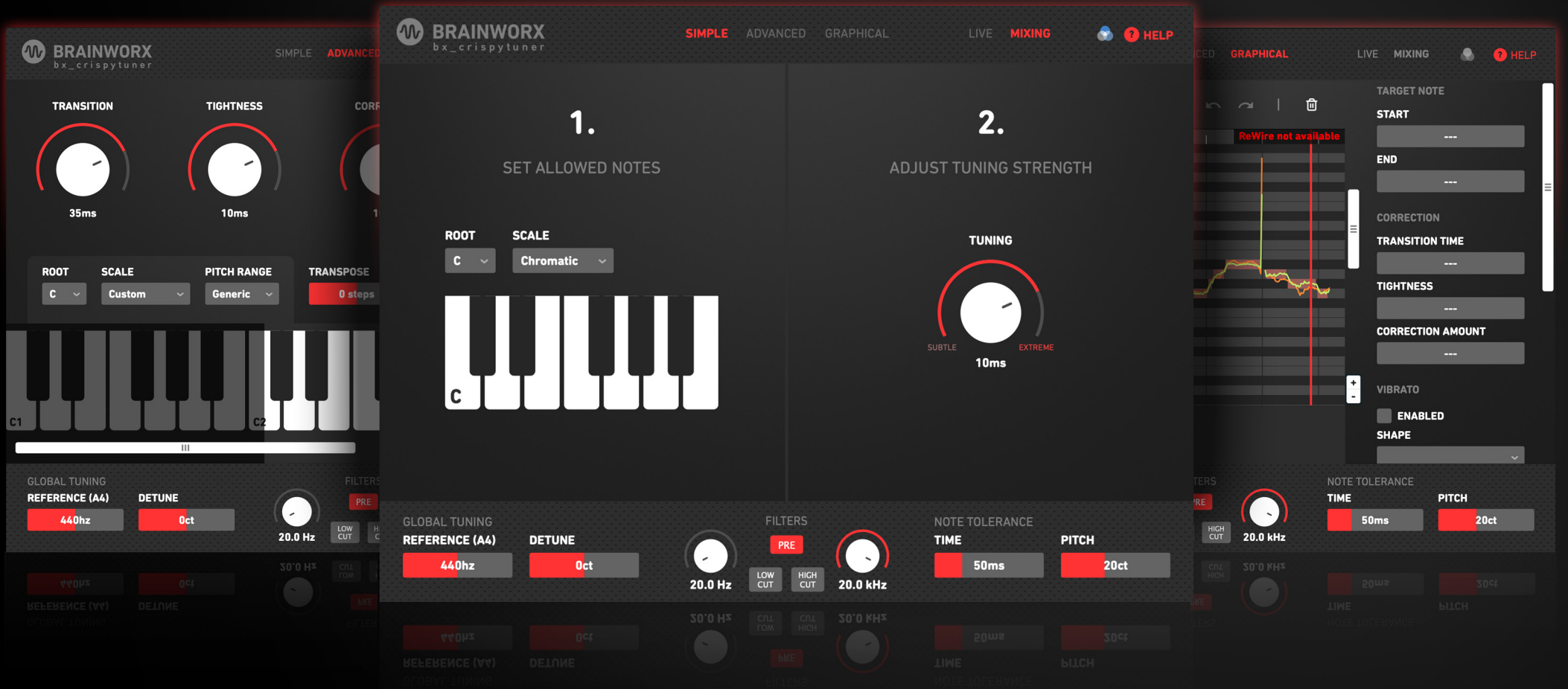
bx_crispytuner

Plugin Manual



Developed by Brainworx Audio and distributed by Plugin Alliance.

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bx_crispytuner

Plugin Manual

Introduction

Ever since its invention in the late 1990s, vocal tuning has played an integral role in music production. Its usage has become so widespread that these days, a vocal tuning plugin can't be missed in any musician's repertoire.

The bx_crispytuner provides an intuitive way to apply vocal tuning to your tracks - no matter if you're a professional musician or a hobbyist who's just starting out. It allows anybody to set up industry standard vocal tuning in no time, even without any prior knowledge in the area.

Thanks to its powerful live mode, it is equally suitable for live performances as it is for post-processing of recorded vocals. You can hear yourself with the effect applied while recording a song or rocking the stage, which allows you to perform in confidence without having to worry about pitch insecurities.

bx_crispytuner

Plugin Manual

Setup

First of all, add the bx_crispytuner plugin to an audio track in your DAW. The bx_crispytuner should always be the first plugin in the effect chain, as it works best on an unmodified audio signal.

We highly recommend you to enable input monitoring in your DAW so that you can hear yourself while recording with the vocal tuning applied; this makes performing much more satisfying and allows you to explore the different sounds you can achieve with the bx_crispytuner more easily.

The bx_crispytuner only processes monophonic input, therefore stereo tracks are tuned by taking the average of the two channels as the input signal.

bx_crispytuner

Plugin Manual

The basics of vocal tuning

Vocal tuning works by measuring the pitch of your voice and then correcting it towards the closest note on the song's scale.

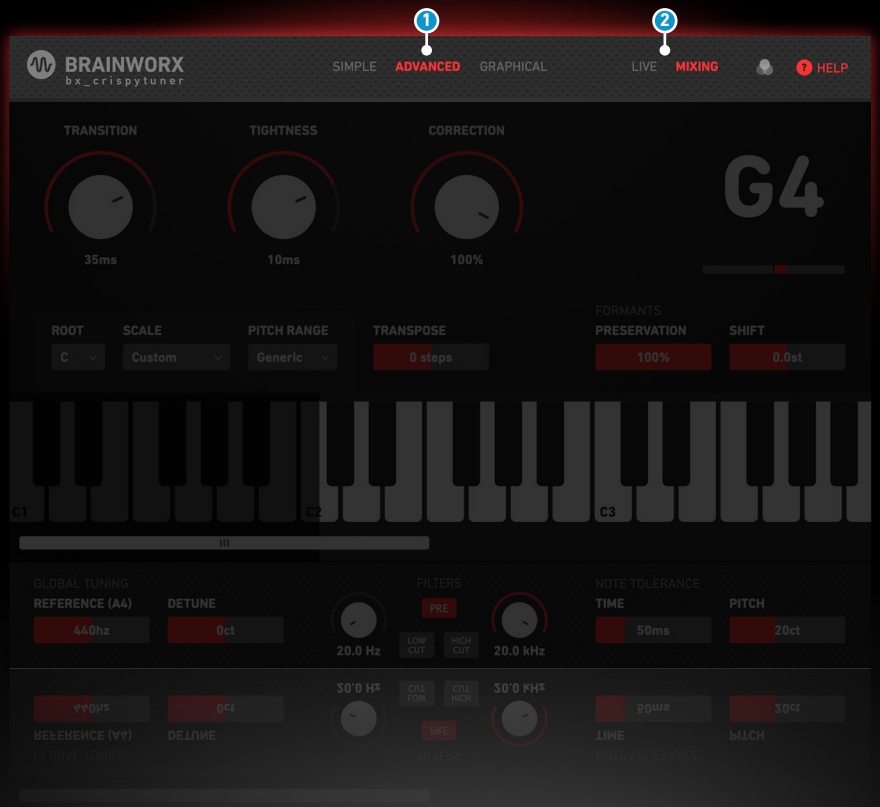
Therefore, it is vital that you set the right scale when using the bx_crispy-tuner so that all the output notes fit the song and nothing sounds off-key.

If you don't know the song's scale, you can use the bx_crispyscale to automatically detect it. This makes it easy to get started right away.

The transition time and tightness settings allow you to adjust how strongly the bx_crispytuner corrects the pitch of your voice towards this scale, allowing you to specify how strong the vocal tuning effect is.

bx_crispytuner

Plugin Manual



Navigation bar

At the top of the user interface, the navigation bar shows you some general settings that allow you to use the bx_crispytuner in different ways. The navigation bar with advanced mode and mixing mode enabled.

1 Operating

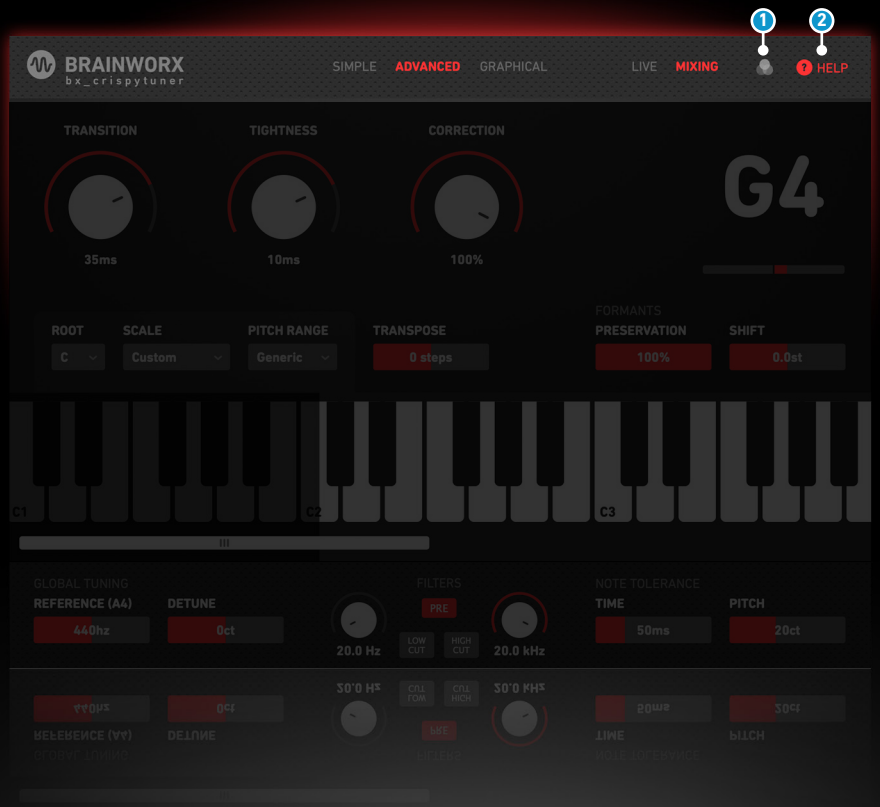
The bx_crispytuner's user interface is divided into three operating modes, which each provide a different way of controlling the vocal tuning. The operating mode can be chosen in the center of the navigation bar. These operating modes are explained in detail later in this document.

2 Live/Mixing mode

The bx_crispytuner is optimized to work in a live environment as well as when mixing songs in the studio. To fit your usecase as well as possible, you can switch between live and mixing mode in the right half of the navigation bar. When you want to hear yourself with no latency, e.g. while recording or performing live on stage, enable live mode. When you have a recorded vocal track that you want to tune, switch to mixing mode - this does introduce low latency. Please use Mixing Mode when bouncing/exporting tracks.

bx_crispytuner

Plugin Manual



1 UI Color

Changes the primary color of controls and indicators.

2 Help

At the very right of the navigation bar, you can toggle quick help. When enabled, hovering over any part of the user interface shows a tooltip explaining the feature and how to use it. This is helpful for both new and existing users, as it allows you to quickly get an explanation without having to consult this manual.

bx_crispytuner

Plugin Manual

Global Settings

Some settings are relevant to all operating modes. These can be found at the bottom of the user interface.

Global Settings / Global tuning

1 Reference pitch (A4)

Specifies the reference frequency of the musical note A4. For the bx_crispytuner to produce perfectly tuned vocals, this setting must match the tuning of the instruments used in your song. 440hz is the most common tuning in modern music. When in doubt, leave it at that value.

2 Detune

Shifts the pitch of the output signal by the given amount. This can be used to easily transpose the signal or to detune it for artistic purposes. A common use case is to slightly detune backing vocals to get a richer vocal sound.

bx_crispytuner

Plugin Manual

Global Settings / Filters

1 Low Cut

With the Low Cut you can remove unwanted low-end frequencies on the incoming signal for more accurate tuning of problematic recordings.

2 High Cut

With the High Cut you can remove unwanted high-end frequencies on the incoming signal for more accurate tuning of problematic recordings.

3 Pre / post

This allows you to add the filter before or after our tuning algorithm.

Pre::

The signal is filtered before the tuning algorithm, so you can eliminate any unwanted frequencies from problematic recordings, resulting in more accurate tuning.

Post:

The signal is filtered after our tuning algorithm, this allows you to clean up any frequencies that could clutter up your mix.

bx_crispytuner

Plugin Manual

Global Settings / Note tolerance

By default, the bx_crispytuner always tunes the input signal towards the closest allowed note on the keyboard. Sometimes, this can be undesirable, for example when a singer's pitch drifts off for a very short time even though they intended to stay on the same note.

The following two settings, located in the lower right corner of the GUI, allow you to specify thresholds that make the bx_crispytuner less eager to change the target note - the new note is only chosen when both criteria are met.

1 Time tolerance

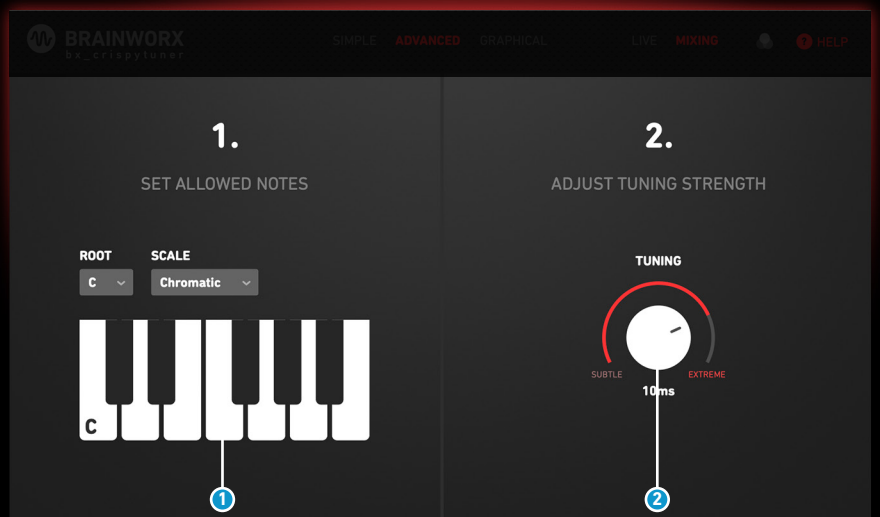
The duration for which a note must be held to be chosen as bx_crispytuner's new target note. Higher values are more forgiving for short pitch insecurities, while lower values may result in unwanted note transitions.

2 Pitch tolerance

How much closer the input pitch must be to a note for it to be chosen as the new target note. For example, if this value is set to 10ct and the currently held note is an F, the input pitch would need to be 10 cents closer to an F# than to an F for the output note to change.

bx_crispytuner

Plugin Manual



Simple Mode

The simple mode shows only the most important of the bx_crispytuner's settings. This makes it easy to get started without being overwhelmed by too many options. It highlights the two simple steps you need to take to get vocal tuning set up quickly.

1 Keyboard

As explained in the introduction, it is essential that you set the correct scale. This lets the bx_crispytuner know which notes it should tune your vocals to, and which notes to avoid.

You can do this by choosing the root key and scale from the respective dropdowns above the keyboard display.

You can also click individual notes to toggle them. Disabled notes are grayed out on the keyboard, indicating that the bx_crispytuner won't tune the voice to them. When tuning the signal, the current output note is highlighted.

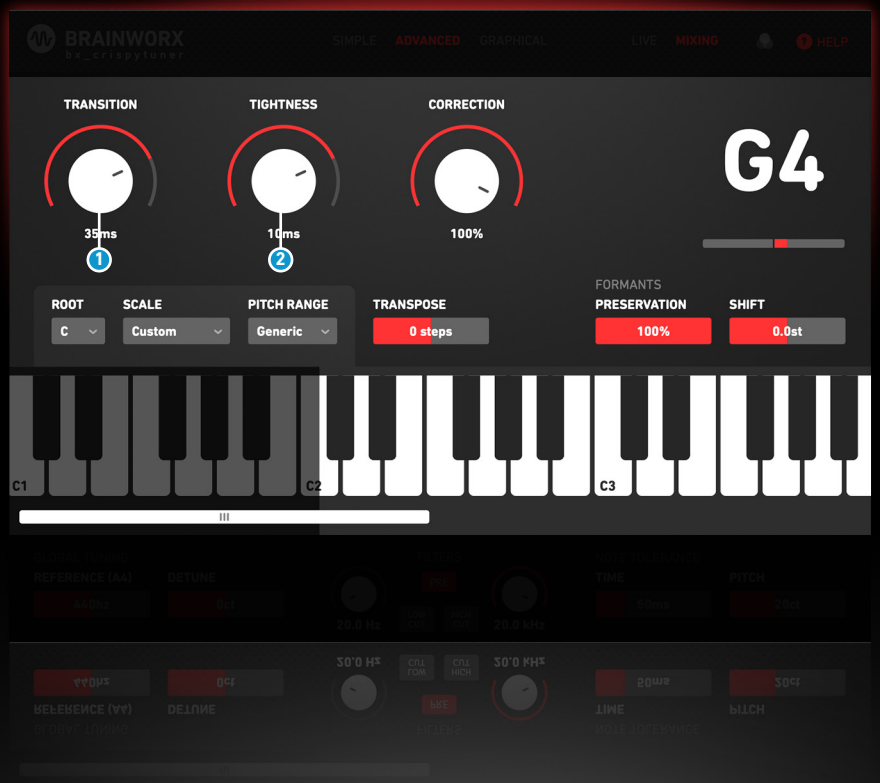
2 Tuning

The Simple Mode offers a tuning knob that allows you to quickly adjust the overall strength of the vocal tuning.

Setting this to a faster value by turning it to the right results in a stronger vocal tuning effect, while slower values produce a more subtle effect. Internally, this setting modifies both the transition time and tightness, which can be adjusted individually in advanced mode.

bx_crispytuner

Plugin Manual



Advanced Mode

Advanced mode contains the same settings as simple mode, but gives you more options to finetune the sound of the vocals.

It also allows you to apply creative effects to your voice, like formant shifting or transposing.

1 Transition time

How quickly the output pitch jumps to the new note after a note change.

Fast values result in sudden pitch changes, which may be a desired creative effect.

Slower values make the vocal tuning effect less noticeable during note transitions.

2 Tightness

During a held note, tightness is how closely the output pitch is kept to the current target note.

Faster values result in a flat pitch curve, without much deviation from the target note.

Slower values allow for more variation in the output pitch, giving the vocalist more expressive freedom and making the vocal tuning effect less noticeable.

bx_crispytuner

Plugin Manual

1 Correction amount

How much of the determined pitch curve is actually applied to the output pitch.

Setting this to 0% disables all pitch correction while setting it to 100% fully uses the pitch curve determined by other settings like transition time and tightness.

2 Pitch Meter

The pitch meter shows bx_crispytuner's current target note, i.e. the note that the pitch is being corrected towards.

The bar beneath the target note indicates how much correction is currently being applied to the input signal.

3 Scale transpose

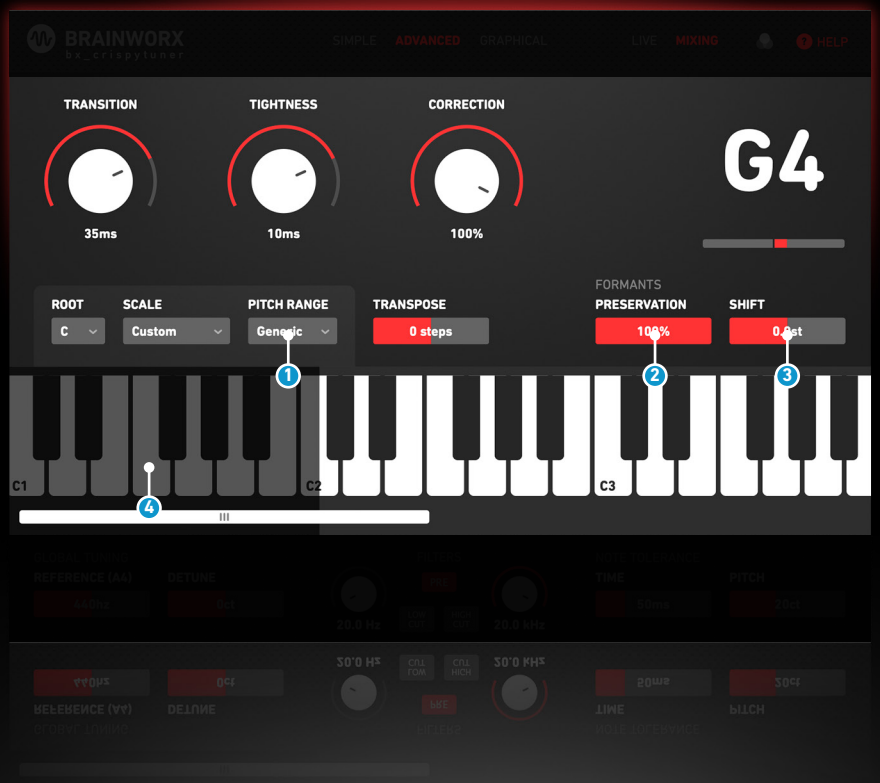
Transposes the vocals by a given amount of steps on the scale. This ensures that the resulting melody is still in the same key as the original melody.

For example:

When transposing by 2 steps on the C major scale, an A would be changed to a C. This feature can be used to quickly create vocal harmonies.

bx_crispytuner

Plugin Manual



1 Pitch detection range

The dark overlay over the keyboard narrows down the range in which the bx_crispytuner detects the pitch of the input signal.

Setting this range based on the pitch of the expected input signal helps the pitch detection algorithm yield better results.

2 Formant preservation

How much of the voice's original formants to keep when correcting the pitch up or down.

Setting this to lower values makes extreme pitch corrections more audible, as the tonality is affected more. This can be useful when an audible vocal tuning effect is desired, as it emphasizes fast note transitions even more.

3 Formant shift

Shift the formant, making the voice sound higher or lower without affecting its pitch.

Shifting the formant up results in a chipmunk-like voice effect, while shifting it down makes the voice sound deeper.

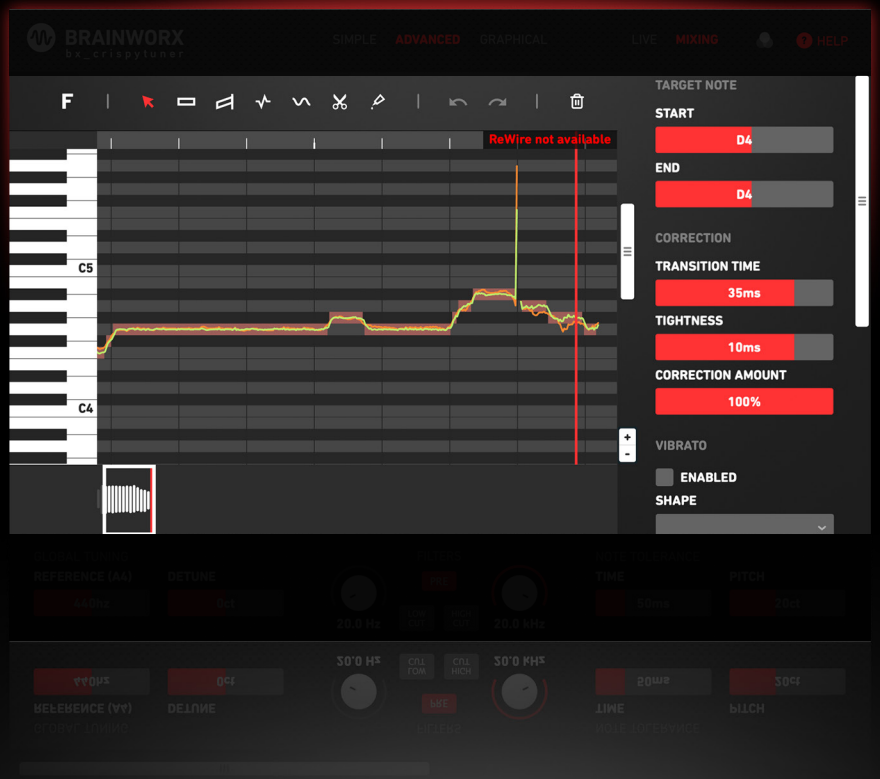
4 Keyboard

In advanced mode, the whole keyboard spanning all octaves is shown.

When holding Shift while clicking on a key, you toggle the respective note's legality only on that octave.

bx_crispytuner

Plugin Manual



Graphical Mode

To get started, put the bx_crispytuner on the vocal track that you want to tune, switch to the graphical mode and play the audio track in your DAW.

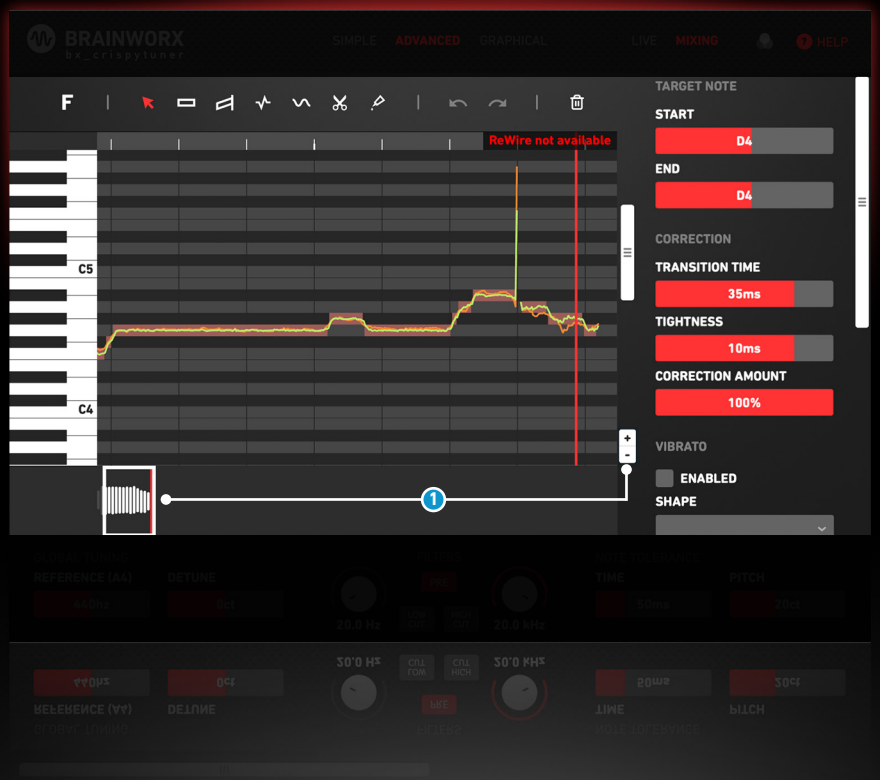
The bx_crispytuner will then create note objects for every separate target note that it determines, each of which can be individually manipulated later on.

When creating note objects, the graphical mode uses the settings you made in simple/advanced mode to tune the signal.

This includes the scale, transition time, tightness, correction amount and formant shift.

bx_crispytuner

Plugin Manual



1 Navigation

The area in which the pitch curve and note objects are displayed is called the graph view. To quickly move the visible area of the graph view, hold down the middle mouse button while dragging horizontally or vertically.

To zoom in, hold the Ctrl key (Cmd on macOS) and use the scroll wheel with the mouse over the graph view.

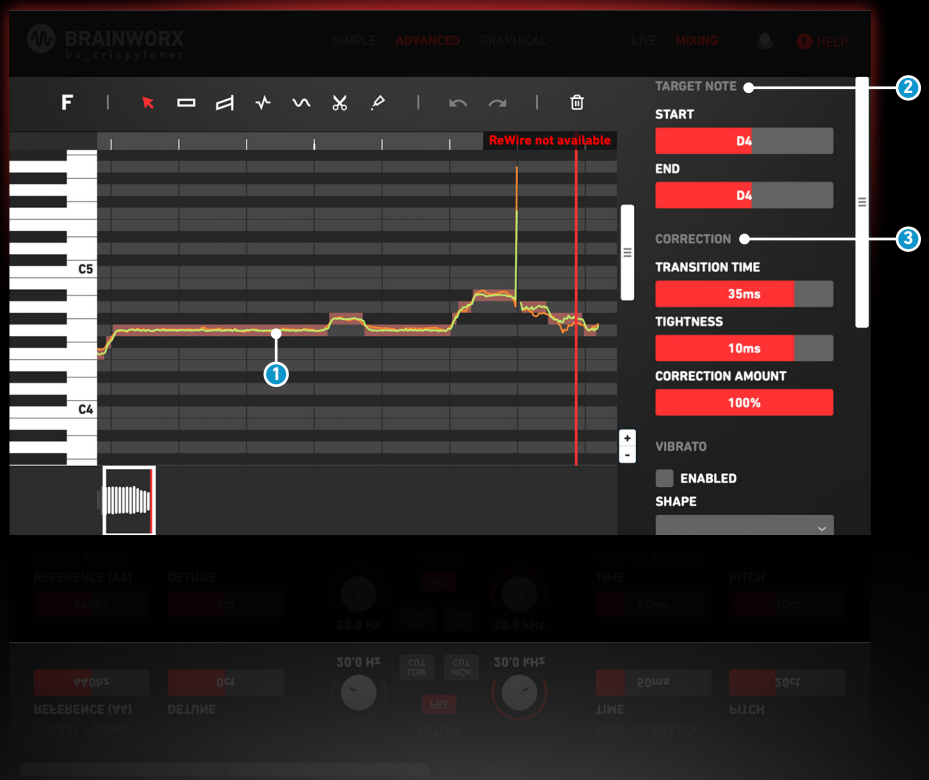
You can also use the +/- keys to zoom in and out. You can use the scroll wheel to scroll vertically. When holding Shift while scrolling, you scroll horizontally instead.

You can also navigate using the scroll bars at the bottom and right of the graph view.

The scroll bar at the bottom shows the waveform of the recorded audio in the background for easier orientation. You can zoom in and out by dragging the corners of these scroll bars.

bx_crispytuner

Plugin Manual



1 Note objects

Note objects control the tuning properties of a segment of the pitch curve. You can click on a note object to select it. To select multiple note objects, click outside of a note object and drag the mouse across all note objects that you want to select.

When a note object is selected, you can use the left and right arrow keys to select the previous/next note object.

When one or multiple note objects are selected, you can edit their properties in the sidebar on the right of the screen.

These are the properties you can modify for each note object:

2 Target note

The note that the note object is centered on. The value at the start and end of the note object can differ, creating a pitch slope.

Dragging the start value also modifies the end value accordingly, while modifying the end value only changes the end value.

Creating a slope is rarely needed, but it can be used to achieve unique portamento effects.

3 Correction

Affects the strength of the pitch correction applied to the note object.
The effects of transition time, tightness and correction amount on the pitch curve are explained in the section covering the advanced mode.

bx_crispytuner

Plugin Manual

1 Vibrato

Allows you to add synthetic vibrato to a note object. This can be used for realistic vibrato as well as for crazy creative effects.

2 Enabled

Whether the synthetic vibrato is enabled. By default, it is enabled but doesn't have any effect, because the default amplitude is zero. Allows you to quickly toggle the vibrato without having to change the amplitude.

3 Shape

The vibrato's shape. The sine wave yields results that sound the most human, but other shapes like the square or saw wave can be used creatively for interesting effects.

4 Amplitude

The maximum deviation that the vibrato will add to the pitch curve, in cents.

5 Frequency

The speed of the vibrato. Higher values result in a faster vibrato.

6 Pre-delay

The time before the vibrato starts on that note object.

7 Post-delay

The time before the end of the note object at which the vibrato stops.

8 Fade-in

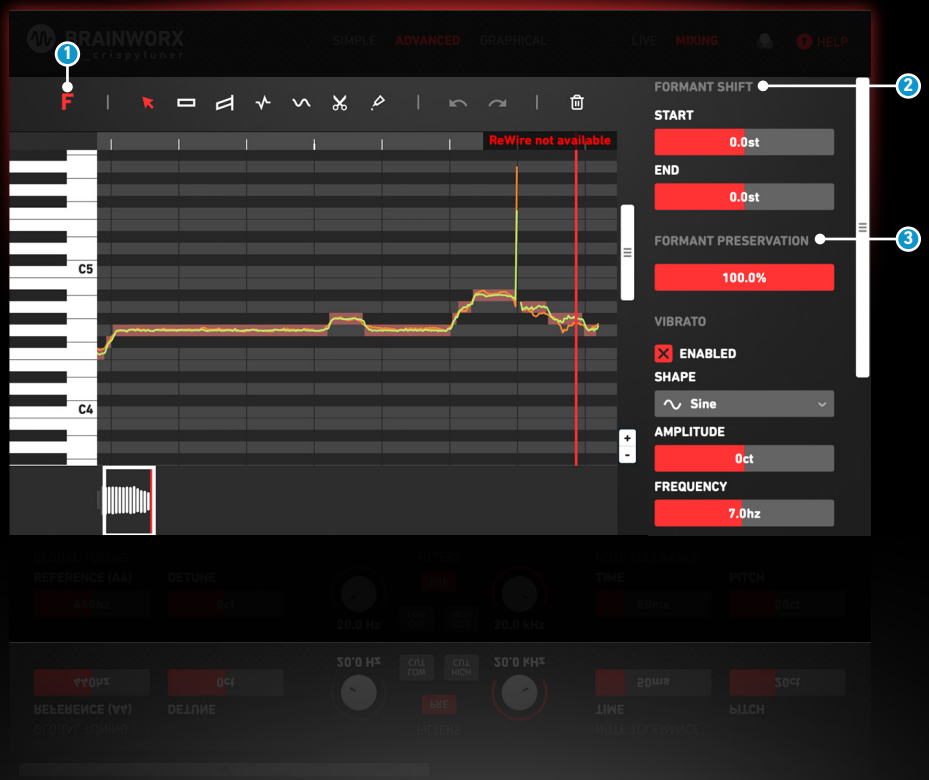
The duration over which the vibrato is faded in.

9 Fade-out

The duration over which the vibrato is faded out.

bx_crispytuner

Plugin Manual



1 Formant editing mode

The F button in the upper left corner allows you to switch from the default note editing mode to formant editing mode. In this mode, you work on formant objects instead, allowing you to manipulate each object's formants individually.

In formant editing mode, the formant curve is rendered in white on top of the pitch curve, showing how formants deviate from the output pitch.

You can also use the F key to switch between note editing and formant editing. In formant editing mode, selecting one or multiple formant objects allows you to edit the following properties:

2 Formant shift

The effect of formant shifting is explained in the section about the advanced mode.

The value at the start and end of the formant object can differ, creating a slope. Dragging the start value also modifies the end value accordingly, while modifying the end value only changes the end value.

Formant slopes can be used to create interesting effects where the voice colour changes during a note.

3 Formant preservation

The effect of formant preservation is explained in the section about the advanced mode.

bx_crispytuner

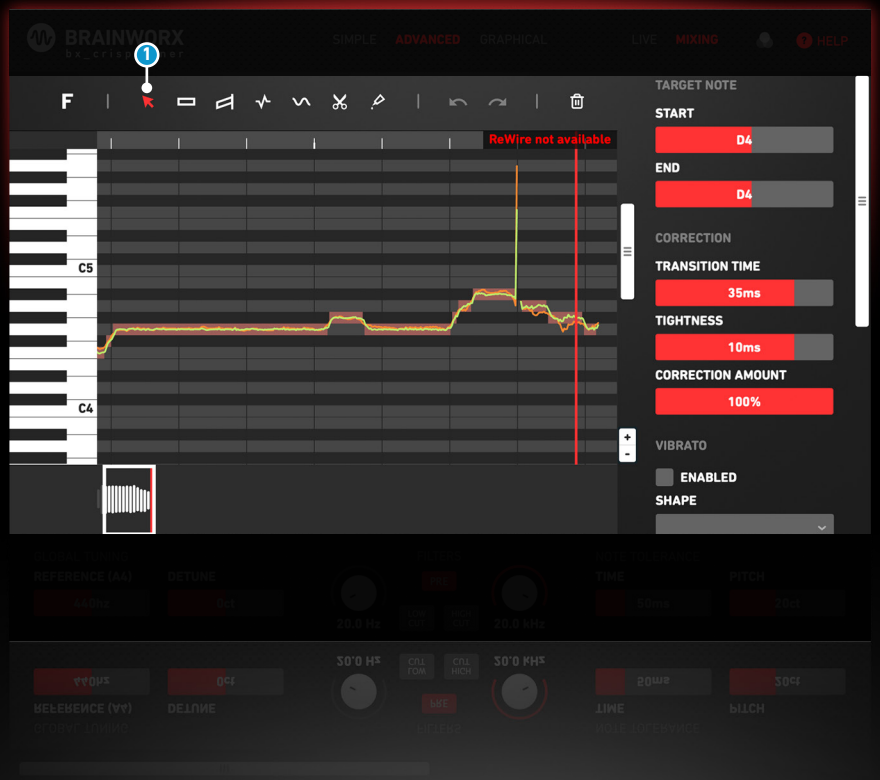
Plugin Manual

1 Vibrato

Has the same properties as in note editing mode, but the vibrato is applied to the formant instead.

bx_crispytuner

Plugin Manual



Tools

The graphical mode gives you different tools to modify note and formant objects more efficiently.

These tools can be selected from the toolbar above the graph view.

You can also use the number keys 1 - 7 to quickly select a tool.

1 Drag tool

Drag note objects up or down to change their target note.

When holding Shift while dragging, you can finely adjust the pitch without snapping to semitones.

Drag the edges of note objects to move their boundaries.

In formant editing mode, dragging a formant object up or down changes its formant shift.

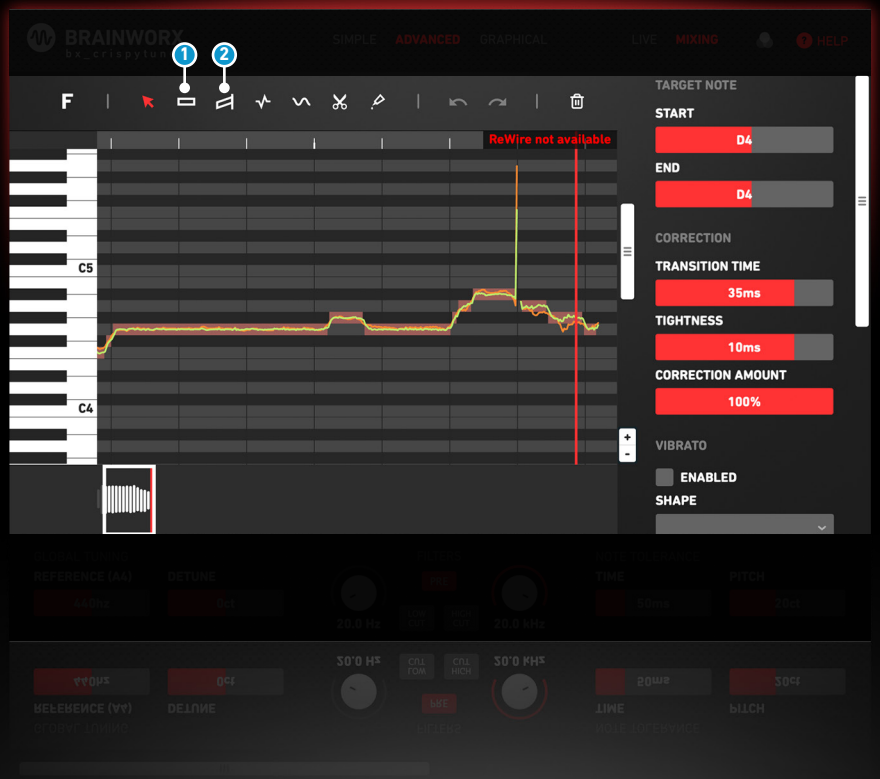
You can also use the up/down arrow keys to change the target note of selected note objects.

When holding Shift, you can prevent it from jumping only to notes that are allowed on the scale.

These hotkeys do not require the drag tool to be active.

bx_crispytuner

Plugin Manual



1 Target note tool

Click and drag horizontally to change the target note of all note objects in the range.

When holding Shift while dragging, you can prevent the horizontal range from snapping to the boundaries of nearby note objects.

In formant editing mode, this tool affects the formant shift of the formant objects in range.

You can also use the M key to move selected note objects to the position of your cursor.

This hotkey does not require the target note tool to be active.

2 Slope tool

Drag a note object's left or right edge up or down to change the target note only at its start/end, creating a slope.

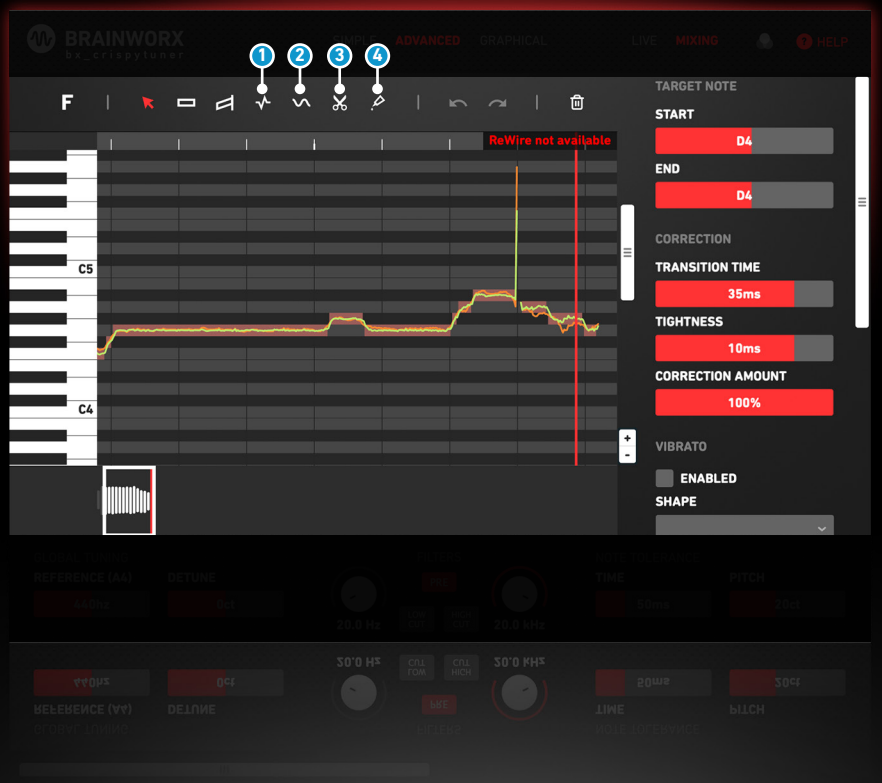
When holding Shift while dragging, you can finely adjust the pitch without snapping to semitones.

When multiple note objects are selected, holding Alt while dragging creates a continuous slope across all selected objects.

In formant editing mode, dragging the edges of a formant object creates a slope in its formant shift.

bx_crispytuner

Plugin Manual



1 Tuning tool

Drag up/down to increase/decrease the transition time and tightness of selected note objects.

In formant editing mode, the formant preservation is modified instead.

2 Vibrato tool

Drag up/down to change the vibrato amplitude of selected note objects. Drag left/ right to change the vibrato frequency.

In formant editing mode, the formant's vibrato is modified instead.

3 Split tool

Clicking a note object splits it into two objects at the location of the cursor.

You can also use the T key to split objects into two at the location of the cursor. This hotkey does not require the split tool to be active.

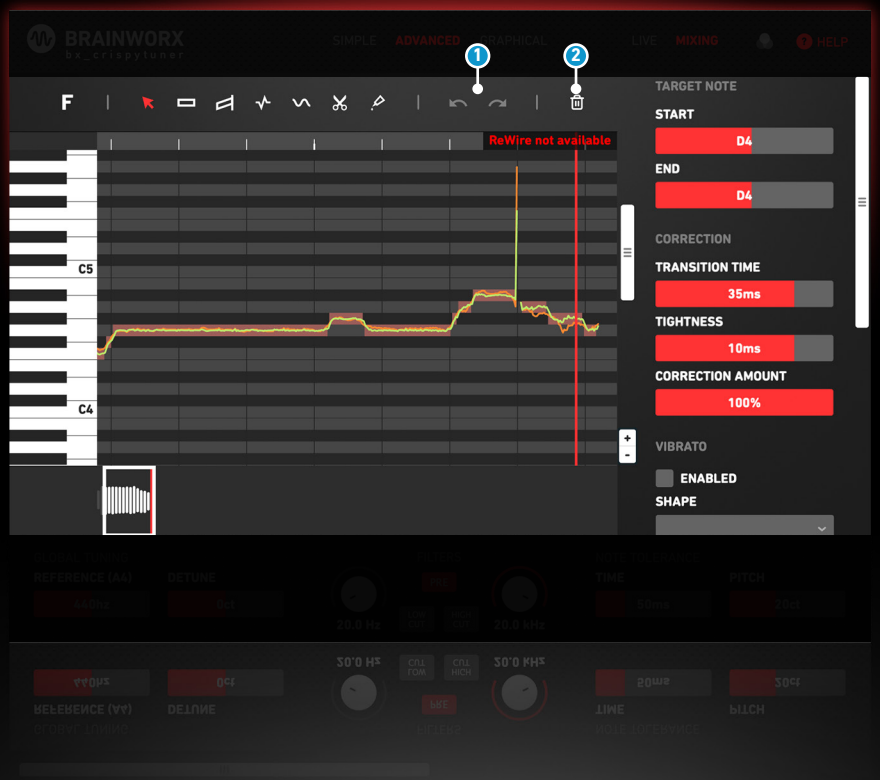
4 Glue tool

Clicking a note object merges it with an adjacent note object to the right. If multiple note objects are selected, it merges all of them into the one that was clicked.

You can also use the G key to glue objects together at the location of the cursor. This hotkey does not require the glue tool to be active.

bx_crispytuner

Plugin Manual



1 Undo/redo button

The undo button undoes the most recent change to the note and formant objects. The redo button redoes the most recently undone change.

You can also use the Z key to undo the most recent change. To redo, hold Shift while pressing Z.

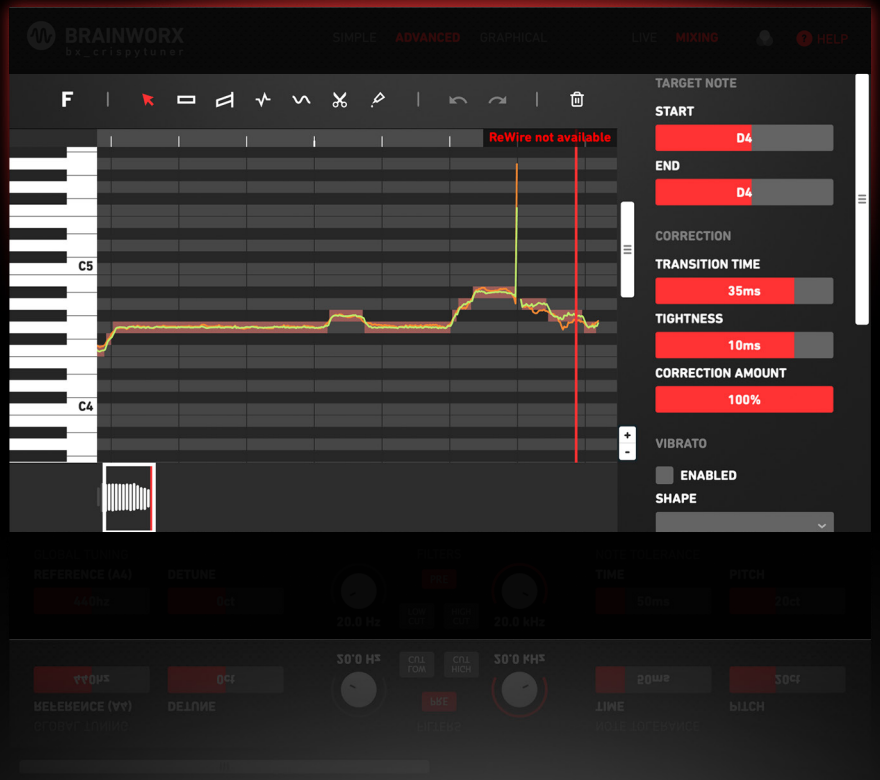
2 Delete button

Removes all selected note objects, allowing you to re-scan a portion of the audio. If no objects are selected, it clears the entire graph.

You can also use the Delete key to remove all selected objects.

bx_crispytuner

Plugin Manual



Hotkeys

These are all the hotkeys available in graphical mode:

F

Toggles formant editing mode.

1-7

Selects a tool.

T

Splits note objects at the position of the cursor.

G

Glues note objects to the object at the position of the cursor.

M

Moves all selected note objects to the note at the position of the cursor.

A

Selects all note objects.

Shift + A

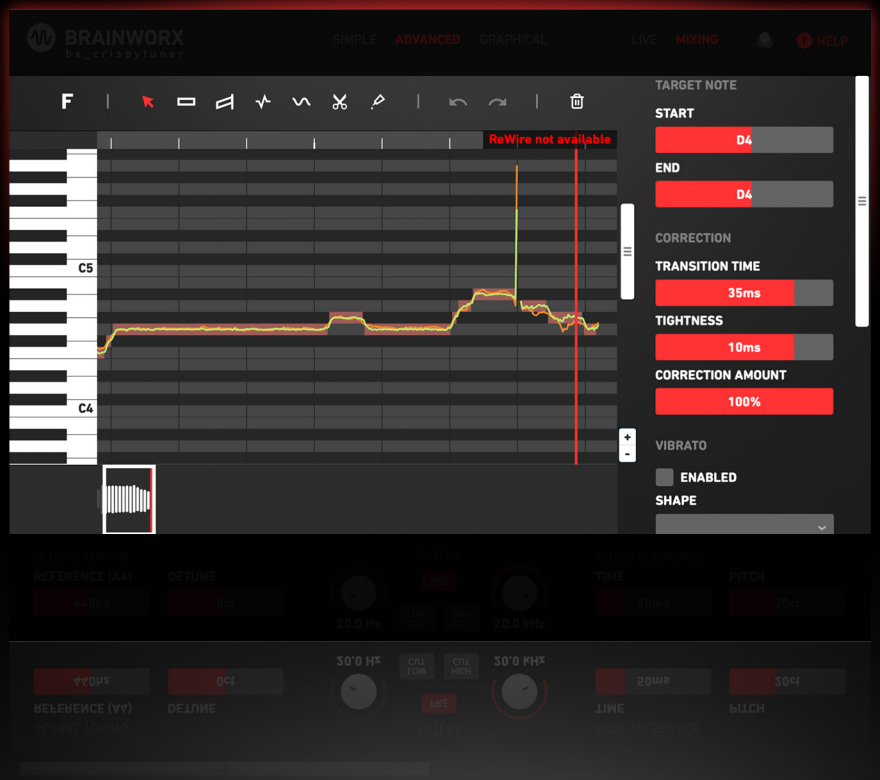
Deselects all note objects.

Delete

Removes all selected note objects.

bx_crispytuner

Plugin Manual



Z

Undoes the previous action.

Shift + Z

Redoes the previously undone action.

+

Zooms in.

-

Zooms out.

↑

Moves the selected note objects up one step on the scale.

Hold Shift to move by one semitone, disregarding the scale.

↓

Moves the selected note objects down one step on the scale.

Hold Shift to move by one semitone, disregarding the scale.

←

Selects the previous note object. Hold Shift to add to the current selection.

→

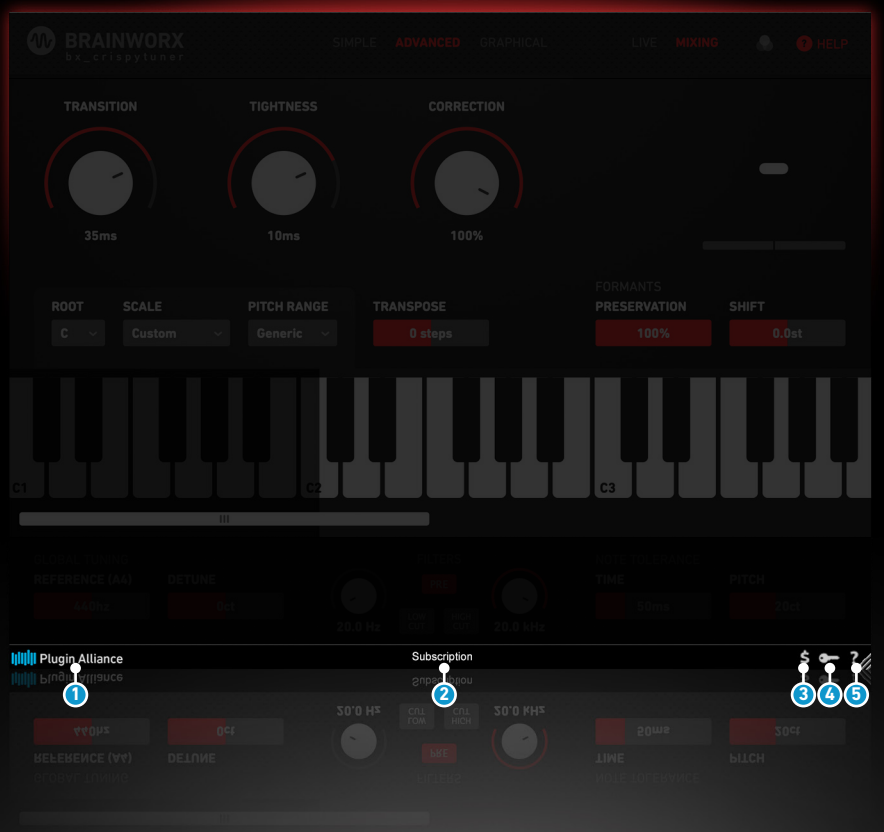
Selects the next note object. Hold Shift to add to the current selection.

Spacebar

Starts/stops playback in the DAW.

bx_crispytuner

Plugin Manual



Plugin Alliance Toolbar

1 Logo

Clicking the Plugin Alliance logo takes you to the Plugin Alliance website via your web browser, that's if your computer is online.

2 License Type

The toolbar displays information about the type of license you're running: Trial licenses will be displayed along with the number of days until expiration; there is no note for full licenses as these are unlimited.

3 $ (Icon)

If you are using a demo / trial version of our products, you can always click this icon to open a browser that redirects you to the respective product page in the Plugin Alliance store. This is where you can easily purchase a product without having to look it up on our website.

4 Key (Icon)

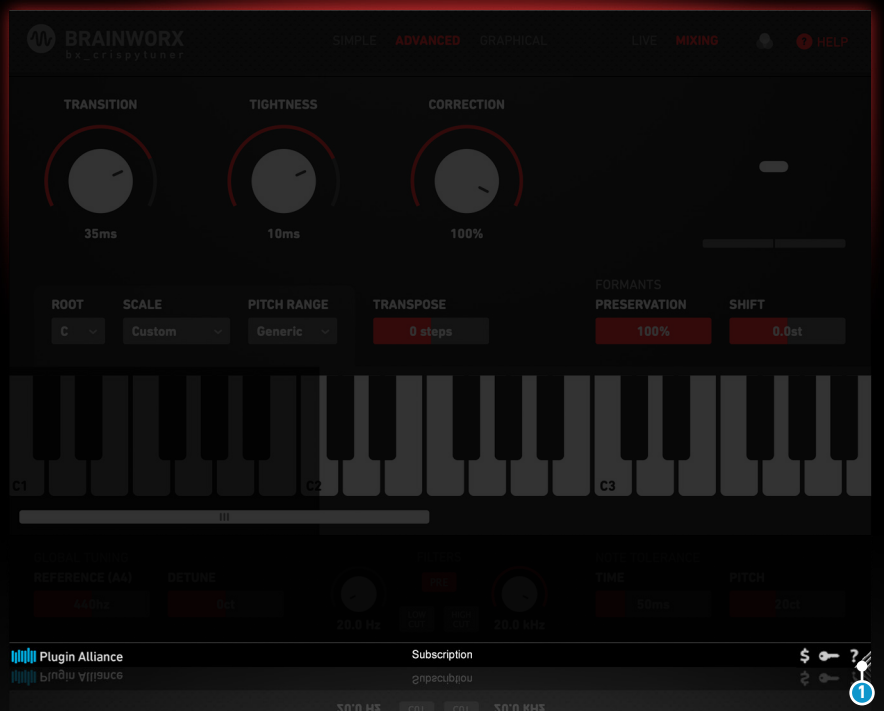
Clicking on the key icon brings up the activation dialog, allowing you to manually reauthorize a device in the event of a license upgrade or addition. You can also use this feature to activate additional computers or USB flash drives.

5 ? (Icon)

Clicking the ? icon opens up a context menu that links to the product manual PDF, as well as other helpful links, e.g. to check for product updates online. You must have a PDF reader installed on your computer to be able to read the manual.

bx_crispytuner

Plugin Manual



1 Resize

Adjust the overall size of the plugin by clicking and dragging accordingly.

System Requirements & FAQ (Links)

For latest System Requirements & Supported Platforms

https://www.plugin-alliance.com/en/systemrequirements.html

Particular details for your product

https://www.plugin-alliance.com/en/products.html

Installation, Activation, Authorisation and FAQ's

https://www.plugin-alliance.com/en/support.html

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pffft

by Julien Pommier
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libzmq

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Version 3, 29 June 2007

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Polyline2D

by Marius Metzger
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