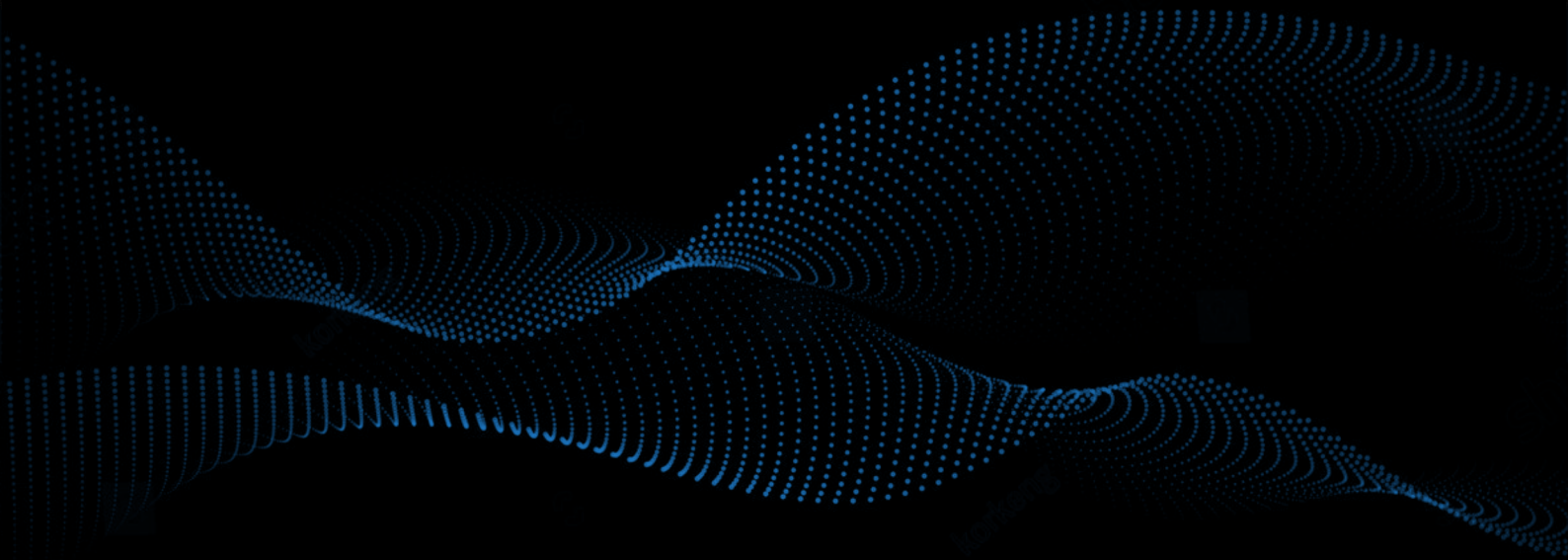




SpectraForce



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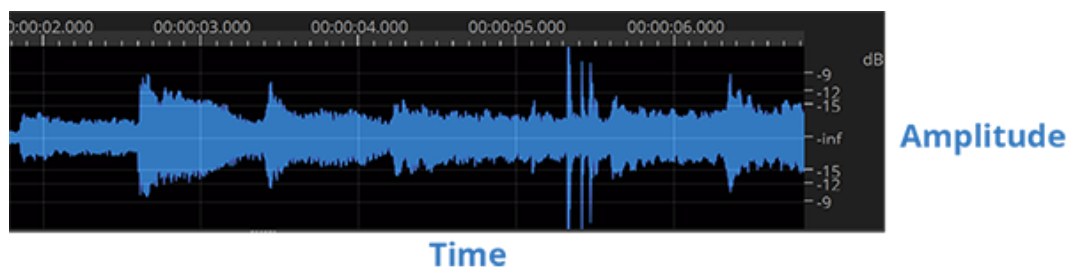
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Introduction

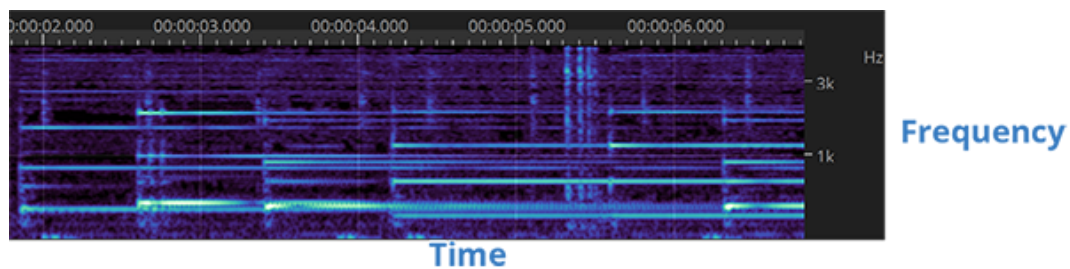
Spectral...

In most audio applications, audio is displayed as a waveform that represents audio in the time domain (amplitude vs. time):



This representation shows the global power of sound; however it doesn't show what's inside the sound.

Spectral data represents sound in the frequency domain. You can think of it like a musical score: the higher the peaks in the spectrogram, the higher the tones; the stronger the peaks, the stronger the tones. Everything can be analyzed with this representation: music, voice, even noise.



Spectral analysis uses discrete FFT analysis: you have to choose between time and frequency accuracy. A **FFT Size** of 2048 or 4096 is usually good for most situations (with a file sampled at 44,100 Hz or 48,000 Hz). Feel free to change the size on the fly as the accuracy of your work highly depends on it (see [The Importance of FFT Size](#)).

You should also play with the amplitude settings to see the small peak details in the spectral view.

...Layers

The layer system, similar to tracks in a DAW, allows you to refine your work extensively in a nondestructive way, thanks to transfer operations and the additive and subtractive nature of layer mixing.



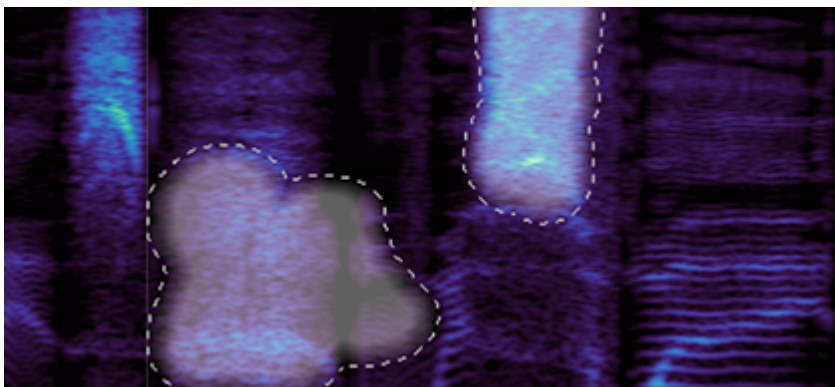
If you cut and paste data from one layer to a different layer, you transfer data nondestructively: the sum of the two layers is identical to the source data, but you have full control over the state of the data you extracted to that new layer.

If you copy and paste data from one layer to a different layer, and then invert the polarity of that new layer, you subtract the layers nondestructively: the first layer still contain all the original data, and the new, inverted layer acts to subtract the original data. When this negative layer is muted, you get your original data back.

Modules and Tools

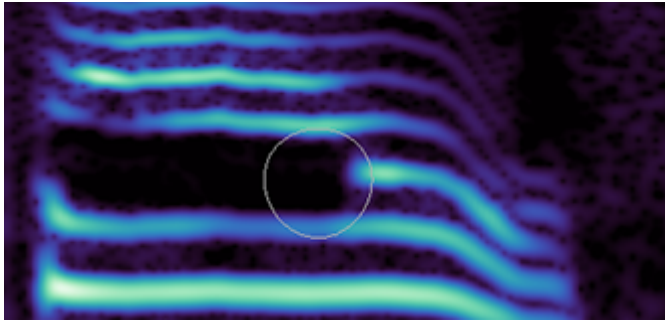
Modules work the same way they do in most audio applications: you select an area, and the process is applied to the whole area.

However the difference is that in SpectraForce you can select not only time but also frequency areas, so the process is only applied to a certain range of frequencies.



The modules are also different by nature, because they are designed to use spectral data instead of raw audio data, so the purpose and range is not the same as usual audio modules. You can think of them as photo filters.

Tools work the same way they do in paint applications: they are local to the mouse position and allow you to work on specific frequencies.



- Transform tools shift layers and selections in time or rescale (pitch-shift, time-stretch) them.
- Selection tools select spectral data.
- Editing tools retouch or draw spectral data.
- Navigation tools give specific information about spectral data and navigate the spectrogram.

System Requirements

Windows

- Windows 10 (21H2 or higher), Windows 11 (21H2 or higher)
- Intel® Core™ (5th Generation or higher), AMD Ryzen™ (or higher), Qualcomm Snapdragon™ X
- 8 GB RAM (16 GB recommended)
- 8 GB of free hard disk space (for temporary files)
- DirectX 11 compatible graphics card (DirectX 12 with 8GB VRAM or more recommended for AI processing)
- 1280x720 display resolution
- Windows-compatible audio hardware

macOS

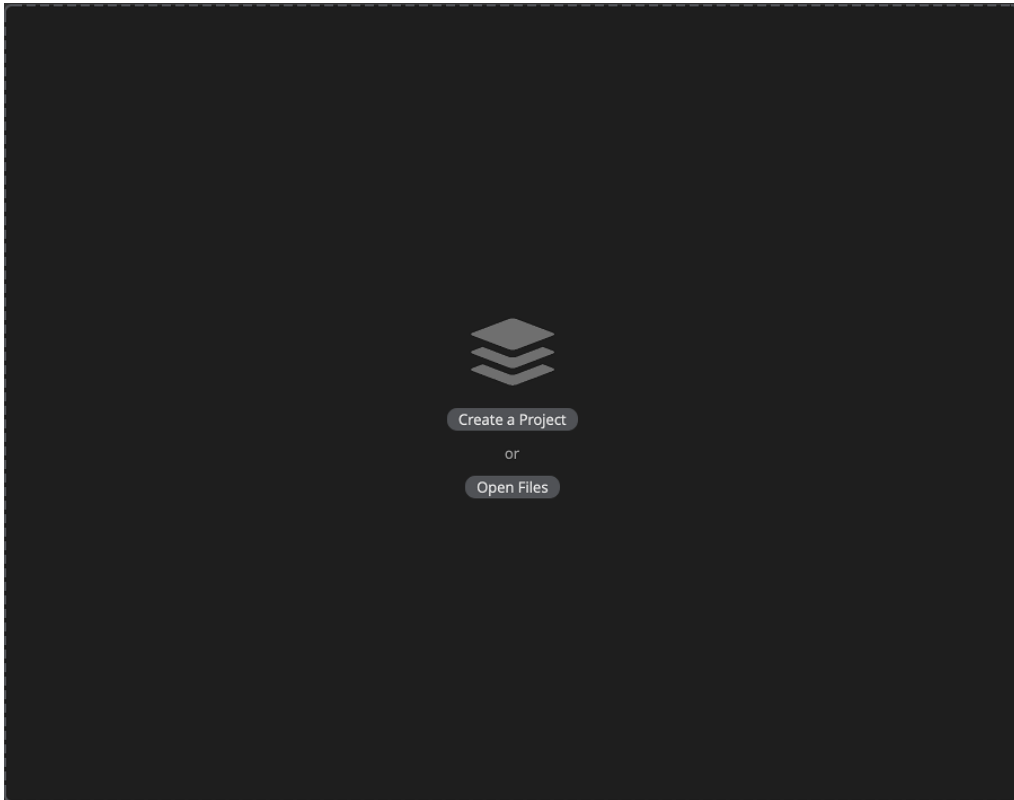
- macOS 12 (Monterey), macOS 13 (Ventura), macOS 14 (Sonoma), macOS 15 (Sequoia)
- Intel® Core™ (mid 2013 or later), Apple silicon
- 8 GB RAM (16 GB recommended)
- 8 GB of free hard disk space (for temporary files)
- Metal capable graphics adapter
- 1280x720 display resolution
- CoreAudio-compatible audio hardware

Getting Started

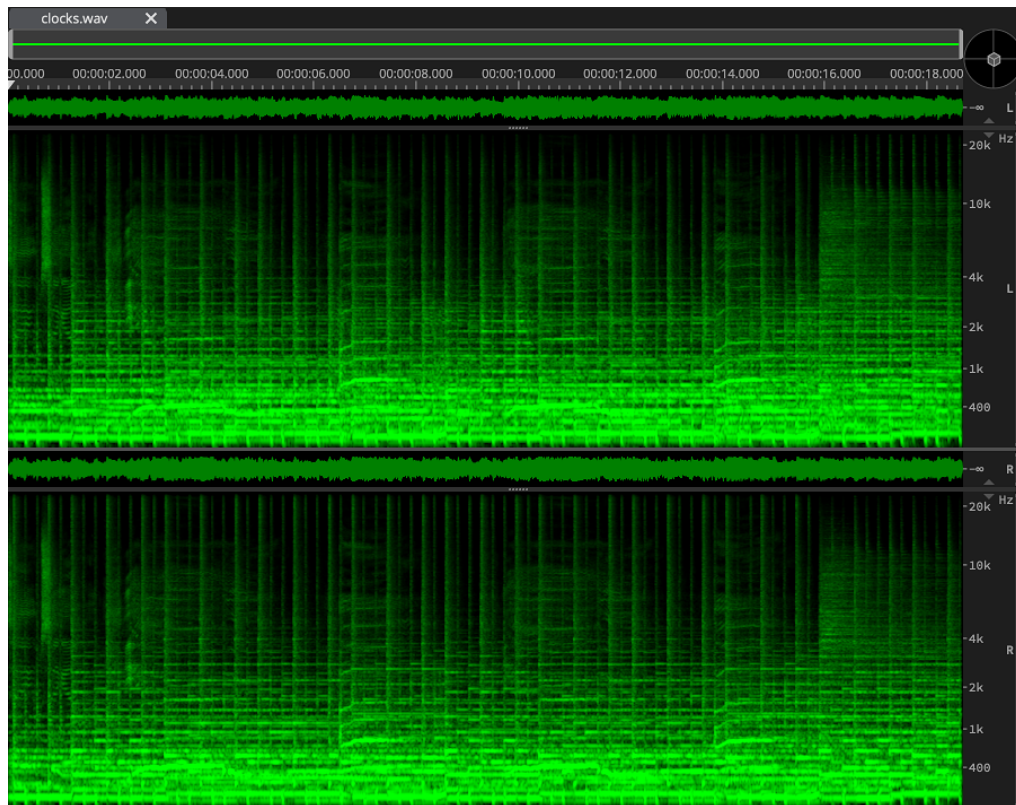
Beneath its streamlined interface, SpectraForce provides you with powerful tools for spectral editing.

This topic will help you find your way around the application so you can unlock its full potential.

1. When you first launch SpectraForce, you'll see the **Home Screen**. It allows you to quickly open files, create empty projects, or load recent files.



2. We'll start by opening an existing audio file.
Click [**Open Files**] to open an audio file. It will become the first layer of your project.



After you open the file, you'll see it displayed and highlighted in the Layers panel in the bottom-right corner of the workspace. The tools are now available on the left side of the workspace, and the modules on the right side of the workspace. In the center of the screen is the spectral display.

In the spectral display, the horizontal axis represents time, and the vertical axis represents frequency. The spots you can see correspond to a mix of various frequencies and noises that compose your audio file. The higher the spots, the higher the pitch of those sounds in your audio file.

You can play your audio file by clicking the ► **Play** button at the bottom or pressing **Space**.

3. Before performing any edits, you need to select a layer.
Click the layer in the Layers panel to select it if it isn't already selected (it must be highlighted).
4. Now let's modify the spectrogram.

When a layer is selected, the tools in the Tools toolbar are available. The Editing tools act directly on the layer you selected.

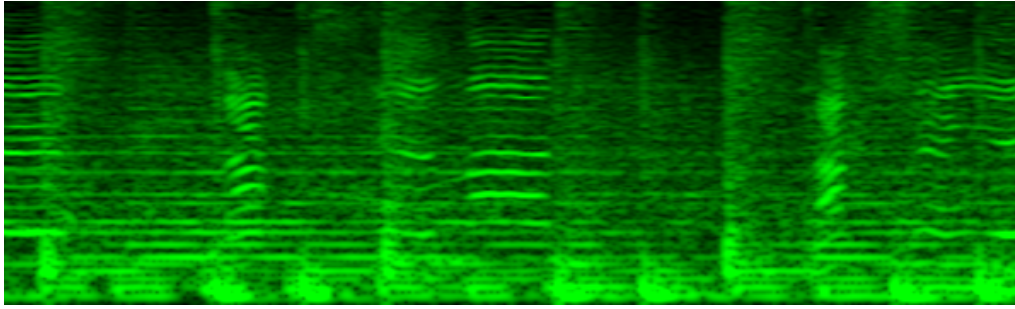
Select the  **Eraser** tool and click and drag in the bottom of the spectral display to erase data in the lower frequencies of your audio file.

Now play your audio file, and notice how the sound is different — you've done your first spectral editing!

5. The first step in most editing is selecting data in the spectrogram. Let's create some selections.

Take a closer look at some frequencies. If your file contains vocals or musical instruments, you'll see horizontal lines that represent syllables or musical notes. Several of these lines

on top of each other represent harmonics, and they create the audio signature of each voice and instrument.

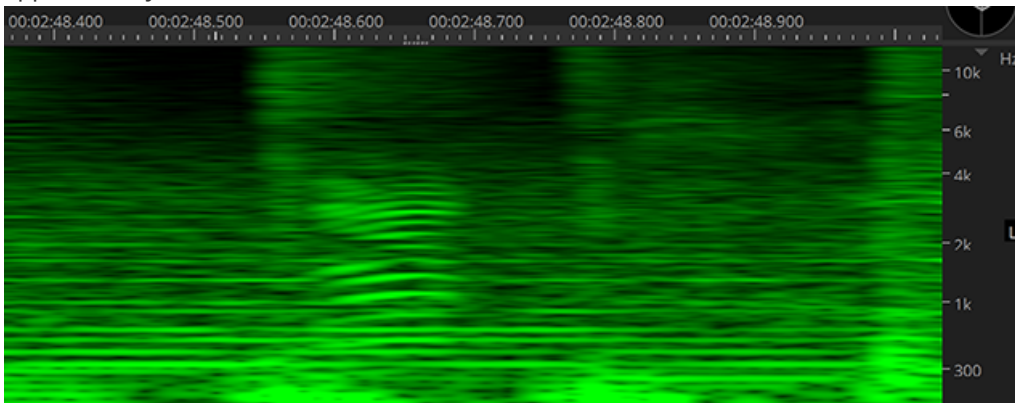


6. Zoom the spectral display to find the parts of a spectrogram that you want to edit.

Use the  **Zoom** tool at the bottom of the tools bar on the left to change the magnification of the spectral display, or alternatively use the mouse wheel on the spectrogram or the frequency scale.

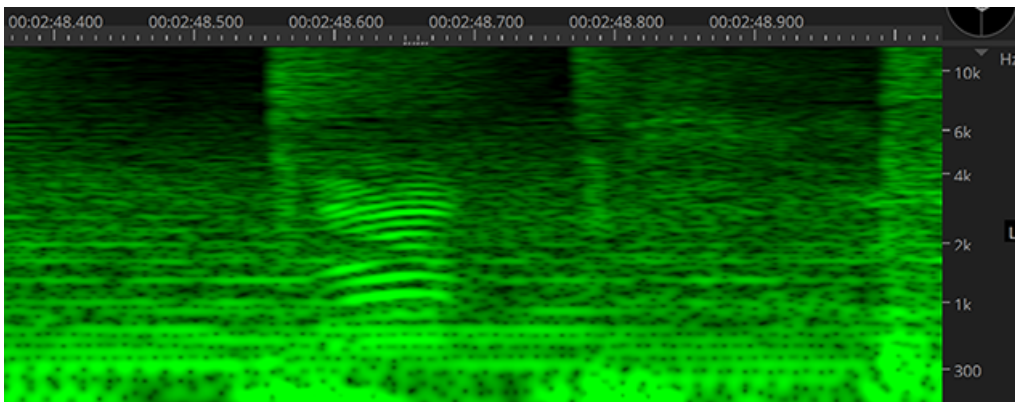
You can navigate the spectral display using the  **Hand** tool next to the **Zoom** tool. Drag with the **Hand** tool to move the spectrogram within the spectral display, or alternatively press and drag with the middle button of your mouse, or drag the time and frequency scales.

When you zoom in horizontally or vertically, you may notice that the frequencies will appear blurry:



The **FFT Size** parameter in the **Display Panel** (top right) allows you to refine the spectral display. You can choose a different resolution by dragging the slider or typing a value in the edit box.

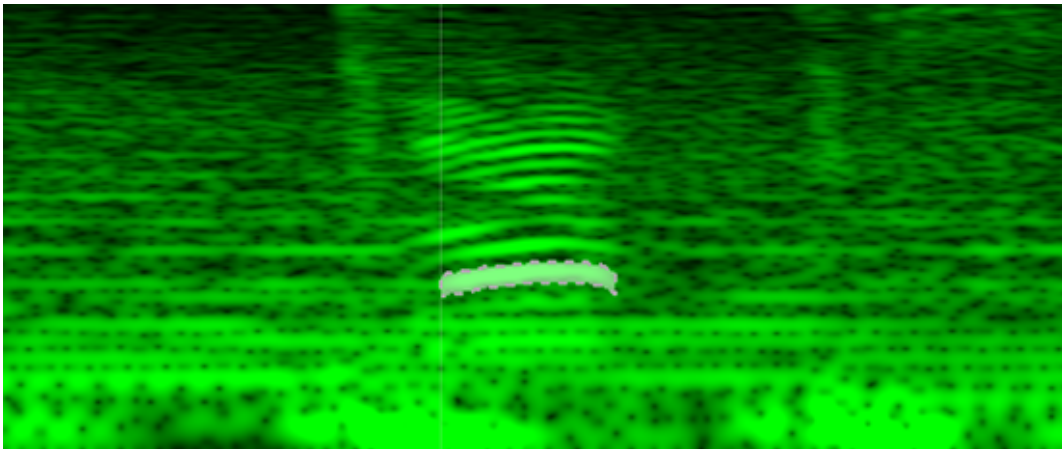
After increasing the frequency resolution, you can see that the frequency lines are thinner.



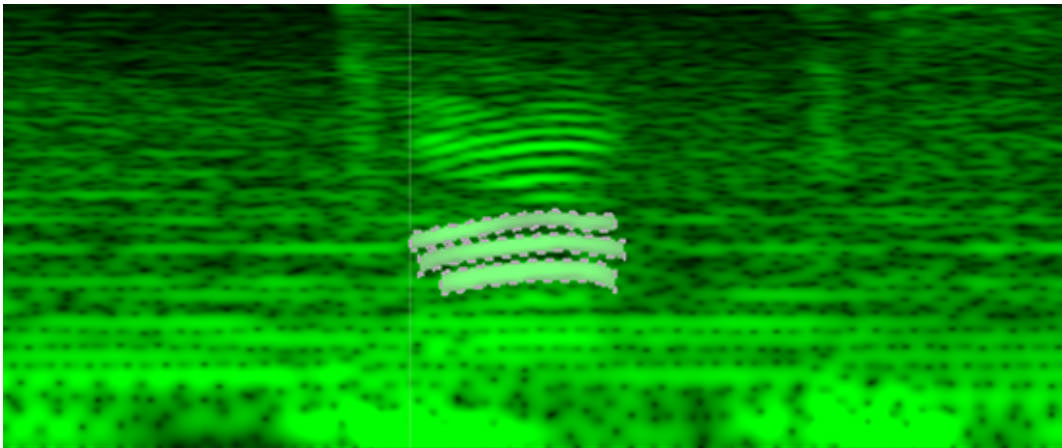
Experiment with different FFT sizes to find the setting that allows you to see each line clearly.

7. Let's select some frequencies so we can cut them and paste them to a new layer.

Click the  **Frequency Selection** tool in the Tools toolbar.

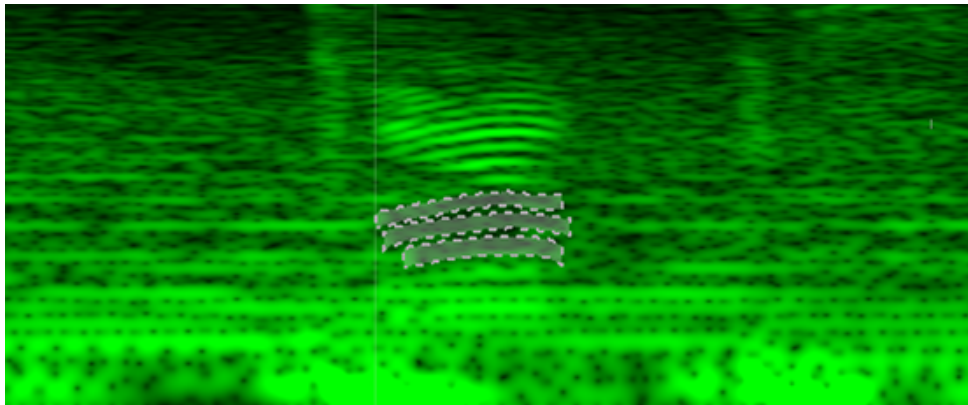


+ With the  **Add to Selection** button in the Tool Settings toolbar selected (or by holding down the **Shift** key), click a few frequencies on top of each others, and see how they are also highlighted. It means they have been added to the selection. Notice the **Play** button (or **Space**) now plays the current selection.



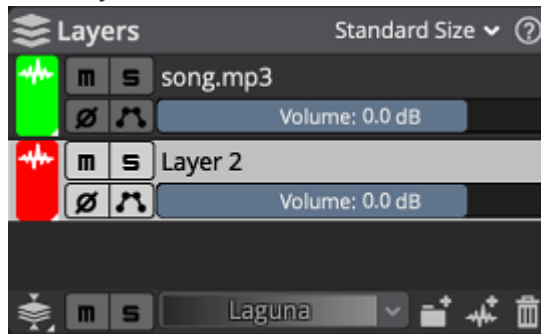
1. Let's cut the selected frequencies to a new layer.

- a. Choose **Edit > Cut** or press **Ctrl + X** (Windows) **Cmd + X** (macOS). Notice that the frequencies you selected in the previous step are removed from the spectral display.

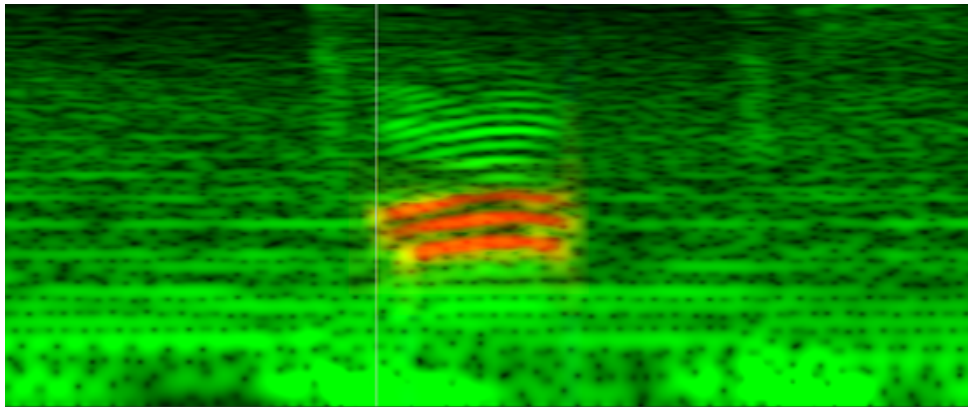


- b. Click the  **New Layer** button at the bottom of the **Layers Panel** (or choose **Layer >**

New) to create a new layer. Notice the new layer is highlighted, meaning it's now the active layer.



- c. Choose **Edit > Paste** or press **Ctrl + V** (Windows) **Cmd + V** (macOS). Notice the spectral color of that layer match its color setting in the Layers panel.



TIP

These 3 steps can be replaced by a single action using **Edit > Cut Special > Cut to Layer Below** (**Shift + X**)

2. Click the **M Mute** button on the new layer or drag its volume fader to the left to reduce its volume. Notice the content fades away from the spectrogram as well. If you play your project, the frequencies you pasted to the new layer will be removed or attenuated.

NOTE

Creating multiple layers and experimenting with different tools will give you a lot of flexibility to extract, restore or design the exact sound you need. You can also adjust the display settings such as the **FFT Size** while using a tool if needed.

The Importance of FFT Size

As mentioned in the [Getting Started](#) section, the **FFT Size** parameter (found in the [Display Panel](#)) is quite important for several tools and processes in SpectraForce.

It could be explained as the equivalent of focus in photography:

When using a lens with a wide aperture, it's almost impossible to get every subjects in focus at once, specially when you have close objects and a background objects; you have to choose what subject is the most important for that photo and will focus on that one, leaving the other blurry.

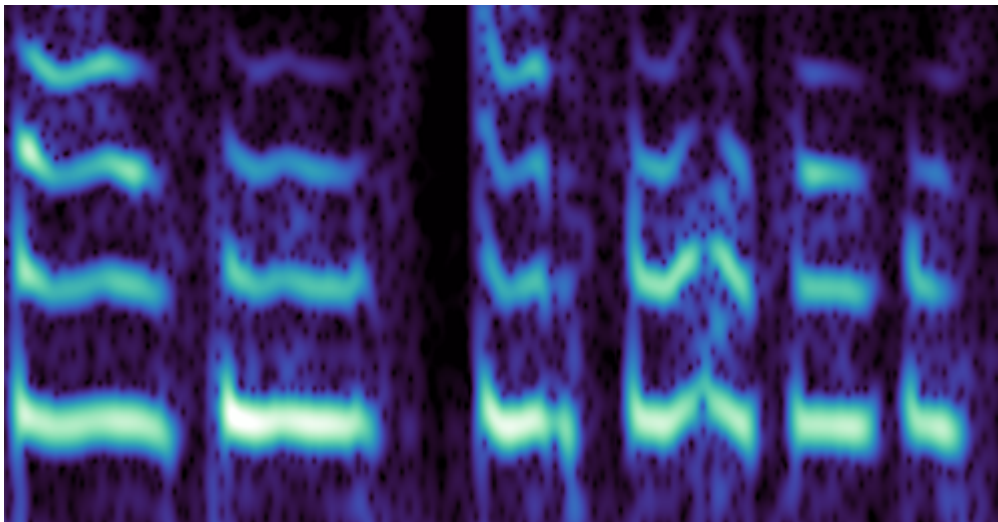


The same goes for the **FFT Size** parameter, it's a focus control which instead of choosing a certain depth, choose a certain time/frequency balance.

- The smaller the FFT Size, the more details you'll get with time-centric events (such as transient sounds) but the blurrier the tones.
- The larger the FFT Size, the more details you'll get with frequency-centric events (such as static tones) but the blurrier the transients.

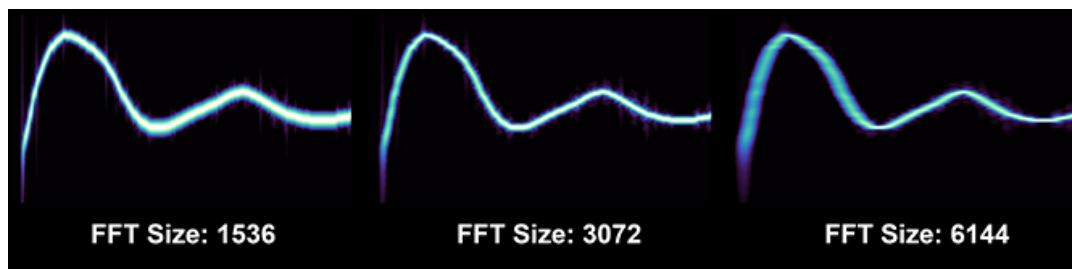
However spectrograms are not just transients and static tones, there's a wide variety of frequency shapes in a recording.

See the spectrogram of a human voice for instance : it's a lot of frequencies stacked on top of each others, which are not just straight lines but wobbling ones; which means they are not purely horizontal or purely verticals, but a mix of both, and they vary over time.

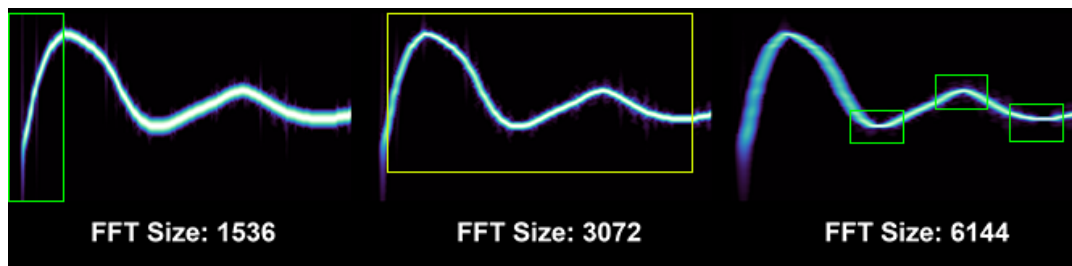


So sometime you may need to focus on the more horizontal parts, sometime on more angled parts, or verticals, or find a compromise to see most of what's important nearly in focus.

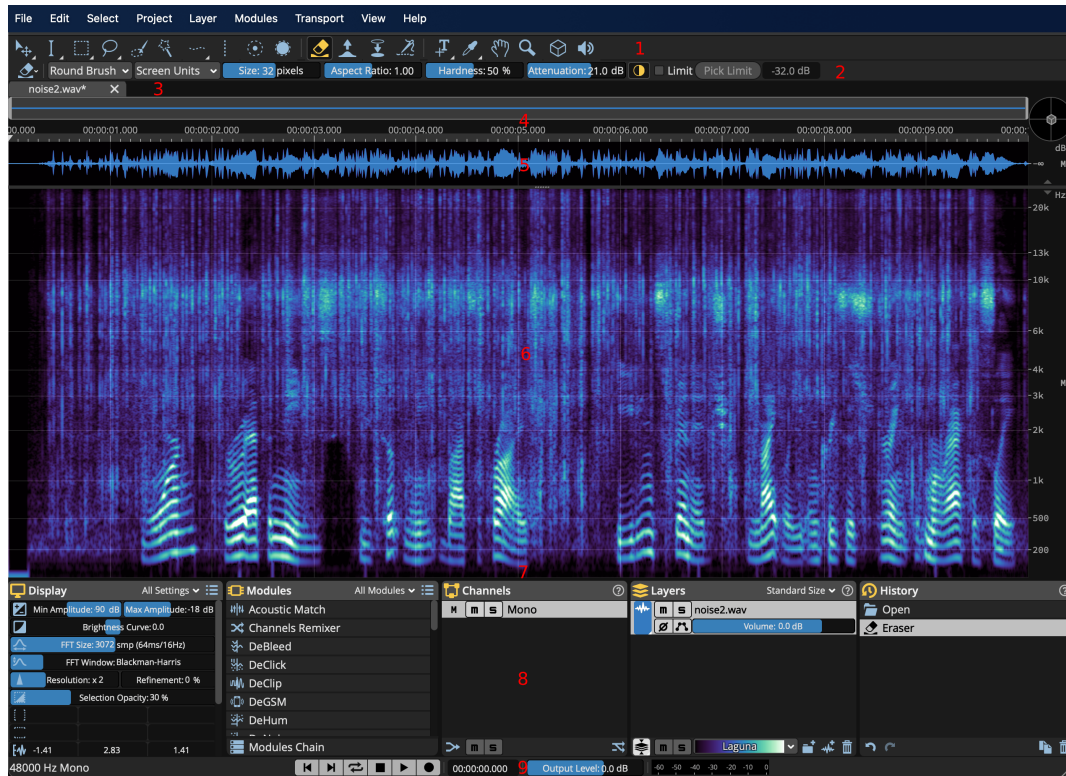
Here's the same example under 3 different **FFT Size**:



As you can notice, some parts are more precisely defined depending on **FFT Size** chosen. It's up to you to decide what is relevant and needs to be the most precisely defined.



User Interface



At the top of the interface the **Menu Bar** controls project handling, selection editing, processing and unmixing, layer management and other interface and project aspects.

1. The **Tools Area** provides transforms, selections, modifications, drawings, measurements, and navigation tools that can be used in the **Spectral Display**.
2. The **Tool Settings** show the parameters of the currently active tool.
3. The **Project Tabs** manage the different projects of your session.
4. The **Overview Bar, Timeline and 3D Pad Area** display a schematic view of your project and help you navigate.
5. The **Waveform Display** shows the layers amplitude.
6. The **Spectral Display** lets you visualize and edit the layers spectrogram.
7. The **Transcript Bar** displays and let you adjust layers transcription.
8. The **Panels Area** shows display settings, editing history, audio channels, and layers list.
9. The **Transport Area** provides access to transport commands, playhead position, output level and VU Meter.

Menu Bar

The menu bar contains the following items:

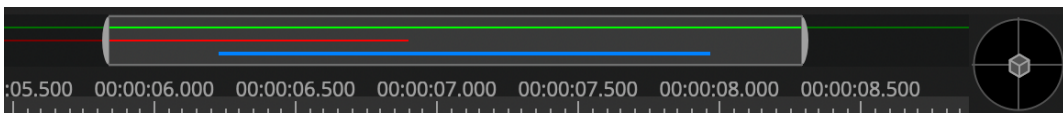
- [File Menu](#) (or [Clip Menu](#) in ARA mode)
- [Edit Menu](#)
- [Select Menu](#)
- [Project Menu](#)
- [Layer Menu](#)
- [Modules Menu](#)
- [Transport Menu](#)
- [View Menu](#)
- [Help Menu](#)

Tools Area



1. [Transform and Selection Tools](#) move and scale layers and spectral selections, and offers a variety of shapes and algorithms to select spectral data.
2. [Editing Tools](#) apply direct modifications to the spectrogram.
3. [Measurement and Navigation Tools](#) provides measurements and annotations on your spectrogram, and let you visualize and hear your spectrogram in details.

Overview Bar, Timeline and 3D Pad Area



The **Overview Bar** shows a schematic view of your project, with layers displayed as horizontal lines, selections highlighted in white, and the playhead as a vertical white line.

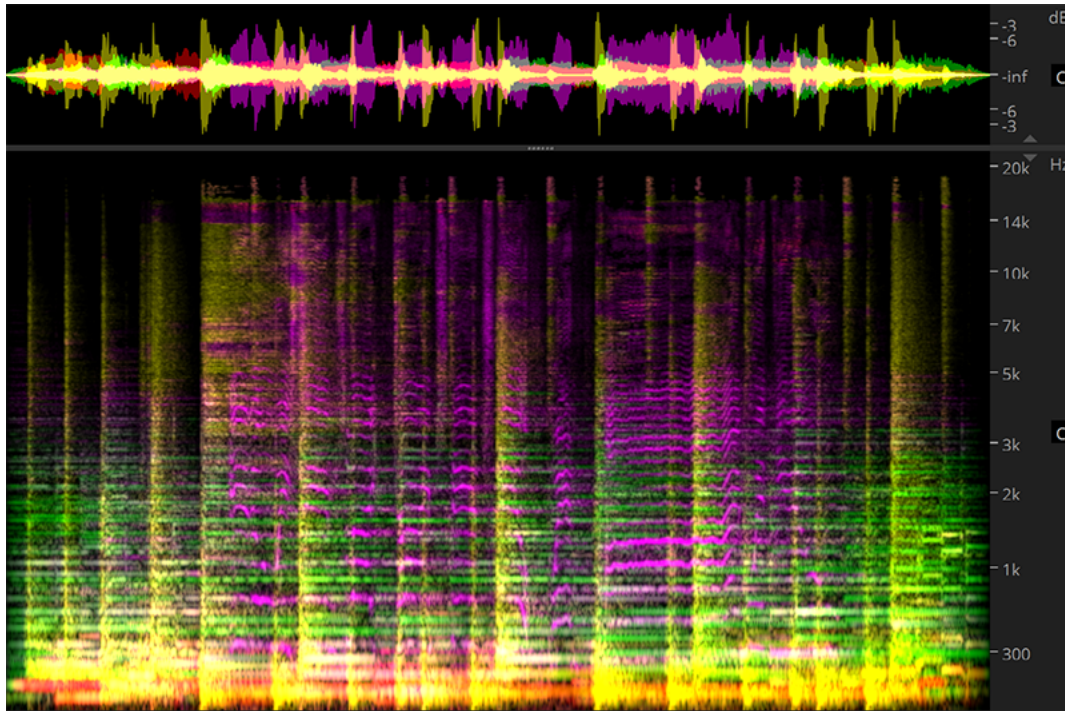
You can navigate the whole range of your project by dragging the edge of the surrounding rectangle to zoom, or dragging inside the rectangle to scroll.

The **Timeline** display precise timings of the waveform and spectral displays below. It also allows you to jump the playhead to any specific position, or to add markers by right-clicking it.

The **3D Pad** enables 3D view of your project. When it is centered, your project is seen in flat 2D from the top. When it is moved in any direction, you can see your spectrogram in 3D.

See [Navigation Tools](#).

Waveform and Spectral Display Area



The **Waveform Display** shows the amplitude of the layers in your project. You can't directly act on it, except for moving individual wave samples. It is more used as a visualization and navigation display.

At the right of the waveform display is the amplitude scale. Use it to zoom vertically, either by using the mouse wheel or the scroll bar on the right side.

The top of the amplitude scale displays the current power unit. See how to [Define Units and Scales](#).

At the center, the initial of the corresponding channel (for instance **C** for Center, **L** for Left, etc...). Click that initial to solo the channel. See also the [Channels Panel](#).

The **Spectral Display** lets you visualize and edit the spectrogram of the layers in your project. Any tool, selection, measurement, process is applied on this display.

At the right of the spectral display is the frequency scale. Use it to scroll or zoom vertically, either by dragging it, using the mouse wheel, or the scroll bar on the right side. See the [Navigation Tools](#).

The top of the frequency scale displays the current frequency unit. See how to [Define Units and Scales](#).

At the center, the initial of the corresponding channel (for instance **C** for Center, **L** for Left, etc...). Click that initial to solo the channel. See also the [Channels Panel](#).

At the bottom of the frequency scale you'll find the current scale. See how to [Define Units and Scales](#).

Transcript Bar



The **Transcript Bar** displays and let you adjust layers transcription. It's visible only when a transcript exist.

To create a transcript see [Separate Transcription](#). The transcripts color match its source layer color.

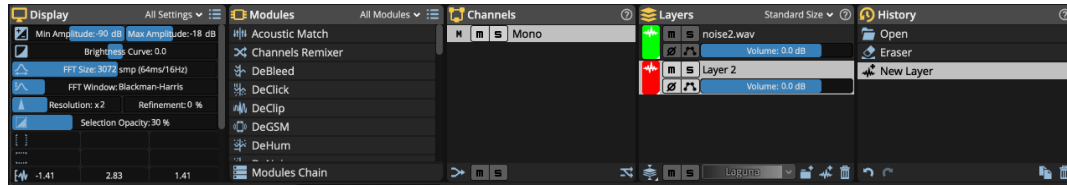
When zoomed out sentences will be shown as a single group. When zooming in, sentences will be decomposed into individual words, time-synchronized with audio.

You can adjust the timing of sentences and words by dragging their borders.

To edit sentences and words, click the **Edit Transcript** button or right-click a word and then click **Edit Transcript**. See [Transcript Editing](#).

To delete the transcript associated to the active layer, click the **Delete Transcript** button. If a time range is selected, only this time range will be deleted.

Panels Area



1. The [Display Panel](#) lets you adjust every display settings in real time : area, amplitude, spectrogram parameters, etc.
2. The [Modules Panel](#) lets you display and hide [Modules](#).
3. The [Channels Panel](#) lets you mute, solo, select or deselect any channel of your project.
4. The [Layers Panel](#) gives you an oversight of your layers and lets you mute, solo, select them or adjust their polarity, envelope and volume.
5. The [History Panel](#) lets you go back in time with your edits : undo or redo any action.

Transport Area



This area provides access to transport commands, timing informations, an output level control, and a VU meter. See [Transport Bar](#) and [Define Units and Scales](#) for more details.

Project Handling

Managing project files, tabs and data.

File Menu

The **File Menu** manages file input and output, as well as new project creation. It is not available in ARA mode.

Creating and Opening a Project

File › New Project

Creates a new project from scratch, with a blank layer. The new project will appear as a new tab in the project tabs.

File › Open...

Opens existing projects or audio files. If opening audio files, one or multiple projects are automatically created. Projects will appear as new tabs in the project tabs (see [User Interface](#)).

File › Open Recent

Opens a recently opened project or audio file. It will appear as a new tab in the project tabs.

Batch Processing

File › Batch Process Files...

Open the **Batch Process Files** dialog. Files batch processing allows you to apply a [Modules Chain](#) to multiple files in a fully automated way.

You can drag and drop files from the system file explorer to this dialog, or click [**Add Files...**] to add files to the list. Clicking [**Clear**] will clear the list.

Modules Chain allows you to define a custom [Modules Chain](#) to be applied to the list of files.

Output Folder defines the output folder where all processed files will be stored.

Name Scheme define a custom name scheme for the output. Hovering the field with the mouse will show all special variables that can be used (provided the tooltips have not been disabled in [Interface Preferences](#)).

Export Type defines if you want to export a mixdown (single file output for each input file), a SpectraForce project, or all layers (for each input file, if there's an unmix module used in the **Modules Chain**, then all the layers created by these unmix modules are kept as is. In that case, sub-folders are created for each input file).

Bit Depth defines the bit-depth of the output files. Auto means that the same bit-depth as the input file will be used.

Process starts processing the list of files. As soon as a file is processed, it is removed from the list.

File > Batch Process Project Tabs...

Open the **Batch Process Project Tabs** dialog. Project tabs batch processing allows you to apply a [Modules Chain](#) to multiple project tabs in a fully automated way.

All opened project tabs appear in a list and you can easily check or uncheck project tabs you want to process, using [**Uncheck All**], [**Check All**], or by manually clicking on their name.

Modules Chain allows you to define a custom [Modules Chain](#) to be applied to the list of project tabs.

Process starts processing the list of project tabs.

Saving and Closing a Project

File > Close Project

Closes the active project. If there are unsaved modifications, SpectraForce will ask you if you want to save the project first.

File > Close All

Closes all the project tabs. If there are unsaved modifications, SpectraForce will ask you if you want to save them first.

File > Save Project

Saves the active project. If the project already existed, it will use the same file name. Otherwise, it will ask you what file name you want for that project.

File > Save Project As...

Saves the active project under a different file name if the project already existed.

Importing and Exporting Layers

File > Import Layers...

Import audio files as new layers in the active project.

TIP

If this is the first audio file you're importing and you don't have any other layers, you don't need to create a project first. Just use **File > Open**.

File › Export Layers...

Export all layers or selected layers as multiple audio file.

File › Export Mixdown...

Export the project as a single audio file.

File › Update Host File...

Export back the project if SpectraForce was called as an external editor from another host application.

Exiting the Application

File › Exit

Exit SpectraForce. If there are unsaved modifications, SpectraForce will ask you if you want to save them first.

Clip Menu

The **Clip Menu** manages how ARA clips are grouped. It is only available in ARA mode.

Clip › No Grouping

Each imported ARA clip has its own SpectraForce project tab.

Clip › Group per Track

All clips sharing the same track in the host DAW and sharing the same format are grouped in the same SpectraForce project tab.

Clip › Group per Format

All clips sharing the same format are grouped in the same SpectraForce project tab.

NOTE | Changing clip grouping will lose history.

Clip › Batch Process...

See [Batch Processing](#).

Project Menu

The **Project Menu** manages project tabs and data. Some items are not available in ARA mode.

Project Management

Project › Duplicate

Duplicates the current project into a new project tab. The current project history is not duplicated.

Project › Rename...

Rename the current project.

Project › Metadata...

Edit the current project metadata, such as artist, title, genre...

Markers Editing

Project › Time Markers and Regions...

Edit a list of time markers and regions in the current project.

- **[Add Time Marker]**: Add a new time marker to the list.
- **[Delete Time Markers]**: Delete the selected time markers from the list.
- **[Import...]**: Import time markers from a CSV file, with the following comma-separated values: name, start position (hh:mm:ss.mmm) and duration (hh:mm:ss.mmm)
- **[Export...]**: Export time markers to a CSV file, with the following comma-separated values: name, start position (hh:mm:ss.mmm) and duration (hh:mm:ss.mmm)

Project › Spectral Markers and Regions...

Edit a list of spectral markers and regions in the current project.

- **[Add Time Marker]**: Add a new time marker to the list.
- **[Delete Time Markers]**: Delete the selected time markers from the list.
- **[Import...]**: Import time markers from a CSV file, with the following comma-separated values: name, start position (hh:mm:ss.mmm), duration (hh:mm:ss.mmm), lower frequency (in Hz), frequency range (in Hz)
- **[Export...]**: Export time markers to a CSV file, with the following comma-separated values: name, start position (hh:mm:ss.mmm), duration (hh:mm:ss.mmm), lower frequency (in Hz), frequency range (in Hz)

Transcript Editing

Project › Transcript...

Edit layers transcript.

Clicking a timing will jump the playhead and display to this position. Double-clicking a timing will select the whole sentence.

To edit a sentence, double-click that sentence.

- **☑ Active Layer Only:** Only show the transcript from the active layer.
- **Filter:** Only show sentences containing this word.
- **[Delete Selected]:** Delete selected sentence from the transcript.
- **[Delete All]:** Delete all the visible sentences from the transcript.
- **[Export...]:** Export the transcript to a TXT, CSV or SRT file.

TIP | You can import the exported CSV transcript file into Nuendo.

Time Editing

Project › Insert Time...

Insert a time range at any point in your project. Silence will be created. All layers of the project are affected.

Project › Delete Time...

Delete a time range at any point in your project. All layers are affected.

Project › Crop Time...

Crop a time range (leave only a certain time range) at any point in your project. All layers are affected.

Reformatting

Project › Reformat...

Change the project format.

- **Mode:** Choose how to change the format.
Resample will recompute the project data to the new format based on the current format.
Reinterpret don't change the original data, it just changes how SpectraForce sees those data.
- **Sample Rate:** New sample rate.
- **Configuration:** New channels configuration.

NOTE | Changing the project format will lose the current history.

View and Panels

Manages the user interface and your project states.

View Menu

The **View Menu** manages the user interface.

Channels and Layers View Modes

View > Downmix Channels View

Toggle Downmix Channel View, where stereo or multichannel projects are shown as a single channel (average of all channels) to maximize vertical space.

View > Composite Layers View

Toggle Composite Layers View, where all layers are summed into a single color-mapped view.

View > Selected Layers View

Toggle Selected Layers View, where only the selected layers are rendered in full colors, while unselected layers are dimmed.

Show and Hide Guides

View > Cursor Crosshair

Show or hide cursor crosshair.

View > Cursor Coordinates

Show or hide coordinates next to the cursor.

View > Unit Grid

Show or hide unit grid. The subdivision is based on the timeline, amplitude scale and frequency scale.

View > Time Markers and Regions

Show or hide time markers and regions.

View › Spectral Markers and Regions

Show or hide spectral markers and regions.

View › Snap to Grid and Markers

Snap the mouse cursor to the unit grid, time markers and regions and spectral markers and regions.

Define Units and Scales

View › Time Unit

Choose the time unit: Samples, Decimals, Seconds, Beats, Frames, Pixels.

The pixels unit is based on the **FFT Size** and **Resolution** parameters of the [Display Panel](#).

NOTE

For the Beats and Frames units, you can also define the tempo and frame rate.

View › Power Unit

Choose the power unit: Decibel, Percents, Normalized.

TIP

You can lock the center the waveform display to zero.

TIP

You for envelope edits to positive ratios only, and to be bound to the visible waveform range.

View › Frequency Unit

Choose the frequency unit: Hertz, Pixels, Octave, Notes, Normalized.

The pixels unit is based on the **FFT Size** and **Resolution** parameters of the [Display Panel](#).

TIP

You can lock the bottom of the spectral display to 0Hz.

View › Frequency Scale

Choose the frequency scale: Linear, Mel, Bark, ERB, MIDI-logarithmic.

The scales are ordered from the most linear to the most logarithmic. A linear scale space frequencies equally, while a logarithmic scale enlarge the lower frequencies and compress the higher frequencies. Note that when the MIDI-logarithmic scale is used, musical notes are equally spaced.

The default is Mel, which gently emphasis lower frequencies without compressing higher frequencies too much.

View › Smoothing Methods

Choose the smoothing method: None, Linear, Cubic.

This defines how the spectral pixels are rendered in the spectral display. **None** will display the raw pixels, and **Cubic** is the highest-quality rendering.

View › VU Meter Mode

Choose the VU Meter mode: Sample Peak, True Peak, RMS, AES17 RMS, Momentary Loudness, Short-Term Loudness.

The VU Meter can be found at the bottom of the interface, in the [Transport Area](#).

Show and Hide Interface Elements

View › Always Show Scroll Bar

Keep the frequency scale and power scale scroll bar visible even when not hovered.

View › Toolbars

Show and hide toolbars: Tool Settings, Tools, Transport.

View › Panels

Show and hide panels: Display, History, Channels, Layers.

View › Interface Layout

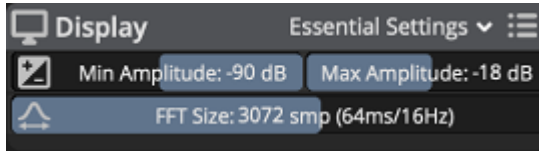
Load, save and delete interface layouts. The position and visibility state of toolbars and panels is saved and recalled, as well as modules visibility, position and settings.

TIP | You can define a default layout in [Interface Preferences](#).

Panels

Panels sit on the right side of the [User Interface](#). They can be compacted using the double arrows at the top, or by pressing **Shift** + **Tab**. When compacted, panels are still functional and horizontal space is maximized.

Display Panel



Controls the project display parameters. The settings filter at the top (defaulting to **Essential Settings**) can be customized using the **≡ Display Panel Menu**, or you can simply type keywords in that field to quickly find settings.

Amplitude: Set the minimum and maximum amplitude shown in the spectral display.

Brightness Curve: Set the brightness curve (gamma) of the spectral display.

Selection Opacity: Set the opacity of selections. It has no effect on the selection itself.

Selection Time Range: Set the time range of the selection numerically.

Selection Frequency Range: Set the frequency range of the selection numerically.

FFT Window: Set the window type used for the FFT analysis. The window type has an impact on the spectral dynamic range.

FFT Size: Set the size of the FFT analysis. The size has an impact on the time and frequency accuracy. The larger the size, the sharper the frequency but the blurrier the time. The smaller the size, the sharper the time but the blurrier the frequency. It's like defining the focus point in photography. See [The Importance of FFT Size](#).

Resolution: The **Resolution** parameter sets the resolution of the FFT analysis. More sub-pixels are calculated, but it does not necessarily means more accuracy. The **Refinement** parameter sharpen the spectral display so you can see more clearly the exact frequencies and timings.

NOTE | Increasing resolution and refinement requires more computing power.

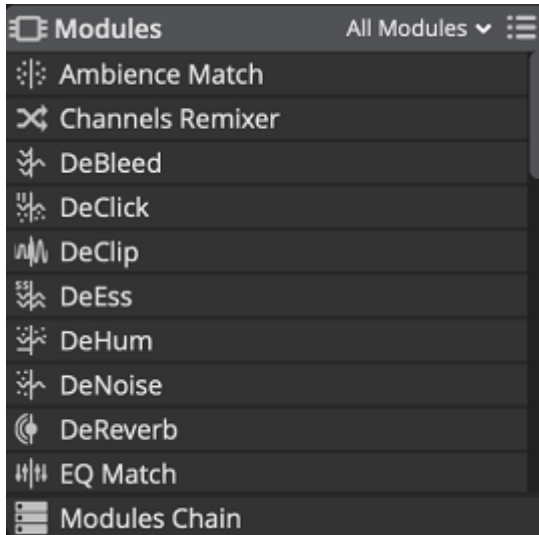
Wave Range: Sets the waveform display amplitude range numerically.

Time Range: Sets the time range of the display numerically.

Frequency Range: Sets the spectral display frequency range numerically.

3D Range: Sets the spectral display 3D displacement.

Modules Panel



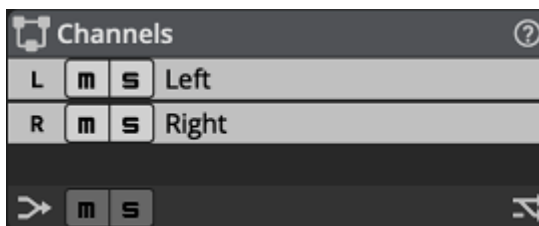
Display and hide [Modules](#). The modules filter at the top (defaulting to **All Modules**) can be customized using the **≡ Modules Panel Menu**, or you can simply type keywords in that field to quickly find modules. Keywords can be part of module's name, topics such as "speech", "noise", "music"...

Hovering a module's name will display a short description of what it does, if it is dependent on the FFT Size parameter (see the [Display Panel](#) and [The Importance of FFT Size](#)) and its associated keyboard shortcuts, if any. Same when hovering the help icon in the module's dialog when a module is displayed.

This panel mirrors the modules found in the **Modules** menu. Clicking on a module displays its dialog or hides it.

It also features the [Modules Chain](#) at the bottom of the panel.

Channels Panel



Manage channels.

The **M Mute** buttons and **S Solo** buttons allows you to mute or solo specific channels.

NOTE

When a channel is muted, it becomes invisible in the waveform and spectral display. When a channel is soloed, non-soloed channels becomes invisibles in the waveform and spectral display.

TIP

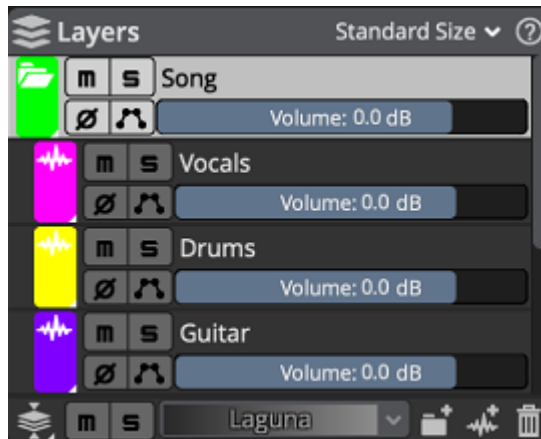
You can mute or solo a single channel regardless of all other channels state by pressing **Ctrl** (Windows) **Cmd** (macOS) while clicking the **Mute** or **Solo** button. To clear mute and solo states on all channels, click the **Mute** and **Solo** buttons at the bottom of the panel. When a single channel is soloed, it will be played on all available speakers.

Selected channels are highlighted in white. When a channel is selected, you can perform edits on it. By default, all channels are selected. To select a single channel, click that channel. To select all channels, click an empty area, or double-click any channel, or drag a rectangle across the channels you want to select.

➤ **Downmix Channels View** : (shortcut: **D**) When activated, stereo or multichannel projects are shown as a single channel (average of all channels) to maximize vertical space.

You can change the number of channels by clicking the **Reformat** button. This is equivalent to clicking **Project > Reformat**. See [Reformatting](#).

Layers Panel



Manage layers. The layer size at the top (**Standard Size** or **Compact Size**) controls the layout of the panel, or you can simply type keywords in that field to quickly find layers.

The **M Mute** buttons and **S Solo** buttons allows you to mute or solo specific layers.

NOTE

When a layer is muted, it becomes invisible in the waveform and spectral display. When a layer is soloed, non-soloed layers becomes invisibles in the waveform and spectral display.

TIP

You can mute or solo a single layer regardless of all other layers state by pressing **Ctrl** (Windows) **Cmd** (macOS) while clicking the **Mute** or **Solo** button. To clear mute and solo states on all layers, click the **Mute** and **Solo** buttons at the bottom of the panel.

The **Ø Polarity** buttons invert the polarity of the audio content. When two layers share identical content, but are opposed in polarity, this shared contents gets cancelled in the final mix.

The **A Envelope** buttons creates a volume envelope that can be edited in the waveform display. Deactivating this button disable the envelope, by does not destroy it. It can be enabled again by clicking on the button again.

NOTE

You can edit the envelope for a specific channel by selecting that specific channel in the [Channels Panel](#) first.

The **Volume** sliders let you adjust precisely the volume of each layer.

Selected layers are highlighted in white. When one or multiple layers are selected, you can perform edits on them using [Tools](#), [Edit Action](#), [Modules](#), or manage them with actions such as group, merge, delete, export... See [Layers Management](#) and [Importing and Exporting Layers](#).

You can rearrange layers by drag and dropping them within the **Layers Panel**.

 **Composite Layers View:** (shortcut: **C**) When activated, all layers are summed into a single color-mapped view. The **Composite Layers View Color Mapping** selector exposes different color maps that can be chosen from.

 **Selected Layers View:** (shortcut: **S**) When activated, only the selected layers are rendered in full colors, while unselected layers are dimmed. The **Selected Layers View Color Dimming** slider defines how much dimming is applied (from full color, to gray, to black).

NOTE

You can switch between **Composite Layers View** and **Selected Layers View** using the mouse wheel over the icon, or by pressing **C** and **S**.

You can create new layers by clicking the  **New Layer** button. This is equivalent to clicking **Layer > New Layer** or pressing **Ctrl + Shift + N** (Windows) **Cmd + Shift + N** (macOS).

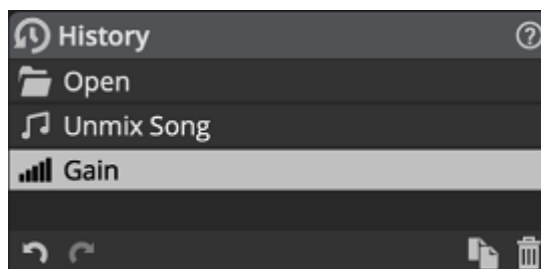
You can create new groups by clicking the  **New Group** button. This is equivalent to clicking **Layer > New Group**. Groups can contain multiple layers. To add existing layers to a group, you can drag layers inside that group. When a group is closed, instead of displaying each layer individually within that group SpectraForce will show the mix of all its layer with the color of that group.

You can delete selected layers or groups by clicking the  **Delete Layer** or **Delete Group** button.

NOTE

You can't delete an external layer or group, such as layers or groups created by an external host DAW when SpectraForce is used in ARA mode.

History Panel



Move back in time with your edits, by selecting the latest event you want to restore.

Double-clicking an event allows you to rename it.

Similar events happening in a short time frame are merged automatically. This can be tweaked in the [System Preferences](#).

Clicking the previous action or the  **Undo** button is equivalent to clicking **Edit > Undo** or pressing **Ctrl + Z** (Windows) **Cmd + Z** (macOS). Clicking the next action or the  **Redo** button is equivalent to clicking **Edit > Redo** or pressing **Ctrl + Y** (Windows) **Cmd + Shift + Z** (macOS). The

 **Duplicate Project** button is equivalent to clicking **Project** > **Duplicate**. See [Project Management](#).

The  **Delete Current State** button will undo the current action, remove it and any action after it.

NOTE

You can disable selection events from History in the [System Preferences](#).

Layers Management

Layers management in SpectraForce is done both in the [Layers Panel](#) and the [Layer Menu](#).

Layer Menu

The Layer menu manages layers and groups.

NOTE

You can't delete, rename or group external layers managed by an external host DAW when SpectraForce is used in ARA mode.

Creating New Layers and Groups

Layer > New Layer

Creates a new blank layer in the current project.

Layer > New Group

Creates a new group in the current project. Groups can contain multiple layers.

Duplicating, Deleting and Renaming Layers

Layer > Duplicate

Duplicate the selected layers.

Layer > Duplicate To...

Duplicate the selected layers to a different project. The project can be already opened, or a new one.

Layer > Delete

Delete the selected layers.

Layer > Rename...

Rename the selected layer.

Grouping and Ungrouping Layers

Layer › Group

Create a new group and put the selected layers inside that group.

Layer › Ungroup

Delete a group without deleting its layers.

Rendering Layers

Layer › Render Envelope

Render the envelope into the layer data, and then remove the envelope.

Merging Layers

Layer › Merge Layers

Merge the selected layers into a single layer.

Layer › Merge Up

Merge the selected layer into the layer above.

Layer › Merge Visible

Merge all visible layers (non-muted layers, or soloed layers).

Layer › Merge All

Merge all layers into a single layer.

Playback and Transport

Controls playback and recording using the [Transport Menu](#) and the [Transport Bar](#).

Transport Menu

The Transport menu manages playback, recording and the playhead.

Basic Transport Controls

Transport › Stop

Stop the playback or recording.

Transport › Play

Plays the project.

TIP You can press `Space` to start and stop playback.

Transport › Record

Record to the active layer.

Moving the Playhead

Transport › Previous Time Marker Transport › Next Time Marker

Move the playhead to the previous or next time marker or region.

Transport › Previous Time Event Transport › Next Time Event

Move the playhead to the previous or next time event.

A time event can be a time marker or region, a spectral marker or regions, the start or the end of a layer, the start or the end of a project.

Playhead Behavior

Transport › Loop Selection

Loop playback or record over the selected time range. If no time range is selected, it will loop

the whole project.

Transport › Return to Start on Stop

Return the playhead to its start position when you stop playback or record.

Transport › Scrolling

Chose how to scroll the display when the playhead goes beyond the displayed time range.

Can be **None** (no scrolling), **Page** (shift the display when the playhead leaves the display), **Continuous** (continuously scroll the display so that the playhead remains centered).

Adding Markers and Regions

Transport › Add Time Marker

Add a time marker where the playhead is positionned.

Transport › Add Time Region

Add a time region to the boundaries of the current selection.

Transport Bar



The ◀ **Previous Time Event** button and ▶ **Next Time Event** button moves the playhead to the previous or next time event. This is equivalent to clicking **Transport > Previous Time Event** or **Transport > Next Time Event**.

A time event can be a time marker or region, a spectral marker or regions, the start or the end of a layer, the start or the end of a project.

The ↺ **Loop Selection** button loop playback or record over the selected time range. If no time range is selected, it will loop the whole project. This is equivalent to clicking **Transport > Loop Selection**.

The ■ **Stop** button stop the playback or recording. This is equivalent to clicking **Transport > Stop**.

The ▶ **Play** button plays the project. This is equivalent to clicking **Transport > Play**.

TIP You can press Space to start and stop playback.

The ● **Record** button record to the active layer. This is equivalent to clicking **Transport > Record**.

The **Playhead Position** text field shows the timing of the playhead. You can edit that field with any time value to reposition the playhead.

The **VU Meter** shows the current signal amplitude during playback and record.

You can set the gradient of the VU Meter in the [Interface Preferences](#).

Tools

The **Tools** provide direct access to spectral transforms, selections, modifications, drawings, measurements, and navigation.

They are meant to be used in the **Spectral Display**. See [User Interface](#).

Some tools are grouped at the same location. When multiple tools are available, a small triangle appears in the bottom right corner of the tool icons. Use the mouse wheel other those icons, or long-click or right-click these icons to reveal the other tools.

The tool icon shown on the left side of the **Tool Settings** area allows you to load and save presets, and request the online documentation page corresponding to this tool.

Some of these tools depends on the **FFT Size** parameter, see [The Importance of FFT Size](#) for more information.

Transform and Selection Tools



Move and scale data and layers. Select spectral areas using different shapes and detection algorithms. When a selection tool is active, you can resize selection boundaries and fading by dragging its borders and corners.

Transform



Moves and scales selections and data from the active layer if a selection exists, otherwise moves and scales the data from entire active layer.

When manipulating spectral data, scaling vertically translates directly to pitch modification, and scaling horizontally to time-stretching. It's a visual approach to time-stretching and pitch-shifting, similar to resizing an image in a picture editing application.

☒ **Auto-Activate Layer:** Activate the layer under the mouse cursor when clicked.

[Duplicate]: When pressed, clicking and dragging will duplicate the current selection or layer. After the copy the button will return to its initial, non-pressed state. Equivalent to pressing **Alt** before clicking and dragging.

↔ Time Shifting: Time shifting applied to the current selection or layer, in seconds.

 **Time Stretching:** Time stretching applied to the current selection or layer, in percent.

 **Stretch and pitch proportionally:** When pressed, time and pitch will scale proportionally: time-stretching by 200% will pitch-shift by 50%, as if you were slowing down a record for instance, where the pitch gets lower when time is slowed down.

 **Pitch Shifting:** Pitch shifting applied to the current selection or layer, in percent or semitone.

Pitch Shifting Unit: Unit to be used for the pitch shifting (percent or semitone).

☒ **Axis Lock:** Define what axis is active when clicking and dragging: horizontal, vertical, or both (bidirectional).

☒ **Loudness Contour:** When checked, perceived loudness is preserved when pitching up or down.

☒ **Preserve Formant:** When checked, formant is preserved when pitching up or down.

Transform Selection



Moves and scales selections without affecting layer data.

[**Screen Space / Spectral Space**] : Choose what reference scale is used when moving selections up or down. When **Screen Space** is active, selection height on screen won't change when moved up or down. When **Spectral Space** is active, selection frequency range won't change when moving up or down.

[**Duplicate**]: When pressed, clicking and dragging will duplicate the current selection (but not its content). Equivalent to pressing  before clicking and dragging.

Time Range Selection



Select a time range. Click and drag to define the time range.

 **Replace Selection:** Replace the current selection with a new selection.

 **Add to Selection:** Add the new selection to the current selection (or press .

 **Subtract from Selection:** Subtract the new selection from the current selection (or press .

 **Intersect with Selection:** Intersect the new selection with the current selection (or press  + ). This will keep the common areas between the two selections.

Time Fade: Fading time at the borders of the new selection.

NOTE

Fading can be adjusted after the selection is done, as long as the basic shape remains similar.

Frequency Range Selection



Select a frequency range. Click and drag to define the frequency range.

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).
- ⦿ **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Frequency Fade: Fading frequencies at the borders of the new selection.

NOTE

Fading can be adjusted after the selection is done, as long as the basic shape remains similar.

Rectangular Selection



Select a rectangular time and frequency range. Click and drag to define the rectangle.

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).
- ⦿ **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Time Fade: Fading time at the borders of the new selection. **Frequency Fade:** Fading frequencies at the borders of the new selection.

NOTE

Fading can be adjusted after the selection is done, as long as the basic shape remains similar.

Elliptical Selection



Select an elliptical time and frequency range. Click and drag to define the ellipse.

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).
- ⦿ **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Time Fade: Fading time at the borders of the new selection. **Frequency Fade:** Fading frequencies at the borders of the new selection.

NOTE

Fading can be adjusted after the selection is done, as long as the basic shape remains similar.

Lasso Selection



Draw a selection shape freely. Click and drag to define the shape.

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).
- ⦿ **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Time Fade: Fading time at the borders of the new selection. **Frequency Fade:** Fading frequencies at the borders of the new selection.

NOTE

Fading can be adjusted after the selection is done, as long as the basic shape remains similar.

Polygonal Lasso Selection



Draw a selection shape using a serie of points. Click the first point, then each successive points, and finish by double-clicking the last point of your shape.

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).
- ⦿ **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Time Fade: Fading time at the borders of the new selection. **Frequency Fade:** Fading frequencies at the borders of the new selection.

NOTE

Fading can be adjusted after the selection is done, as long as the basic shape remains similar.

Selection Brush



Select an area by painting with a brush.

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).

 **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

[Round Brush / Square Brush]: Defines the type of brush shape.

[Screen Units / Spectral Units]: Defines the units used to set the brush shape proportions.

Size: (*Screen Units only*) Defines the size of the brush in pixels.

Aspect Ratio: (*Screen Units only*) Defines the aspect ratio of the brush.

Width: (*Spectral Units only*) Defines the width of the brush in seconds.

Height: (*Spectral Units only*) Defines the height of the brush in hertz.

Hardness: Defines the hardness of the brush in percents. A hard brush (100%) will have clear edges. A soft brush (0%) will have blurry edges.

Magic Wand Selection



Select an area by automatically detecting shape contours where clicked.

 **Replace Selection:** Replace the current selection with a new selection.

 **Add to Selection:** Add the new selection to the current selection (or press **Shift**).

 **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).

 **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Tolerance: Power threshold relative to the clicked position defining the boundaries of the auto-detected shape.

Maximum Width: Maximum time range in seconds of the auto-detected shape.

☒ **Sample All Layers:** Use all layers to perform the shape detection, not just the active layer.

Frequency Selection



Select a continuous frequency by automatically tracking how it changes over time. Click and drag over a frequency to select.

 **Replace Selection:** Replace the current selection with a new selection.

 **Add to Selection:** Add the new selection to the current selection (or press **Shift**).

 **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).

 **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Thickness: Defines the thickness of the selection around the frequency.

☒ **Sample All Layers:** Use all layers to perform the frequency detection, not just the active layer.

Harmonics Selection



Select a continuous series of harmonics (multiple frequencies on top of each other) by automatically tracking how it changes over time. Click and drag over a frequency to start selecting, then move to an harmonic below or above the selected frequency to select all harmonics at once.

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).
- ⦿ **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Thickness: Defines the thickness of the selection around the frequencies.

Tolerance: Max power drop in decibel (compared to the hovered frequency) to still be considered part of the harmonic sound.

Max Harmonics: Max number of harmonics to be selected, starting from the fundamental.

☒ **Sample All Layers:** Use all layers to perform the harmonics series detection, not just the active layer.

TIP

Sometime it's easier to select a series of harmonics by using the second, third or fourth harmonic rather than the fundamental frequency. Choose the frequency that's the most visible.

Transient Selection

⋮

- **Replace Selection:** Replace the current selection with a new selection.
- **Add to Selection:** Add the new selection to the current selection (or press **Shift**).
- **Subtract from Selection:** Subtract the new selection from the current selection (or press **Alt**).
- ⦿ **Intersect with Selection:** Intersect the new selection with the current selection (or press **Shift + Alt**). This will keep the common areas between the two selections.

Thickness: Defines the thickness of the selection around the transient.

Threshold: Power threshold relative to the clicked position defining the boundaries of the detected transient.

☒ **Sample All Layers:** Use all layers to perform the transient detection, not just the active layer.

Selection Fade



Add fading to existing selections. Click and drag over the border of an existing selection to fade it.

[Global Fading]: (shortcut: **Alt**) When activated, fading is applied to all borders of all selections at once. **[Round Brush / Square Brush]:** Defines the type of brush shape.

[Screen Units / Spectral Units]: Defines the units used to set the brush shape proportions.
Size: (*Screen Units only*) Defines the size of the brush in pixels.
Aspect Ratio: (*Screen Units only*) Defines the aspect ratio of the brush.
Width: (*Spectral Units only*) Defines the width of the brush in seconds.
Height: (*Spectral Units only*) Defines the height of the brush in hertz.
Hardness: Defines the hardness of the brush in percents. A hard brush (100%) will have clear edges. A soft brush (0%) will have blurry edges.
Fading: How much fading is added, proportionally to the size of the brush.

Selection Sharpen



Add sharpening to existing selections. Click and drag over the border of an existing selection to sharpen it.

[Global Fading]: (shortcut: **Alt**) When activated, fading is applied to all borders of all selections at once. **[Round Brush / Square Brush]:** Defines the type of brush shape.
[Screen Units / Spectral Units]: Defines the units used to set the brush shape proportions.
Size: (*Screen Units only*) Defines the size of the brush in pixels.
Aspect Ratio: (*Screen Units only*) Defines the aspect ratio of the brush.
Width: (*Spectral Units only*) Defines the width of the brush in seconds.
Height: (*Spectral Units only*) Defines the height of the brush in hertz.
Hardness: Defines the hardness of the brush in percents. A hard brush (100%) will have clear edges. A soft brush (0%) will have blurry edges.
Sharpening: How much sharpening is added, proportionally to the size of the brush.

Editing Tools



Perform direct modifications on the spectrogram, or draw new content from scratch.

Eraser



Attenuate the content under the brush.

[Round Brush / Square Brush]: Defines the type of brush shape.
[Screen Units / Spectral Units]: Defines the units used to set the brush shape proportions.
Size: (*Screen Units only*) Defines the size of the brush in pixels.
Aspect Ratio: (*Screen Units only*) Defines the aspect ratio of the brush.
Width: (*Spectral Units only*) Defines the width of the brush in seconds.
Height: (*Spectral Units only*) Defines the height of the brush in hertz.
Hardness: Defines the hardness of the brush in percents.
☒ **Limit:** Limit eraser attenuation to a certain absolute level.
[Pick Limit]: Check to pick a level limit in the spectrogram.
Limit Level: Absolute level in dB to which to limit the eraser tool.

A hard brush (100%) will have clear edges. A soft brush (0%) will have blurry edges.

Attenuation: Defines how much the content is attenuated, in decibels.

● **Pressure Controls Strength:** When pressed, this enables devices with pressure control to set the strength of the tool.

Amplifier



Amplify the content under the brush.

[**Round Brush / Square Brush**]: Defines the type of brush shape.

[**Screen Units / Spectral Units**]: Defines the units used to set the brush shape proportions.

Size: (*Screen Units only*) Defines the size of the brush in pixels.

Aspect Ratio: (*Screen Units only*) Defines the aspect ratio of the brush.

Width: (*Spectral Units only*) Defines the width of the brush in seconds.

Height: (*Spectral Units only*) Defines the height of the brush in hertz.

Hardness: Defines the hardness of the brush in percents.

☒ **Limit:** Limit amplifier gain to a certain absolute level.

[**Pick Limit**]: Check to pick a level limit in the spectrogram.

Limit Level: Absolute level in dB to which to limit the amplifier tool.

A hard brush (100%) will have clear edges. A soft brush (0%) will have blurry edges.

Gain: Defines how much the content is amplified, in decibels.

● **Pressure Controls Strength:** When pressed, this enables devices with pressure control to set the strength of the tool.

Transfer



Losslessly transfer content from the selected layer to a target layer.

[**Target**]: Define the target layer that will receive the selected layer content.

[**Round Brush / Square Brush**]: Defines the type of brush shape.

[**Screen Units / Spectral Units**]: Defines the units used to set the brush shape proportions.

Size: (*Screen Units only*) Defines the size of the brush in pixels.

Aspect Ratio: (*Screen Units only*) Defines the aspect ratio of the brush.

Width: (*Spectral Units only*) Defines the width of the brush in seconds.

Height: (*Spectral Units only*) Defines the height of the brush in hertz.

Hardness: Defines the hardness of the brush in percents.

Transfer: Defines how much of the content is transferred.

Clone Stamp



Clone content from a user-defined source location to the current brush location.

[**Pick Source**]: Defines the source location by clicking in the spectrogram (or press **Alt** while clicking). After the source location has been defined the button will return to its initial, non-pressed state.

[**Round Brush / Square Brush**]: Defines the type of brush shape.

[**Screen Units / Spectral Units**]: Defines the units used to set the brush shape proportions.

Size: (*Screen Units only*) Defines the size of the brush in pixels.

Aspect Ratio: (*Screen Units only*) Defines the aspect ratio of the brush.

Width: (*Spectral Units only*) Defines the width of the brush in seconds.

Height: (*Spectral Units only*) Defines the height of the brush in hertz.

Hardness: Defines the hardness of the brush in percents.

Gain: Defines how much the content is amplified or reduced during cloning, in decibels. A hard brush (100%) will have clear edges. A soft brush (0%) will have blurry edges.

 **Pressure Controls Strength:** When pressed, this enables devices with pressure control to set the strength of the tool.

 **Aligned:** When checked, the source location is a relative source location (distance to the source location). When unchecked, the source location is an absolute source location (time and frequency).

 **Sample All Layers:** Use all layers to perform the cloning, not just the active layer.

Frequency Repair



Accurately repair a damaged frequency (for instance a continuous frequency damaged by a brief silent gap) by clicking and dragging over the damaged part.

Make sure the start point and end point covers useable frequency data, as it's going to be used to reconstruct a continuous frequency between those two points.

Measurement and Navigation Tools



Measure, annotate, navigate and listen the spectral display.

Spectral Marker



Create a spectral marker by clicking in the spectral display.

Right click an existing marker to rename it or delete it.

Spectral Region



Create a spectral region by clicking and dragging in the spectral display.

Right click an existing region to rename it or delete it.

Sampler



Show informations about the spectral sample under the mouse cursor.

[**Show Sampler Window**]: Display a dialog with information about spectral samples.

The dialog has the following options:

- [**Unit**]: Choose what unit to measure.
- ☒ **Mix All Layers**: Measure a mix-down of all layers.

Plot



Plot a graph of spectral samples between two points in the spectral display.

Click and drag to draw a line in the spectral display.

[**Show Graph Window**]: Display a dialog with information about spectral samples.

The dialog has the following options:

- [**Unit**]: Choose what unit to measure.
- ☒ **Mix All Layers**: Measure a mix-down of all layers.

TIP | Press **Shift** to draw a vertical or horizontal line.

Statistics



Compute stats on spectral samples within a rectangular region.

Click and drag to draw a rectangle in the spectral display.

[**Show Stats Window**]: Display a dialog with information about spectral samples.

The dialog has the following options:

- [**Unit**]: Choose what unit to measure.
- ☒ **Mix All Layers**: Measure a mix-down of all layers.

Hand



Scroll around your spectral display. Click and drag to move the view.

[**Reset Zoom**]: Reset the zoom level to see the entire spectrogram.

Zoom



Zoom in and out your spectral display. Click and drag to zoom the view, or single-click to incrementally zoom in and out.

 **Zoom In:** When pressed, single-clicks will incrementally zoom in.

 **Zoom Out:** When pressed, single-clicks will incrementally zoom out.

☒ **Scrubby Zoom:** When checked, clicking and dragging will continuously zoom in or out. When unchecked, clicking and dragging will draw a zoom rectangle.

[**Zoom Selection**]: Adjust the view to the current selection.

[**Zoom Active Layer**]: Adjust the view to the current active layer.

[**Reset Zoom**]: Reset the zoom level to see the entire spectrogram.

3D Perspective



Set a 3D perspective effect to the spectral display, based on spectral amplitudes.

Click and drag to set the 3D perspective effect. Double-click to reset to a 2D view.

[**Reset 3D**]: Reset to a 2D view.

Playback



Play specific parts of the spectral display.

☒ **Scrubbing:** When checked, plays continuously starting from where the mouse cursor is located. When the mouse is moved, playback continues from the new location. When unchecked, keep the first clicked position as the start position.

☒ **Hold to Play:** When checked, keep mouse the button pressed to play. When unchecked, the first click starts playback, and the second stops it.

☒ **Frequency Range:** When checked, plays a specific frequency range. When unchecked, plays the entire frequency range of your project.

[**Screen Units / Spectral Units**]: Defines the units used to set the frequency range.

Range: Set the frequency range in pixels (*Screen Units*) or hertz (*Spectral Units*)

☒ **Ignore Selection:** When checked, the playback is not restricted by any selection.

See also [Playback and Transport](#)

TIP

You can also summon the Playback tool by holding  (Windows)  (macOS) without losing your current active tool.

Editing Selections

Editing using spectral selections. See [Transform and Selection Tools](#).

Edit Menu

Undoing and Redoing Edits

NOTE | See also the [History Panel](#).

Edit > Undo

Undo the last action. See [History Panel](#).

Edit > Redo

Redo the next action. See [History Panel](#).

Transferring Content

NOTE | See also the [Transfer](#) tool.

Edit > Crop

Crop the selected area with the selected layers.

Edit > Cut

Cut the selected area from the selected layers to the clipboard.

Edit > Cut Special > Cut to...

Cut the selected area from the selected layers to a new layer or an existing layer.

Edit > Cut Special > Cut to Last Target

Cut the selected area from the selected layers to the last layer targetted with **Cut to....**

Edit > Copy

Copy the selected area from the selected layers to the clipboard.

Edit › Copy Special › Copy from All Layers

Copy the selected area from all visible layers to the clipboard.

Edit › Copy Special › Copy from All Frequencies

Copy the time range of the selected area from the selected layers to the clipboard, disregarding the frequency selection.

Edit › Copy Special › Copy to...

Copy the selected area from the selected layers to a new layer or an existing layer.

Edit › Copy Special › Copy to Last Target

Copy the selected area from the selected layers to the last layer targetted with **Copy to....**

Edit › Copy Special › Copy to New Project

Copy the selected area from the selected layers to a new project.

Edit › Paste

Paste the clipboard content to the selected layers.

Edit › Paste Special › Paste and Mix

Add the clipboard content to the content of the selected layers.

Edit › Paste Special › Paste to...

Paste the clipboard content to a new layer or an existing layer.

Edit › Paste Special › Paste to Last Target

Paste the clipboard content to the last layer targetted with **Paste to....**

Edit › Paste Special › Paste Into Selection

Paste the clipboard content to the selected layer, inside the current selection boundaries.

Edit › Paste Special › Paste Insert

Paste the clipboard content to the selected layer, inserting time for it.

Removing Content

Edit › Delete

Delete the selected area from the selected layers.

It is replaced by silence.

Edit › Heal

This feature has been replaced by the [Reconstruct](#) module.

Editing Time

Edit › Insert Time...

Insert a time range at any point in your layer.

Edit › Delete Time...

Delete a time range at any point in your layer.

Edit › Crop Time...

Crop a time range (leave only a certain time range) at any point in your layer.

Transforming Content

NOTE

See also the [Transform](#) tool.

Edit › Transform...

Transform the selected area in the active layer, or the entire active layer if no selection exist.

- **Time Shifting:** Set a time in seconds to shift the selected content.
- **Frequency Shifting:** Set a frequency in hertz to shift the selected content.
- **Time Strething:** Set a time stretch ratio in percent to slow down or speed up the selected content.
- ☒ **Proportional:** When checked, time and pitch will scale proportionally: time-stretching by 200% will pitch-shift by 50%, as if you were slowing down a record for instance, where the pitch gets lower when time is slowed down.
- **Pitch Shifting Unit:** Set the unit to be used for the pitch shifting (percent or semitone).
- **Pitch Shifting:** Set a pitch shift ratio in percent or semitone to pitch up or down the selected content.
- ☒ **Loudness Contour:** When checked, perceived loudness is preserved when pitching up or down.
- ☒ **Preserve Formant:** When checked, formant is preserved when pitching up or down.

NOTE

Frequency Shifting is a special effect that will produce unnatural content, by shifting frequencies by a constant value instead of multiplying them by a ratio. If you want to pitch up or down, use the **Pitch Shifting** parameter.

Editing in an External Editor

Edit › Edit In...

Edit the selected area in the active layer with an external editor software, or the entire active layer if no selection exist.

Set the external editors in the [System Preferences](#).

Select Menu

Modify and manage selections.

Modifying a Selection

Select › Select All

Select the entire project time and frequency range.

Select › Deselect

Deselect any selection.

Select › Reselect

Reselect the last selection, if it was deselected.

Select › Invert Selection

Invert the selection over the entire project time and frequency range.

Select › Invert Selection Frequencies

Invert the selection over the entire frequency range.

Select › Modify Selection...

Expand, contract, fade or sharpen the selection by a specific margin. The spectrogram display is adjusted as you change the values.

- **Time Expand:** Positive values expand the selection horizontally, negative values contract the selection horizontally.
- **Frequency Expand:** Positive values expand the selection vertically, negative values contract the selection vertically.
- **Time Fade:** Positive values fade the selection horizontally, negative values sharpen the selection horizontally.
- **Frequency Fade:** Positive values fade the selection vertically, negative values sharpen the selection vertically.

NOTE

See also the [Selection Fade](#) and [Selection Sharpen](#) tools.

Select › Disable Selection Fades

Disable selection fades while checked. When unchecked, selection fades are reenabled.

Selecting Harmonics

Select multiple harmonics from an existing selection. The spectrogram display is adjusted as you change the values.

- **Master Rank:** Defines what harmonic is current selected to be used as a reference for the whole harmonics serie. Setting it to 1 correspond to the fundamental (lowest) frequency.
- **[None]:** Deselect all harmonics.
- **[All]:** Select all harmonics.
- ☒ **Harmonics:** Check the harmonics you want to select.

Selecting Similar Patterns

Select › Select Similar...

Select similar patterns based on spectral content.

- ☒ **Match Tonal:** Search for similar tonal shapes.
- ☒ **Match Transient:** Search for similar transient shapes.
- ☒ **Match Noise:** Search for similar noise shapes.
- ☒ **Match Power:** Search for similar power.
- ☒ **Sample All Layers:** Search for similarities in all layers at once.
- **Similarity:** Set a similarity ratio in percents. 100% must be a perfect match, anything below allows a certain tolerance.
- **[Select Next]:** Select the next similar pattern.
- **[Select Previous]:** Select the previous similar pattern.
- **[Select All]:** Select all the similar pattern.

Select › Select Next Similar

Select the next similar pattern based on spectral content.

The parameters used are the last ones used in the **Select Similar...** dialog.

Select › Select Previous Similar

Select the previous similar pattern based on spectral content.

The parameters used are the last ones used in the **Select Similar...** dialog.

Loading and Saving Selections

Select › Load Selection...

Load a previously saved selection.

- **Project:** From which project to load a selection.
- **Selection:** Which selection to load.
- **Replace Selection:** Replace the current selection with the new one.
- **Add to Selection:** Add the new selection to the current one.
- **Subtract from Selection:** Subtract the new selection from the current one.
- **Intersect with Selection:** Intersect the new selection with the current one.

Select › Save Selection...

- **[Selection Name]**: Choose a name for the selection to save.

NOTE | Selections are not saved with projects. They are only valid during the session.

Modules

Process or unmix a spectral selection or an entire layer into multiple layers, using artificial intelligence or algorithms. All modules are accessible both from the **Module** menu and the [Modules Panel](#). If **[Loop]** is checked in the [Transport Bar](#), then the module preview will loop over your project or selection while you adjust parameters.

All modules features:

- **Preset:** Select a factory or an user-defined preset.
- **[Add...]:** Add an user-defined preset to the presets list, based on the current module settings.
- **[Delete...]:** Delete an user-defined preset from the presets list.
- **[?] [Online Help]:** Open the online documentation page corresponding to this module.
- **[Preview]:** (shortcut: **Ctrl** + **Space**) Preview in real-time the processing or unmixing before applying the module.
- **[Bypass]:** (shortcut: **Ctrl** + **B**) Option to temporarily bypass the module during real-time preview, in order to listen to the original instead.
- **[Apply]:** (shortcut: **Ctrl** + **Return**) Unmix the selected layer into multiple layers and close the dialog. If a selection exists, only unmix the current selection.

Separate



All Separate modules are non-destructive (the sum of all unmixed layers is equal to the original layer).

Separate Chorus



Separate the selected layer containing vocals into lead vocals and backing vocals layers.

NOTE

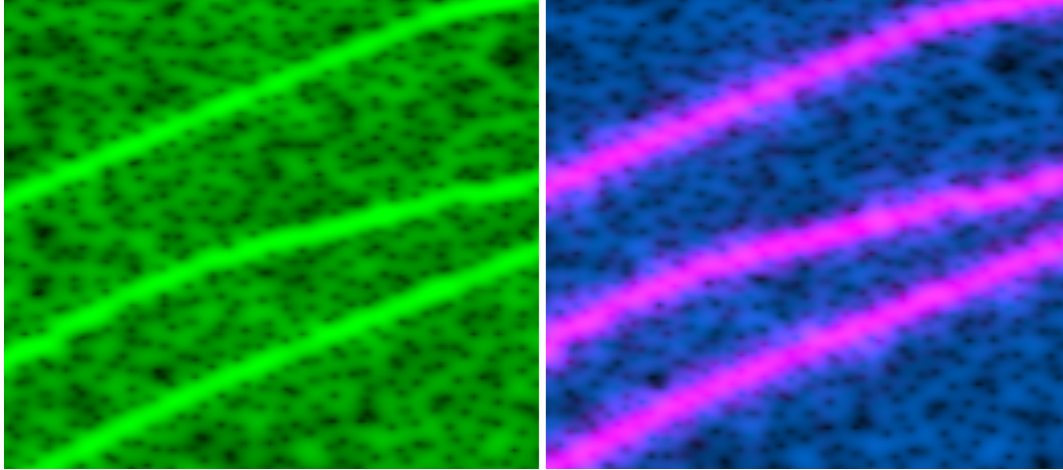
If you want to unmix a chorus from a song that contains other musical instruments, use **Separate Song** first before applying **Separate Chorus** to the Vocals layer.

Separate Components



Separate the selected layer into components (tonal, transients, noise).

Here's a source spectrogram (left) and after the components have been unmixed (right) into noise (blue) and tonal (pink):



TIP

Adjusting the **FFT Size** parameter from the [Display Panel](#) helps achieving the best components separation.

Separate Crowd Noise



Separate the selected layer containing crowd noise into foreground and crowd noise layers.

Separate Levels

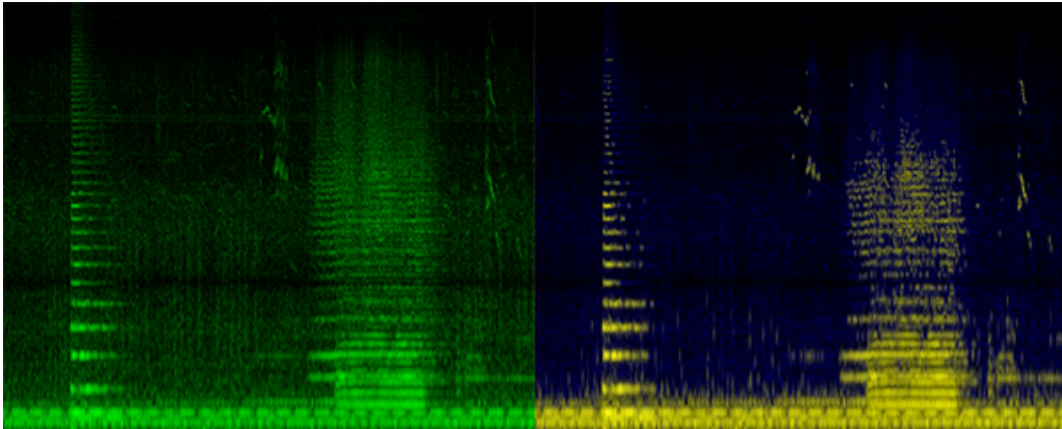


Separate the selected layer into High Level and Low Level layers, using an user-defined threshold.

- **Threshold Type:** When set to **Absolute Power** spectral values are unmixed based on an absolute threshold. When set to **Local Average Power** spectral values are unmixed based on a threshold compared to a local average. When set to **Local Peak Power** spectral values are unmixed based on a threshold compared to local peaks.
- **[Analyze Selection]:** Automatically set the **Threshold Value** to the maximum value of the selected spectral region. The selected spectral region should then be representative of the low level layer you expect.
- **Threshold Value:** Threshold in dB.
- **Horizontal Average:** (Only when type is set to Average Power) Size of the horizontal area (in pixels) to estimate the local average.
- **Vertical Average:** (Only when type is set to Average Power) Size of the vertical area (in pixels) to estimate the local average.
- **Horizontal Peak:** (Only when type is set to Peak Power) Size of the horizontal area (in

pixels) to estimate the local peak.

- **Vertical Peak:** (Only when type is set to Peak Power) Size of the vertical area (in pixels) to estimate the local peak.



Separate Multichannel Content



Separate the selected layer into Target and Surrounding layers, using an user-defined multichannel balance. This unmixer is designed extract specific sounds in a multichannel recording (such as stereo, 5.1, etc) where the sound can be precisely located in the spatial mix, versus its surrounding.

- **[Analyze Selection]:** set the channels balance automatically based on the selected spectral region. The selected spectral region should then be representative of the audio content you want to extract.
- **Channels (Left, Right, ...):** Channels balance in dB.
- **Tolerance:** Tolerance to the defined channels balance. This allows better extraction in noisy environment, or when the recorder or audio source is not fully fixed in space.

Separate Multiple Voices



Separate multiple voices, including overlapping voices (unlimited number of voices, but up to 3 simultaneous overlap).

First register voice profiles (short voice samples of each speaker) so the AI knows what to look for. You can do so using either **[Register Voice]** or **[Register Multiple Voices]**, depending on the context.

- **[Clear]:** Clear all registered voice profiles.
- **[Register Voice]:** Register the selected time range as an individual voice profile.
- **[Register Multiple Voices]:** Register the selected time range as many voice profiles (you will be asked how many). This is useful to either quickly register many voice profile in one row if voices are clearly distincts from each other, or if some voices are only heard in overlap with other voice profiles : then you can register both overlapping voice profiles in a single time selection.

NOTE

When used before [Separate Transcription](#) this can be used for dialogue transcription with identified speakers.

NOTE

If the recording contains background noise, it's best to first use [Separate Noisy Speech](#) or [Voice DeNoise](#).

Separate Noisy Speech



Separate human voice from a noisy background (such as street noise, engine noise, nature sounds, etc).

Separate Song Elements



Separate the selected layer into Vocals, Bass, Drums and Other layers.

Separate Environment



The Unmix Sound Effects module separates continuous environmental and ambient sounds like wind, crowd, traffic, sea noises and short sounds like foot steps, gun shots, birds, door slams, etc.

- **Ambience Analysis:** Duration to analyze, in seconds, to determine ambience sound from spot effects. Longer durations will allow to unmix longer spot effects.
- **Threshold:** Threshold to the ambience analysis to start unmixing spot effects.
- **Tolerance:** Transition amplitude between ambience and spot effects. Can help smoothing results.
- **Horizontal Smoothing:** Increase for smoother unmixing, at the risk of softening attack sounds too much.
- **Vertical Smoothing:** Increase for smoother unmixing, at the risk of losing frequency precision.

Separate Transcription



Transcribe speech into text.

The transcript is then displayed below the spectrogram, with words and sentences synchronized to the audio content. Transcriptions are specific to layers, so you can transcribe different layers and the transcript will match the color of its source layer.

See [Transcript Bar](#) and [Transcript Editing](#) for more details.

- **Language:** Language of the source audio content. If set to Auto, it will be automatically detected.

- **Quality:** Speed and quality of the AI model used for transcription.

Separate Crosstalk



The Separate Crosstalk module separates two or three voices, including crosstalk, without having to register voice profiles. It's less flexible and less fast to process than Separate Multiple Voices, but more reliable and easy to set up when you're limited to a few voices, and for short durations. For longer durations, such as interviews or podcast, prefer Separate Multiple Voices. The primary voice is defined as either the voice that starts first, or speaks the longest, or is the loudest.

- **Primary Voice:** Method to determine the primary voice: first to talk, longest to talk, or the loudest one.
- **Number of Voices:** Number of voices to separate: two or three.
- **Reduction Ratio:** Ratio of reduction, in percents.
- **[Reduce Secondary Voice / Reduce Primary Voice]:** Choose which voice to reduce.

Utilities



Utilities modules are used to adjust, match, transform or generate data.

Channels Remixer



Remix channels by defining a percentage for each channel.

The tabs at the top are the output channels. In each tab, you can define a percentage for each input channel.

Acoustic Match



Matches two different EQ by creating an EQ profile.

The first step is to select an area with the EQ profile you want to match, as large as possible.

Then click **[Register EQ]** to register the noise profile.

Then select the area that should match this EQ profile and click **[Apply]**.

The graph at the top shows frequencies on the horizontal axis, and power on the vertical axis. The white curve corresponds to the EQ profile you registered earlier.

- **Match Ratio:** Ratio of matching, in percents.

Gain



Apply uniform gain.

- **Gain:** Gain applied.

Normalize



Normalize to the defined level.

- **Gain:** Normalization level.

Reverse



Reverse the current layer or current selection, including spectral selections.

VST3 Effects



Apply VST3 effects.

The path to the VST3 folder can be set in the [System Preferences](#).

You can assign one VST3 effect per slot, and use as many slots as needed, or remove them using the [X] button.

When clicking an empty slot, or clicking the dropdown button of a slot, a menu will be shown to choose a VST3 effect by name, category or vendor. The dropdown menu also allows you to clear the current slot or rescan VSTs in the defined VST3 folder.

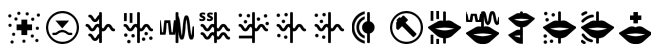
The  **Bypass** icon on the left side of each slot allows you to bypass specific VST3 effects.

The  **Settings** icon on the left side of each slot displays the VST3 effects user interface and parameters.

NOTE

Available VST3 effects will be automatically updated when a VST3 plugin is added or removed to the VST3 folder.

Restoration



Restoration modules repair damaged signals.

Attenuate



The Attenuate module attenuates the content within a selection based on the powers surrounding the selection. It effectively blends prominent sounds within the selection with the surrounding background level.

- **Attenuation Direction:** Direction of the attenuation: Horizontal, Vertical, Both, or Balanced (a mix of all the first 3 options based on the amplitudes around the selected area).
- **Horizontal Reference:** Which left and right sides of the selection to use as a reference for attenuation.
- **Vertical Reference:** Which bottom and top sides of the selection to use as a reference for attenuation.
- **Attenuation Reconstruction:** Ratio of attenuation, in percents.

DeBleed



Attenuate bleeding between layers, for instance when recording different instruments simultaneously with multiple mics.

- **Sources:** Select the source layers used for de-bleeding.
- **[Select All]:** Select all available layers for de-bleeding.
- **Sensitivity:** Sensitivity of the de-bleeding algorithm.
- **Reduction Ratio:** Ratio of attenuation, in percents.
- **[Reduce Bleed / Reduce Signal]:** Choose to reduce bleeding or the signal.

DeClick



Reduce click and pop sounds.

- **Threshold:** Threshold above which click should be attenuated.
- **Width:** Width of the clicks.
- **Reduction Ratio:** Ratio of attenuation, in percents.
- **[Reduce Clicks / Reduce Signal]:** Choose to reduce the clicks or the signal.

DeClip



Reconstruct clipped signals. See also [Voice DeClip](#) if working with speech content specifically.

- **[Suggest]:** Auto-detect the clipping threshold.
- **Threshold:** Threshold above which the signal is considered clipped and should be

reconstructed.

- **Reconstruction Ratio:** Ratio of reconstruction, in percents.
- ☒ **Limiter:** When checked, will prevent the reconstructed signal to go above 0dB.

NOTE

Reconstructed peaks can go above 0dB, if you're not using the **Limiter** option you may need to reduce the volume of your layer (see the [Layers Panel](#)), or apply some amplitude reduction (using for instance the [Eraser](#) tool) where those peaks occurs to avoid re-clipping your signal.

DeHum



Reduce hum and buzz sounds.

- **[Suggest]:** Auto-detect hum parameters.
- **Frequency:** Main hum frequency.
- **Filter Width:** Width of the main hum signal.
- **Harmonics:** Number of harmonics of the hum signal.
- **Harmonic #:** Power of each harmonic of the hum signal, in decibels.
- **Reduction Ratio:** Ratio of attenuation, in percents.
- **[Reduce Hum / Reduce Signal]:** Choose to reduce the hum or the signal.

DeNoise



Reduces noise by creating a noise profile.

The first step is to select an area with noise, without any of the signal to keep. This area should cover as much noise frequencies as possible.

Then click **[Register Noise]** to register the noise profile.

To perform the noise reduction, then click **[Apply]**.

The graph at the top shows frequencies on the horizontal axis, and power on the vertical axis. The white curve corresponds to the noise profile you registered earlier, and the red curve corresponds to the threshold (based on that noise print) that you defined with the parameters below. If your signal goes below that red curve, it's considered noise and gets cut from your recording.

- **Tolerance:** Threshold under which frequencies should be attenuated. The threshold is relative to the registered noise print.
- **Tolerance:** Tolerance amplitude from the defined threshold, to fully eliminated signal.
- **Horizontal Smoothing:** Increase for smoother denoising, at the risk of softening attack sounds too much.
- **Vertical Smoothing:** Increase for smoother denoising, at the risk of losing frequency precision.

- **Reduction Ratio:** Ratio of attenuation, in percents.
- [**Reduce Noise / Reduce Signal**]: Choose to reduce the noise or the signal.

DePlosive



Attenuate plosive sounds (low frequencies impact sounds often associated with consonant like P and B).

- **Threshold:** Threshold above which plosive sounds should be attenuated.
- **Frequency Limit:** Frequency below which plosive sounds should be attenuated.
- **Reduction Ratio:** Ratio of attenuation, in percents.
- [**Reduce Plosive / Reduce Signal**]: Choose to reduce the plosive or the signal.

DeReverb



Reduce reverb. See also [Voice DeReverb](#) if working with speech content specifically.

- **Reduction Ratio:** Ratio of attenuation, in percents.
- [**Reduce Reverb / Reduce Signal**]: Choose to reduce the reverb or the signal.

Reconstruct



Resynthesizes spectral data within a selection, with noise, tonal and transient reconstruction. Replaces the former **Heal** actions found in the **Edit** menu, with much more reconstruction capabilities.

- **Noise Reconstruction:** Ratio of noise reconstruction, in percents.
- **Noise Direction:** Direction of the noise reconstruction: Horizontal, Vertical, Both, or Balanced (a mix of all the first 3 options based on the amplitudes around the selected area).
- **Tonal Reconstruction:** Ratio of attenuation, in percents.
- **Tonal Match Threshold:** Ratio of attenuation, in percents.
- **Transient Reconstruction:** Ratio of attenuation, in percents.

Voice DeClick



The Voice DeClick module is specialized in removing mouth noises such as lip smacks, tongue clicks, etc.

- **Threshold:** Threshold above which click should be attenuated.
- **Width:** Width of the clicks.

- **Reduction Ratio:** Ratio of attenuation, in percents.
- [**Reduce Clicks / Reduce Signal**]: Choose to reduce the clicks or the signal.

Voice DeClip



Reconstruct clipped speech recordings.

- **Reconstruction Ratio:** Ratio of reconstruction, in percents.
- ☒ **Limiter:** When checked, will prevent the reconstructed signal to go above 0dB.

NOTE

Reconstructed peaks can go above 0dB, if you're not using the **Limiter** option you may need to reduce the volume of your layer (see the [Layers Panel](#)), or apply some amplitude reduction (using for instance the [Eraser](#) tool) where those peaks occurs to avoid re-clipping your signal.

Voice DeCrosstalk



The Voice DeCrosstalk module removes a secondary voice. The primary voice is defined as either the voice that starts first, or speaks the longest, or is the loudest.

- **Primary Voice:** Method to determine the primary voice: first to talk, longest to talk, or the loudest one.
- **Reduction Ratio:** Ratio of reduction, in percents.
- [**Reduce Secondary Voice / Reduce Primary Voice**]: Choose which voice to reduce.

Voice DeNoise



Attenuate background noise on voice recordings.

- **Background:** Type of background to remove: Noise or Music.
- **Reduction Ratio:** Ratio of attenuation, in percents.
- [**Reduce Background / Reduce Signal**]: Choose to reduce the noise or the signal.

NOTE

When using the Other Voice type (when 2 voices overlap), the module will reduce the voice with the lowest RMS.

Voice DeReverb



Attenuate reverb on speech recordings.

- **Reduction Ratio:** Ratio of attenuation, in percents.

Voice Enhance



Reconstruct high quality voice recording from poorly recorded materials. Damages such as loss of high frequencies, clipping, noise, reverb... can be eliminated with this voice resynthesis module.

- ☒ **DeNoise First:** When checked, this will apply a voice denoise pass first, which can generate better enhancement results.
- **Enhancement Ratio:** Ratio of enhancement, in percents.

NOTE

Because it's a generative process, it can potentially produce wrong voice reconstruction from particularly damaged audio.

Modules Chain



The **Modules Chain** is a special module hosting a chain of other modules.

Modules can be added to the list by drag and dropping them from the [Modules Panel](#) or clicking [**Add Module...**]. The list is processed from top to bottom, and can be cleared by clicking [**Clear**].

Once added to the list, each module can be customized with the following controls :

-  **Bypass:** When activated, this module won't be processed when clicking **Apply**.
-  **Settings:** When activated, the module dialog will be shown, and as long as the **Settings** icon is active, all parameters from this modules' dialog are registered in the chain.
-  **Selection:** When activated, drawing a selection in the spectrogram will register it for this specific module in the chain.
-  **Target Layer:** When activated, you can type a specific layer name this module should apply on (even if this layer doesn't exist yet, but will exist after a previous module in the list creates it). Further modules down the list will also use that layer.
-  **Delete:** Remove this module from the list.

See also [Batch Processing](#).

Preferences

Set application preferences, accessible via **Edit > Preferences...** (Windows) **SpectraForce > Preferences...** (macOS).

Device Preferences

Set playback (output) and record (input) device preferences.

- **Type:** Device API type.
- **Rescan:** Rescan devices for this API type.
- **Input:** Input device for record.
- **Output:** Output device for playback.
- **Buffer Size:** Size of the buffer for playback and record.
- ☒ **Use Preferred Buffer Size:** (*ASIO Only*) Use the ASIO device preferred buffer size instead of the user defined buffer size.
- **Sample Rate:** (*ASIO Only*) Sample rate of your ASIO device. Your project sample rate won't be affected.
- **[Show ASIO Panel]:** (*ASIO Only*) Show the configuration panel for the ASIO device you selected.
- **Input Channel Mapping:** Mapping of project channels to input device channels.
- **Output Channel Mapping:** Mapping of project channels to output device channels.
- ☒ **Smart remapping of unassigned project channels:** Automatically reassign project channels to the device channels you defined.
- ☒ **Solo channel is played on all assigned device channels:** When a project channel is soloed, play it on all available device channels.

Reset: Reset device preferences.

Interface Preferences

Set interface colors, behavior and layout.

Colors

- **Selection Border Color:** Set the color of the selection border.
- **Selection Mask Color:** Set the color of the selection mask (inside of the selection).

- **Selection Border Style:** Set the style of the selection border (marching ants, dashed, solid line, or nothing).
- **Selection Blending Mode:** Set the visual blending mode of the selection (normal or additive).
- **Cursor Crosshair Color:** Set the color of the cursor crosshair, when it is shown.
- **Cursor Coordinates Color:** Set the color of the cursor coordinates, when it is shown.
- **Grid Color:** Set the color of the unit grid, when it is shown.
- **Drawing Color:** Set the color of tools drawings (such as when defining a rectangle or any other shape).
- **Transport Color:** Set the color of the vertical playhead line.
- **Controls Color:** Set the color of the tools controls (such as when changing the corners of a rectangle or any other shape).
- **Markers Color:** Set the color of markers (both time and spectral).
- **Regions Color:** Set the color of regions (both time and spectral).
- **Mute Button Color:** Set the color of mute buttons in the **Channels Panel** and **Layers Panel**.
- **Solo Button Color:** Set the color of solo buttons in the **Channels Panel** and **Layers Panel**.
- **Polarity Button Color:** Set the color of polarity buttons in the **Layers Panel** (when viewed with the **Standard Layout**).
- **Active Item Color:** Set the color of active items in the **History Panel**, **Channels Panel** and **Layers Panel**.

See [Panels Area](#).

- **Waveform Luminosity:** Brightness of the waveform as shown in the **Waveform Display**. See [Waveform and Spectral Display Area](#).
- **Uncolored Layers Luminosity:** Brightness of layers when **Color Active Layer Only** is pressed. See [Layers Panel](#).
- **Interface Luminosity:** Brightness of the user interface.
- **VU Meter Gradient:** Gradient used by the VU Meter. See [Transport Bar](#).
- **Tooltips:** Enable or disable popup tooltips when hovering controls and widgets.

Default Transport Options

- ☒ **Return to Start Position on Stop**
- ☒ **Scrubbing**
- **Scrolling**

See [Playhead Behavior](#) for a description of these options.

Default View Layout

- **Layout File:** Layout file to load on SpectraForce startup. See [Show and Hide Interface Elements](#).
- **Remember Last Layout:** Store the current UI layout when SpectraForce closes, and recall

it next time the software starts.

- **Waveform Display Size:** Default vertical ratio between the **Waveform Display** and the **Spectral Display**
- **Language:** User interface language. A restart is needed if you change this setting.
- **DPI Scaling:** (Windows only) DPI scaling of the user interface. Auto will use the system or host DPI ratio.

Reset: Reset interface preferences.

Display Preferences

Set default display units, guides and parameters.

Default Unit and Scales

- Time Unit
- Frequency Unit
- ☒ Lock Spectrogram to 0Hz
- Power Unit
- ☒ Always Center Waveform
- Frequency Scale
- Smoothing Method

See [Define Units and Scales](#) for a description of each setting.

Default Display Options

- ☒ Cursor Crosshair
- ☒ Cursor Coordinates
- ☒ Markers and Regions
- ☒ Spectral Markers and Regions
- ☒ Grid
- ☒ Snap to Grid and Markers
- ☒ Always Show Scroll Bar

See [Show and Hide Guides](#) for a description of each setting.

Default Display Settings

Set the default values for each setting of the **Display Panel**.

- Channels View
- Layers View
- Amplitude
- Brightness Curve
- Selection Opacity

- **FFT Window**
- **FFT Size**
- **Resolution**

See [Channels Panel](#), [Layers Panel](#) and [Display Panel](#) for a description of each setting.

Reset: Reset display preferences.

System Preferences

Set application paths and resource management.

Paths

- **Cache Path:** Folder where temporary sessions and layers data are stored. You should not store permanent files here or in subfolders of this path.
- **Max Cache Recovery:** How long should data in the cache path should be kept before automatic cleaning.
- **Logs Path:** Folder where SpectraForce logs are stored. Logs are useful for debugging.
- **Maximum Logs:** Maximum number of logs to store. Older logs get deleted.
- **Presets Path:** Folder where to store layout, shortcuts and tools presets.
- **External Edits Path:** Folder where to store external edits, such as when calling an external editor or dragging a layer to the host in ARA mode.
- **Drag Mode:** Define the protocol to transfer layers to the host in ARA mode. VST-XML provides the best interaction, but may not be supported by all hosts.
- **VST3 Path:** Folder where VST3 plugins are stored.

Miscellaneous

- **Clips Grouping:** When used in ARA mode, you can choose to group imported clips sharing the same format into a single project (default behavior in SpectraForce 7 and earlier, best suited for music production) or import each clip into separate SpectraForce projects (best suited for post production).
- **Maximum Recent Projects:** Maximum number of projects to show in **File > Open Recent**. See [Creating and Opening a Project](#).
- **Maximum History Actions:** Maximum number of actions to show in the [History Panel](#).
- **Auto History Events Merging:** Maxime time between similar events to merge them as a single history event in the [History Panel](#).
- ☒ **Include Selection Events:** Whether or not to include selection events in the history. When selection events are not included, you can keep or change selections without affecting the history, and the selections are not affected by the undo and redo actions.
- **Realtime Brush Preview Limit:** Maximum number of samples a tool can handle for its realtime preview.
- **Free Space Warning Limit:** Minimum free space on your hard drive (where the cache folder is located) before the application triggers a warning.
- **AI Processing Device:** (Windows only) Select a GPU to accelerate AI processing. Supported GPUs: NVIDIA GeForce 900 (2015) and higher with at least 6GB VRAM, AMD

Radeon RX (2017) and higher with at least 6GB VRAM, Intel Arc (2022) and higher with at least 6GB VRAM

External

You can define up to 1 or 3 external editors, depending on your edition.

- **Path to External Editor:** Path to an external editor application. See [Editing in an External Editor](#).
- **Check Notifications...:** Check if there's any SpectraForce news or update.
- ☒ **Check notifications at startup:** Automatically check for news or updates.

Reset: Reset system preferences.

Shortcuts Preferences

Set application keyboard shortcuts and mouse behavior. More than 600 shortcuts can be defined for all kind of actions and presets loading and applying.

Keyboard

- **Filter:** Type here to quickly search for an action shortcut.
- **Press shortcut:** Define a new shortcut for the selected action by pressing keys in this field. Clicking the clear button or pressing a modifier key will clear the shortcut.
- **Reset:** Reset the selected action to its default shortcut.

See [Keyboard Shortcuts](#).

Mouse

- **Ctrl+Left Button:** Define what navigation tool to invoke when using the left mouse button and pressing **Ctrl** (Windows) **Cmd** (macOS).
- **Ctrl+Alt+Left Button:** Define what navigation tool to invoke when using the left mouse button and pressing **Ctrl** (Windows) **Cmd** (macOS) and **Ctrl** + **Alt** (Windows) **Cmd** + **Option** (macOS).
- **Middle Button:** Define what navigation tool to invoke when using the middle mouse button.
- **Ctrl+Middle Button:** Define what navigation tool to invoke when using the middle mouse button and holding **Ctrl** (Windows) **Cmd** (macOS).
- **Wheel:** Define what navigation action to invoke when using the mouse wheel.
- **Ctrl+Wheel:** Define what navigation action to invoke when using the mouse wheel while holding **Ctrl** (Windows) **Cmd** (macOS).
- **Alt+Wheel:** Define what navigation action to invoke when using the mouse wheel while holding **Alt** (Windows) **Option** (macOS).
- **Ctrl+Alt+Wheel:** Define what navigation action to invoke when using the mouse wheel while holding **Ctrl** (Windows) **Cmd** (macOS) and **Alt** (Windows) **Option** (macOS).
- **Middle Button+Wheel:** Define what navigation action to invoke when using the mouse wheel while holding the middle button.

NOTE

Holding the **Shift** key while using the mouse wheel will reverse its axes (vertical actions becomes horizontal actions, and vice-versa). Trackpads are bidirectional by nature.

Load...: Load shortcuts preferences

Save...: Save shortcuts preferences

Reset: Reset shortcuts preferences.

Appendix

Technical reference tables.

Support Info

The **Help** menu features a **Support Info** section with the following items :

Help > Support Info > Log Output

Display the current session log output.

Help > Support Info > Logs Folder

Open the folder that contains all session logs.

Help > Support Info > Diagnostics Folder

Open the folder that contains all crash reports.

Keyboard Shortcuts

Default keyboard shortcuts are platform dependents.

Windows Keyboard Shortcuts

Action	Keyboard Shortcut
Channels > Activate Above	Alt + Up
Channels > Activate Below	Alt + Down
Display > Decrease FFT Size	PgDown
Display > Increase FFT Size	PgUp
Display > Reset Zoom	Ctrl + 0
Display > Zoom Active Layer	Ctrl + 9
Display > Zoom Freq In	+
Display > Zoom Freq Out	-
Display > Zoom In	Ctrl + =

Action	Keyboard Shortcut
Display › Zoom Out	Ctrl + -
Display › Zoom Selection	Ctrl + 8
Display › Zoom Time In	=
Display › Zoom Time Out	-
Edit › Copy	Ctrl + C
Edit › Copy Special › Copy from All Frequencies	Alt + C
Edit › Copy Special › Copy from All Layers	Ctrl + Alt + C
Edit › Copy Special › Copy to Last Target	Shift + C
Edit › Copy Special › Copy to...	Ctrl + Shift + C
Edit › Copy Special › Copy to New Project	Alt + Shift + C
Edit › Cut	Ctrl + X
Edit › Cut Special › Cut to Last Target	Shift + X
Edit › Cut Special › Cut to...	Ctrl + Shift + X
Edit › Delete	Del Backspace
Edit › Heal › Heal Bi-Directionally	Ctrl + Del Ctrl + Backspace
Edit › Heal › Heal Horizontally	Alt + Del Alt + Backspace
Edit › Heal › Heal Vertically	Shift + Del Shift + Backspace
Edit › Paste	Ctrl + V
Edit › Paste Special › Paste and Mix	Ctrl + Alt + V
Edit › Paste Special › Paste to Last Target	Shift + V
Edit › Paste Special › Paste to...	Ctrl + Shift + V
Edit › Redo	Ctrl + Y
Edit › Undo	Ctrl + Z
File › Batch Process...	Ctrl + B
File › Close Project	Ctrl + F4
File › New Project...	Ctrl + N
File › Open...	Ctrl + O
File › Save Project	Ctrl + S
Help › Help	F1
Layer › Duplicate	Ctrl + J

Action	Keyboard Shortcut
Layer › Merge Up	Ctrl + E
Layer › Merge Visible	Ctrl + Shift + E
Layer › Mute	Ctrl + Alt + M
Layer › New Layer	Ctrl + Shift + N
Layer › Solo	Ctrl + Alt + S
Modules › Apply	Ctrl + Return
Modules › Bypass	Shift + B
Modules › Modules Chain...	Ctrl + M
Select › Deselect	Ctrl + D
Select › Invert Selection	Ctrl + I
Select › Invert Selection Frequencies	Ctrl + Shift + I
Select › Modify Selection...	Ctrl + Shift + M
Select › Reselect	Ctrl + Shift + D
Select › Select All	Ctrl + A
Select › Select Next Similar	F3
Select › Select Previous Similar	Shift + F3
Select › Select Similar...	Ctrl + F
Tools › 3D Perspective	3
Tools › Cursor Selection	I
Tools › Decrease Alternative Hardness	Alt + {
Tools › Decrease Aspect Ratio	{
Tools › Decrease Hardness	Alt + [
Tools › Decrease Size	[
Tools › Eraser	E
Tools › Hand	H
Tools › Increase Alternative Hardness	Alt + }
Tools › Increase Aspect Ratio	}
Tools › Increase Hardness	Alt +]
Tools › Increase Size	]
Tools › Lasso Selection	L
Tools › Marquee Selection	M
Tools › Playback	P
Tools › Selection Brush	B

Action	Keyboard Shortcut
Tools › Transform	T
Tools › Zoom	Z
Transport › Add Time Marker	Shift + M
Transport › Add Time Region	Shift + R
Transport › Loop Selection	Ctrl + L Audio Repeat
Transport › Move Left	Left Media Rewind
Transport › Move Right	Right Media Fast Forward
Transport › Move To End of Layer	End
Transport › Move To End of Project	Ctrl + End
Transport › Move To Start of Layer	Home
Transport › Move To Start of Project	Ctrl + Home
Transport › Next Time Event	Ctrl + Right Media Next
Transport › Next Time Marker	Alt + Right
Transport › Play	Enter Media Play
Transport › Play or Stop	Space Toggle Media Play/Pause
Transport › Preview	Ctrl + Shift + Space Ctrl + Shift + Toggle Media Play/Pause
Transport › Preview or Stop	Ctrl + Space Ctrl + Toggle Media Play/Pause
Transport › Previous Time Event	Ctrl + Left Media Previous
Transport › Previous Time Marker	Alt + Left
Transport › Record	Ctrl + R Media Record
Transport › Select End of Layer	Shift + End
Transport › Select End of Project	Ctrl + Shift + End
Transport › Select Left	Shift + Left
Transport › Select Next Time Event	Ctrl + Shift + Right
Transport › Select Next Time Marker	Ctrl + Alt + Shift + Right
Transport › Select Previous Time Event	Ctrl + Shift + Left
Transport › Select Previous Time Marker	Ctrl + Alt + Shift + Left
Transport › Select Right	Shift + Right

Action	Keyboard Shortcut
Transport › Select Start of Layer	Shift + Home
Transport › Select Start of Project	Ctrl + Shift + Home
Transport › Stop	0 Media Stop
View › Composite Layers View	C
View › Downmix Channels View	D
View › Fullscreen	F11
View › Selected Layers View	S
View › Toggle Compact All	Tab
View › Toggle Compact Panels	Shift + Tab
View › Unit Grid	G

macOS Keyboard Shortcuts

Action	Keyboard Shortcut
Channels › Activate Above	Option + Up
Channels › Activate Below	Option + Down
Display › Decrease FFT Size	PgDown
Display › Increase FFT Size	PgUp
Display › Reset Zoom	Cmd + 0
Display › Zoom Active Layer	Cmd + 9
Display › Zoom Freq In	+
Display › Zoom Freq Out	-
Display › Zoom In	Cmd + =
Display › Zoom Out	Cmd + -
Display › Zoom Selection	Cmd + 8
Display › Zoom Time In	=
Display › Zoom Time Out	-
Edit › Copy	Cmd + C
Edit › Copy Special › Copy from All Frequencies	Option + C
Edit › Copy Special › Copy from All Layers	Cmd + Option + C
Edit › Copy Special › Copy to Last Target	Shift + C
Edit › Copy Special › Copy to...	Cmd + Shift + C
Edit › Copy Special › Copy to New Project	Option + Shift + C

Action	Keyboard Shortcut
Edit › Cut	Cmd + X
Edit › Cut Special › Cut to Last Target	Shift + X
Edit › Cut Special › Cut to...	Cmd + Shift + X
Edit › Delete	Del Backspace
Edit › Heal › Heal Bi-Directionally	Cmd + Del Cmd + Backspace
Edit › Heal › Heal Horizontally	Option + Del Option + Backspace
Edit › Heal › Heal Vertically	Shift + Del Shift + Backspace
Edit › Paste	Cmd + V
Edit › Paste Special › Paste and Mix	Cmd + Option + V
Edit › Paste Special › Paste to Last Target	Shift + V
Edit › Paste Special › Paste to...	Cmd + Shift + V
Edit › Preferences...	Cmd + ,
Edit › Redo	Cmd + Shift + Z
Edit › Undo	Cmd + Z
File › Batch Process...	Cmd + B
File › Close Project	Cmd + W
File › Exit	Cmd + Q
File › New Project...	Cmd + N
File › Open...	Cmd + O
File › Save Project	Cmd + S
File › Save Project As...	Cmd + Shift + S
Help › Help	Cmd + ?
Layer › Activate Above	Up
Layer › Activate Below	Down
Layer › Duplicate	Cmd + J
Layer › Merge Up	Cmd + E
Layer › Merge Visible	Cmd + Shift + E
Layer › Mute	Cmd + Option + M
Layer › New Layer	Cmd + Shift + N
Layer › Solo	Cmd + Option + S
Modules › Apply	Ctrl + Return Cmd + Return

Action	Keyboard Shortcut
Modules › Bypass	Shift + B
Modules › Modules Chain...	Cmd + M
Select › Deselect	Cmd + D
Select › Invert Selection	Cmd + I
Select › Invert Selection Frequencies	Cmd + Shift + I
Select › Modify Selection...	Cmd + Shift + M
Select › Reselect	Cmd + Shift + D
Select › Select All	Cmd + A
Select › Select Next Similar	Cmd + G
Select › Select Previous Similar	Cmd + Shift + G
Select › Select Similar...	Cmd + F
Tools › 3D Perspective	3
Tools › Cursor Selection	I
Tools › Decrease Alternative Hardness	Option + {
Tools › Decrease Aspect Ratio	{
Tools › Decrease Hardness	Option + [
Tools › Decrease Size	[
Tools › Eraser	E
Tools › Hand	H
Tools › Increase Alternative Hardness	Option + }
Tools › Increase Aspect Ratio	}
Tools › Increase Hardness	Option +]
Tools › Increase Size	]
Tools › Lasso Selection	L
Tools › Marquee Selection	M
Tools › Playback	P
Tools › Selection Brush	B
Tools › Transform	T
Tools › Zoom	Z
Transport › Add Time Marker	Shift + M
Transport › Add Time Region	Shift + R
Transport › Loop Selection	Cmd + L Audio Repeat

Action	Keyboard Shortcut
Transport › Move Left	Left Media Rewind
Transport › Move Right	Right Media Fast Forward
Transport › Move To End of Layer	Ctrl + Right
Transport › Move To End of Project	Cmd + Down
Transport › Move To Start of Layer	Ctrl + Left
Transport › Move To Start of Project	Cmd + Up
Transport › Next Time Event	Option + Right Media Next
Transport › Next Time Marker	Cmd+]
Transport › Play	Enter Media Play
Transport › Play or Stop	Space Toggle Media Play/Pause
Transport › Preview	Ctrl + Shift + Space Ctrl + Shift + Toggle Media Play/Pause
Transport › Preview or Stop	Ctrl + Space Ctrl + Toggle Media Play/Pause
Transport › Previous Time Event	Option + Left Media Previous
Transport › Previous Time Marker	Cmd + [
Transport › Record	Cmd + R Media Record
Transport › Select End of Layer	Cmd + Shift + Right
Transport › Select End of Project	Cmd + Shift + Down
Transport › Select Left	Shift + Left
Transport › Select Next Time Event	Option + Shift + Right
Transport › Select Next Time Marker	Cmd + Option + Shift + Right
Transport › Select Previous Time Event	Option + Shift + Left
Transport › Select Previous Time Marker	Cmd + Option + Shift + Left
Transport › Select Right	Shift + Right
Transport › Select Start of Layer	Cmd + Shift + Left
Transport › Select Start of Project	Cmd + Shift + Up
Transport › Stop	0 Media Stop
View › Composite Layers View	C
View › Downmix Channels View	D

Action	Keyboard Shortcut
View › Fullscreen	Ctrl + Cmd + F
View › Selected Layers View	S
View › Toggle Compact All	Tab
View › Toggle Compact Panels	Shift + Tab
View › Unit Grid	G

Mouse Shortcuts

Default mouse shortcuts.

Mouse Navigation Tools Shortcuts

Mouse Shortcut	Tool
Ctrl + Left Button	Playback
Ctrl + Alt + Left Button	3D
Middle Button	Hand
Ctrl + Middle Button	Zoom

Mouse Navigation Actions Shortcuts

Mouse Shortcut	Action
Wheel	Horizontal Zoom (⇅) and Scroll (↔)
Ctrl + Wheel	Zoom
Alt + Wheel	Scroll
Ctrl + Alt + Wheel	3D
Middle Button + Wheel	Zoom

Command Line Options

SpectraForce can be called with various command line options. [] means optional arguments.

Launch options

These options only work when SpectraForce is launched for the first time.

Command	Description
-reset	Reset every settings.
-dpiscaling SCALE	(Windows only) Forces the dpi scaling of the application. SCALE for a non high-dpi screen would be 1, otherwise it would typically be 2.
-cpu INSTRUCTIONSET	Limits optimizations to the specific INSTRUCTIONSET. Possible values are sse4.2, avx, avx2, avx512.
-threads X	Forces multi-threading to X threads.
-language X	Forces language to X, where X can be an ISO 639-1 code or a path to a .qm file.
-debug	Write more detailed log files.

Session options

These options can be called at launch or when a SpectraForce session is already active.

Calling SpectraForce with options when a session is active will result in these options being transferred to the active session.

Command	Description
-deviceapi [API]	Changes the active device to API. API must be an existing Type in Device Preferences. If API is not defined, it will switch back to the previously active API.
-edit FILE [START]	Open FILE as a new project with START as the first sample position. If START is not defined, it will start at 0.
-merge FILE [START]	Import FILE as a new layer into the active project, with START as the first sample position. If START is not defined, it will start at 0.
-replace FILE [START]	Replace any project created from the same FILE, with START as the first sample position. If START is not defined, it will start at 0.
-close FILE	Close any project created from FILE.
-forceclose FILE	Close any project created from FILE without asking any question.
-parent APPLICATION	When opening a file with the above commands, define an application name that will be used for the Export Back text strings

Command	Description
-server SERVERNAME	Gets socket notification sent to SERVERNAME for specific events (0: importing file, 1: file imported, 2: exporting file, 3: file exported, 4: file closed)
-timerange START LENGTH	Zoom the current project to the specified time range (in samples)
-freqrange BOTTOM HEIGHT	Zoom the current project to the specified frequency range (in hertz)

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