Silence Generator

This dialog allows you to generate "silence", either by replacing an audio selection, or by specifying a duration.

You can also specify a cross fade at each end of the silent region, for a smoother transition. Radio buttons determine where the silent period is placed in the audio.

You can access this dialog in the Audio File Workspace via **Edit > Silence (advanced)...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Silence](#)

## 9.1.49 Special File Format

This dialog allows you to choose options as to how WaveLab Elements will interpret any unrecognized file formats or files containing raw data that you wish to open. You can define the sample format, byte order, sample rate, file extension and whether or not the file contains mono or stereo channels. You can also choose to ignore the file's header (start) or end of file data. Once you have specified a format for a particular type of file, WaveLab Elements remembers the new format for the next time. This function can be useful for example, if you are working with a rarely used Audio File format like those used by some game platforms or mobile phone ring tones.

You can access this dialog in the Audio File Workspace via **File > Open as...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Audio File Format Dialog](#)

### 9.1.50 Time Format dialog

This dialog allows you to specify the way in which time is displayed on the waveform time rulers and in several time-based fields related to the file.

You can set options using the following tabs:

- **Timecode** - this provides a list of frames per second for various SMPTE timecodes, and for CD resolution. Selecting "Other" allows you to enter a custom value. You can also choose which frames/units are displayed. For example, if you are working with PAL video you might choose 25 frames per second - or "25(SMPTE EBU)".
- **Clock** - this allows you to display time units or to present the clock units in a compact format.
- **Meter** - this offers time signature, tempo (bpm) and ticks per quarter note (to allow the time units to be compatible with your MIDI sequencer).

You can access this dialog in the Audio File Workspace via **View > Main view display > Time Ruler > Time format...** Alternatively, you can access it by right clicking anywhere on the time ruler in either waveform window to produce the Time Ruler context menu, and choosing **Time format...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

#### Related topics

[Audio File editing](#)

### 9.1.51 Time stretching

This dialog allows you to change the duration of an audio selection (usually without changing its pitch).

You can view exact time information on the original audio selection you wish to stretch and choose the amount you wish to "stretch" it in seconds, beats per minute or as a percentage. You can also choose which method WaveLab uses to stretch the audio and the quality/speed of the processing.

When choosing a method, it is useful to experiment with the different algorithms available to find which one suits your source material the best. Use "What's this?" to find out more information on each method and determine which one will produce the best time stretch without introducing unwanted artifacts.

This function is useful if you want to speed up or slow down a recording to match other material, such as matching the tempo of two drum beats, or fitting an audio track to a section of video, for example.

You can access this dialog from the Audio File Workspace by choosing **Process > Time stretching...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Adjusting Envelopes](#)

### 9.1.52 File attributes

This dialog allows you to define the file attributes (or meta-data) to be embedded in your exported Audio File.

You can choose between entering standard WAV file meta-data tags or the extended file header information available in Broadcast Wave Format (BWF).

Fill in the relevant information using the text fields provided, although it is not mandatory to complete all fields.

In some cases there are buttons to assist you in entering data:

-  - Uses the current date and time to fill in the Origination Date/Time field.
-  - Uses WaveLab Elements as the name of the originator software.

You can access this dialog in the Audio File Workspace via **Edit > File Attributes...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[WAV files](#)

### 9.1.53 Audio File editing preferences

This dialog allows you to define settings for editing in the Audio File Workspace.

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.

You can access this dialog in the Audio File Workspace via **Options > Audio File editing preferences...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File editing](#)

### 9.1.54 Write Audio CD

This dialog allows you to write an audio CD to a physical CD-ROM disk using your computer's CD-R or DVD-R drive. The dialog has controls for refreshing the list of attached devices,

opening the CD/DVD drive and erasing a CD-RW/DVD-RW disk or the contents of the DDP Image directory. You can also choose to bypass audio from passing through the Master Section before it is written. Choosing a CD-R or DVD-R drive displays choices for setting the speed, number of copies and other options.

### Important note for Mac OSX users

When using the CD-R/DVD-R drive on Apple OSX computers for importing or burning it is important to note the following. If you insert a optical CD or DVD disk in the drive while the drive is not selected in WaveLab Elements for import or burning, WaveLab Elements will not be able to "see" the drive. The disk drive is "taken over" by other applications under Mac OSX and is not seen by WaveLab Elements when this happens. To avoid this occurring, make sure there is no disk in the drive when opening any CD window within WaveLab Elements.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[DDP files](#)

[Authoring CDs and DVDs](#)

## 9.1.55 WMA encoding

This dialog allows you to specify the encoding options when you save a WMA Audio File.

You can select which encoder to use and adjust the output sample rate and bit resolution. Depending on the encoder chosen, you can also define various quality options and whether the resulting file is stereo or mono.

You can access this dialog by choosing **Save as... > Output Format (select type Windows Media Audio) > Encoding > Edit...**, and from most places where you can select an output file format, like the Render dialog.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[WMA files](#)

## 9.1.56 Write Data CD/DVD

This dialog allows you to write a data CD/DVD to either a physical DVD/CD-ROM disk using your computer's CD-R or DVD-R drive, or burn an ISO disk image. The dialog has controls for refreshing the list of attached devices, opening the CD/DVD drive and erasing a CD-RW/DVD-RW disk.

If you choose to burn an ISO disk image the dialog allows you to select a filename for the resultant ISO file. Choosing a CD-R or DVD-R drive displays choices for setting the speed or to try a test burn.

### Important note for Mac OSX users

When using CD-R/DVD-R drive on Apple OSX computers for importing or burning it is important to note the following. If you insert a optical CD or DVD disk in the drive while the drive is not selected in WaveLab Elements for import or burning, WaveLab Elements will not be able to "see" the drive. The disk drive is "taken over" by other applications under Mac OSX and is not seen by WaveLab Elements when this happens. To avoid this occurring, make sure there is no disk in the drive when opening any CD window within WaveLab Elements.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Authoring CDs and DVDs](#)

## 9.1.57 Loop Tweaker

This dialog allows you to refine a region of audio to loop seamlessly.

The Loop Tweaker can just be used to "tweak" an existing loop selection so that it loops perfectly or you can also use it to create a loop from material which does not naturally repeat. To use the Loop Tweaker you must first have a loop defined using a pair of loop markers .

The Loop Tweaker consists of the following tabs:

### Loop points adjustment

This is a visualization of the beginning and end of the waveform between the loop markers. You use this dialog to manually refine a loop selection by dragging on the waveform left/right or using the automatic search buttons to find the nearest "good" loop point. The aim is to align the waveforms so they meet in the middle at a [zero-crossing point](#) with the waveforms matching as closely as possible, being "in phase". When you adjust your loop start and end points within the dialog the start and end loop markers in the main waveform window will adjust accordingly. Note that this movement may or may not be visible depending on the amount you move the markers and the zoom factor you have selected.

It is helpful to have the transport looped during playback so you can hear the difference when you adjust the loop markers within the dialog. Use the Display options to adjust how the Loop Tweaker waveform is visualized. You can also use the temporary memory buttons to capture a number of different loop "candidates" and audition them one by one. Note that if you are not using a cross fade or post cross fade you do not need to click Apply when just tweaking loop points. You can also leave this dialog window open and manually adjust the position of the markers in the main waveform windows if you need to make large adjustments.

### Cross fade

This tab allows you to apply a cross fade at the end of a loop by mixing a copy of the beginning of the loop with it. This can be useful to smooth the transition between the end of a loop and its beginning - especially when using material that doesn't naturally loop. Use the envelope drag points or value sliders to adjust the cross fade envelope. Click Apply to process the cross fade.

### Post cross fade

This tab allows you to cross fade the loop back into the audio after the end of the loop. This

is done by mixing a copy of the loop back into the audio. Use the envelope drag points or value sliders to adjust the cross fade envelope. Click Apply to process the post cross fade.

Using the "Copy" button you can insert multiple copies of the loop into the active Audio File, creating a smooth audio sequence, since copies will loop without an audible transition.

You can access this dialog by choosing **Process > Loop Tweaker...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Markers](#)

[Adjusting Envelopes](#)

[Zero crossing](#)

### 9.1.58 Zoom factor

This dialog allows you to set the level of magnification of the waveform in the main wave view with precision.

Choose the zoom factor unit and enter an amount using the spin control box, or change the amount by dragging up or down with the mouse or use the mouse wheel without clicking - see [Value editing](#).

You can access this dialog by left-clicking on the zoom factor box in the [Status Bar](#). A right-click on the zoom factor box gives you various zoom options.

See [Zooming and scrolling](#) for other methods of zooming - for example, you can press [arrow up] or [arrow down] to zoom in or out.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Zooming and scrolling](#)

[Value editing](#)

[Status Bar](#)

## 9.2 Shared tool windows

Shared tool windows are windows that can only exist in one place at a time and are shared between Workspaces. They perform useful tasks in the active Workspace.

They can be docked and un-docked. [VU Meter](#)

[Oscilloscope](#)

[Spectroscope](#)

[Master Section](#)

## Related topics

[About Tool Windows](#)

[Metering](#)

[Docking windows](#)

### 9.2.1 VU Meter

The vu-meter is used to display the peak and average loudness/decibel level of your Audio File. It also displays the pan, or the balance between the left and right channels in a stereo file.

The upper part of the level/pan meter window shows the peak level and average loudness, in the following way:

- The Peak Level meters display the peak levels of each channel, graphically and numerically. By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between -6dB and -2dB, and red for levels above -2dB. You can change both the colors and the range boundaries if you wish via the Level/Pan Meter Settings dialog. This can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.
- The VU (Volume Unit) 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 audio input, you will also note two vertical lines following each VU meter bar, seemingly "trying to reach" the current RMS value. 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 (the level value in brackets) - this gives you an overview of the dynamic range of the audio material.
- If you are monitoring real-time audio (playback or input), the maximum peak and loudness values are displayed numerically to the right of the meter bars. Numbers in brackets to the right of the Maximum Peak values indicate the number of successive clips (0dB signal peaks). 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 will be compromised at high recording levels, with unwanted clipping effects. If the level is set too low, noise levels may be high relative to the main sound being recorded.

The VU meter can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces.

## Related topics

[Metering](#)

### 9.2.2 Oscilloscope

The Oscilloscope offers a highly magnified view of the waveform around the playback cursor position.

If you are analyzing a stereo file, the Oscilloscope normally shows the separate levels of the two channels. However, if you activate the option "Show Sum and Subtraction" on the Functions menu (or click the +/- icon), the upper half of the Oscilloscope shows the sum of the two channels and the lower half shows the subtraction.

### Making settings

By opening the Settings dialog you can adjust the display colors, and choose to activate Auto-zoom or not. With Auto-zoom activated, the display is optimized so that the highest level reaches the top of the display at all times. The Settings dialog can be accessed through the **Functions** > **Settings...** menu, or by using the  icon.

The Oscilloscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 9.2.3 Spectroscope

The Spectroscope shows a continuous graphical representation of the frequency spectrum, analyzed into 60 separate frequency bands, represented as vertical bars. Peak levels are shown as a short horizontal lines above the corresponding band, indicating recent peak/-maximum values.

The Spectroscope can be found in the **Meters** menu of the Audio Files and Audio Montage Workspaces. It can be used either as a floating window, or docked in the Workspace.

### Related topics

[Metering](#)

## 9.3 Specific tool windows

Specific tool windows are windows that are specific to the current Workspace. They perform useful tasks in the active Workspace.

They can be docked and un-docked.

### Related topics

[About Tool Windows](#)



# Chapter 10

## Audio Plug-ins

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 in software the effects of familiar recording studio hardware. A vast number of plug-ins are available - from freeware to high-end commercial products - and can greatly extend the functionality of programs such as WaveLab Elements.

The order of processing is significant. You can change the order in which effects are processed by moving the effects icons  by dragging them between slots. See [Dragging operations](#) for more information.

WaveLab Elements provides slots for up to four plug-ins.

The more complex plug-ins provide a custom GUI, often displaying controls similar to the physical switches and knobs on audio hardware; other plug-ins rely on the host application for their UI.

The following plug-ins are supplied with WaveLab Elements:

### 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. An Audio Montage which referenced these plug-ins would otherwise require cumbersome user intervention to open, for instance. Their use with new audio projects is not recommended and they are not documented.

### Sonnox Ltd VST-3 plug-ins

[Sonnox DeClicker](#)

[Sonnox DeNoiser](#)

### Steinberg VST-3 plug-ins

[Steinberg Autopan](#)

[Steinberg Chorus](#)

[Steinberg Compressor](#)  
[Steinberg Mono Delay](#)  
[Steinberg Distortion](#)  
[Steinberg Gate](#)  
[Steinberg Limiter](#)  
[Steinberg Roomworks SE](#)  
[Stereo Delay](#)  
[Steinberg Stereo Enhancer](#)  
[Steinberg Studio EQ](#)  
[Steinberg VST Dynamics](#)

### Built-in plug-ins

[Crystal Resampler](#)  
[Leveler](#)  
[Peak Master](#)  
[Silence](#)

### Dithering plug-in

[Internal Dithering](#)

## 10.1 Sonnox DeClicker



Sonnox DeClicker is one of three plug-ins that form the Sonnox Restoration Toolkit. The

tools are not just for restoring old material, but also for removing the clicks, pops, buzzes and background noise that can sometimes accidentally occur in new recordings.

### A note on Touch Pad controls

Several controls in these plug-ins are Touch Pads. These controls give a clear display of the numeric value of a control, and respond to the following actions:

- Left-Click and drag up/down: Increase/decrease the value
- Right-Click and drag up/down: Fine adjustment of value
- Double Click: Directly edit value
- Shift + Left-Click and drag up/down: Fine adjustment of value
- Control + Left-Click (Windows), Cmd + Click (Mac): Set to default

Additionally, for all controls (including faders and knobs, not just Touch Pads)

- Control + Left-Click (Windows), Cmd + Click (Mac): Set to default

### DeClicker screen controls

- **Sonnox Menu Options Button**

Clicking this button brings down a menu of options and preferences. It allows choice of:

the input/output meter clip light hold duration (permanent, 2s, 5s), and  
the splash screen to examine the version number and build date.

- **Input Level Meter**

The Input Meter is designed to give exactly 1dB 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.

- **Input Gain Trim Touch Pad (dB)**

This allows you to adjust the input signal level by up to  $\pm 12$ dB.

- **Sensitivity Fader and Touch Pad (%) (Pop; Click; Crackle)**

This 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 will require a less sensitive setting.

- **In Button (Pop; Click; Crackle)**

This button enables the pop, click or crackle removal processing. It is important to note that with this button "off" (i.e. the repair processing is disabled), the pop, click or crackle detection circuit is still enabled and the detect display will still show the degree of event detection.

- **Detect Meter Display (Pop; Click; Crackle)**

The Detect meter display 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)**

The output meter is designed to give exactly 1dB per LED for the top 18dB of dynamic range, and 2dB 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.

- **Output Gain Trim Touch Pad (dB)**

This allows you to reduce the output level by up to 12dB. Dithering is applied after output gain control, so it may be necessary to reduce this value by a small amount to avoid clipping.

## Quick-Start Guide for the De-Clicker

The De-Clicker is very simple and intuitive to use. It is generally wise to repair the larger and more energetic events first.

1. 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.
2. For clicks, enable that section and raise the sensitivity fader until they are detected and repaired.
3. Finally if there is crackle left, enable that section and raise its fader to remove the crackle.

**Tip:** There is necessarily some degree of overlap in the detection circuits of clicks and crackle. Decreasing the DeClick sensitivity might increase the apparent detection of crackle; and increasing the DeClick sensitivity might indicate less crackle. Best results are likely if the two controls are balanced.

## Related topics

[Audio Plug-ins](#)

[Master Section](#)

[How do I add effects?](#)

[Presets](#)

## 10.2 Sonnox DeNoiser



Sonnox DeNoiser is one of three plug-ins that form the Sonnox Restoration Toolkit. The tools are not just for restoring old material, but also for removing the clicks, pops, buzzes and background noise that can sometimes accidentally occur in new recordings.

### A note on Touch Pad controls

Several controls in these plug-ins are Touch Pads. These controls give a clear display of the numerical value of a control, and respond to the following actions:

- Left-Click and drag up/down: Increase/decrease the value
- Right-Click and drag up/down: Fine adjustment of value
- Double Click: Directly edit value
- Shift + Left-Click and drag up/down: Fine adjustment of value
- Control + Left-Click (Windows) Cmd + Click (Mac): Set to default

For circular controls:

- the default action is Circular mode, but if the Alt key is held, the action is Linear mode.

Additionally, for all controls (including faders and knobs, not just Touch Pads)

- Control + Left-Click (Windows), Cmd + Click (Mac): Set to default

### DeNoiser screen controls

- **Sonnox Menu Options Button**

Clicking this button brings down a menu of options and preferences. It allows choice of:

the input/output meter clip light hold duration (permanent, 2s, 5s), and  
the splash screen to view the version number and build date.

- **Graphical Display**

The graphical display shows the real-time frequency/gain curve of the programme material. It is graduated from 0 to 20kHz and from 0 to -144dB. The yellow line is the calculated noise spectrum level, and in Auto mode will continually follow the noise in real time. Everything below this contour is assumed to be noise, and everything above the line is programme signal.

- **Input Level Meter**

The Input Meter is designed to give exactly 1dB 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.

- **Input Gain Trim Touch Pad (dB)**

This 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 will adjust 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 De-Noise less reactive to the noise component, move the fader down. The noise contour will displace downwards, showing less noise component in the detection circuit. If the sensitivity is set too low, little noise reduction will occur. Conversely, to increase the sensitivity and make the De-Noise more reactive to the noise component, move the fader up. The noise contour will displace 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 will decrease the signal component, possibly pushing the contour up towards the peaks of the signal. In this case, it is likely that processing artifacts will be heard, as the noise removal circuit will be acting on the signal component as well as the noise component.

- **Adapt Button**

This 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**

This button enables Freeze mode for the noise detection circuit. In this mode the noise fingerprint is calculated once (when the Freeze button is pressed). 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**

This button enables the noise removal processing. It allows glitch-less comparisons with and without the noise reduction. It is important to note that with this button "off"

(i.e. the noise removal processing is disabled), the noise detection circuit is still enabled and the graphical display will still show the real-time frequency display and the noise contour line.

- **HF Limit Knob and Touch Pad (Hz)**

This displays and controls the frequency beyond which the attenuation is applied non-dynamically. Scrolling the frequency down from the default of 22kHz will show 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 programme 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 will remove those artifacts.

- **Attenuation Fader and Touch Pad (dB)**

The attenuation fader and touch pad determine the level of attenuation that the noise removal circuit will apply in the range 0 to -18 dB. 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)**

The output meter is designed to give exactly 1dB per LED for the top 18dB of dynamic range, and 2dB 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.

- **Output Gain Trim Touch Pad (dB)**

This allows you to reduce the output level by up to 12dB. Dithering is applied after output gain control, so it may be necessary to reduce this value by a small amount to avoid clipping.

### Quick-Start Guide for the De-Noiser

1. Start with Sensitivity and Attenuation controls at the default positions (0.0dB and -4.5dB respectively).
2. Select Auto mode if the noise varies in time; select freeze for a defined and static noise fingerprint.
3. 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).
4. 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.

**Tip:** You might be working with bandwidth-limited material, possibly as a result of samplerate conversion or lossy compression (for example limited at around 10kHz). 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 9.5kHz in our example).

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## 10.3 Steinberg AutoPan



This is a simple autopan effect. It can use different waveforms to modulate the left-right stereo position (pan), using manual modulation speed settings.

The parameters are as follows:

### Rate

Sets the auto-pan speed from 0.1 to 10, by rotating the knob by dragging, or using the mouse wheel.

### Width

This sets the depth of the Autopan effect, that is, how far out to the left/right speaker the sound should move, from 0% to 100%.

### Shape

Sets the modulation waveform. Sine produces a smooth sweep. Triangle creates a ramp (a sweep from one speaker to the other and then a quick jump back).

## Related topics

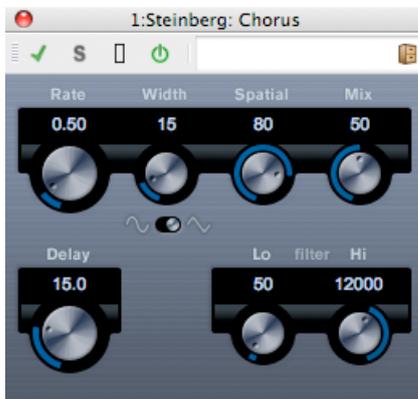
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## 10.4 Steinberg Chorus



This is a single stage chorus effect. It works by doubling whatever is sent into it with a slightly detuned version.

The parameters are as follows:

- **Rate**

The sweep rate can be set freely with the Rate knob, without sync to tempo.

- **Width**

Determines the extent of the chorus effect. Higher settings produce a more pronounced effect.

- **Spatial**

This 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 effect. If Chorus is used as a send effect, this should be set to maximum as you can control the dry/effect balance with the send.

- **Shape**

This switch changes the shape of the modulating waveform, altering the character of the chorus sweep. Sine and triangle waveforms are available.

- **Delay**

This parameter affects the frequency range of the modulation sweep, by adjusting the initial delay time.

- **Filter Lo/Hi**

These parameters allow you to roll off low and high frequencies of the effect signal, respectively.

## Related topics

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## 10.5 Steinberg Compressor



Compressor reduces the dynamic range of the audio, making softer sounds louder or louder sounds softer, or both.

Compressor features separate controls for threshold, ratio, attack, hold, release and make-up gain parameters. 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.

The following parameters are available:

- **Threshold (-60 to 0dB)**

Determines the level where Compressor "kicks in". Signal levels above the set threshold are affected, but signal levels below are not processed.

- **Ratio (1:1 to 8:1)**

Sets the amount of gain reduction applied to signals over the set threshold. A ratio of 3:1 means that for every 3dB the input level increases, the output level will increase by only 1dB.

- **Soft Knee button**

If this button is off, signals above the threshold are compressed instantly according to the set ratio (hard knee). When Soft Knee is activated, the onset of compression is more gradual, producing a less drastic result.

- **Make-up (0 to 24dB or Auto mode)**

This parameter is used to compensate 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 Compressor will respond to signals above the set threshold. If the attack time is long, more of the early part of the signal (attack) passes through unprocessed.

- **Hold (0 to 5000ms)**

Sets the time the applied compression will affect the signal after exceeding the threshold. Short hold times are useful for "DJ-style" ducking, while longer hold times are required for music ducking, e.g. when working on a documentary film.

- **Release (10 to 1000ms or Auto mode)**

Sets the amount of time it takes for the gain to return to its original level when the signal drops below the threshold level. If the Auto button is activated, Compressor will automatically find an optimal release setting that varies depending on the audio material.

- **Analysis (0 to 100) (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 button**

When this button is activated, the "look ahead" feature of Compressor is disengaged. Look ahead produces more accurate processing, but adds a certain amount of latency as a trade-off. When Live mode is activated, there is no latency, which might be better for "live" processing.

## Related topics

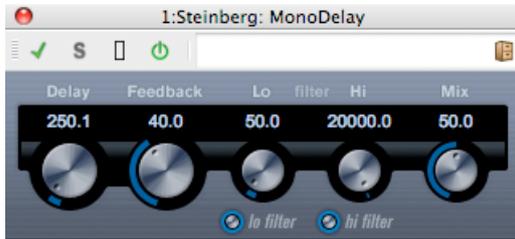
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## 10.6 Steinberg Mono Delay



This is a mono delay effect using freely specified delay time settings.

The following parameters are available:

- **Delay**

Sets the base note value for the delay from 0.1 to 5000 milliseconds.

- **Feedback**

Sets the number of repeats for the delay.

- **Filter Lo**

This filter affects the feedback loop of the effect signal and allows you to roll off low frequencies from 10Hz up to 800Hz. The button below the knob activates/deactivates the filter.

- **Filter Hi**

This filter affects the feedback loop of the effect signal and allows you to roll off high frequencies from 20kHz down to 1.2kHz. The button below the knob activates/deactivates the filter.

- **Mix**

Sets the level balance between the dry signal and the effect. If MonoDelay is used as a send effect, set this to the maximum value as you can control the dry/effect balance with the send.

Note that the delay can also be controlled from another signal source via the side-chain input. When the side-chain signal exceeds the threshold, the delay repeats are silenced. When the signal drops below the threshold, the delay repeats reappear.

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## 10.7 Steinberg Distortion



Distortion will add crunch to your tracks.  
The following parameters are available:

- **Boost**

Increases the distortion amount.

- **Feedback**

Feeds part of the output signal back to the effect input, increasing 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 channel, thus creating a stereo effect.

- **Output**

Raises or lowers the signal going out of the effect.

### Related topics

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## 10.8 Steinberg Gate



Gating, or noise gating, silences audio signals below a set threshold level. As soon as the signal level exceeds the set threshold, the gate opens to let the signal through.

The following parameters are available:

- **Threshold (-60 to 0dB)**

Determines the level where Gate is activated. Signal levels above the set threshold trigger the gate to open, and signal levels below the set threshold will close the gate.

- **State LED**

Indicates whether the gate is open (LED lights up in green), closed (LED lights up in red) or something in between (LED lights up in yellow).

- **Filter buttons (LP, BP, and HP)**

When the Side-Chain button (see below) is activated, you can use these buttons to set the filter type to either low-pass, band-pass, or high-pass.

- **Side-Chain button**

This button (below the Center knob) activates the sidechain filter. The input signal can then be shaped according to set filter parameters. Internal side-chaining can be useful for tailoring how the Gate operates.

- **Center (50Hz to 20000Hz)**

When the Side-Chain button is activated, this sets the center frequency of the filter.

- **Q-Factor (0.01 to 10000)**

When the Side-Chain button is activated, this sets the resonance of the filter.

- **Monitor button**

Allows you to monitor the filtered signal.

- **Attack (0.1 to 1000ms)**

Sets the time it takes for the gate to open after being triggered. If the Live button (see below) is deactivated, it ensures that the gate will already be open when a signal above the threshold level is played back. Gate manages this by "looking ahead" in the audio material, checking for signals loud enough to pass the gate.

- **Hold (0 to 2000ms)**

Determines how long the gate stays open after the signal drops below the threshold level.

- **Release (10 to 1000ms or Auto mode)**

Sets the amount of time it takes for the gate to close (after the set hold time). If the Auto button is activated, Gate will find an optimal release setting, depending on the audio material.

- **Analysis (0 to 100) (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 better for percussive material, with a lot of transient peaks.

- **Live button**

When this button is activated, the "look ahead" feature of Gate is disengaged. Look ahead produces more accurate processing, but adds a certain amount of latency as a trade-off. When Live mode is activated, there is no latency, which might be better for "live" processing.

Note that the gate can also be controlled from another signal source via the side-chain input. When the side-chain signal exceeds the threshold, the gate opens.

### Related topics

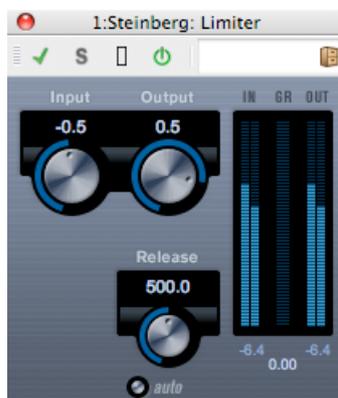
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## 10.9 Steinberg Limiter



Limiter 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).

The following parameters are available:

- **Input (-24 to +24dB)**

Allows you to adjust the input gain.

- **Auto (-24 to +6dB)**

Determines the maximum output level.

- **Release (0.1 to 1000ms or Auto mode)**

Sets the amount of time it takes for the gain to return to its original level. If the Auto button is activated, Limiter will automatically find an optimal release setting that varies depending on the audio material.

## Related topics

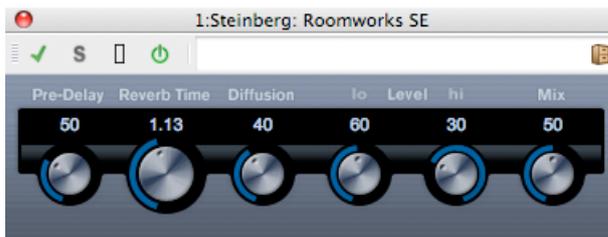
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## 10.10 Steinberg Roomworks SE



RoomWorks SE is a "lite" version of the RoomWorks plug-in. This plug-in delivers high quality reverberation, but has fewer parameters and is less demanding of CPU than the full version.

The following parameters are available:

- **Pre-Delay**

Controls how much time passes before the reverb is applied. This allows you to simulate larger spaces by increasing the time it takes for 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 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 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 Determines**

the blend of dry (unprocessed) signal to wet (processed) signal. When using Room-Works SE inserted in an FX channel, you will most likely want to set this to 100% or use the Send button.

### Related topics

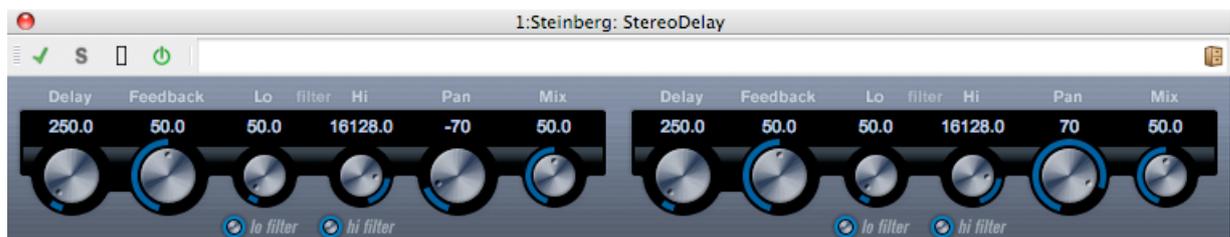
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## 10.11 Stereo Delay



StereoDelay has two independent delay lines with freely specified delay time settings.

The following parameters are available:

- **Delay 1 & 2**

Using these controls you specify the base note value for the delay time in milliseconds.

- **Sync button**

The buttons below the Delay knobs are used to turn tempo sync on or off for the respective delay.

- **Feedback 1 & 2**

The Feedback controls set the number of repeats for each delay.

- **Filter Lo 1 & 2**

These filters affect the feedback loop and allow you to roll off low frequencies up to 800Hz. The buttons below the knobs activate/deactivate the filter.

- **Filter Hi 1 & 2**

These filters affect the feedback loop and allow you to roll off high frequencies from 20kHz down to 1.2kHz. The buttons below the knobs activate/deactivate the filter.

- **Pan 1 & 2**

These controls are used to set the stereo position for each delay.

- **Mix 1 & 2**

Use these controls to set the level balance between the dry signal and the effect. If StereoDelay is used as a send effect, set them to the maximum value (100 %) as you can control the dry/effect balance with the send.

Note that the delay can also be controlled from another signal source via the side-chain input. When the side-chain signal exceeds the threshold, the delay repeats are silenced. When the signal drops below the threshold, the delay repeats reappear.

### Related topics

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## 10.12 Steinberg Stereo Enhancer



This plug-in will expand the stereo width of (stereo) audio material. It cannot be used with mono files.

The following parameters are available:

- **Width**

Controls the width of the stereo enhancement (i.e. the apparent stereo separation). Turn clockwise to increase the enhancement.

- **Delay**

Controls the delay differences between left and right channels to further increase the stereo effect.

- **Color**

Generates additional differences between the channels to increase the stereo enhancement.

- **Mono button**

Switches the output to mono, to check for possible unwanted coloring of the sound which sometimes can occur when enhancing the stereo image.

### Related topics

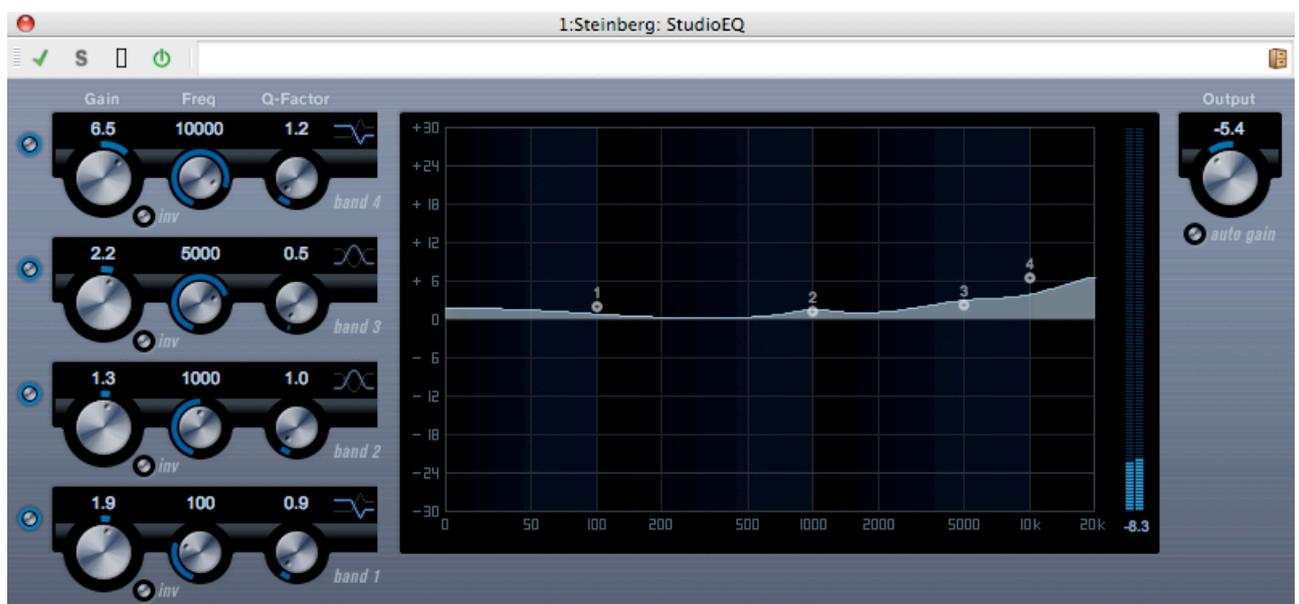
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## 10.13 Steinberg Studio EQ



This 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 Parameter Description as a Peak (band-pass) or Cut (low-pass/high-pass) filter.

## Making settings

1. Click the corresponding On button on the left of the plug-in panel to activate any or all of the 4 equalizer bands (Low, Mid 1, Mid 2, and High). When a band is activated, the corresponding EQ point appears in the EQ curve display.
2. Set the parameters for an activated EQ band. This can be done in several ways:
  - By using the knobs.
  - By clicking on the numeric values and typing in new values.
  - By using the mouse to drag points in the EQ curve display.

When using the mouse to change the parameter settings, you can use the following modifier keys: - When no modifier key is pressed and you drag an EQ point in the display, the Gain and Frequency parameters are adjusted simultaneously.

**[Shift]** Keep the **[Shift]** key pressed and drag the mouse to change the Q-factor of the corresponding EQ band.

**[Alt]/[Option]** Keep the **[Alt]/[Option]** key pressed and drag the mouse to change the frequency of the corresponding EQ band.

**[Ctrl]/[Command]** Keep the **[Ctrl]/[Command]** key pressed and drag the mouse to change the gain value of the corresponding EQ band.

The following parameters are available:

### **Band 1 Gain (-20 to +24dB)**

Sets the amount of cut/boost for the low band.

### **Band 1 Inv button**

Inverts the gain value of the filter. Use this button to filter out unwanted noise. While 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 it, you can use the Inv button to cancel it out.

### **Band 1 Freq (20 to 2000Hz)**

Sets the frequency of the low band.

### **Band 1 Q-Factor (0.5 to 10)**

Controls the width or resonance of the low band.

### **Band 1 Filter mode**

For the low band, you can select between three types of shelving filters, a Peak (band-pass), and a Cut (lowpass/high-pass) filter. When 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.

### **Band 2 Gain (-20 to +24dB)**

Sets the amount of cut/boost for the mid 1 band.

### **Band 2 Inv button**

Inverts the gain value of the filter (see the description of the Invert button for Band 1).

### **Band 2 Freq (20 to 20000Hz)**

Sets the center frequency of the mid 1 band.

**Band 2 Q-Factor (0.5 to 10)**

Sets the width of the mid 1 band: the higher this value, the "narrower" the bandwidth.

**Band 3 Gain (-20 to +24dB)**

Sets the amount of cut/boost for the mid 2 band.

**Band 3 Inv button**

Inverts the gain value of the filter (see the description of the Invert button for Band 1).

**Band 3 Freq (20 to 20000Hz)**

Sets the center frequency of the mid 2 band.

**Band 3 Q-Factor (0.5 to 10)**

Sets the width of the mid 2 band: the higher this value, the "narrower" the bandwidth.

**Band 4 Inv button**

Inverts the gain value of the filter (see the description of the Invert button for Band 1).

**Band 4 Gain (-20 to +24dB)**

Sets the amount of cut/boost for the high band.

**Band 4 Freq (200 to 20000Hz)**

Sets the frequency of the high band.

**Band 4 Q-Factor (0.5 to 10)**

Controls the width or resonance of the high band.

**Band 4 Filter mode**

For the high band, you can select between three types of shelving filters, a Peak, and a Cut filter. When Cut mode is selected, the Gain parameter is fixed. -Shelf I adds resonance in the opposite gain direction slightly below 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 button**

When this button is activated, the gain is automatically adjusted, keeping the output level constant regardless of the EQ settings.

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## 10.14 Steinberg VST Dynamics



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.

**Activating the individual processors** You activate the individual processors using the buttons at the bottom of the plug-in panel.

### The Gate section

Gating, or noise gating, is a method of dynamic processing that silences audio signals below a set threshold level. As soon as the signal level exceeds the set threshold, the gate opens to let the signal through. The Gate trigger input can also be filtered using an internal side-chain.

The following parameters are available:

#### Threshold (-60 to 0dB)

Determines the level where 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 something in between (LED lights up in yellow).

#### Side-Chain button

This button activates the internal side-chain filter. You can use this to filter out parts of the signal that might otherwise trigger the gate in places you not want it to, or to boost frequencies you wish to accentuate, allowing for more control over the gate function.

#### LP (low-pass), BP (band-pass), HP (high-pass)

These buttons set the basic filter mode.

#### Center (50 to 22000Hz)

Sets the center frequency of the filter.

#### Q-Factor (0.001 to 10000)

Sets the resonance or width of the filter.

**Monitor (On/Off)**

Allows you to monitor the filtered signal.

**Attack (0.1 to 100ms)**

Sets the time it takes for the gate to open after being triggered.

**Hold (0 to 2000ms)**

Determines how long the gate stays open after the signal drops below the threshold level.

**Release (10 to 1000ms or Auto mode)**

Sets the amount of time it takes for the gate to close (after the set hold time). If the Auto button is activated, Gate will find an optimal release setting, depending on the audio material.

## The Compressor section

The compressor reduces the dynamic range of the audio, making softer sounds louder or louder sounds softer, or both. It works like a standard compressor with separate controls for threshold, ratio, attack, release and make-up gain. The compressor features a separate display that graphically illustrates the compressor curve shaped according to the Threshold, Ratio and Make-Up Gain parameter settings. It also features Gain Reduction meters and a program-dependent Auto feature for the Release parameter.

The available parameters work as follows:

**Threshold (-60 to 0dB)**

Determines the level where the compressor "kicks in". Signal levels above the set threshold are affected, but signal levels below are not processed.

**Ratio (1:1 to 8:1)**

Determines 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 only 1dB.

**Make-Up (0 to 24dB)**

This parameter is used to compensate for output gain loss, caused by compression. When the Auto button is activated, gain loss is being compensated automatically.

**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 amount of time it takes for the gain to return to its original level when the signal drops below the threshold level. If the Auto button is activated, the compressor will automatically find an optimal release setting that varies depending on 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 will find two meters that show the amount of gain reduction in dB.

## The Limiter section

The limiter is designed to ensure 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. You can also adjust the Release parameter manually.

The following parameters are available:

### **Output (-24 to +6dB)**

Determines the maximum output level. Signal levels above the set threshold are affected, but signal levels below are left unaffected.

### **Soft Clip button**

If this button is activated, the limiter acts differently. When the signal level exceeds -6dB, Soft Clip starts limiting (or clipping) the signal "softly", at the same time generating harmonics which add a warm, tube-like characteristic to the audio material.

### **Release (10 to 1000ms or Auto mode)**

Sets the amount of time it takes for the gain to return to its original level when the signal drops below the threshold level. If the Auto button is activated, the limiter will automatically find an optimal release setting that varies depending on the audio material.

## The 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).

## Related topics

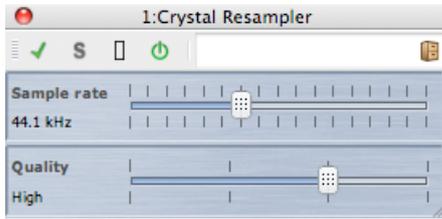
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## 10.15 Crystal Resampler



This plug-in offers high quality sample rate conversion of Audio Files. For example, if your Audio File was recorded or saved at 96 or 48kHz and you wish to burn it to CD at 44.1kHz, this plug-in will perform the conversion ready for burning.

The following parameters are available:

- **Sample rate**

The rate can be set in 17 steps from 6kHz to 384kHz. It includes the common sampling rates of 44.1, 48, 96 and 192kHz.

- **Quality**

The quality requirements can be set in four steps - Preview (fast), Standard, High, or Ultra (slow).

### Related topics

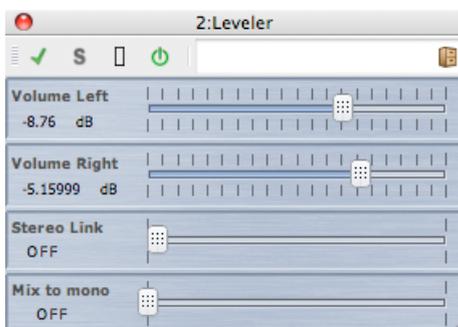
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## 10.16 Leveler



Leveler is useful for correcting an imbalance or adjusting levels between stereo channels, or for mixing down to mono.

The parameters are as follows:

- **Volume Left, Right (-48dB to +12dB)**

This governs how much of the signal is included in the left and/or right channel of the output bus.

- **Stereo Link (OFF or LINKED)**

When set to LINKED, Volume Right delivers the same gain as that set for Volume Left.

- **Mix to Mono (OFF or ON)**

When set to ON, a mono mix of the stereo channels is delivered to the output bus.

### Related topics

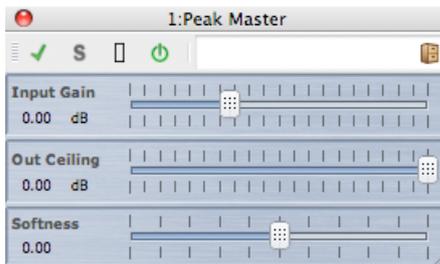
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## 10.17 Peak Master



Peak master is a basic plug-in that minimizes peaks in your Audio File, allowing a louder mix without clipping. It is particularly useful in helping to tame very dynamic instruments.

The parameters are as follows:

- **Input Gain**

Values range from -12dB to 24dB.

- **Out Ceiling**

Values range from -18dB to 0dB.

- **Softness**

Values range from -5 to +5.

### Related topics

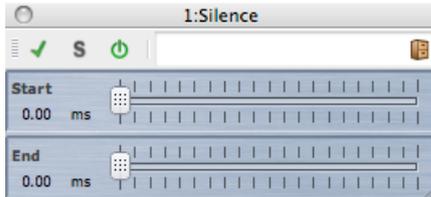
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## 10.18 Silence



The Silence built-in plug-in provides a simple way of injecting a precise period of silence into the start or end of an Audio File.

The parameters are as follows:

- **Start**  
Use the slider to add from 0 to 60,000ms of silence to the start of the file
- **End**  
Use the slider to add from 0 to 60,000ms of silence to the end of the file.

### Related topics

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[Silence Generator](#)

## 10.19 Internal Dithering

Internal Dithering 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.

For an introduction to the concept of dithering, see [Dithering](#).

The following parameters are available:

- **Noise Type** Two types are available, in addition to No Noise
- **Noise Shaping** Three types are available, in addition to No Shaping
- **Bit resolution** of the quantized output: 8, 16, 20 or 24 bits are available.

Note that dithering is applied post-fader on the output bus.

**Related topics**[Audio Plug-ins](#)[Master Section](#)[How do I add effects?](#)[Presets](#)[Dithering](#)

# Chapter 11

## Utilities

WaveLab's Utilities menu contains a number of useful tools accessible from all Workspaces. This page contains links to information about them.

### CD/DVD utilities:

[Import Audio CD](#)

[Data CD/DVD](#)

### Batch utilities:

[Batch Conversion](#)

## 11.1 Import Audio CD

This dialog allows you to import one or more tracks from an audio CD.

Once you have identified the source CD, you can select the track or tracks to import. You must specify a folder location and file format before the file or files can be saved to disk.

**Actions tab** Specify the optical disk drive from the drop-down list, and the disk reading speed. The title and track details are automatically completed. If no track names appear, click  to refresh CD reading.

From this list you can select the tracks (or define the start and end points of a single track). The "Rename tracks" menu option automatically adds the track order number to the name in a range of different styles. You can select a track name for text editing by double-clicking.

In "Output", accept the default Folder location or choose another. Clicking  produces the Audio File Format dialog for changing details of the Audio File's format.

**Options tab** This accesses a list of tickable options to refine how the tracks are read and output to file.

You can access this dialog via **Utilities > Import Audio CD tracks....**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

## Related topics

[Audio File Format Dialog](#)

## 11.2 Data CD/DVD

This dialog allows you to arrange files and folders into a structure that you can later write as a "data" disk.

You can prepare a disk for a variety of media (CD-DA, DVD or Blu-ray Disk). The list of media devices displays the amount of data that will fit on each type of disk. As you add files, an indicator on the left (and a text display at the bottom) display how "full" your new disk is. You can enter a name for your disk and change the disk file structure before writing your data to an ISO image or writeable optical disk.

**Note:** Although you can prepare a disk in any format, the types of physical disk you can burn will be limited by the optical drive connected to your computer. If you do not have a Blu-ray Disk writer connected, for example, you will not be able to write a Blu-ray Disk you may have prepared. However, you can still save it as an ISO Disk image and transfer it for remote burning.

To prepare a data disk, follow these steps:

### Adding files

Add files and folders to the disk by:

- dragging them directly from your computer's file browser.
- dragging a file from any Workspace by either dragging it by its title bar tab or using the document button .
- choosing **File > Special > Add to Data CD/DVD** from any of the editing Workspaces to add the currently focused file.

### Removing files

To remove files from the file structure:

- select the files/folders you wish to remove and click on the red cross icon. To remove a group of files, hold down **[Shift]** while selecting the files/folders to remove. Please note that this *does not* delete the files from the computer, only a reference to them.
- to remove all files/folders from the layout choose  **Reset**.

### Editing the file structure

To edit the arrangement of the files in your disk:

- drag files/folders to a different location in the file list pane. To move multiple files/folders hold down **[Shift]** while selecting the files/folders you wish to move.
- drag file/folders over a folder icon to move them into that directory.
- to add a new folder click on the  folder icon.
- to edit the name of a file/folder, double click on its title.

### Burning your disk

Once you are happy with your disk layout you can write it to a disk or disk image:

- select a media type from the list of media devices. This will determine the maximum size and type of medium you will be writing to, whether it be CD, DVD, Blu-ray Disk or an ISO image of any of these. You can change the media type at any stage.
- enter the name that you want your disk to display when it is mounted as a data volume.
- to write your disk, click  write CD/DVD icon. This opens the [write CD/DVD](#) dialog which enables you to burn your data disk to an ISO image or to an optical disk using a connected CD/DVD/Blu-ray Disk writer.

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### Related topics

[Write Audio CD](#)

[Blu-ray Disk](#)

[ISO image](#)

## 11.3 Batch Conversion

This dialog allows you to convert the file format of a group of Audio Files.

This could be useful for example, if you have a large number of Audio Files that you wish to encode as MP3 files, or a group of stereo files that you need to downsample and convert to mono. You can also take maximum advantage of your computer's architecture if you have a multiple [processor cores](#), by spreading the processing load across them. These settings are selected in the Multitasking tab.

To use the Batch Converter tool:

1. Click on the  plus sign icon to add files, (or just drag the files directly into the pane)
2. Define an output file location and file format
3. Choose any options or performance settings from the Options and Multi-tasking tabs

4. Click Start to begin (you can also choose an option to start the process automatically when dragging the file in).

You can access this dialog by choosing **Utilities > Batch conversion of Audio Files...**

*For an explanation of each parameter and interface feature, click on , or the 'What's this?' question mark icon. For more information see [Getting Help](#)*

### **Related topics**

[Audio File Format Dialog](#)

# Chapter 12

## How do I...

The following is a list of common tasks and brief instructions on how to achieve them using WaveLab Elements.

- ... import songs from an audio CD into WaveLab Elements?
- ... use VST Plug-ins?
- ... edit an existing Audio File?
- ... compile and edit several Audio Files on multiple tracks?
- ... apply processing to an Audio File?
- ... convert an Audio File into another audio format?
- ... play back with real-time effects?
- ... record new Audio File?
- ... convert the sample rate of an Audio File?
- ... create a Podcast?
- ... open an aac, m4a or m4p Audio File from Apple iTunes?

### 12.1 ... import songs from an audio CD into WaveLab Elements?

From the Audio File Workspace, select **Utilities > Import Audio CD tracks...**

This opens the Import Audio CD dialog window where you can specify the tracks to import or the specific time ranges to import for each track. You can also specify where the output Audio Files are stored and the format in which to save them.

See [Import Audio CD](#) for more information.

### 12.2 ... use VST Plug-ins?

You use the Master Section to apply effects to a file (or a selection), using the built in and/or third party VST plug-ins.

See the [Master Section](#) for more details on using VST plug-ins. The VST plug-ins are described individually in [Audio Plug-ins](#).

## 12.3 ... edit an existing Audio File?

You can open Audio Files from within the Audio File Workspace by:

- opening the file directly using the **File > Open** command
- using WaveLab's File Browser to locate your file and open it (you may need to change the file type filter so that the file type matches the Audio File)
- dragging a file directly from the operating system's file browser

When you open the Audio File, it appears in a Wave edit window for you to begin editing. In the Audio Montage Workspace you can only drag Audio Files into an existing montage; you can't open an Audio File directly.

## 12.4 ... compile and edit several Audio Files on multiple tracks?

To accomplish this you need to create an Audio Montage.

First create a new Audio Montage file from **File > New** in the Audio Montage Workspace, or if you are working within the Audio File Workspace from **Edit > Create Audio Montage from Audio File...**

To add more Audio Files you can use drag them directly from:

- the File Browser
- the Operating System's file browser
- the document button  in the status bar from within the Audio File Workspace. See [Status Bar](#) for more information.
- the document tab.

To add further tracks to your montage, right-click on the **[1]** button on the left side of the window and choose "Add stereo track/Add mono track".

See [Audio Montages](#) for more information.

## 12.5 ... apply processing to an Audio File?

The Audio File Workspace Process menu contains a number of options for manipulating Audio Files, including fade-in, fade-out and normalize. Use these functions to process a complete Audio File (or a selected region) that you have open in the main editing window.

You can also use the "Process in place" rendering function in the Master Section. This applies effects to a file (or a selection) using the built in and/or third party VST plug-ins. You can use the unlimited "Undo" function to reverse any bad editing decisions.

See [Render Wave window](#) for more information.

## 12.6 ... convert an Audio File into another audio format?

There are two ways:

- From the Audio File Workspace you can either use the "Save as" or the "Save Special" commands in the File menu. See [Save Audio File dialog](#) and [Audio File Format Dialog](#) for more information.
- You can also use the Render function within the Master Section. See [Render Wave window](#) for more information.

## 12.7 ... play back with real-time effects?

You can play back Audio Files with real-time effects using the Master Section.

Plug-in effects (supplied with WaveLab Elements or available from third parties) are inserted into the audio signal path via the Master Section effects slots.

See [Master Section](#) and [Audio Plug-ins](#) for more information.

## 12.8 ... record new Audio File?

Use the  Record button on the Transport toolbar, or select **Record** from the Transport menu.

This opens the Record dialog where you can set up a new Audio File and begin to record. Once recorded, the new file appears in a Wave window where you can edit it or add it to a Montage using **Edit > Create Montage from Audio File...**

See [Recording Dialog](#) for more information.

## 12.9 ... convert the sample rate of an Audio File?

There are two ways to do this.

- From within the Audio File Workspace choose **Process > Convert Sample Rate...**
- You can also convert the sample rate in real-time using a resampler plug-in such as Crystal Resampler, which is included in WaveLab Elements. See [Crystal Resampler](#).

See [Render Wave window](#) for more information on applying VST effects.

## 12.10 ... create a Podcast?

To create a Podcast you use the Podcast Workspace.

First you need to create a new Podcast, there are several ways to do this.

- From within the Podcast Workspace choose **File > New**, or
- From the Audio File Workspace add Audio Files to a podcast by choosing **File > Special > Add to Podcast...**, or
- Select **Edit > Create Podcast from Audio File...**

The Podcast Workspace is where you assemble, define and publish your Podcast to the Internet.

See [Podcasts](#) for more information.

## 12.11 ... open an aac, m4a or m4p Audio File from Apple iTunes?

Apple OS X and iTunes uses a number of proprietary audio codecs. These can be found natively on Apple OS X but on Windows platforms you need to install QuickTime (this is normally installed with iTunes on a PC).

QuickTime provides WaveLab Elements with the necessary codecs to open these file formats.

Other file formats that are available using QuickTime include .caf, .m4v, .qt, .dv and others.

# Chapter 13

## Glossary

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### A

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No entries available.

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[WAV files](#) [WAV64 files](#) [Waveform Wet/Dry](#) [WMA files](#)

## X

No entries available.

## Y

No entries available.

## Z

[Zero crossing](#)

### 13.1 ADPCM

**ADPCM – Microsoft/Dialogic** is an audio file format commonly used for games and telephony applications that offers a lower bit rate than linear PCM and thus requires less storage space/bandwidth.

The file extension is .vox or .adpcm

[Glossary contents](#)

### 13.2 AES31

The **AES31 Standard** is a non-proprietary audio file format developed by the Audio Engineering Society Standards Committee (AES31). Its aim is to allow a project to be moved to another audio editing system with a minimum of fuss, and to reproduce the project (including Edit Decision Lists and other assets) as accurately as possible.

AES31 does not have a 2GB file-size limit and can be read by PC and Mac platforms. The standard uses a form of universal resource locator for accessing files on any platform or network, together with a sample-accurate Audio Decision List: in/out points of the component audio files are defined in terms of hours:minutes:seconds:frames *and* sample count.

The file extension is .adl

[Glossary contents](#)

### 13.3 AIFF files

**AIFF (Audio Interchange File Format)** is the default uncompressed audio file format used on the Macintosh.

AIFF was developed by Apple Inc. from IFF (Interchange File Format) which was in turn developed by Electronic Arts. The audio data in AIFF is uncompressed PCM (Pulse Code Modulation). A compressed variant, AIFF-C or AIFC, supports a number of compression codecs. 8-, 16-, 20- or 24-bit resolutions are supported.

Typical filename extensions are .aiff, .aif, .aifc, .snd.

[Glossary contents](#)

## 13.4 Apple Lossless files

**ALAC (Apple Lossless Audio Codec)** is an audio codec developed by Apple Inc. for lossless data compression of digital audio. Also known as Apple Lossless and Apple Lossless Encoder (ALE), ALAC audio data is stored within the MP4 container and uses the mathematical technique of linear prediction to achieve a file size reduction between 60% to 40%, depending on the audio content.

The Apple Lossless Encoder is part of Quicktime.

Typical filename extensions are .m4a and .alac.

[Glossary contents](#)

## 13.5 ALAW files

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

Typical file extensions are .alaw, .vox

[Glossary contents](#)

## 13.6 Aliasing

**Aliasing** is a type of distortion caused during the analog-to-digital conversion process. If the sampling rate is not at least double the frequency of the analog signal, spurious harmonics and other artifacts may be created.

Careful filtering before the sampling stage can reduce this aliasing to a minimum.

[Glossary contents](#)

## 13.7 Amplitude

**Amplitude** is the height of a waveform above or below the zero line.

[Glossary contents](#)

## 13.8 ASIO

**Audio Stream Input/Output (ASIO)** is a computer device driver protocol for digital audio specified by Steinberg, providing a low-latency and high fidelity interface between a software application and a computer's soundcard.

[Glossary contents](#)

## 13.9 Attack

**Attack** is the initial part of the sound. An attack is said to be fast when the maximum amplitude is reached very quickly (with percussive sounds from drums, guitar or piano, for example). Orchestral strings generally have slow attack, where the volume increases more slowly.

[Glossary contents](#)

## 13.10 Audio montage

An Audio Montage is a compilation of audio Clips composited together. In WaveLab Elements the Audio Montage Workspace allows you to compile and edit multiple Clips (references to Audio Files on disk) on one or more tracks.

The resulting Audio Montage can include both track and Clip-based effects, volume and pan automation, wide-ranging fade and cross fade functions.

Multichannel support makes it possible to create surround mixes that can be burned to DVD-Audio compatible disks.

[Glossary contents](#)

## 13.11 Bandwidth

**Bandwidth** is the group of frequencies (expressed in Hertz or in musical octaves) that pass through a device with a loss of less than 3dB.

[Glossary contents](#)

## 13.12 Bit depth

**Bit depth** is the number of bits used to represent a single sample. 8-, 16- and 24-bits are common bit depths. Larger bit depths represent the sample more accurately and are less noisy, but take up more space on the disk.

[Glossary contents](#)

## 13.13 Blu-ray Disk

**Blu-ray Disk** (BD or Blu-ray) is an optical disk storage medium designed to replace the standard DVD format. The disk has the same physical dimensions as standard CDs and DVDs, but the standard data storage capacity is 25GB (single layered), and 50GB (dual layered disk).

The name "Blu-ray" derives from the 405 nanometer blue-violet laser used to read the disk (standard DVDs use a 650nm red laser, CDs use 780nm). The shorter wavelength allows for five or 10 times more data storage than a DVD although a recent development has pushed the storage capacity to 500GB on a single disc by using 20 layers. In addition to optical improvements, Blu-ray Disks feature improvements in data encoding that further increase their capacity.

[Data CD/DVD](#)

[Glossary contents](#)

## 13.14 CD Frame

In a Red Book CD-DA, the time format is commonly measured in minutes, seconds and frames (mm:ss:ff), where one "**frame**" corresponds to one sector, or 1/75th of a second of stereo sound. In editing and audio extraction, the frame is the smallest addressable time interval for an audio CD, so that track start and end positions can only be defined in steps of 1/75 second duration.

[Red Book CD-DA](#)

[Glossary contents](#)

## 13.15 CD 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. Pre-emphasis aims to minimize the adverse effects of attenuation distortion or the saturation of recording media in subsequent parts of the system. When carried out properly, pre-emphasis enables a received signal to more closely resemble the original or desired signal and produces fewer bit errors.

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 tick in the  column on the **Import Audio CD** dialog.

[Import Audio CD](#)

[Glossary contents](#)

## 13.16 CD Text

**CD Text** is an extension of the Red Book Compact Disc specifications standard for audio CDs. The standard allows disc and track information (album name, song name and artist, for example) to be embedded on a standards-compliant audio CD.

CD-Text information is usually stored in the lead-in area of the CD (where there is roughly 5KB of space available). Support for CD-Text is common, but not all CD players can display it.

[Red Book CD-DA](#)

[Glossary contents](#)

## 13.17 Chorus

**Chorus** is an time-based effect produced by combining the original signal with a number of moving delays and pitch shifted copies, often panned across a stereo field.

[Steinberg Chorus](#)

[Glossary contents](#)

## 13.18 Clip

**Clip** A Clip contains a reference to a source Audio File on your hard disk, as well as start and end positions in the file (allowing Clips to play back smaller sections of their source Audio Files). Any number of Clips can reference the same source file.

Note that a Clip is a reference to the original source file and does not contain audio data.

### Focused Clip versus Select Clips

It is important to note that there is a difference between a "focused" Clip and a "selected" Clip. Some editing functions can only be executed on an individual Clip or "Focused Clip", while others can be executed on multiple Clips or "Selected Clips".

- *Focused Clip* - there can only ever be one or no Focused Clip at a time. The Focused Clip's name is displayed in red. It's necessary to identify the Clip as focused because there are certain functions that can only be executed on a single Clip. You use the Focused Clip window to perform these functions.
- *Selected Clip* - there can be many selected Clips. 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.

[Glossary contents](#)

## 13.19 Clipping

**Clipping** is a form of audio distortion that occurs when a signal is truncated because it exceeds the capabilities of the amplifier circuit. On an oscilloscope, the audio peaks appear sliced off.

To avoid clipping, reduce the system gain in or before the gain stage in which the clipping occurs.

[Steinberg Limiter](#)

[Glossary contents](#)

## 13.20 Compression

**Compression** This dynamic process is used to smooth out any large transient peaks in an audio signal that would otherwise cause distortion through clipping or otherwise overloading the system. Levels are progressively attenuated as they approach maximum levels.

[Steinberg Compressor](#)

[Glossary contents](#)

## 13.21 Cross fade

**Cross fade** is mixing two audio signals by fading one out at the same time as fading the other in.

[Glossary contents](#)

## 13.22 DAW

**DAW** A Digital Audio Workstation is a software and hardware system dedicated to recording, editing and playing back digital audio tracks on hard disk.

Because of the computational demands of audio editing and mastering, DAWs are often based on very highly specified PC or Macintosh computers, equipped with high-quality sound cards, large amounts of RAM, fast (multi-)processors and large capacity high-performance hard disks. In addition, they may also feature a noise suppressing enclosure and a passive cooling system.

[Glossary contents](#)

## 13.23 DC Offset

**DC offset** occurs when hardware (such as a sound card) adds DC current to an audio signal. The recorded waveform is not centered around the baseline (i.e. negative infinity). WaveLab can correct a DC offset, which would otherwise artificially reduce the headroom available during normalization processes.

[Glossary contents](#)

## 13.24 DDP files

**DDP (Disk Description Protocol)** is an industry format for submitting CD and DVDs to replication facilities.

DVDs are usually submitted in DDP 2.0 format; this is also referred to as "Plant Direct" (Sonic Solutions) and "DDPi" (Universal Music). A DDP file set for CD consists of: DDPIID (Mandatory), DDPMS (Mandatory), PQ\_DESCR (Optional) and one or more Image.dat file(s) (Mandatory).

CD-RWs, formatted as "Audio CDs" are really only suitable for content distribution, not disk replication or publishing. The DDP format offers the much more robust CIRC error correction and so protects both the audio data and its associated metadata.

The DDP image is a data file, and when burned to optical media, is a data disc. As such, it has the full measure of CIRC error-correction to allow error-free copying of files on your computer and across networks (including the internet). It's also why you often need a DVD-R

to contain a DDP image of a CD, because the data redundancy is more robust in data form than in streaming audio form.

Sending DDP files is "best practice" for disk replicators, who will upload the image file to their network and burn a glass master directly from the image using specialist hardware/software. CIRC error-correction will assure that the data matches the original, or it will stop the process.

[Glossary contents](#)

## 13.25 Decibel (dB)

**Decibel (dB)** is a logarithmic unit of measurement that expresses the size of a physical quantity (usually sound pressure level, power or intensity) relative to a reference level.

Decibels are often used in matters of sound because the ear perceives loudness on a logarithmic scale. The equation  $\text{dB} = 20 \times \log(V1/V2)$  is often used by sound engineers comparing two values. Applying a gain of 3dB doubles the amplitude of a sound, and a gain of -3dB halves the amplitude, and this is confirmed perceptually.

The decibel does not have a unit, since it expresses a ratio of two quantities with the same unit of measurement.

[Glossary contents](#)

## 13.26 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".

Note that dithering should always be applied after the output bus fader stage.

[Quantization](#)

[Glossary contents](#)

## 13.27 DVD-A

**DVD-Audio (DVD-A)** is a digital format for delivering high-fidelity audio content on a DVD. Audio on a DVD-A disk can be stored in many different bit-depth, sampling rate and channel combinations - from 16-, 20- or 24-bit depth, at 44.1 to 96kHz sampling rates, in mono, stereo and various surround channel combinations, including 5.1 channel surround. The sampling rate may be as high as 192kHz for stereo channels, and different bit-depth/sampling rate and channel combinations can be used on a single disk.

[Glossary contents](#)

## 13.28 ECMAScript

WaveLab's scripting language is based on the **ECMAScript** scripting language, as defined in "Standard ECMA-262 - ECMAScript Language Specification".

Microsoft's JScript, Netscape's JavaScript and Adobe's Actionscript are also based on the freely-available ECMAScript standard.

[Glossary contents](#)

## 13.29 Ensoniq Paris files

**Ensoniq Paris** is an Audio File format used by the old Ensoniq Paris™ system. It has 16-bit and 24-bit resolution.

The file extension is .paf.

[Glossary contents](#)

## 13.30 Equalization

**Equalization (EQ)** is a process by which certain frequency bands in an Audio File are increased or lowered in level to compensate for recording or playback inadequacies.

[Glossary contents](#)

## 13.31 FFT

**FFT (Fast Fourier Transform) analysis** is a mathematical method to convert a waveform from the Time Domain to the Frequency Domain.

FFT uses various mathematical shortcuts to carry out a spectral analysis, trading computational speed for limitations in the number of samples and frequency bands used in the analysis.

[Glossary contents](#)

## 13.32 Focused Clip

There can be no more than one Focused Clip. See [Clip](#)

[Glossary contents](#)

## 13.33 Formant

**Formants** are the distinguishing frequency components of a sound.

[Glossary contents](#)

### 13.34 FTP Site

File Transfer Protocol (FTP) is a network protocol used to copy a file from one host to another over a TCP/IP-based network such as the Internet. An **FTP site** may require user-based password authentication or it may allow anonymous user access. Podcasts are published to FTP sites.

[Publish menu](#)

[FTP site](#)

[Glossary contents](#)

### 13.35 Headroom

**Headroom** is the amount by which the signal-handling capabilities of an audio system exceeds a designated level - the Permitted Maximum Level (PML). Headroom can be thought of as a safety zone allowing transient audio peaks to exceed the PML without exceeding the signal capabilities of an audio system.

[Glossary contents](#)

### 13.36 ISO image

An **ISO image** is an archive file or "disk image" of an optical disk in a format defined by the International Organization for Standardization (ISO).

"ISO image" derives from the ISO 9660 file system used with CD-ROM media. ISO image files are supported by WaveLab Elements and typically have a file extension of .iso.

[Glossary contents](#)

### 13.37 ISRC

**ISRC** - the "International Standard Recording Code" - is a code for identifying sound recordings (and music video recordings) on CDs intended for commercial distribution. WaveLab allows you to specify an ISRC code for each audio track.

The code contains the following elements:

- Country Code (2 ASCII characters)
- Registrant Code (typically, a record label - 3 ASCII characters or digits)
- Recording Year (2 digits or ASCII characters)
- Serial Number (unique number identifying the recording - 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.

[Glossary contents](#)

## 13.38 Loops

**Loops** are short audio Clips that create a repeating beat or pattern.

[Loop Tone Uniformizer](#)

[Loop Tweaker](#)

[Glossary contents](#)

## 13.39 Loudness

**Loudness** is a subjective measure, the perceptual correlate of amplitude of sound. There are objective measures of sound strength, such as SPL (sound pressure level in dB), but Loudness is affected by other factors, principally frequency (the sensitivity of the human ear changes as a function of frequency) and duration.

The perception of Loudness varies from one person to another, so it cannot be measured with a single metric.

[Glossary contents](#)

## 13.40 Markers

**Markers** are symbols identifying a reference points in an Audio File, like tab markers in word processing. There are several marker types in WaveLab Elements, which may be used for quick navigation or more specialist uses. Some markers must be used in pairs.

[Markers](#)

[Marker types](#)

[Glossary contents](#)

## 13.41 Media Catalog Number

The **MCN (Media Catalog Number)** is a 13-digit code for an optical disk intended for commercial distribution - there is one such code per disk. See [UPC/EAN](#).

You can read the Media Catalog Number (EAN) from a CD by choosing **Utilities > Import Audio CD tracks... > Functions > CD Info...**

[Import Audio CD](#) [Glossary contents](#)

## 13.42 MIDI

**MIDI (Musical Instrument Digital Interface)** is an industry standard that allows devices such as synthesizers and computers to communicate with each other through a system of channels and triggers.

[Glossary contents](#)

## 13.43 MIDI Channels

MIDI provides 16 channels for sending data. When processing MIDI triggers, WaveLab Elements needs to know which **MIDI channel** to monitor to receive a trigger.

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## 13.44 Mixing

**Mixing** is the process of blending multiple sound files into a single file, with control over the relative levels of each incoming file,

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## 13.45 Mobile phone Audio Files

**3GP and 3G2 file formats** are multimedia container formats designed to minimize storage and bandwidth requirements for use with mobile phones.

- **3GP** (3GPP file format) is defined by the Third Generation Partnership Project (3GPP) for GSM-based (UMTS) mobile phones.
- **3G2** (3GPP2 file format) is a multimedia container format defined by the 3GPP2 for CDMA2000-based mobile phones.

Typical file extensions are .3gp, .3g2

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## 13.46 MP2 files

**MP2 (MPEG-1, audio layer 2)** is an audio encoding format defined by ISO/IEC 11172-3, alongside MPEG-1 and MPEG-3, using lossy audio compression. The three audio "layers" (MP1, MP2 and MP3) are different perceptual encoding techniques.

MP2 remains an important format for broadcast audio and is part of DAB digital radio and DVB digital television standards. It is also the audio format used in HDV camcorders. MP2 files are sometimes referred to "Musicam files".

Typical filename extensions are .mp2, .mpa, .mpg, .mus, .m32, .m44 and .m48.

[MP3 files](#)

[MP2 encoding](#)

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## 13.47 MP3 files

**MP3 (MPEG-1, audio layer 3)** is a patented digital audio encoding format using lossy audio compression, designed by the Moving Picture Experts Group as part of its MPEG-1

standard, and derived from MP2. MP3 is popular for PC and internet applications - data compression ratios of 10:1 are typical.

Note that when you open an MPEG compressed file in WaveLab, the file is converted to a temporary wave file that is much larger than the original compressed file, so make sure that you have enough free space on your hard disk when opening MPEG compressed files. On saving, the temporary wave file is converted back to MP3, so from a user perspective the file handling is transparent apart from the size difference mentioned above.

The filename extension is .mp3

[MP2 files](#)

[Audio File Format Dialog](#)

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## 13.48 Non-destructive editing

**Non-destructive editing** When you delete or change a part of an Audio File in a non-destructive system, the audio is not deleted or permanently changed - instead a set of pointers keeps track of all the edits, so these can be readily reversed. WaveLab Elements provides comprehensive facilities for **Non-destructive editing**.

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## 13.49 Normalize

To **Normalize** is to raise the volume so that the sample with the highest level is set to the maximum user-defined level. This ensures that you are using all of the dynamic range available to you.

[Steinberg Limiter](#)

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## 13.50 NTSC

**NTSC** (from the US "National Television System Committee") is the analog television system used in North America, parts of South America, Japan and some Pacific territories.

NTSC has 29.97 interlaced frames of video per second - a field refresh frequency of 59.94Hz (actually 60Hz/1.001). Each frame consists of a total of 525 scanlines, 486 of which are visible.

The digital terrestrial television (DTT) replacement for NTSC is ATSC ("Advanced Television Standards Committee").

[PAL/SECAM](#)

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## 13.51 Ogg Vorbis files

**Ogg Vorbis** is a lossy compressed audio format and codec that produces files about the same size as MP3 files but with objectively higher fidelity and no patent restrictions.

Vorbis is intended for sample rates from 8kHz telephony to 192kHz digital masters and a range of channel representations that includes monaural, stereo, surround 5.1, ambisonic, or up to 255 discrete channels. Vorbis is open source (free) software maintained by the Xiph.Org Foundation.

The file extension is .ogg.

[Audio File Format Dialog](#)

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## 13.52 OSQ files

**Original Sound Quality (OSQ)** is WaveLab's proprietary lossless compressed audio format. By saving files in this format, you can save considerable disk space without compromising audio quality.

The filename extension is .osq

[Glossary contents](#)

## 13.53 PAL/SECAM

**PAL** is short for "Phase Alternate Line"; **SECAM** is short for Séquentiel couleur à mémoire ("Sequential Color with Memory"). They are related analog television encoding systems used in broadcast television systems in large parts of the world. NTSC is a another analog system used in North America and parts of South America.

In digital applications PAL video mode is usually referred to as "576i" (i.e. a vertical resolution of 576 scan lines, interlaced), in analogue contexts it is often quoted as "625 lines". SECAM Digital video uses its own colour space, so (in the digital domain) the minor colour space differences that used to exist between PAL and SECAM are no longer present.

In digital video applications such as DVDs and digital broadcasting, PAL/SECAM video is based on 576 frame lines with two interlaced video fields per frame (i.e. 50 fields per second, yielding 25 frames per second). Audio is pulse-code modulated.

[NTSC](#)

[Glossary contents](#)

## 13.54 Pan

**Pan** is short for panoramic. Pan is perceptually "placing" a mono or stereo sound source between two or more speakers. We sense stereo position from a difference in loudness when the sound strikes each ear, taking into account the time delay, spectrum, reverberation and other cues.

[Steinberg Autopan](#)

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## 13.55 Peak level

**Peak level** is a measure of maximum sound level. Peak Level Meters should go as high as possible without ever reaching 0dB! The Peak Level meters display the peak levels of each channel, graphically and numerically.

By default, the meter segments and numerical peak values are displayed in green for low levels, yellow for levels between  $-6\text{dB}$  and  $-2\text{dB}$ , and red for levels above  $-2\text{dB}$ .

If the level is set too low, noise levels will be high relative to the recorded sound; if peak level exceeds 0dB by a significant amount, clipping effects can occur.

[Peak Master](#)

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## 13.56 Plug-ins

A vast number of specialist audio software **Plug-ins** are available, ranging from freeware to expensive high-end commercial products, and these can greatly extend the functionality of WaveLab Elements.

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 emulate in software the effects of familiar recording studio hardware.

[Audio Plug-ins](#)

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## 13.57 Pre-roll and Post-roll

**Pre-roll** is the time elapsed before an event occurs; **Post-roll** is the time after an event. Pre-roll can give a brief context if you are auditioning a Clip.

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## 13.58 Preset system

WaveLab Elements provides a sophisticated **Preset system**, which allows you to store a range of individual or bulk settings and recall them for later use.

[Presets](#)

[Glossary contents](#)

## 13.59 Processor cores

**Processor cores** Modern computers are often designed with a multi-core processor, with two or more "cores" (i.e. independent processors) in a single physical package. A dual-core processor contains two cores, and a quad-core processor contains four cores, with the aim of improving computational performance.

The performance gains of multi-core processors depend on whether the software has been implemented to take advantage of this architecture. [Glossary contents](#)

## 13.60 Quantization

**Quantization** is the process by which measurements are rounded to discrete values. In digital audio, the continuously varying voltages of an analog signal are quantized to discrete digital values, represented in binary numbers. In 8-bit audio, sample values range from -128 to 127; in 24-bit audio, sample values range from -8288608 to 8288607.

In analog-to-digital conversion and compression, differences between the actual analog value and the quantized digital value is called "quantization error". This error is due either to rounding or truncation and can give rise to "quantization noise" which may be reduced by using "dithering" techniques.

[Dithering](#)

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## 13.61 Raw PCM files

**Raw PCM files** is an Audio File format that includes no information about bit resolution or sample rate. If you open a file in this format, WaveLab prompts you to specify the bit resolution and sample rate. If this is not done correctly, the file will not play back as intended.

Note that the "\$\$\$" file type is WaveLab's own temporary file format. If you experience a computer crash you can try opening any stray "\$\$\$" files on your hard disk(s) to restore them.

Typical file extensions are .raw, .bin, .pcm, .\$\$\$

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## 13.62 Red Book CD-DA

**Red Book** is the standard for audio CDs (Compact Disc Digital Audio, or CD-DA). Other "Rainbow Books" in the series, known by the color of their covers, define the formats of CD-ROMs, VCD, SACD and other compact disc formats. DVD and Blu-ray formats are not defined in a Rainbow Book.

The first edition of the Red Book was released in 1980 by Philips and Sony and ratified as IEC 60908. The standard is not freely circulated - from 2009 the IEC 60908 document has been available as a PDF download for US\$260. The Red Book specifies a compliant CD-DA in great detail, including the physical properties of the CD, the digital audio encoding (2-channel, signed 16-bit Linear Pulse Code Modulation, sampled at 44.1kHz), the modulation system, the CIRC error-correction scheme and subcode channels. Data are stored in

sectors of 2352 bytes ("frames"), read at 75 frames/s. The bit rate is 1411.2kbits/s. Other considerations are that the maximum number of tracks is 99, the minimum duration of a track is 4 seconds (including a 2-second pause), the maximum playing time is 79.8 minutes, and the ISRC should be included.

WaveLab Elements provides Red Book-compliant CD mastering.

[CD Frame](#)

[ISRC](#)

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## 13.63 Regular Expressions

A **Regular Expression** (regex for short) is a formula composed of characters that have a special meaning (called "operators"). A simple example is in using "\*.doc" to search for all text documents in a file manager. In this case, the asterisk (star) character is an operator that matches any string before the ".doc" in a filename. In addition to WaveLab Elements, many software applications, text editors (like EditPad Pro) and programming languages support regular expressions.

The characters ". [ ] ( ) { } ? \* + - | ! / ^ \$" are operators in WaveLab Elements's regular expression engine. You can submit regular expressions in a WaveLab Elements text box wherever you see the  icon. Clicking on the light bulb icon gives a fly-out menu listing special characters and short cuts, to help you build a precise and well-formed expression.

There are many helpful web-based tutorials that explore the topic of regex.

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## 13.64 RF64 files

**RF64** is an audio file format. You have an option (set in **Options** > **Audio File editing preferences** > **Files** tab) to support the RF64 file format. If this is activated, the standard Wave file format switches automatically to the RF64 file format as soon as the file size exceeds 2GB, without any performance loss or interruption. This is especially useful when recording very long sessions as there is no need to worry about file size limit (apart from disk space availability).

An RF64 file uses the ".wav" extension but it can only be opened with an application that supports the RF64 standard.

[WAV files](#)

[Glossary contents](#)

## 13.65 RMS

**RMS (Root Mean Square)** can be used as a measurement of intensity of sound (or AC voltage, etc.) over a period of time. The RMS measurement calculates a practical average value of all the points on a waveform as a single number over a variable period that could be 1 ms, 20 ms, or 1 hour.

RMS is often a good basis for determining an "equal level" when equalizing Clip volumes, producing more natural results than using Peak levels, since RMS offers a more realistic measure of the perceived "loudness" of a sound.

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## 13.66 Sample rate

The **Sample Rate**, or sampling frequency, is the number of samples per second used to store a sound. High sample rates are better able to approximate the original continuous waveform, but require more storage space.

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## 13.67 SMPTE timecode

The Society of Motion Picture and Television Engineers devised a code to synchronize time between devices, the **SMPTE time code**. The time code is composed of hours:minutes:seconds:frames.

Frames are fractions of a second based on the frame rate (which can take the values 24, 25, 29.97 and 30 frames per second).

[Time Format dialog](#)

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## 13.68 Sound Designer II files

**Sound Designer II** is an audio file format used by Digidesign applications (such as Pro Tools). 8-, 16- or 24-bit resolutions are supported.

The filename extension is .sd2

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## 13.69 Spectrogram

A **Spectrogram** is an image that shows how the spectral density of a signal varies over time.

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## 13.70 Sun/Java files

**Sun/Java** is an Audio File format used on Sun and NeXT computers. Files in this format can often be found on the Internet. 8-, 16- or 24-bit resolutions are supported.

Typical file extensions are .snd, .au

[Glossary contents](#)

## 13.71 Tempo

**Tempo** is the rhythmic rate of a musical piece, usually given in BPM (beats per minute).

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## 13.72 Text/Excel files

**Text/Excel** 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 a text file representing a waveform is opened in WaveLab it is decoded and opened as an Audio File.

Note that these files are not compressed in any way, so they can get very large! Therefore, avoid creating and opening extremely large .txt files. Also note that when using 32 bit float files, the .txt format is not entirely lossless because it is not possible to express a binary floating point value in textual decimal form without some loss of precision.

The file extension is .txt

[Audio File Format Dialog](#)

[Glossary contents](#)

## 13.73 ULAW files

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

Typical file extensions are .ulaw, .vox

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## 13.74 UPC/EAN

**UPC/EAN code** - the "Universal Product Code/European Article Number", 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" - there is one such code per disk.

UPC is a 12-digit barcode widely used in the United States 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.

You can read the Media Catalog Number (EAN) from a CD by choosing **Utilities > Import Audio CD tracks... > Functions > CD Info...**

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## 13.75 WAV files

**WAV (Waveform Audio File Format)** is an audio file format. Although a WAV file can hold compressed audio, the most common WAV format contains uncompressed audio in the linear pulse code modulation (LPCM) format.

Developed by Microsoft and IBM, WAV is closely related to AIFF and is compatible with Windows, Macintosh and Linux operating systems. Uncompressed WAV files are quite bulky, but they have a simple file structure which can be processed efficiently in audio editing and produce archive files of high quality. 8-, 16-, 20-, 24-bit and 32-bit (float) resolutions are supported.

The file extension is .wav

[WAV64 files](#)

[Audio File Format Dialog](#)

[Glossary contents](#)

## 13.76 WAV64 files

**Wave 64** is an audio file format developed by Sony that is very similar to the standard Wave format, but with an important difference. Standard Wave files are limited in size to 2GB (stereo), but Wave 64 allows virtually any length (actually the limit is 512GB).

The file extension is .w64.

[WAV files](#)

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## 13.77 Waveform

A **Waveform** is the visual representation of wave-like phenomena (such as sound or light). The amplitude or sound pressure over time usually results in a smooth waveform.

In WaveLab Elements, a waveform is generally represented with time on the horizontal (x-)axis, with the start of the waveform being the leftmost point. The vertical (y-)axis is the amplitude of the wave.

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## 13.78 Wet/Dry

**Wet/Dry** is a term that describes the balance between the effect sound (wet) and the original, unprocessed audio signal (dry). In a "dry" mix, the original signal is more pronounced; with a "wet" mix, the effect sound is more dominant.

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## 13.79 WMA files

**WMA (Windows Media Audio)** is a proprietary audio data compression technology developed by Microsoft. WMA can refer to an Audio File format or a range of audio codecs. Like AAC (Advanced Audio Coding) and Ogg Vorbis, WMA is intended to address perceived deficiencies in the MP3 standard.

It is also possible to import/export audio in WMA surround format, provided that you have Windows Media Player 9 (or later) installed on your system.

Typical file extensions are .wma, .asf

[Audio File Format Dialog](#)

[Glossary contents](#)

## 13.80 Zero crossing

A **Zero crossing** is a point where the wave crosses the zero level axis, the point where the wave is considered to have "zero level".

If you cut out a portion of a wave and paste it in somewhere else, chances are there will be a discontinuity where the two waves are joined. This discontinuity will result in a transient in the wave when it is played back, which is perceived as a "click" or "bump" in the sound. To avoid this you need to make any editing splices at a zero crossing point.

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