



RipX Manual

Much of RipX is described by the Interactive Help box which can be activated from the Help menu.

It is also a good idea to watch the walkthrough YouTube videos available from **Help > YouTube Videos**.

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RipX: DeepPlayer, DeepRemix & DeepAudio

RipX is a module-based audio platform. The following modules are currently available:

- **DeepPlayer** – Available for free, play back audio that has already been converted into **RipX**'s Rip (.rip) file format to see and hear the work of others.
 - To create and edit Rips, obtain a 1-month free trial or paid license from hitnmix.com and use the code that you receive to activate one or more of the following modules from **RipX**'s **Help** menu.
- **DeepRemix** – This adds essential tools for separating audio files into vocal, instrumental, bass and drum stems and creating songs from samples using a variety of powerful effects.
- **DeepAudio** – This includes the **DeepRemix** module and adds advanced tools for manipulating audio, all the way down to its deepest harmonic, amplitude and frequency levels.

In the following, chapters with headings prefixed either by **DeepRemix** or **DeepAudio** concern the module of that name. **DeepRemix** chapters are essential reading for everyone but may also contain a small amount of information about the **DeepAudio** module where relevant. **DeepAudio** chapters can be skipped by those who do not have a **DeepAudio** license.

Opening, Ripping & Exporting Audio/Video

Opening & Ripping Audio

RipX can open MP3 (.mp3), FLAC (.flac), Ogg (.ogg), CD track (.cda), WAV (.wav), MIDI (.mid) and Rip (.rip) audio files. When **RipX** opens an audio file, it converts it into a **Rip** file. It is then listed in the **RipList Panel** in the top-right corner of the **RipX** window. A Rip is an audio file that has been source separated '**Ripped**' into individual notes, harmonics, frequencies, amplitudes, phases and time slices by **RipX**. Rip files are created in a process called '**Ripping**'.

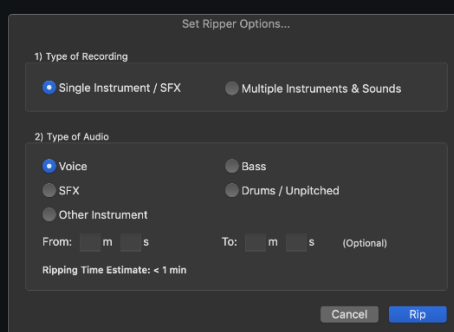


To open one or more audio files, click **File>Open**, press **⌘/Ctrl+O**, drag & drop them onto **RipX** or click on the large folder button that is shown when no Rip is open in **RipX**.

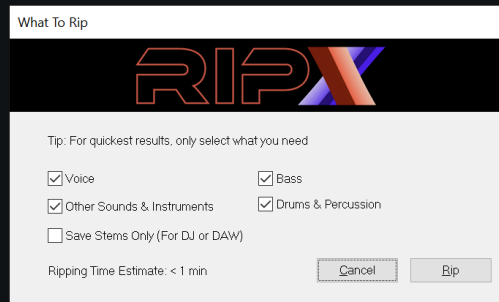
MIDI and Rip files will open straight away.

For other types of audio, if the filename includes, or *is*, a stem name, for example **drums.wav** or **mysong_vocals.flac**, RipX will offer to automatically rip, optimizing separation for the type of stem named. Otherwise, a dialog box will appear offering a range of options.

- **DeepAudio only**: Select the type of recording that is being opened.



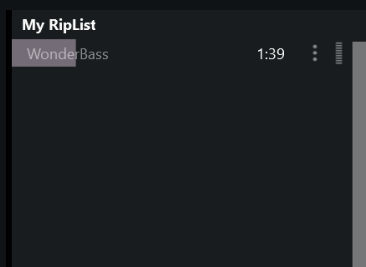
- When **Single Instrument / SFX** is selected, options are made available that allow the type of instrument/special effect (SFX), to be specified. This helps **RipX** to optimize the Rip file it produces for that specific instrument/SFX and lets it know that it should put all notes in the same layer for that instrument/SFX. A time range can also be chosen. Leave this blank to open the entire track.
- If you are opening a full mix containing multiple instruments and other sounds, select **Multiple Instruments & Sounds**. The options that are available when this option is selected are described below.



- **DeepRemix or DeepAudio** with **Multiple Instruments & Sounds** selected:
 - Select the type of recording that is being opened.
 - Choose which instrument(s) you would like to extract from the audio. The available options are **Voice**, **Bass**, **Other Sounds & Instruments**, and **Drums & Percussion**.
 - When it creates the Rip file, **RipX** will assign notes/unpitched sounds performed by the various instruments to appropriate color-coded **Layers** which are listed in the **Layers Panel** at the bottom-right of the **RipX Window**.
 - If you only need to create stems from the audio (e.g., for your DAW or for DJing purposes), check **Save Stems Only**. No Rip file is created. Instead, WAV stems are placed inside **RipX/Stems** (or a location set in **RipX/File>Preferences...**) within your user account's **Documents** folder.
 - To generate one **vocal.wav** stem plus one containing all other audio (called **instruments.wav**), choose **Voice** only.
 - For other file formats, uncheck **Save Stems Only** and use **File>Export** once the file has been ripped.
 - **Windows only:** If you have an NVIDIA graphics card with at least 8GB (10GB recommended) graphics memory and CUDA support, plus at least 16GB RAM installed, RipX can use its power to rip significantly faster.
 - You will need to have the NVIDIA CUDA Toolkit v11.0 (free download) installed. If your system meets these minimum requirements to use CUDA, RipX will show a message about where to download the toolkit if it is not already installed. Note that it needs to be exactly v11.0.
 - Once installed, RipX will use your graphics card automatically – you will notice reduced time estimates shown in the ripper options dialog. It is recommended that you use the **Highest** setting.

- Graphics cards with the recommended 10GB VRAM supported include **GeForce 1080 Ti / 2080 Ti / 3080 / 3090**.
- Some graphics cards with 8GB of VRAM are also supported. However, you may need to be using only a single monitor, with no other apps running. A checkbox **CUDA Acceleration (uncheck if fails)** will be added to the Ripper options, and you should uncheck this if RipX crashes or does not complete separation whilst ripping. These cards include **NVIDIA GeForce 1070 / 1080 / 2070 / 2080 / 3070**.

- Click **Rip** to proceed.



Whilst the audio is being ripped, a progress bar appears in the **RipList Panel** (top-right of the **RipX** window), showing the name of the track and how much time is remaining. Right-click on the progress bar and click **Cancel Ripping** to cancel it. If ripping multiple instruments, once they have been separated, the **Ripper** app will open to analyze each.

Once finished, the Rip will be listed in the RipList panel with an open folder icon to the left of its name. Click on it to view the separated audio's layers, notes and unpitched sounds. Right-click on the name of the Rip in the **RipList Panel** to rename it, remove it from the RipList, delete it from your hard drive, open the folder in which it is stored, or set its time signature.

Add a background image to your Rip by dragging & dropping a JPEG or PNG file onto it. (This can be removed by right-clicking on the name of the Rip in the **RipList Panel** and clicking **Remove Background Image**.)

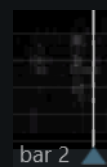
Preparing Rips for Editing

Due to the complexity of separating audio, you may find instrumental parts are not always placed in the correct layer. However, this is easy to fix:

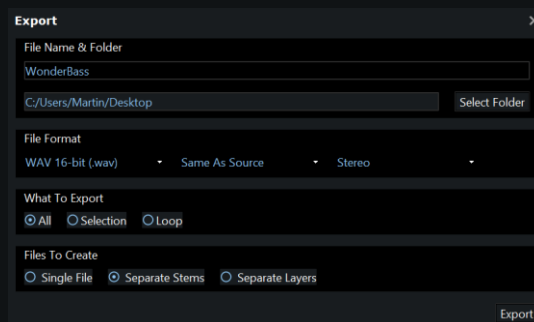
- Select the audio to move.
- Then from the Layers Panel at the bottom-right of the RipX window, hover over the layer you would like them to be in and click the arrow icon → that appears to the left of the layer name.
- If the layer does not exist, click **Add Layer** first.
- You can then use the keyboard shortcut **M** to continue transferring selections to this layer.


RipX automatically works out where bar lines should be placed. However, if you plan to work with rhythmic aspects of audio, you should first ensure they are marked out correctly:

- Starting from the first bar line, go through and check the position. If incorrect, click and drag the triangular handle beneath it to the correct place. RipX will automatically update bar lines that follow.
- Continue through the Rip until they are all correctly placed.



Exporting Audio



From the **File** menu, use **Export** /Ctrl+E to export Rips in a range of audio formats, including MP3, WAV, FLAC, OGG, MIDI (containing all pitch and amplitude changes within notes) and MIDI Notes (containing just the overall pitch and amplitude for each note). Rips can also be exported as Stem (.stem.mp4) files for DJ apps like Native Instruments Traktor. Depending on the selected file format, choose from a selection of bit-depths and sample rates as well as between Stereo and Mono.

Also choose whether to export the entire rip, a selection of it, or a loop that's marked within it (see **Note & Time Selections** and **Loops**). Note that since MIDI files contain bar position information, the exported MIDI file of a selection or loop will start from the preceding bar line. If you would like it to start from the first note in the selection, you should move the bar line to its start before exporting. (A bar line can be moved by clicking & dragging the handle beneath it.)

Finally, choose whether you would like to export the Rip as a single file or as separate stems or layers. Right-click on the name of a layer in the **Layers Panel** (bottom-left of the **RipX** window) to change the stem group to which it is assigned. In the same menu, you can hover the mouse pointer to the right of one of the stem names and click on the pencil icon that appears to rename that stem.

Video Import & Export (*macOS only*)

RipX can import MP4, M4V & MOV video files that use the following video codecs (those that we have tested are marked by an asterisk *):

- Apple Animation Codec
- Apple Intermediate Codec
- Apple ProRes*
- AVCHD (including AVCCAM, AVCHD Lite, and NXCAM)
- DV (including DVCAM, DVCPRO*, DVCPRO50*, DVCPAL*)
- H.264*
- HDV
- HEVC
- iFrame
- Motion JPEG (OpenDML only)*
- MPEG-4 SP
- Photo JPEG*
- XAVC-S

In addition, **RipX** can import AVI video files that use the Motion JPEG codec.

Once a video file has been Ripped, the audio is displayed as normal, and the video is displayed in its own window which can be resized by clicking & dragging its corners. If you close the video window, it can be reopened by clicking on the Rip.

The video automatically plays back in sync with the audio during playback, including when playing back selections and loops (see [Note & Time Selections](#) and [Loops](#)). However, note that the video will no longer be in sync with the audio if any time edits are made (such as deleting time selections or changing the tempo of the Rip). RipX is not designed to edit the video.

Videos can be exported as MP4 and MOV files by clicking **File>Export** or pressing **⌘/Ctrl+E**.

DeepRemix: The Cursor, Selections, Groups & Effects

The Cursor

The cursor is a white vertical line that sets, amongst other things, the time at which playback begins (unless there is a loop marked in the Rip – see below) and the time at which copied/cut notes are pasted. When a Rip is opened, the cursor is located at the start. Its position can be adjusted as follows:

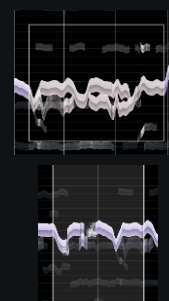
- Click on a blank part of the Rip to place the cursor at that time.
- Press the **Left/Right** arrow key to move it to the previous/next beat marker.
 - Hold down **⌘/Ctrl** whilst doing so to move it to the previous/next bar line.
 - Hold down **⌘/Alt** whilst doing so to nudge it slightly to the left/right.



Note & Time Selections

Two types of selection can be made in **RipX**:

- In a **note selection**, notes/unpitched sound are selected but not the time that they occupy. For example, this means that deleting a note selection will not affect any other notes or unpitched sound at the same time as it, and will leave behind silence if there is nothing else at the same time.
- In a **time selection**, a length of time is selected together with all notes and unpitched sound within it. Deleting a time selection will not leave behind any silence and will shorten the Rip by the length of time that was deleted.



A **note selection** can be made in the following ways:

- Click on a note or unpitched sound to select only that note/unpitched sound. (This deselects anything else that was selected.)
 - **⌘/Ctrl+Click** on a note/unpitched sound to add it to an existing note selection.
 - **⇧/Shift+Click** on a note/unpitched sound to add that note and all notes in between it and an existing note selection to add them to that selection.
- Click & drag the mouse pointer over notes/unpitched sound to select them with a selection rectangle.
 - Hold down **⌘/Alt** whilst doing this to only select those parts of the notes/unpitched sound that are within the rectangle.
 - **DeepAudio only**: Check **Fine Selection** in **Audioshop** when using its **Move/Resize** tool to reverse this behavior (see [DeepAudio: Audioshop & Other Tools](#)).
- Double-click on a note/unpitched sound to quickly select all parts of notes and unpitched sound that is inside that bar. (Parts of notes/unpitched sound that are outside the bar are not selected.)

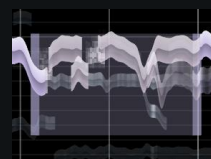
A **time selection** can be made in the following ways:

- Click & drag over the background of the Rip, without passing the mouse pointer over any notes or unpitched sound (unless a substantial amount of time has already been selected).

- Click on the background of the Rip at one point of time and then **⇧/Shift+click** on the background of the Rip at another point of time to select all time in between. (This is particularly useful when selecting long sections of audio.)
- Double-click on the background of the Rip within a bar to quickly select all time within that bar.
- Hold down **⇧/Shift** and then press **Left/Right** to select all time from the position of the cursor to the previous/next beat marker.
 - Also hold down **⌘** whilst doing this to instead select all time from the position of the cursor to the previous/next bar line.
- Hold down **⇧/Shift** and press **Left/Right** to extend or shorten an existing time selection to the nearest beat maker.

Groups

Notes and unpitched sound can be grouped together so that they can be selected and edited as a single object. For example, this is particularly useful when copying & pasting a vocal phrase from one Rip to another. Grouping the phrase once it has been pasted will allow it to be more easily tweaked to fit the timing and key of the surrounding audio.



- To group notes/unpitched sound, select them and then click **Audio>Group** or press **⌘/Ctrl+G**. A box is shown around them whose color depends on the color of the layer(s) to which they belong.
- Select the group by clicking on one of its notes/unpitched sounds.
- Change the pitch of the entire group by clicking & dragging it up/down.
- Change the time of the entire group by clicking & dragging it left/right.
- Click & drag the left/right edge of the box to change the time at which the group starts/ends.
- Hold down **⌘/Alt** whilst clicking or clicking & dragging over a grouped note/unpitched sound to select it independently of the rest of the group. (See **DeepRemix: Essential Step-By-Step Editing Instructions** for more information on how to edit notes and unpitched sound.)
- Right-click on a grouped note/unpitched sound and click **Hide Grouped Audio**, or press **⌘/Alt+G**, to hide the grouped notes/unpitched sound in the box. This also causes the group box to always be displayed and allows them to be selected and moved by simply clicking & dragging the box instead of its contents. Right-click on the box and click **Show Grouped Audio**, or press **⌘/Alt+G**, to show them again.
- Select grouped notes/unpitched sound and click **Audio>Ungroup** or press **⇧⌘/Ctrl+Shift+G** to ungroup them.

Applying Adjustments & Effects to Selections

Above the Rip and to the right of the **Play** button is the **Adjust / Effects** menu. This contains a number of powerful tools and effects that can be quickly applied to all notes within a note or time selection. It can also be accessed by **⌘/Alt+Right-Clicking** on a selection.

- Click on the name of an item in the menu to apply a default amount of the adjustment/effect to the selection.

- Use the slider to adjust how strongly it is applied to the selection and, where appropriate, in which direction.
- Remove any adjustment/effect applied by clicking the name of the item.
 - **Note:** These are applied on top of other edits so vibrato, for example, would remain applied after any further pitch adjustments.
 - **Note:** Pitch effects cannot be applied to unpitched sounds.

Most of the adjustments/effects in this menu are self-explanatory. Below is a brief description of those that may be less-so.



- **Level** – Adjusts the volume of the selection.
- **Low Pass** – Applies a filter to the selection that only allows frequencies to be heard that are below a specific frequency that can be set with the slider.
- **High Pass** – Applies a filter to the selection that only allows frequencies to be heard that are above a specific frequency that can be set with the slider.
- **Pitch To Scale** – Moves the pitches of notes in the selection towards the nearest pitches that lie on any musical scale that has been applied to the bar(s) that they are in. If no musical scale has been applied, it moves them towards the nearest semitone.
 - You can click **Set Musical Scale** at the bottom-left of the Rip to choose a musical scale for all bars in the Rip or, if any scale changes have been added (see below), only those up until the first scale change.
 - Once a musical scale has been set, move the mouse pointer to the right of a bar-line handle (beneath the bar line) and click **Add Scale Change** to choose a musical scale for all bars from that bar line onwards or, if any scale changes have been set at later bar lines, only those up until the next scale change.
 - **Tip:** To apply a musical scale to a specific layer, first solo that layer (by clicking the **S** icon to the left of its name in the **Layers Panel**) or lock all other layers (by right-clicking on its name and clicking **Lock All Others**) then set/add the scale with **Auto Pitch To Scale** selected.
- **Harmony** – Adds a harmonizing note to each selected note at an interval of a third above it, or one or two octaves above/below it, as specified with the slider. (The key of the Rip is used to determine whether the third should be major or minor.)
 - **Note:** Harmonizing notes are displayed as separate thinner notes but can only be adjusted with the **Harmony** effect's slider. They cannot be selected or edited like other notes.
- **Delay** – Applies delay to all notes in the selection with a separation that is a fraction of a bar, as specified with the slider.
- **Randomize** – Once applied to a selection, different adjustments/effects are applied to its notes/unpitched sounds at random, each time they are played back. For a more detailed description of this feature, see [Randomize](#).

RipX applies these adjustments/effects to notes and unpitched sounds each time they are played back but they can be set in stone (e.g. to add layers of effects or reduce the amount of work your computer has to do during playback) by selecting audio and clicking **Audio>Render Adjustments & Effects** or pressing **⌘/Alt+R**. (*DeepAudio only*: Doing this will also allow their effects on the harmonics of the notes to be edited with *Audioshop's Harmonic Editor* – see **DeepAudio: Audioshop & Other Tools**.)

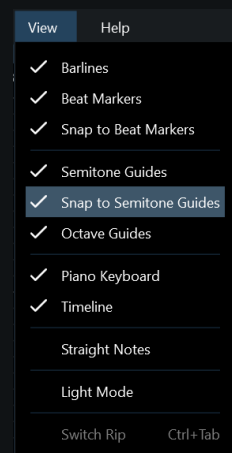
DeepRemix: Essential Step-By-Step Editing Instructions

Here follow instructions for the various types of editing you can do with **DeepRemix**. (For information about the advanced editing techniques that are additionally available with the **DeepAudio** module, see [DeepAudio: Advanced Editing Techniques](#).) The following is separated into main categories like **Pitch**, **Rhythm** and **Unpitched Sound**, with more specific techniques within.

Pitch

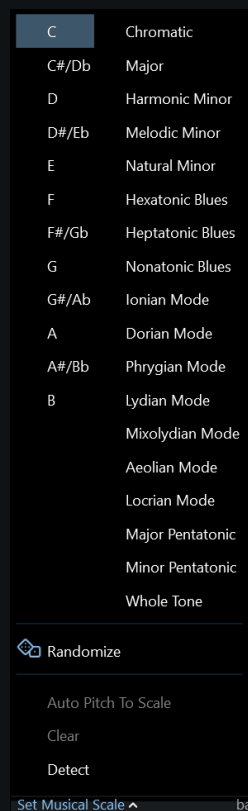
Chromatically edit pitch

- Ensure that **Snap To Semitone Guides** is checked in the **View** menu and then click & drag a note, selection of notes and/or their parts up/down to raise/lower their pitches by a number of semitones.
- Alternatively, press **Up/Down** to adjust the pitch of a selection.
- Hold down **⌘/Ctrl** whilst doing this to shift the selection up or down by an octave.
- **Note:** To edit the pitch of a note selection by any number of semitones, there must either be no scale applied to the bar that contains it, or that scale must be chromatic (see below).



Edit pitch over a musical scale

1. Choose the bars to which the musical scale will apply:
 - Click **Set Musical Scale** at the bottom-left of the Rip to choose a musical scale for all bars or, if any scale changes have been added (see below), only those up until the first scale change.
 - Then, move the mouse pointer to the right of a bar-line handle (beneath the bar line) and click **Add Scale Change** to choose a musical scale for all bars from that bar line onwards or, if any scale changes have been set at later bar lines, only those up until the next scale change.
2. Choosing the musical scale:
 - Click **Detect** for RipX to automatically determine the scale from the pitches of notes (major and minor keys only).
 - Manually select the scale by choosing the letter from which it starts on the left and the type of scale on the right.
 - Click **Clear** to remove the selection.
 - Ensure that **Auto Pitch To Scale** is not checked unless you would like notes to be automatically snapped to the scale.
 - A useful tool for creative inspiration, click **Randomize** for the scale to change every time playback, or a loop begins. This automatically selects **Auto Pitch To Scale**. For a more detailed description of this feature, see [Randomize](#).



3. If you intend to edit pitch by clicking & dragging, ensure that **Snap To Semitone Guides** is checked in the **View** menu. With this, any edits made to the pitch of a note by clicking & dragging it vertically, or by pressing **Up/Down** whilst it is selected, will shift it up or down only through pitches that are on the chosen scale as indicated by the semitone guides.
 - Applying **Pitch To Scale**, **Quantize Pitch** or **Flatten Pitch** to notes from the **Adjust/Effects** menu will cause them to snap to these guides.

Finely edit pitch

- Hold down **⌘/Alt** whilst clicking & dragging a note, selection of notes and/or their parts up/down to raise/lower their pitches by minute amounts, less than a semitone.
 - **Tip:** First zoom in on pitch by positioning the mouse pointer over the area you would like to zoom in on and using the mouse wheel whilst holding down **⌘/Ctrl+Shift**. Alternatively, click & drag vertically over the piano keyboard in the region of pitch that you'd like to zoom in on.
 - **Tip:** Once zoomed in, scroll vertically by using the mouse wheel whilst holding down **⌘/Shift** or by using the vertical scrollbar to the right of the Rip.
- Where no musical scale has been set, use **Pitch To Scale** in the **Adjust/Effects** menu to quickly correct the pitch of selected notes and/or parts of notes that are out of tune.
 - **Tip:** Snap all notes in the Rip to the nearest semitone by clicking **Set Musical Scale** at the bottom-left of the Rip, choosing a **Chromatic** scale and ensuring that **Auto Pitch To Scale** is checked in the same menu.
- **DeepAudio only:** See **DeepAudio: Advanced Editing Techniques** to learn how to finely adjust a note's pitch over time.

Quickly flatten, slide, or add constant vibrato to pitch

- Remove all variation in pitch across all selected notes and/or their parts by clicking **Flatten Pitch** in the **Adjust/Effects** menu.
 - Click **Flatten Pitch** again to remove this effect.
 - Click & drag the slider button left/right to reduce/increase how much they are flattened.
 - **Tip:** Use **Flatten Pitch** to reduce or remove vibrato from a note. (**DeepAudio only:** Any associated vibrato in volume can be removed with **Audioshop's Smooth Region Tool** – see **DeepAudio: Audioshop & Other Tools**).
- Make all selected notes and/or their parts slide in pitch by using the slider next to **Slide Pitch** in the **Adjust/Effects** menu.
 - Click & drag the slider button to the right/left to slide the pitch up/down.
 - Subsequently click & drag the slider button in the opposite direction to reduce the amount of slide or reverse the direction of the slide.
 - Click **Slide Pitch** to remove this effect.
 - **DeepAudio only:** See **DeepAudio: Advanced Editing Techniques** to learn how to apply slides with finer control and more complicated contours.

- Add a pitch vibrato of constant amplitude/strength and period to selected notes and/or their parts by using the slider next to **Vibrato** in the **Adjust / Effects** menu.
 - Click & drag the slider button to the right/left to increase/decrease the amplitude of the vibrato.
 - Click **Vibrato** to remove it.
 - **DeepAudio only:** See [DeepAudio: Advanced Editing Techniques](#) to learn how to add more realistic vibrato and clone vibrato (and other pitch variations) from notes performed by real musicians.

Rhythm

Edit rhythm by moving the starts of notes

- **Tip:** Use the mouse wheel whilst holding down **⌘/Ctrl** to zoom in on time and see additional vertical guidelines that mark divisions of the beat. Alternatively, click & drag horizontally over the **Timeline** located above the Rip.
- Click & drag a note left/right so that it starts and ends sooner/later.
 - **Tip:** Use this for shorter notes (e.g. violin pizzicato) where the sustain of the note is not as important as its attack.
- Click & drag the start of a note left/right so that it starts sooner/later without affecting when it ends.
 - **Tip:** Use this for longer notes where the sustain of the note is an important part of its effect (e.g. long sustained notes played by strings).
- **Note:** The starts and ends of notes will automatically snap to the beat markers (which mark the beats and their divisions) if **Snap To Beat Markers** is checked in the **View** menu. Hold down **⌘/Alt** whilst clicking & dragging to reverse this setting.
- Delete the start of a note by holding down **⌘/Alt** whilst clicking & dragging over it and then pressing **Delete**.
 - **DeepAudio only:** Check **Fine Selection** in **Audioshop** when using its **Move/Resize Tool** to select parts of a note without having to hold down **⌘/Alt** (see [DeepAudio: Audioshop & Other Tools](#)).
 - **Tip:** Use this with notes that do not have a strong attack or in cases where the resulting change in attack is desirable, not noticeable in the full mix, or otherwise unimportant.
- Select multiple notes then click & drag the end of the selection to change the speed of its rhythm without affecting the tempo of the music that contains it.
 - **Tip:** Group the notes together first – see [Groups](#).
- **DeepAudio only:** See [DeepAudio: Advanced Editing Techniques](#) to learn how to change the rhythmic feel of one or more bars.

Edit rhythm by adding/removing notes

- Copy a selection of one or more notes then paste them between the starts of existing notes to increase the speed of the rhythm.
 - **Tip:** Add a strum to each chord in a sequence of guitar chords by copying & pasting the sequence to the right of itself. While the pasted notes are still selected, click & drag to the left the slider button next to **Level** in the **Adjust/Effects** menu to decrease their volume for added realism.
 - **DeepAudio only:** See **DeepAudio: Advanced Editing Techniques** to learn how to draw new notes between other notes.
- Select notes between the starts of other notes and press **Delete** to decrease the speed of the rhythm.

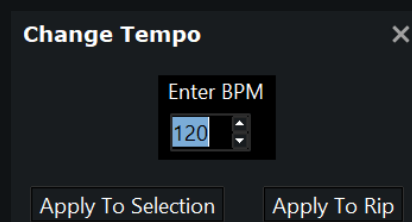
Note Duration, Tempo & Time


Edit note duration

- Click & drag the end of a note so that it ends earlier/later without affecting where it starts.
 - **Note:** The end of a note will automatically snap to beat markers if **Snap To Beat Markers** is checked in the **View** menu. Hold down **⌘/Alt** whilst clicking & dragging to reverse this setting.
- Copy & paste a note so that it immediately follows itself then join the two notes together by selecting them and clicking **Audio>Join** or pressing **⌘/Ctrl+J**.
 - **Tip:** This works best with notes whose characteristics (e.g. pitch, volume & timbre) do not differ by much between their starts and ends.




Edit tempo

- Before working with the tempo of any Rip, ensure that its bar lines are correctly positioned. A bar line can be moved by clicking & dragging the handle beneath it. Subsequent bar lines update automatically so it is best to start with the first and work forwards through the Rip.
- The BPM (beats per minute) can be viewed in a few different ways:
 - The overall BPM of a Rip is displayed to the right of its name at the top-right of the **RipX** window and when the mouse pointer is hovered over it in the **RipList Panel**.
 - When the mouse pointer is placed over a bar-line handle, the BPM of the preceding bar is shown to the left of it. This updates as the bar-line handle is dragged left or right.
 - **DeepAudio only:** To view in the toolbar the tempo of the bar currently under the mouse pointer, click **Tempo Info** in the **Tools / RipScripts>Tempo** submenu.
- Change the tempo from the cursor onwards or for all selected bars by right-clicking on the background of the Rip when nothing is selected and clicking **Change Tempo**. (*DeepAudio only:* **Change Tempo** is also available from the **Tools / RipScripts>Tempo** submenu.) Enter a new number of BPM (beats per minute) and click **Audio To Selection** (which applies to all bars from the cursor if nothing selected) or **Apply To Rip**.



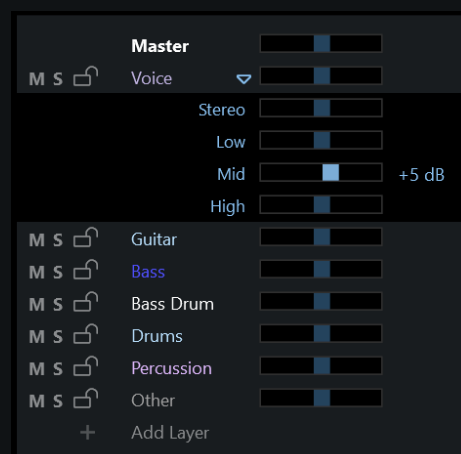
- When copying & pasting notes between Rips with different tempos, use /Ctrl+Shift+V to paste the notes and they will be automatically adjusted to fit the destination tempo.
 - **Tip:** Quickly swap between the current and previously displayed Rip by pressing ^/Ctrl+Tab.

Edit time

- Make a time selection (see [Note & Time Selections](#)) then press **Delete** to delete the time and everything in it. Notes and unpitched sounds either side of it will move together in time.
- Copy & paste time by selecting it then pressing /Ctrl+C, clicking on the background at the time at which you would like to paste, and pressing /Ctrl+V. Unlike notes and unpitched sound, pasted time is inserted, causing notes/unpitched sounds either side of it to be shifted further apart in time.
- Quickly duplicate a time selection to the next visible beat marker by pressing /Ctrl+D. The distance of the selection from the preceding beat marker is maintained and the duplicated time is stretched to fit with the destination BPM. Any notes or unpitched sounds at the destination that are not locked or muted from the **Layers Panel** are deleted.
- *DeepAudio only:* Use **Equalize Bar Lengths** from the **Tools/RipScripts>Tempo** submenu to set all bars to be the same length as bar 2.

Volume & EQ

- Change the overall volume of a selection of notes by using the slider next to **Level** in the **Adjust/Effects** menu.
 - Click & drag the slider to the right/left to increase/decrease the volume.
 - Double-click slider to reset its position.
- Change the overall volume of an entire layer by using the slider next to the name of that layer in the **Layers** panel (in the bottom-right of the **RipX** window).
- Change the overall volume of the entire Rip by using the slider next to **Master** in the **Layers** panel.
- Mute or solo a layer by clicking the **M** or **S** button to the left of its name.
- The EQ and stereo panning of each layer, and of the entire Rip, can be adjusted as follows:
 1. Hover the mouse pointer over that layer, or **Master**, in the **Layers** panel.
 2. Click on the arrow that appears to the left of its slider.
 3. Use the sliders that appear beneath.
 4. Click the arrow again to hide these sliders.
- *DeepAudio only:* See [DeepAudio: Advanced Editing Techniques](#) to learn how to apply fades and other volume envelopes to selections of notes and how to remove volume vibrato and other fluctuations from a note.




Unpitched Sound

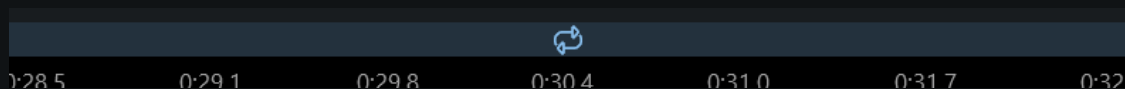
- Unpitched sound is any sound without a definite pitch. This includes unpitched percussion, certain special effects and sibilants (e.g. vocal *sss*, *sh*, *f* & *t* sounds).
 - Sibilants are displayed at the pitch of the surrounding vocals to which they belong so that they are easy to select and edit together with them.
 - Other unpitched sounds are shown at the bottom of the Rip.
- Select unpitched sound by clicking on it or by clicking & dragging a selection rectangle over it. Select all unpitched sound in a Rip at once by clicking **Edit>Select All Unpitched** or by pressing **⌘-⌥-A**. Then edit it in the following ways:
 - Click & drag it horizontally to move it forwards or backwards in time.
 - Click & drag the ends of it to change its duration.
 - Delete it by pressing **Delete**.
 - Cut or copy & paste it by pressing **⌘-X** or **⌘-C** then **⌘-V**.
 - From the **Adjust/Effects** menu, apply adjustments/effects (that do not relate to pitch).
 - **Note:** It is not possible to click & drag unpitched sound up or down to change its frequency.
- **DeepAudio only:** See **DeepAudio: Advanced Editing Techniques** to learn about an easier way to edit unpitched sound.

DeepRemix: Playback, Loops, Randomize & Ripples

Playback

- To start playback, click the **Play** button  or press **Spacebar**.
- Playback can be stopped either by clicking the **Stop** playback button or by pressing **Spacebar** once again.
- If a cursor is displayed, playback starts from the position of the cursor unless there is a loop set (see below) and the cursor is outside that loop.
- If audio is selected and there is no loop set, only the selection is played back.
- Click the button to the left of the **Play/Stop** button or press **Enter** to return playback to the start of the Rip.
- Edits and effects can be applied to a Rip whilst it is playing back, creating a live performance. This is particularly effective when playing back a loop (see below).

Loops



The **Loop** bar, located just above the **Timeline** above the Rip, can be used to create loops.

- Set a loop region in various ways:
 - Click & drag over the **Loop** bar from left to right.
 - Make a selection of notes or time and press **L** to mark a loop that covers that selection.
 - Double-click on the **Loop** bar to set a loop over the bar in which you double-clicked.
 - Move the loop forwards or backwards in time by clicking & dragging it along the **Loop** bar.
 - Click & drag the edges of the loop to resize it
 - Click outside of the loop in the **Loop** bar or press **L** to cancel it.
 - **Note:** The loop will automatically snap to the beat markers if **Snap To Beat Markers** is checked in the **View** menu. Hold down **⌘/Alt** whilst clicking & dragging to reverse this setting.
- Start and stop playback (see above) to hear the loop play back. Playback begins from the start of the loop or from the cursor if it is inside the loop.
- Each time playback returns to the start of the loop, experiment with applying different edits and effects to the notes within the loop.
 - See below to learn how to make **DeepRemix** apply a different random selection of adjustments, effects and musical scales to the loop each time its playback restarts.
- You can also right-click on a selection of notes and/or unpitched sound and click **Split At Loop Marker** (or press **⌘/Ctrl+Shift+J**) to split them at the points where they cross the start and end of the loop marker.

Randomize

RipX can apply a random selection of adjustments, effects and musical scales to notes/unpitched sounds each time they are played back.

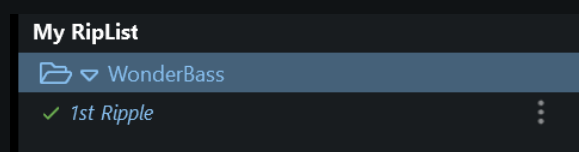
Randomize Adjustments / Effects

- Make a note or time selection and then click **Randomize** in the **Adjust / Effects** menu.
- Click & drag the slider button to the right/left to increase/decrease the level of randomization.
- Click **Randomize** to remove this effect.
- Once Randomize has been applied to a selection, click on the **Dice** icon to the right of any other effect's slider to include/exclude that effect from being randomly applied.
- For each included effect (marked by a **Dice** icon), click & drag its slider button right/left to increase/decrease the level of randomization with which it is applied.
- For higher Randomize levels, the effect levels are continuously adjusted during a note's playback.
- If you copy & paste notes with Randomize applied, the copy will contain the latest effects set in stone. Note that this does not record effect variations within a note.
 - **Tip:** Try typing **L** to create a loop marker for the selection (see above) and hit **Play**. At the start of each loop, new effects will be applied, and repeated loops will be kept in a **Ripple** under the Rip in the **RipList Panel** (see below).

Randomize musical scales

- Click **Set Musical Scale** in the bottom-left corner of the window.
- Click **Randomize** in the menu that opens.
- In the same menu, **Auto Pitch To Scale** is automatically selected, meaning that the pitches of all notes will automatically snap to the randomly selected scale each time playback is started.
- To apply random scales to a selection of notes, uncheck **Auto Pitch To Scale** and apply the **Pitch To Scale** effect to them.
- Once a scale has been set, scale changes can be added by hovering the mouse pointer to the right of a bar-line handle (beneath the bar line) and clicking **Add Scale Change**. From there, select **Randomize** again to have multiple random scales in the same Rip, or choose a fixed scale.
- Uncheck **Randomize** to prevent **RipX** from making any further random changes to the musical scale and click **Clear** to remove it.

Ripples















When experimenting with edits, adjustments and effects during looped playback, **RipX** makes a recording of the live audio, stored as a **Ripple** beneath the Rip in the **RipList Panel**.

- Stop playback and then click on the Ripple to view it, play it back or make edits to it.
- If there is part of a Ripple that you particularly like, make further use of it by copying & pasting it into a new or existing Rip. (Press **⌘/Ctrl+N** to create a new Rip.)
- You can also loop a bar in a Ripple, producing 2nd, 3rd and further Ripples, by editing different elements of the bar each time.
- **Important:** To keep a Ripple you like, click the **Tick** icon to the left of the Ripple's name to save it with the Rip. This is required to prevent Ripples from building up over time (in case you are not interested in this automatic feature), and Ripples will otherwise be overwritten each time a new Ripple is created in the same Rip.
- Click the arrow icon to the left of the name of a Rip in the **RipList Panel** to hide/show its Ripples.

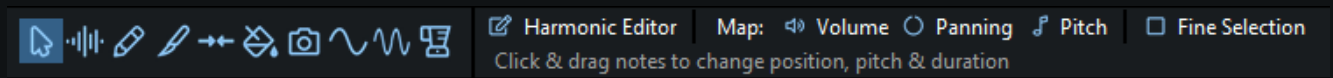
DeepRemix: Useful Keyboard & Mouse Shortcuts (macOS/Windows)

<i>Left/Right</i>	Move cursor to previous/next beat marker.
<i>⌘/Ctrl+Left/Right</i>	Move cursor to previous/next bar line.
<i>⇧/Alt+Left/Right</i>	Nudge cursor slightly to the left/right.
<i>Click+drag</i>	Multiple select whole notes & unpitched sounds or, by clicking & dragging over an empty region, select a period of time.
<i>⇧ Click+drag</i> <i>Alt+click+drag</i>	Multiple select parts of notes & unpitched sounds.
<i>Double-click background</i>	Select all time in same bar.
<i>Double-click note</i>	Select all notes in same bar but not parts of them that extend outside of it.
<i>Double-click loop bar</i>	Set loop marker over bar.
<i>⌘ Click background</i> <i>Shift+Click background</i>	Select time from the position of the cursor to this point.
<i>⌘ Left/Right</i> <i>Shift+Left/Right</i>	Select time from the position of the cursor to the previous/next beat marker. Also extends or shortens an existing time selection to the nearest beat maker.
<i>⌘⌘ Left/Right</i> <i>Ctrl+Shift+Left/Right</i>	Select time from the position of the cursor to the previous/next bar line. Also extends or shortens an existing time selection to the nearest bar line.
<i>Up/Down</i>	Shift the selected notes up/down a semitone or one pitch up/down in a scale.
<i>⌘ Up/Down</i> <i>Ctrl+Up/Down</i>	Shift selected note up/down one octave.
<i>⇧ Drag note</i> <i>Alt+drag note</i>	The opposite of the current Snap To Beat Markers or Snap To Semitone Guidelines setting is applied during pitch and time adjustment, so you can toggle snapping without accessing the View menu.
<i>⌘⌘ V</i> <i>Ctrl+Shift+V</i>	Paste cut/copied notes/unpitched sounds and fit to destination tempo (BPM).
<i>⌘ D</i> <i>Ctrl+D</i>	Duplicate selected notes or time to the next visible beat marker, adjusting for any changes in tempo and maintaining the distance from the preceding beat marker. If time is duplicated, any notes or unpitched sounds at the destination that are not locked or muted from the Layers Panel are deleted.
<i>⌘ G</i> <i>Ctrl+G</i>	Group selected notes/unpitched sounds to edit them like a single object.
<i>⇧ Click note</i> <i>Alt+Click note</i>	Select single note/unpitched sound in group to edit independently of the rest.

 G Ctrl+Shift+G	Ungroup selected notes/unpitched sounds.
 G Alt+G	Hide notes in group so that the group can be quickly selected and moved by clicking anywhere within its box. Press to show them again.
 J Ctrl+J	Join selected notes/unpitched sound together.
 J Ctrl+Shift+J	Split selected notes/unpitched sound at the points where they cross the start and end of a loop marker.
 C Ctrl+Alt+C	Copy selected notes/unpitched sound/time into a RipCut stored beneath the Rip in the RipList Panel for quick convenient access to favorite sounds.
 M Ctrl+Shift+M	Unmute all layers.
Scroll Wheel	Scroll time.
 Scroll Wheel Shift+Scroll Wheel	Scroll pitch.
 Scroll Wheel Ctrl+Scroll Wheel	Zoom time in/out.
 Scroll Wheel Ctrl+Shift+Scroll Wheel	Zoom pitch in/out.
^/Ctrl+Tab	Swap between the current and previously displayed Rip.
Esc	Cancel note & unpitched sound drags/longer editing actions/playback/note, unpitched sound & time selections/menus.
Right-click Rip	Open a menu that includes various editing options and tools at the position of the mouse pointer.
 Right-click selection Alt+Right-click selection	Open the Adjust / Effects menu at the position of the mouse pointer.
Click+drag barline handle	Realign barlines with beats without changing the duration of notes.
Click arrow icon next to layer name	Assign notes to a different layer by selecting them and clicking the arrow icon next to its name in the Layers Panel at the bottom-right of the window.
 O Ctrl+O	Open Rips, CD tracks, MP3s, WAV, FLAC, OGG & MIDI files.
 E Ctrl+E	Export part or all of a Rip as a Rip, MP3, WAV, FLAC, OGG, MIDI, or Stem file. Choose to export it as a single file or as separate stems/layers.

DeepAudio: Audioshop & Other Tools

Audioshop

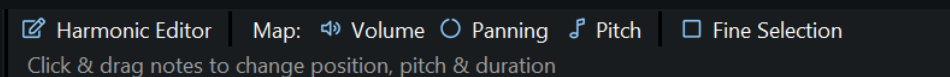


Audioshop is located in the tool bar area below the menu bar and consists of the tools described below. Each tool can be selected by clicking on one of the 10 buttons shown on the left-hand side of the above screenshot. The area to the right of these buttons contains appropriate instructions and options that vary, depending on which tool is selected. When the first tool is selected (as shown in the above screenshot), this area contains an array of buttons for quick access to other useful tools which are also described below.

We will often refer to these tools, including **Audioshop** as a whole, as **RipScripts**. RipScripts are tools specifically written for **RipX** with the Python 3 programming language. More information about them, and how to write your own, can be found in [DeepAudio: RipScript Editor](#).

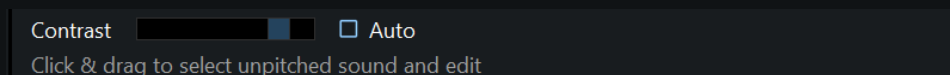
For convenience, **Audioshop**'s tools can also be accessed via a menu that appears at the location of the mouse pointer when right-clicking within a Rip. They can also be quickly selected by pressing a number key between 0 and 9. The number keys from 1 to 9 select the first nine tools as appropriate and 0 selects the last of them. **Audioshop**'s tools are as follows:

Move/Resize Tool



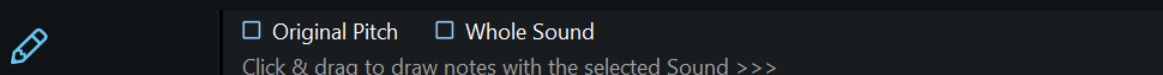
Use this to click & drag notes up or down in pitch and to click & drag notes/unpitched sounds left or right in time. Click & drag the edges of notes and unpitched sounds to resize them. When this tool is selected, a **Fine Selection** checkbox is shown to the right of **Audioshop**. Check this box to select parts of notes/unpitched sounds when clicking & dragging a selection rectangle over them (hold down **⌘/Alt** whilst doing so to select entire notes and unpitched sounds).

Edit Unpitched Tool

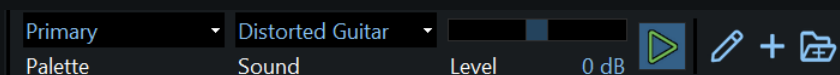


Conveniently displays all unpitched sound spread over the entire Rip, from its top to its bottom. Click & drag to select a region of unpitched sound and edit it. Pitched sounds/notes are shown in the background for reference only and cannot be selected or edited. **RipX** automatically chooses an appropriate contrast with which to display unpitched sound. This can be adjusted to a fixed setting by unchecking **Auto** and choosing a different contrast with the slider.

Draw Sound Tool




Use this with the **Sound Palette** to draw notes and other sounds. The **Sound Palette** is located beneath the menu bar, to the right of the **Audioshop** toolbar. (**Note:** On small screens, or if the **RipX** window has been resized to a small size, **Sound Palette** may appear beneath **Audioshop**.)



In **Sound Palette**, choose a palette and then an instrument or other sound sample within that palette to draw with. Change the volume level of the sample by clicking & dragging the **Level** slider left or right. Click the **Play** button directly to the right of that slider to audition it. In the options to the right of **Audioshop**, choose whether to draw the sample at its original pitch or at the pitch at which the mouse pointer is located. (If a palette's instrument contains multiple notes at different pitches, the pitch of the first note to be added to that instrument will be used as the original pitch.) Also choose whether or not to always draw the entire sample. Click & drag from left to right to create a new note. Drag back to the left once started to cancel.

A selection of instrument samples is included with **RipX** in the **Primary** and **Primary Drum Kit** palettes but you can add your own instrument samples directly from a rip as follows:

- 1) If you wish to include associated unpitched sounds with a note, first select them in addition to the note by **⌘/Ctrl-clicking** or **dragging** over them and then use **Audio>Group** (**⌘/Ctrl+G**).
- 2) Ensure the note is assigned to the correct layer for the instrument by selecting it and then clicking on the arrow icon next to the layer name in the **Layers Panel** (bottom-right of window).
- 3) Click on the pitched note and click the **+** button in the **Sound Palette** toolbar.
- 4) Repeat for differently pitched notes if required, each around an octave apart. **RipX** automatically generates missing pitches as and when they are needed. Quickly switch between the Rip and the palette by clicking on the pencil icon to the left of the **+** button.
- 5) The new instrument will be automatically selected for you to draw with right away. A palette is automatically created for it with the same name as the Rip from which the sample was taken.

It is also possible to import your own samples of sounds (such as drums, speech & sound effects) from audio files by clicking the **Import Samples**  button in the **Sound Palette** toolbar:

- 1) Browse to the folder where the audio files are located.
- 2) Select only those audio files that you would like to be included in the same category (e.g. **Drums** or **Special Effects**).
- 3) Click **Open** and wait for all of the audio files to be ripped. As ripping completes, they are automatically added to a new **Imported Samples** palette listed in the **RipList Panel**.
 - The **Imported Samples** palette can get filled up pretty quickly and slow down the selection of samples within it. It is therefore recommended that you rename it to something appropriate from time to time so that it starts afresh the next time samples are imported.
 - Apart from the palettes included with **RipX**, a palette can be renamed, removed from the **RipList Panel** or deleted by right-clicking on it and clicking on the appropriate item in the menu that opens. You can quickly open the currently selected instrument in the RipList panel by clicking on the pencil icon to the left of the **+** button.
 - Palettes are stored as Rip files and can be re-opened like any other Rip file (e.g. by clicking **File>Open**).
 - To view the samples within a palette, click on the arrow icon to the left of its name and click on each of the listed instruments to view its contents.



Split Tool

Split a note or unpitched sound into two by clicking on it at the point at which you'd like it to be split. Notes can also be split whilst other tools are selected by right-clicking on them and clicking **Split Here** or **Split At Loop Marker**.




Join Tool

Click on the edge of a note where it touches another to join those two notes together. Click & drag across a sequence of touching notes to join them all together.



Replace Sound Tool

 Replace Selection
Click on notes to replace with the selected Sound >>>

In the **Sound Palette** toolbar (to the right of the **Audioshop** toolbar), choose a palette and then an instrument (or other sound sample within that palette) and click on notes to replace their sounds with that of the chosen replacement sound. Quickly apply to multiple notes by selecting them and clicking on the **Replace Selection** button in the right of the **Audioshop** toolbar. A selection of instrument samples is included with **RipX** but you can add your own – see **Draw Sound Tool** above for details on how to do this.




Clone Pitch/Sound Tool

☒ Pitch Changes ☐ Pitch ☒ Sound ☒ Panning ☐ From Start
Ctrl+click note to clone, then click & drag over notes
Brush 0.20 s

Clone characteristics such as pitch variation (e.g. vibrato), sound (timbre with volume) & panning of a chosen (\mathbb{H} /Ctrl-clicked) note and apply them to other notes. Check **From Start** to keep the distance from the start of the note unchanged. Change the duration of the brush with the slider to the right.



Draw Pitch Tool

 Map Pitch
Click & drag over notes to finely adjust pitch

Use this to draw the pitch of a note by clicking & dragging over it, moving the mouse pointer up/down to smoothly increase/decrease the pitch with respect to time. To the right of Audioshop, click **Map Pitch** to open **Pitch Mapper** (see below) and apply a slide or other pitch contour to a selection of notes

- **Tip:** To more accurately make fine edits, first zoom in on pitch by positioning the mouse pointer over the area you would like to zoom in on and using the mouse wheel whilst holding down \mathbb{H} /Ctrl+Shift. Alternatively, click & drag vertically over the piano keyboard in the region of pitch that you'd like to zoom in on.
- **Tip:** Once zoomed in, scroll vertically by using the mouse wheel whilst holding down \mathbb{H} /Shift or by using the vertical scrollbar to the right of the Rip.

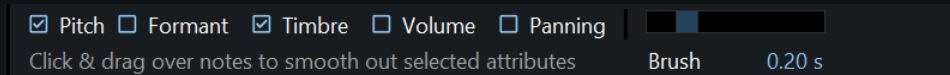


Apply Pattern Tool

Sine Pitch
Pattern Apply to Semitones 2.1 Period 0.49 s Brush 0.20 s

Apply fluctuations in pitch, formant, volume, and panning to selected notes. Choose the duration of the brush with the slider.

Smooth Region Tool



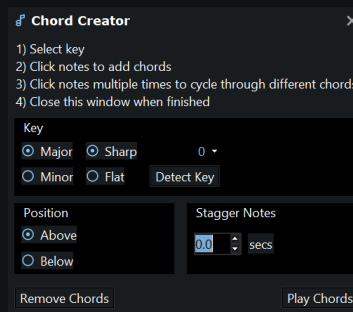
Blend together the pitch, formant, timbre, volume and/or stereo panning of notes by clicking & dragging over them. Choose the duration of the brush with the slider.

Other tools

The following tools are also available from the **Tools / RipScripts** menu:

Chord Creator

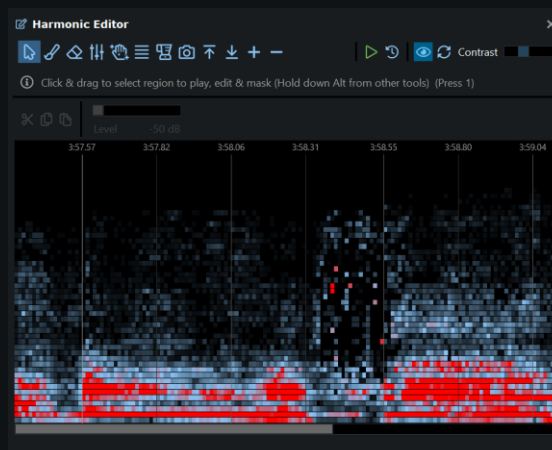
Utilize RipX's built-in key recognition to automatically add chords to melodies.




- Click **Detect Key** to automatically determine the key, or choose it manually by selecting whether it is major or minor and how many flats/sharps its key signature has.
- Choose between **Above** and **Below** to add the chord above or below the note.
- Click a note once to add a chord to it. Click it multiple times to view alternatives.
- As you add chords to a melody, listen to the chord progression by clicking **Play Chords**.
- If desired, arpeggiate the chords by choosing a duration in seconds beneath **Stagger Notes**.
- Click **Remove Chords** to remove all chords that have just been added with **Chord Creator**.
- Close the Chord Creator window once finished (or press **Esc**).

Harmonic Editor

View the harmonics of selected notes and edit them in powerful ways.



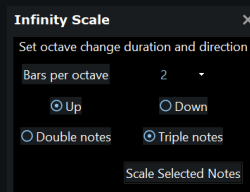
- **Harmonic Editor** can also be opened by pressing **⌘/Ctrl+T**.
- Choose a tool by clicking on one of the buttons at the top. A description of the selected tool and its keyboard shortcut is shown beneath the buttons.
- Choose the **Select/Edit/Mask Tool** to hear ranges of harmonics and time by clicking & dragging over them, then press **Up/Down/Backspace** to increase/decrease/remove the selected sound. This tool can also be used to place a cursor. Press **Escape** to remove it.
- Click the **Play** button to hear the entire note/unpitched sound or only that part of it from the cursor onwards or within the selection.
- You can change the duration and volume level of the brush with the sliders and choose which harmonics to apply the edits to.
- The decibel (dB) level, harmonic number, frequency, and time at the position of the mouse pointer are shown at the bottom.
- When **Remove To Another Note** is checked, if sound is removed, it is transferred to a newly created overlapping note so that it is not lost.
- When the  button is selected, live edits such as formant adjustments for pitch shifts, plus effects and repairs using the **Adjust / Effects** and **Repair / Clean** menus are applied to the displayed harmonics.
- Click the button to the right of the **Play** button to undo all edits made to the note/unpitched sound since it was last opened in **Harmonic Editor**.
- **Harmonic Editor** can edit the frequency components of unpitched sound. However, it should be noted that sibilants, snare/tom drum and percussion sounds are usually a group of individual unpitched sound objects (which can be ungrouped in the usual way using **Audio>Ungroup**). Only one of these individual objects can be edited at a time. Clicking at different frequencies within a grouped unpitched sound object will open each of these in the editor.
 - **Tip: Audioshop's Edit Unpitched Tool** (see above) can be used for editing a broader bandwidth of unpitched sound.
- Note: If edits are made to the currently displayed note/unpitched sound with the **Audioshop** or **Noise Removal** RipScripts, **Harmonic Editor** automatically updates to display the new harmonics. If for some reason a note is not updated, it is necessary to click the **Refresh** button to the left of the **Contrast** slider in the top-right corner of **Harmonic Editor**.

Clean Phase

Available from the **Clean** submenu, removes artifacts from selected notes by recalculating their phases. This is useful for improving the sound quality of a note. Additional cleaning tools are available in the same submenu.

Infinity Scale

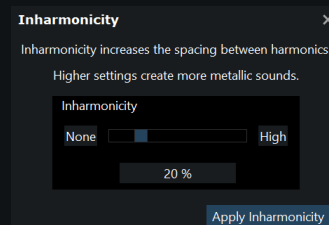
Available from the **Effects** submenu, use this tool to create an infinitely rising or falling glissando effect (based on the Shepard tone auditory illusion).



- The number of bars per octave determines how quickly it rises or falls.
- Select **Up** or **Down** to choose between a rising or falling effect and **Double notes** or **Triple notes** to determine whether it uses two or three notes at a time.
- Click **Scale Selected Notes** to apply the effect.

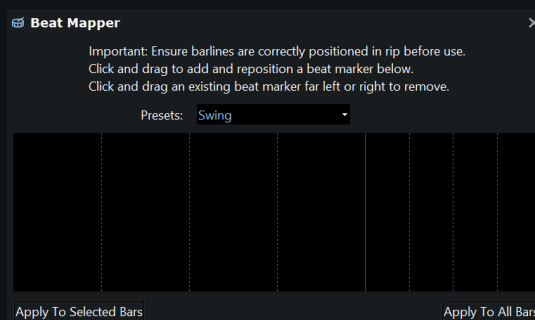
Inharmonicity

Available from the **Effects** submenu, this tool adjusts how much the harmonics of selected notes depart from whole multiples of the fundamental. Higher values make notes sound more metallic. Some instruments (such as the piano) have a higher inharmonicity than others.



Beat Mapper

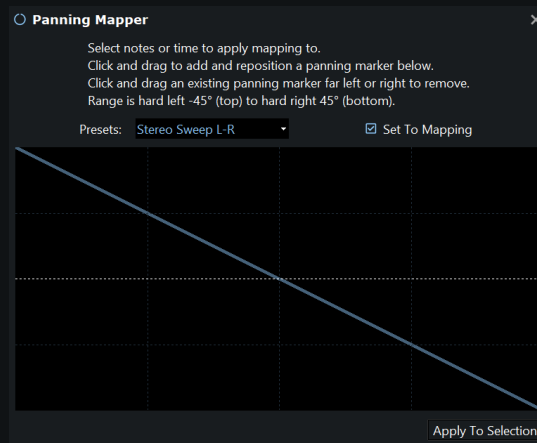
Available from the **Mappers** submenu, select from the **Swing**, **Sway** and **Custom** presets to change the rhythmic feel of one or more bars.



- Ensure bar lines are correctly positioned before use by clicking & dragging the handles beneath them. (Subsequent bar lines update automatically so it is best to start with the first and work forwards through the Rip.)
- When creating a **Custom** preset, click & drag to add and reposition a beat marker, click & drag an existing beat marker to reposition it and click & drag it to the far left or right to remove it.
- Click **Apply To Selected Bars** or **Apply To All Bars** to apply the beat markers to the Rip as appropriate.

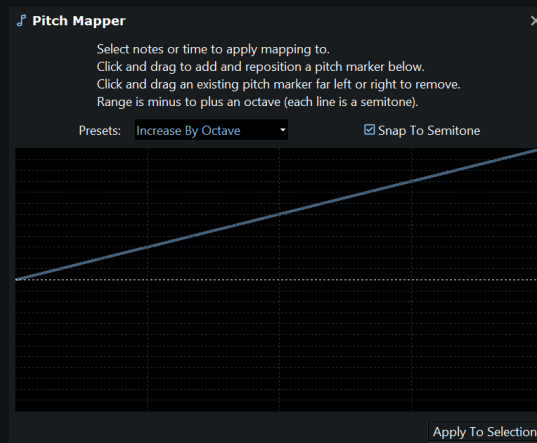
Panning Mapper

Available from the **Mappers** submenu, adjust the stereo panning over a selection. Select **Set To Mapping** to set the panning to the absolute position shown rather than adjusting it by the amount shown.



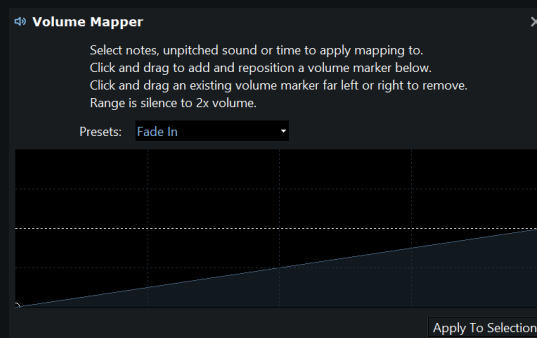
🎵 Pitch Mapper

Available from the **Mappers** submenu, apply a slide or other contour to a selection of notes over a range of two octaves. Choose from one of the simple presets or choose **Custom** to apply a more complicated contour.



🔊 Volume Mapper

Available from the **Mappers** submenu, apply fades and custom volume envelopes to notes.



DeepAudio: Advanced Editing Techniques

Here follow instructions for various types of advanced editing that can be performed with the **DeepAudio** module's tools. These are separated into main categories like **Pitch**, **Rhythm**, **Unpitched Sound** and **Noise Removal**. This should be read after reading **DeepRemix: Essential Step-By-Step Editing Instructions**. A detailed description of the tools mentioned below can be found in **DeepAudio: Audioshop & Other Tools**.

Pitch

- Use **Audioshop's Draw Pitch Tool** to draw the pitch of a note by clicking & dragging over it, moving the mouse pointer up/down to smoothly increase/decrease the pitch with respect to time.
 - **Tip:** Use this to correct or enhance a performance by adding or editing slides/portamentos and vibrato.
 - **Tip:** When editing the pitches of notes connected by a slide, use this to adjust the slide so that it continues to connect them in a natural fashion.
- Use the **Pitch Mapper** RipScript, available from the **Tools/RipScripts>Mappers** submenu, to make a selection of notes slide up or down by as much as an octave in pitch or choose from the other available presets to apply a more complicated contour.
- Use **Audioshop's Apply Pattern Tool** to add vibrato whose speed and amplitude/strength varies with time:
 1. Choose the **Sine** pattern and **Apply to Pitch**;
 2. Set the amplitude/strength of the vibrato by clicking & dragging the slider button to specify the number of **semitones** by which the pitch should vary;
 3. Set the speed of the vibrato by clicking & dragging the slider button to specify the **Period** in seconds;
 4. Click & drag over part or all of the note to apply the vibrato.
 - **Tip:** Create a vibrato of growing intensity by applying the sine pattern multiple times across the same note, each time increasing the amplitude (e.g. from 0.2 to 0.3 and then to 0.4 semitones). If necessary, use **Audioshop's Draw Pitch Tool** to smooth out the transitions between each vibrato.
 - **Tip:** Make the vibrato more realistic by also applying the sine pattern to the volume of the note. For this, the amplitude is in decibels (dB).
- Use **Audioshop's Clone Pitch/Sound Tool** to clone pitch changes such as vibrato and slides from one note to another:
 1. Ensure that only **Pitch Changes** is selected,
 2. **⌘/Ctrl**-click on a note at the start of the vibrato or other pitch variation you'd like to clone,
 3. Click & drag over the other note to apply the pitch variation to it.

Rhythm

- Draw new notes between the starts of existing notes with **Audioshop's Draw Sound Tool** to increase the speed of the rhythm.
- Use **Beat Mapper** (available from the **Tools/RipScripts>Mappers** submenu) to change the rhythmic feel of all or only selected bars by changing the relative lengths of the beats within them. Choose one of the presets (e.g. **Swing**) from the drop-down menu or follow the instructions to design a custom effect.

Volume

- Apply fades and other volume envelopes to selections of notes with **Volume Mapper**, available from the **Tools/RipScripts>Mappers** submenu and choose either:
 - **Fade In, Fade Out, Fade In & Out** or **Fade Out & In** from the **Presets** drop-down menu, or
 - **Custom** and then follow the instructions to apply a volume envelope of your own design.
 - **Tip:** Use this to add or remove expression such as a swell from a note.
- Select **Audioshop's Smooth Region Tool**, ensure that only **Volume** is selected, and then click & drag over the note.
 - **Note:** Any associated pitch vibrato can be removed with **Flatten Pitch** in the **Adjust/Effects** menu – see [Quickly flatten, slide, or add constant vibrato to pitch](#).

Unpitched Sound

- Use **Audioshop's Edit Unpitched Tool** to conveniently display all unpitched sound, spread out over the entire Rip, from its top to its bottom. Click & drag over a region to select and edit it. Pitched sounds/notes are displayed in the background for reference and cannot be selected or edited.


Noise Removal, Repair & Timbre Editing

Clean / Repair Unpitched Audio

1. Select **Audioshop's Edit Unpitched Tool** and, where the noise occurs, check if some or all of it has been recognized as unpitched sound by clicking & dragging over unpitched sound to listen to it. Then,
 - a) If an unpitched sound contains the noise and nothing else, select it and press **Delete**.
 - b) If it also contains a sound that is needed (such as a drum sound), check if that sound appears by itself elsewhere. If it does, delete the unpitched sound containing the noise and replace it with the other noiseless unpitched sound by copying & pasting it across. (See [Unpitched Sound](#) in [DeepRemix: Essential Step-By-Step Editing Instructions](#).)
 - c) Otherwise, move on to the following step.
2. Quickly remove any background or foreground noise from a selection with the **Clean / Repair** menu options – in particular, **Filter Background**, **Limit Foreground**, **Clicks & Thuds** and **Tones & Hum**. See below for details.

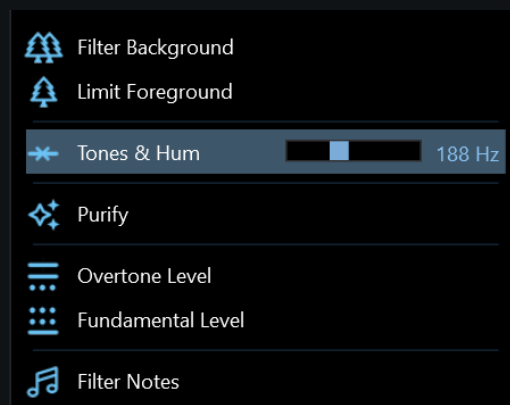
Clean / Repair Menu

This menu works in a similar way to the **Adjust / Effects** menu - drag the slider to set the extent of the adjustment.

These affect selected unpitched audio and pitched note timbre. You can view live adjustments to pitched notes (including automatic changes to formants by pitch shifts and other pitch effects) from within the Harmonic Editor – just ensure the  button at the top right is selected. To set live repairs and clean-up in stone, use **Audio > Render Adjustments & Effects**.

Below is a brief description of each option.

1. **Filter Background** – Removes unpitched audio and harmonic slices below a given dB level.
2. **Limit Foreground** – Limits the dB level of unpitched audio and harmonic slices.
3. **Tones & Hum** – Removes unwanted sounds like tones and hums, up to a maximum bandwidth.
4. **Purify** – Evens out rough and random amplitude changes within unpitched audio and harmonics, to create a smoother sound.
5. **Overtone Level** – Decreases/increases the level of overtones within pitched sounds, by adjusting harmonics.
6. **Fundamental Level** – Decreases/increases the level of the fundamental (1st harmonic) within pitched sounds. This can even be used to regenerate a fundamental that was filtered out during a mixing/mastering process, adding more bass presence back to sounds like vocals.
7. **Filter Notes** - Removes pitched notes below the selected dB level. This can be useful for removing quieter unwanted notes before exporting to MIDI.



Edit Pitched Timbre

- Use **Harmonic Editor** (available from the **Tools/RipScripts** menu or by pressing **⌘/Ctrl+T**) to view and edit the harmonics of a selected note.
 - **Tip:** Experiment with different edits made with different tools, listening to the effects that they have on the timbre of the note/unpitched sound.
 - **Tip:** Click & drag over part of the harmonics with the **Select/Edit/Mask Tool** to listen to that part only.
- Use **Audioshop's Clone Pitch/Sound Tool** with **Sound** selected to clone timbre (and volume) from one sound to another.

DeepAudio: Additional Keyboard & Mouse Shortcuts (macOS/Windows)

<i>Right-click Rip</i>	Open a menu at the position of the mouse pointer that includes various editing options and tools plus all of Audioshop's tools.
<i>1</i>	Select Audioshop's Move/Resize tool.
<i>2</i>	Select Audioshop's Edit Unpitched tool.
<i>3</i>	Select Audioshop's Draw Sound tool.
<i>4</i>	Select Audioshop's Split tool.
<i>5</i>	Select Audioshop's Join tool.
<i>6</i>	Select Audioshop's Replace Sound tool.
<i>7</i>	Select Audioshop's Clone Pitch/Sound tool.
<i>8</i>	Select Audioshop's Draw Pitch tool.
<i>9</i>	Select Audioshop's Apply Pattern tool.
<i>0</i>	Select Audioshop's Smooth Region tool.
<i>⌘ T</i> <i>Ctrl+T</i>	Open Harmonic Editor to view and edit the harmonics of a note/unpitched sound.
<i>1</i>	Select the Select/Edit/Mask tool within Harmonic Editor .
<i>2</i>	Select the Paint Sound tool within Harmonic Editor .
<i>3</i>	Select the Erase Sound tool within Harmonic Editor .
<i>4</i>	Select the Adjust Level tool within Harmonic Editor .
<i>5</i>	Select the Remove Noise tool within Harmonic Editor .
<i>6</i>	Select the Reduce Loud Harmonics tool within Harmonic Editor .
<i>7</i>	Select the Smooth Harmonics tool within Harmonic Editor .
<i>8</i>	Select the Clone From Time Slice tool within Harmonic Editor .
<i>9</i>	Select the Reduce To Time Slice tool within Harmonic Editor .
<i>0</i>	Select the Increase To Time Slice tool within Harmonic Editor .
<i>⇧ 1</i> <i>Shift+1</i>	Select the Reduce By Time Slice tool within Harmonic Editor .
<i>⇧ 2</i> <i>Shift+2</i>	Select the Increase By Time Slice tool within Harmonic Editor .
<i>⌘⇧ R</i> <i>Ctrl+Shift+R</i>	Open the Noise Removal RipScript to quickly remove foreground or background noise from a selection.

DeepAudio: Using RipX with DAWs

Most leading DAWs (*Digital Audio Workstations*) can open audio clips for editing with **RipX: DeepAudio**. Plug-ins are installed with **RipX** so that it can be used with Pro Tools and DAWs that support VST3/ARA2. For other DAWs, such as Logic Pro X and Ableton Live, it is possible to work with **RipX** by setting it as its external sample editor.

Pro Tools AudioSuite

For Pro Tools, the *RipLink* AudioSuite plug-in is automatically installed with **RipX: DeepAudio**.

Note: Pro Tools version 12.2 (Windows) / 12.8.2 (macOS) or later is required.

- 1) In Pro Tools, select audio in a single track and choose **AudioSuite>Other>Edit In RipX**.
- 2) Click **RipX** in the window that opens.
- 3) **RipX** will bring up the usual options for ripping the audio and then start processing.
If the clip has been previously ripped and is in the RipList, **RipX** will first ask whether you'd like to open that instead.
- 4) Once ripped, edit as you would normally.
- 5) When you have finished, click **File>Update in Pro Tools** (⌘S / Ctrl+Alt+S).

Important: if you experience no audio playback within **RipX** whilst Pro Tools is running, try the following:

- If Pro Tools is using ASIO4ALL as the playback engine, try changing it to another in **Setup>Playback Engine...**
- Alternatively, close Pro Tools and select an alternative playback device *not used by Pro Tools* from **RipX>Preferences...** (macOS) or **File>Preferences...** (Windows). Then restart Pro Tools and try again.
- If no other devices are available, try installing and selecting **ASIO4ALL**, available to download from <http://www.asio4all.org/>. ASIO4ALL is a widely used ASIO driver but as it is a third-party product, Hit'n'Mix Ltd takes no responsibility for its usage.

VST3/ARA2

Installed with **RipX: DeepAudio** is the *RipLink* plug-in for VST3/ARA2. DAWs that support this include:

Studio One (v 4 or later)	Cakewalk (v 2019.05 or later)
REAPER (v 5.97 or later)	Cubase Pro/Nuendo (v 11.0.30 or later)

Studio One

- 1) Split the sections of each track that you would like to edit in RipX from the rest of the track by using the **Split Tool**.
- 2) Switch to the **Arrow Tool** and click on one of the sections to select it.
- 3) Open the **Inspector** (if it is not already open) and, next to **Event FX**, click **Enable**.
- 4) In the **Inserts** panel that appears below, click on the + button.
- 5) In the search box, start to type **RipLink** and click on it when it appears in the search results below.
- 6) Repeat steps 3-5 for the other sections that you would like to edit in RipX.

- 7) Click **RipX** in the RipLink plugin window.
- 8) RipX will bring up the usual options for ripping the audio. Click **Rip** to start ripping.

(Note: If the section has been previously ripped and is in the **RipList**, RipX will first ask whether you'd like to open that instead.)

- 9) Once all sections have been ripped, edit them as you would normally.
- 10) When you have finished, display each Rip and choose **File>Update In Studio One** (⌘+⌥+S / Ctrl+Alt+S) to update the audio in Studio One.

Cubase Pro/Nuendo

- 1) Split the sections of each track that you would like to edit in RipX from the rest of the track by using the **Split Tool**.
- 2) Switch to the **Object Selection Tool** and click on one of the sections to select it.
- 3) From the menu bar, select **Audio > Extensions > RipLink**.
- 4) Repeat steps 2-3 for the other sections that you would like to edit in RipX.
- 5) Click **RipX** in the RipLink plugin window.
- 6) RipX will bring up the usual options for ripping the audio. Click **Rip** to start ripping.

(Note: If the section has been previously ripped and is in the **RipList**, RipX will first ask whether you'd like to open that instead.)

- 7) Once all sections have been ripped, edit them as you would normally.
- 8) When you have finished, display each Rip and choose **File>Update In Cubase/Nuendo** (⌘+⌥+S / Ctrl+Alt+S) to update the audio in Cubase/Nuendo.

REAPER

- 1) Split the sections of each track that you would like to edit in RipX from the rest of the track by clicking on the track and pressing **S**.
- 2) Double-click on one of the sections.
- 3) At the bottom of the **Media Item Properties** dialog box that opens, click **Take FX...**
- 4) The **Add FX** dialog box opens. In the tree on the left-hand side, click on **Hit'n'Mix** under **Developers**.
- 5) Click on **VST3: RipLink** in the panel on the right and click **Add** (macOS) or **OK** (Windows).
- 6) Repeat steps 2-5 for the other sections that you would like to edit in RipX.
- 7) Click **RipX** in an **FX** dialog box.
- 8) RipX will bring up the usual options for ripping the audio. Click **Rip** to start ripping.

(Note: If the section has been previously ripped and is in the **RipList**, RipX will first ask whether you'd like to open that instead.)

- 9) Once all sections have been ripped, edit them as you would normally.
- 10) When you have finished, display each Rip and choose **File>Update In REAPER** (⌘+⌥+S / Ctrl+Alt+S) to update the audio in REAPER.

Cakewalk

- 1) Select the section you would like to edit in RipX.
- 2) Right-click on the section and select **Region FX > RipLink > Create Region FX**.
- 3) Repeat steps 1-2 for the other sections that you would like to edit in RipX.
- 4) Click **RipX** in the RipLink plugin window.
- 5) RipX will bring up the usual options for ripping the audio. Click **Rip** to start ripping.

(Note: If the section has been previously ripped and is in the **RipList**, RipX will first ask whether you'd like to open that instead.)

- 6) Once all sections have been ripped, edit them as you would normally.
- 7) When you have finished, display each Rip and choose **File>Update In Cakewalk** (⌘S / Ctrl+Alt+S) to update the audio in Cakewalk.

Other DAWs

- 1) In your DAW, use its splitting tool to separate out the part of the track that you would like to edit in **RipX**
- 2) Add the **RipLink** plug-in (from developer **Hit'n'Mix**) to that section of track.
- 3) Ensure that the section of track is selected.
- 4) Click **RipX** in the **RipLink** plug-in's window.
- 5) RipX will bring up the usual options for ripping the audio. Click **Rip** to start ripping.

(Note: If the section has been previously ripped and is in the **RipList**, RipX will first ask whether you'd like to open that instead.)

- 6) Once all sections have been ripped, edit them as you would normally.
- 7) When you have finished, choose **File>Update In DAW** (⌘S / Ctrl+Alt+S) to update the audio in your DAW.

Important: if you experience no audio playback within **RipX** whilst your DAW is running, check whether it has an option to disable audio when running in the background, or try using an alternative playback device in RipX from **RipX>Preferences...** (macOS) or **File>Preferences...** (Windows).

Using As External Sample Editor

Setting Up the DAW

This only needs to be done once and tells the DAW where **RipX** can be found. For example:

Windows: C:\Program Files\Hit'n'Mix\RipX\RipX.exe

macOS: Applications/RipX

Logic Pro X *Version tested: 10.* Select the **File Editor** tab from **Logic Pro X > Preferences > Audio**. (If this tab is not shown, click **Advanced** from the toolbar, then **Show Advanced Tools** and enable **Audio**, before returning to **Audio > File Editor** on the toolbar). Click the field next

to **External Sample Editor** and locate and choose the **RipX** executable. Close the dialog box.

- Ableton Live** *Version tested: 10.* Open the Preferences (*Windows: Options > Preferences* or *macOS: Live>Preferences*) and select the **File Folder** tab. Click the **Browse** button next to **Sample Editor** and locate and choose the **RipX** executable. Close the dialog box.
- FL Studio** *Version tested: 20. Only worked on Windows.* Open the **External tools** settings, found in **OPTIONS > File settings (FL Studio 20)** or **TOOLS > External tools (earlier versions)**. Click the folder icon and locate and choose the **RipX** executable. **Important:** Ensure **Launch with file/sample** is selected. Close the dialog box.
- ACID Pro** *Version tested: 9.* Open the Preferences (**Options > Preferences**) and select the **Editing** tab. Click the **Browse** button next to **Editing application 1/2/3** and locate and choose the **RipX** executable. **Important:** Next, enter **RipX** next to **Name**. Click **OK** to close the dialog box.
- Digital Performer** *Version tested: 10.* Click **Audio > Use External Waveform Editor** and locate and choose the **RipX** executable.
- Mixcraft** *Version tested: 8.1.* Open the Preferences (**File > Preferences**) and select **General** from the left-hand side. Click the **Browse** button in the **External Wave Editor** section and locate and choose the **RipX** executable. Click **OK** to close the dialog box.

Sending the Sample to RipX

- Logic Pro X** Select an audio clip and choose **Edit > Open in RipX** from the toolbar menu or press **⌘W**.
- Ableton Live** Double-click the title of the audio clip to edit, then right-click the waveform in the **Sample Display/Note Editor (bottom of screen by default)** and choose **Manage Sample File** from the menu. In the **Replace Files** pane (*right of screen by default*) the audio clip will be selected – click **Edit** next to it. Note that this also takes the sample off-line within Live.
- FL Studio** Double-click the sample to open the **Sample settings**. Right-click over the waveform display and choose **RipX** from the menu.
- ACID Pro** Right-click the sample in the timeline and choose **Event Clip > Edit in RipX** from the menu. (Alternatively, select the sample and use **Tools > Edit in RipX** from the menu)
- Digital Performer** Click the sample and choose **Audio > Edit in Waveform Editor**.
- Mixcraft** Right-click the title of the audio clip to edit, then choose **Edit In External Editor....** In the dialog box that appears, choose either to **Edit A Copy Of The Sound**, or **Edit Actual Sound** and then click **Edit**. Note that RipX automatically makes a copy of the audio before updating it.

Editing and Updating the Sample

RipX will bring up the usual options for ripping the audio and then start processing. If the clip has been previously ripped and is in the RipList, RipX will first ask whether you'd like to open that instead. Depending on the length of the sample, you may wish to do further work within the DAW or other rips within RipX whilst it takes apart the audio.

Once ripped, edit as you would normally.

When you have finished, choose **File > Update Source** (⌘S / Ctrl+Alt+S). RipX will check that you want to update the file before exporting it in the same file format as the source.

As a precaution, RipX will also create a backup of the original file alongside it, with **[Original]** appended to the filename. This can be deleted using **Finder/Explorer** when you are sure you no longer require the original.

Let the DAW Know About the Update (only required for the following DAWs)

Ableton Live Click the **Edit** button next to the sample once again so that it is no longer highlighted.

FL Studio Right-click the waveform in the **Sample settings** to bring up the menu and choose **Reload**.

Mixcraft Click **Done** in the **Waiting...** dialog box.

Pro Tools, Studio One, Cakewalk, Logic Pro X, Ableton Live, Logic Pro X, Digital Performer, ACID Pro, Mixcraft, Cubase, Nuendo & REAPER are trademarks or registered trademarks of their respective owners.

How To...

The following section explains how to perform a number of common tasks with **RipX**.

Change the Key of a Rip

1. Click **Edit>Select All Pitched** (⌘A / Ctrl+Shift+A) to select all pitched notes in the Rip.
2. Press the **Up/Down** arrow key a number of times to shift the selected notes up/down by that number of semitones.
 - **Tip:** For best results, shift the notes in the direction that requires the smallest shift. For example, shift the notes down one semitone to change the key from C major to B major instead of up 11 semitones.
3. If any notes are now too high or too low, select them and press Down/Ctrl+Down or Up/Ctrl+Up to shift them **down or up an octave**.
4. To change the mode of the key from major to minor or vice-versa, click **Set Musical Scale** at the bottom-left of **RipX** and then select the appropriate scale from the menu.
 - **Tip:** Click **Detect** to find the key of the Rip and then change it from major to harmonic minor or vice versa.
 - Select **Auto Pitch To Scale** and RipX will automatically shift notes to the nearest semitone for the selected key and scale.

A/B

The best way to A/B between before and after edits, is to click **File>Save Copy** (⌘S / Ctrl+Shift+S) before making any edits to the Rip, then press **^/Ctrl+Tab** to quickly switch between the edited and original copy (which are both shown in the **RipList Panel**).

Manually Separate/Re-assign Instruments

For instruments other than voice, bass and drums, it may sometimes be necessary to correct the assignment of notes within **RipX**. This can be done by listening to them, selecting them and then assigning them to another layer by clicking on the arrow button to the left of the layer name, in the **Layers Panel** in the bottom-right of **RipX**. A new layer can be added to the **Layers Panel** by clicking **Add Layer** beneath the list of layers.

Use RipX for Transcription

1. Click **File>Export** (⌘E / Ctrl+E) to open the **Export** dialog.
2. Under **File Format**, choose **MIDI Notes (.mid)** and click **Export**. (This format is designed specifically for transcription and contains just the overall pitch and amplitude for each note.)
3. Import the exported MIDI file into notation software.
 - **Tip:** (*DeepAudio only*) If the Rip contains quiet notes that do not need to be transcribed, select the region in which they appear (e.g. by clicking & dragging a selection rectangle over them) and then use the **Filter Notes** tool in the **Clean / Repair** menu to filter them out.

De-Ess

Sibilants (such as S, F, X and SH) are usually displayed at the pitch of the surrounding vocal notes to which they belong and can be selected by clicking on them. Once selected, use the **Level** slider in the **Adjust / Effects** menu to reduce the volume of these sounds.

- **Tip:** (*DeepAudio only*) Use **Audioshop's Edit Unpitched Tool** to select sibilants that have not been linked to vocal notes by clicking & dragging a selection rectangle over them. Then use the **Level** slider to reduce their volume.

Some Creative Applications


The following shows how the above tools and effects can be used for music production, composition, sampling, song creation and sound design for audio post production and games plus more. Hopefully they will also inspire you in your own experimentation!

Copy & paste notes between different Rips and different parts of the same Rip






- Create harmony or layered textures by copying & pasting vocal/instrumental notes or sound effects on top of themselves then shifting them up or down in pitch. Improve the effect by reducing the volume of the harmony notes with the **Level** effect and (*DeepAudio only*) adding subtle variations in pitch with **Audioshop's Draw Pitch Tool**. Note that harmony can also be added more quickly (but with less control over the notes) by simply applying the **Harmony** effect.
- Create a dialog between two singers, actors, instruments, or sound effects by copying a single line or sound of one of them and pasting that between two lines or sounds of the other. Upon pasting, click & drag its start and end to find the desired timing. Alternatively, paste with \mathbb{H} \triangleleft / **Ctrl+Shift+V** to automatically fit to the destination BPM. Use the **Stereo Panning** effect to make the different performers or sound effects come out of different speakers.
- Add repetition at regular intervals by using **Edit>Duplicate** (\mathbb{H} / **Ctrl+D**) on a selection or by copying & repeatedly pasting it at other rhythmic intervals. Notes can then be shifted in pitch to create scales or arpeggiated effects. Alternatively, the **Delay** effect can be used to create an echo effect.

Create songs from samples

- 1) Open a song that you'd like to add a new part to.
- 2) Open the song that contains that new part.
- 3) Once all ripping has completed, check that the bar lines are correctly positioned in both Rips. If they are not, click & drag the handle beneath each bar line to move it. Subsequent bar lines update automatically so it is best to start with the first one and work forwards through the Rip.
 - **Tip:** After viewing the two Rips in succession, quickly swap between them by pressing \wedge / **Ctrl+Tab**.
- 4) In the **RipList Panel**, hover the mouse pointer over the Rip of the first song to view its BPM (shown to the right of its name).
- 5) Display the Rip of the second song and set its BPM to be the same as the BPM of the first song by using the **Change Tempo** RipScript (accessible by right-clicking on the background of the Rip when nothing is selected).
 - **Note:** This step can be skipped – see note below.
- 6) Play back the first song to find the best place to add the new part to.
 - **Tip:** Create a loop with the **Loop** bar to listen to a section repeatedly.
- 7) In the Rip of the second song, select the notes and/or unpitched sounds that you'd like to add to the first and copy them by pressing \mathbb{H} / **Ctrl+C**.
- 8) Swap back to the rip of the first song and paste the copied selection by pressing \mathbb{H} / **Ctrl+V**.



- **Note:** If you chose not to change the BPM of the second song, instead press  **Ctrl+Shift+V** to paste and automatically fit to the BPM of the first song.

Create mashups of your tracks

- 1) Rip two or more of your songs that you'd like to combine.
- 2) In the **Layers Panel** (bottom-right of the window) mute (click **M**) and solo (click **S**) different layers in each Rip and play them back to pick out the best parts to use.
- 3) Mute a layer that you'd like to remove from a song or delete all of its notes by right-clicking on its name in the **Layers Panel** and clicking **Delete**.
 - **DeepAudio only:** Identify, select and delete any residual unpitched sound associated with the layer by using the **Edit Unpitched Tool**.
- 4) Select a layer in another Rip by opening that Rip and clicking on the name of the layer in the **Layers Panel**. Alternatively, select a vocal phrase, riff or other part of a layer by soloing the layer and clicking & dragging a selection rectangle over the required notes/unpitched sounds.
- 5) Copy & paste the selection to the Rip with the muted/deleted layer by pressing  **Ctrl+C**, switching to that Rip, placing the cursor at the point where the selection should be pasted and then pressing  **Ctrl+Shift+V** to automatically fit the pasted selection to the new tempo.
- 6) Group the selection by pressing  **Ctrl+G** so that it can be easily edited as a single object to tweak its timing and pitch.
- 7) To alter the timing and pitch of any of its individual notes/unpitched sounds, ungroup it by pressing  **Ctrl+Shift+G** or hold down  **Alt** whilst clicking & dragging them up/down or left/right.
- 8) Experiment with copying & pasting other parts of the Rips together.

Import MIDI tracks from your DAW

The following contains steps that can only be performed with **DeepAudio**.

- 1) Export a MIDI track from your DAW as a MIDI file.
- 2) Click **File>Open** or press  **Ctrl+O** to import the MIDI file and convert it into a Rip.
- 3) Apply vocal, instrumental, and other sounds to selected notes by choosing the sound in the **Sound Palette**, selecting **AudioShop's Replace Sound Tool** and then clicking **Replace Selection** in the area to the right of **Audioshop**.
 - **Tip:** All notes assigned to the same layer can be selected at once by clicking on the name of the layer in the **Layers Panel**.
- 4) If you applied to notes an instrumental sound that differs from the one they had in the MIDI file, change the layer they are assigned to by selecting them and clicking on the arrow icon next to the appropriate instrument name in the **Layers Panel**.
- 5) If required, add realism to notes in the following ways:
 - Click & drag the starts of notes so that they are no longer strictly in time. (If **Snap to Beat Markers** is checked in the **View** menu, hold down  **Alt** whilst clicking & dragging.)
 - Add vibrato from the **Adjust / Effects** menu or with **Audioshop's Apply Pattern Tool**.

- Add pitch slides and vibrato by hand with **Audioshop's Draw Pitch Tool** or clone these from other notes with **Audioshop's Clone Pitch/Sound Tool**.
 - Adjust the volume across notes with **Volume Mapper**, available from the **Tools / RipScripts>Mappers** submenu.
- 6) Copy & paste notes into other Rips that you are working on.
- **Tip:** When pasting, press \mathbb{H} \triangleleft / **Ctrl+Shift+V** so that the pasted notes are automatically adjusted to fit the destination BPM.

Put notes onto a different scale

- 1) Beneath the Rip, use **Set Musical Scale** and **Add Scale Change** to choose musical scales to apply to chosen bars. (See **Edit pitch over a musical scale** for more information on how to do this.) Ensure that **Auto Pitch To Scale** is not selected when you do this.
- 2) Select the notes that you would like to put onto a different scale.
 - **Tip:** If the notes all belong to the same layer, solo it (by clicking the **S** button next to its name in the **Layers Panel**) or lock all other layers (by right-clicking on its name and clicking **Lock All Others**) so that you can quickly select the notes with a selection rectangle without worrying about selecting notes in other layers.
- 3) Click **Pitch To Scale** in the **Adjust/Effects** menu to snap the selected notes to the scale.
- 4) Repeat with other selections.
 - **Tip:** If you need to set different scales to notes in the same layer that are overlapping in time, first set the scale for one set, then click **Audio>Render Adjustments & Effects** or press \mathbb{N} / **Alt+R** to set their pitch in stone. Then continue to set the scale for the other set of notes.

DeepAudio: Give notes a special attack by applying the sound of another instrument, voice or sound effect to their starts

- 1) In **Audioshop's Clone Pitch/Sound Tool**, check **Sound & From Start** and ensure that all other options are unchecked.
- 2) Choose a brush with a short duration (e.g. 0.3s).
- 3) If the note is significantly quieter or louder than the notes to which it will be applied, compensate for this by adjusting the level in the **Sound Palette**.
- 4) Choose the note with the sound you would like to apply to the starts of others by \mathbb{H} / **Ctrl**-clicking it.
- 5) Click near the starts of notes to apply that sound to them.

DeepAudio: Build suspense with an infinite glissando (slide)

- 1) Find a preferably long note with a pitch and volume that do not vary much.
- 2) Copy & paste it to the point at which you would like the infinite glissando to start.
- 3) If desired, shift the pitch of the note up or down (e.g. to the tonic of the key).
- 4) Click & drag the end of the note to stretch it over several bars.

- 5) Use **Volume Mapper** (from the **Tools/RipScripts>Mappers** submenu) to make the start of the note fade in. (Note that the **Custom** preset can be used to apply a fade just to the start of the note.)
- 6) Open **Infinity Scale** from the **Tools/RipScripts>Effects** submenu and choose the **Up** and **Triple notes** options.
- 7) The best effect is achieved by choosing a number of **Bars per octave** that makes the glissando rise slowly yet fast enough that there is enough time for the effect to go through multiple cycles of glissando (slide).
- 8) Click **Scale Selected Notes** to apply the effect.

DeepAudio: Replace an instrumental phrase with a vocal phrase that has the exact same pitches & timing (vocal transplant)

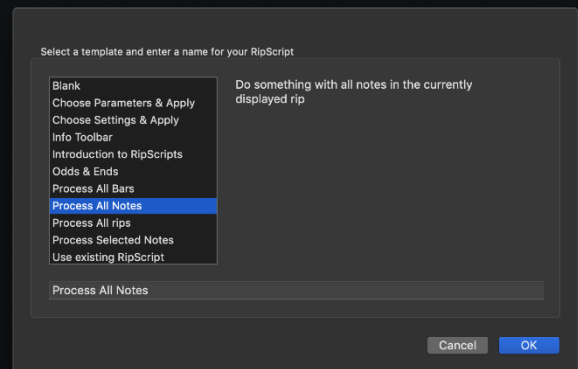
- 1) Select all notes belonging to an instrumental phrase (e.g. part of a guitar riff).
- 2) Join them into one note (\mathbb{H} /Ctrl+J) and, if necessary, assign them to the appropriate layer with the **Layers Panel**.
- 3) For best results, find a vocal phrase that is not greatly different in length or pitch. (It need not be from the same Rip.)
- 4) Select all notes belonging to the vocal phrase then copy & paste them to the start of the instrumental phrase.
- 5) Whilst still selected, join the vocal notes into one (\mathbb{H} /Ctrl+J) and, if necessary, assign them to *Voice* with the **Layers Panel**.
- 6) Click & drag the end of the vocal note so that it is in time with the rest of the music.

In particular,

- Fit the rhythm of the words to the drums, rhythm guitar or piano accompaniment,
 - Aligning the shapes of the phrases (e.g. their peaks) can sometimes be a quick way to find a good result,
 - Any fine adjustments can be made later.
- 7) In **Audioshop's Clone Pitch/Sound Tool**, check **Pitch Changes**, **Pitch** and **From Start**.
 - 8) \mathbb{H} /Ctrl-click the instrumental note and then click & drag over the entire length of the vocal note to reshape it.
 - 9) Select and delete the part of the instrumental note that overlaps the vocal note plus any part of the vocal note that does not overlap the instrumental note.
 - 10) If necessary, make fine adjustments to sync the voice to the music by selecting parts of the vocal note and moving their starts and ends.
 - 11) Use the **Level** effect to adjust the level of the voice to fit with the rest of the music.

DeepAudio: RipScript Editor

Audioshop and tools such as the *Clone Pitch/Sound Tool* and *Volume Mapper* are all *RipScripts*, which are based on the easy and popular Python 3 programming language. It is possible to write your own *RipScripts* with the *RipScript Editor* which can be opened from the **Tools/RipScripts** menu. From the same menu, an introduction to *RipScripts* can be viewed by clicking **Create RipScript...**, selecting **Introduction to RipScripts** and clicking **OK**.



Please email *RipScripts* to ripscripts@hitnmix.com. The most useful ones will be featured on our website.

Notes about some features of the editor:

- | | |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Indents</i> | RipScripts run in a computer language called Python 3. It requires that code uses indentation rather than brackets for grouping instructions, and each indent can be either 4 spaces or 1 tab. The RipScript editor enters 1 tab each time the Tab key is pressed, which particularly for beginners, prevents any confusion that the correct number of spaces has been entered. It is however possible to enter spaces using the Spacebar instead, although they cannot be mixed with usage of tabs in a RipScript. Code indented using spaces copied & pasted into your RipScript will be automatically converted to use tabs if it already uses tabs for indentation. |
| <i>Auto-complete</i> | As you type, the editor will predict what you want to enter and offer a list of selections. The more you type, the shorter the list will become. Click on an item to enter, or use the keyboard Up & Down arrows and press Enter . |
| <i>Object descriptions</i> | As you move through different predictions in Auto-complete, RipX will also show you a description of the function or attribute and often provide sample code which you can insert into your RipScript. To do this, click & drag over the code snippet to select it. Then, on macOS, copy by right-clicking over the text and choosing Copy from the menu; on Windows, press Ctrl+C . Finally, paste into your RipScript by placing the caret at the position you'd like to insert, and using Edit>Paste from the menu bar or ⌘/Ctrl-V . Descriptions are also shown when you hover the mouse pointer over function names, attributes, and some Python keywords in RipScripts. |
| <i>Placeholders</i> | <p>After selecting a function (followed by brackets) from the auto-complete list, it is entered into the RipScript and, depending on the function, will be followed by a list of arguments to fill in. Press Tab to jump to the next argument to fill (for example, if you are finished with entering one, or do not need to enter a value). Shift-Tab jumps to the previous argument. Enter finishes entering of arguments and places the cursor after the final bracket.</p> <p>Arguments that must be filled in are followed by the equals sign: =</p> <p>Arguments that are optional are followed by this sign: ≈</p> |
| <i>RipScript reference</i> | For a tree diagram showing how various RipScript objects are related to each other, with links to a complete online reference of the full API: When the RipScript editor is open, choose How To Create RipScripts from the menu (macOS : the menu bar Help menu; Windows : the pop-up menu, by right-clicking over the editing section of the editor window). |

Glossary of Terms

Amplitude	Amplitude is related to Volume . However, it does not describe how loud a note sounds, but is a physical property of how audio is constructed and defines the height of a wave for a slice in a harmonic. In a RipScript it is a value between 0 (silent) and 1 (full volume). In a 16-bit WAV file it is measured between 0 and 32767.
ASIO driver	A Windows audio device driver, which can be selected from File>Preferences.... ASIO is a trademark and software of Steinberg Media Technologies GmbH.
Decibel (dB)	A decibel (abbreviated to dB) is a relative unit of volume. Adding 10 dB to a note makes it sound twice as loud. Taking off 10 dB halves the volume. +/- 1 dB is seen as the lowest perceivable change in volume for an average person.
Formant	A formant is a grouping of strong harmonics that define different sounds in speech. Transposing the pitch of a note without altering the frequency of its formants allows it to stay more natural sounding.
Frequency	Frequency , measured in Hertz (Hz) , is related to Pitch . It is a physical property of how audio is constructed and defines the number of wave cycles per second for a slice in a harmonic.
Full-mix track	An audio track that has had all the separate instrument recordings (stems) merged into one, requiring software such as RipX to separate them to make them once again individually editable.
Harmonic	A musical note or sound is comprised of harmonics, waves at multiples of the fundamental frequency (the one you perceive) giving it its timbre or sound.
Loudness	A measure of how loud a note sounds, different from Amplitude (see above).
MIDI Number	MIDI is a standard for playing notes using electronic instruments. The MIDI number is a scale of note pitches between 0 and 127 which each have a unique number. For example, middle C is 60.
Panning	Panning is the apparent position of a sound, for example between left and right speakers.
Phase	Phase is an angle which determines where in a wave's cycle a particular slice represents.
Pitch	Pitch determines how high or low a note sounds. Also see MIDI Number and Frequency .
Python 3	An easy-to-use and popular programming language used for running RipScripts .
Rip	A Rip is an audio file that has been source separated into individual notes, harmonics , frequencies , amplitudes , phases and slices by the Ripper .
RipCut	One or more RipCuts can belong to a Rip . They can be listed by clicking the arrow button to the left of the Rip's name in the RipList Panel . Examples of their use are: <ul style="list-style-type: none"> To store snippets of audio from a Rip you may want to regularly use: Select notes in the Rip and then choose Edit>Copy to RipCut from the menu.

- **RipScripts** can use **RipCuts** to store notes temporarily: For example, to play a selection in reverse without affecting the original notes, it could copy the notes to a new **RipCut**, reverse them, play them back and then remove the **RipCut**.
- The **Sound Palette** RipScript uses them to store samples of instruments and other sounds.
- **Ripples** are also stored as **RipCuts**.

RipList	A RipList is a collection of Rip files, akin to a playlist, shown at the top-right of the RipX window.
Ripper	The Ripper uses sophisticated algorithms to split audio into separate notes , harmonics , frequencies , amplitudes , phases and slices , creating a Rip file.
Ripple	A Ripple is an automatic recording of edits made to a loop during its playback. It is created in the Rip format and kept beneath the Rip from which it was created in the RipList Panel .
RipScript	A RipScript is a script (or small computer program) written in Python 3 that can automate audio processing and provide a user interface in RipX .
Sample	An audio clip in waveform format.
Slice	A separate value for pitch , volume , panning and phase is stored by RipX at regular intervals of time, just under 1/100 th second. Each interval of time is called a Slice .
Timbre	The character of a note that is unique to the voice, instrument or sound that performed it.
Volume	Volume determines how loud a note sounds. Also see Amplitude , Decibel and Loudness .
Wave	For example, a <i>sine wave</i> , is a simple regular to and fro motion which notes are generally comprised of at the most basic level. Waves are stored in traditional audio formats and represent the movements a speaker needs to make for air to vibrate so that sound can be heard by a person.
Waveform	An audio file containing the speaker positions needed to recreate a recorded sound.
Widget	A user interface item such as a button, check box, combo box, or slider that can be added to a window in a RipScript .

Addendum

Created by Martin Dawe, Richard Cheng, David Dawe, Chunhua Hu and Jeremy Lloyd.

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