RX PLUG-IN PACK

USER GUIDE

iZotope

RX PLUG-IN PACK

Contents

RX PLUG-IN PACK

Introduction

Here at iZotope, we specialize in building audio products for music production, post production and broadcast.

The RX Plug-in Pack is a collection of the four essential plug-ins from the RX Audio Editor award winning technology and flagship product. These intelligent plug-ins designed and engineered to deliver quality results, and reduce manual tasks during your music and audio production, freeing you up to focus on creativity & experimentation.

The RX Plug-in Pack is made up RX Dialogue Denoise, RX De-clip, RX De-click and RX De-hum and is for anyone who's ever encountered an audio problem they wished they could repair. With the RX Plug-in Pack you can now remove or reduce audio problems like background noise, hiss, clicks, glitches, distortion, clipping ground loops, hums, buzzes etc....

The RX Plug-in Pack is built primarily for those working on recorded sound such as vocals, voice (dialogue), instruments and foley in music, post production and broadcast.

We hope you enjoy using the RX Plug-in Pack on your next project!

The iZotope Team

RX PLUG-IN PACK

Authorization

When you first download and install RX Plug-in Pack, the plug-ins will be in Trial mode. After 10 days all the plug-ins will go into Demo mode.

Authorization is required to disable both Trial and Demo modes.

Trial mode

For the first 10 days after the RX Plug-in Pack plug-ins are opened or instantiated, All the plug-ins will run in Trial mode. Trial mode offers the full functionality of the plug-ins.

Demo mode

After 10 days, the RX Plug-in Pack plug-ins will go into Demo mode. In Demo mode, the plug-ins will be fully functionable with the exception that silence will be inserted periodically.

Serial number

Each purchased copy of the RX Plug-in Pack contains a unique serial number to authorize your plug-ins.

If RX Plug-in Pack has been downloaded directly from iZotope or another re-seller, the serial number will be emailed to you, along with the link to download the product. The serial number should resemble:

SN-RXPLUGINPACK-XXXX-XXXX-XXXX-XXXX

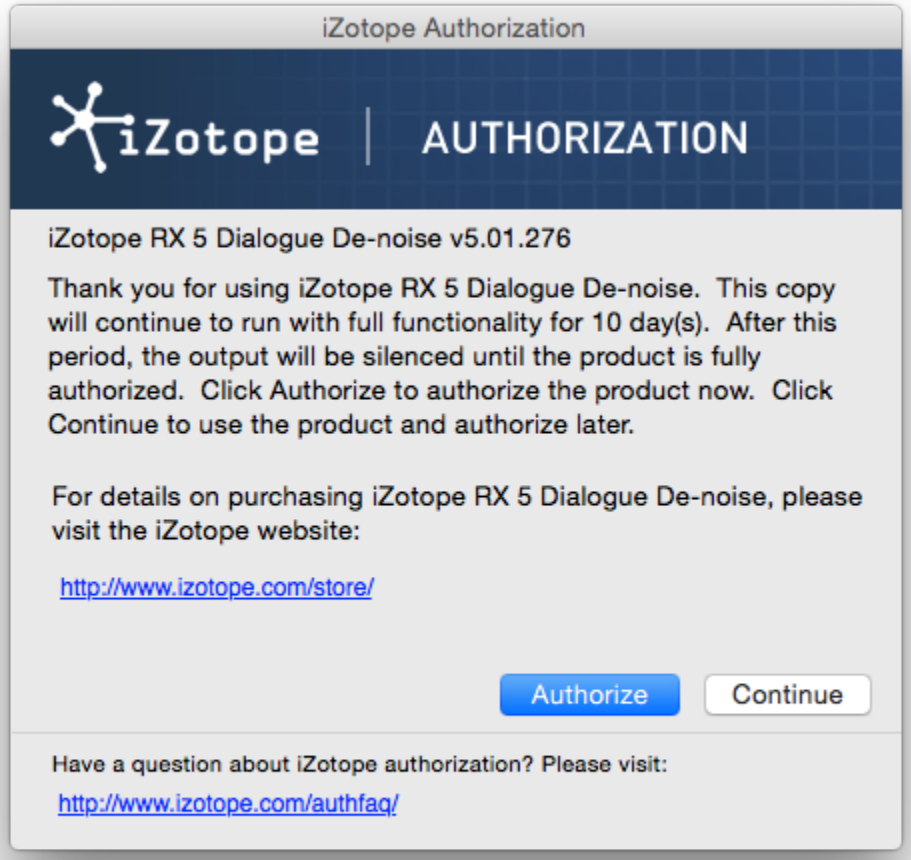
Instructions on how to use this serial number to authorize are outlined in this chapter.

AUTHORIZING YOUR COPY OF RX PLUG-IN PACK ONLINE

Launching the Authorization Wizard

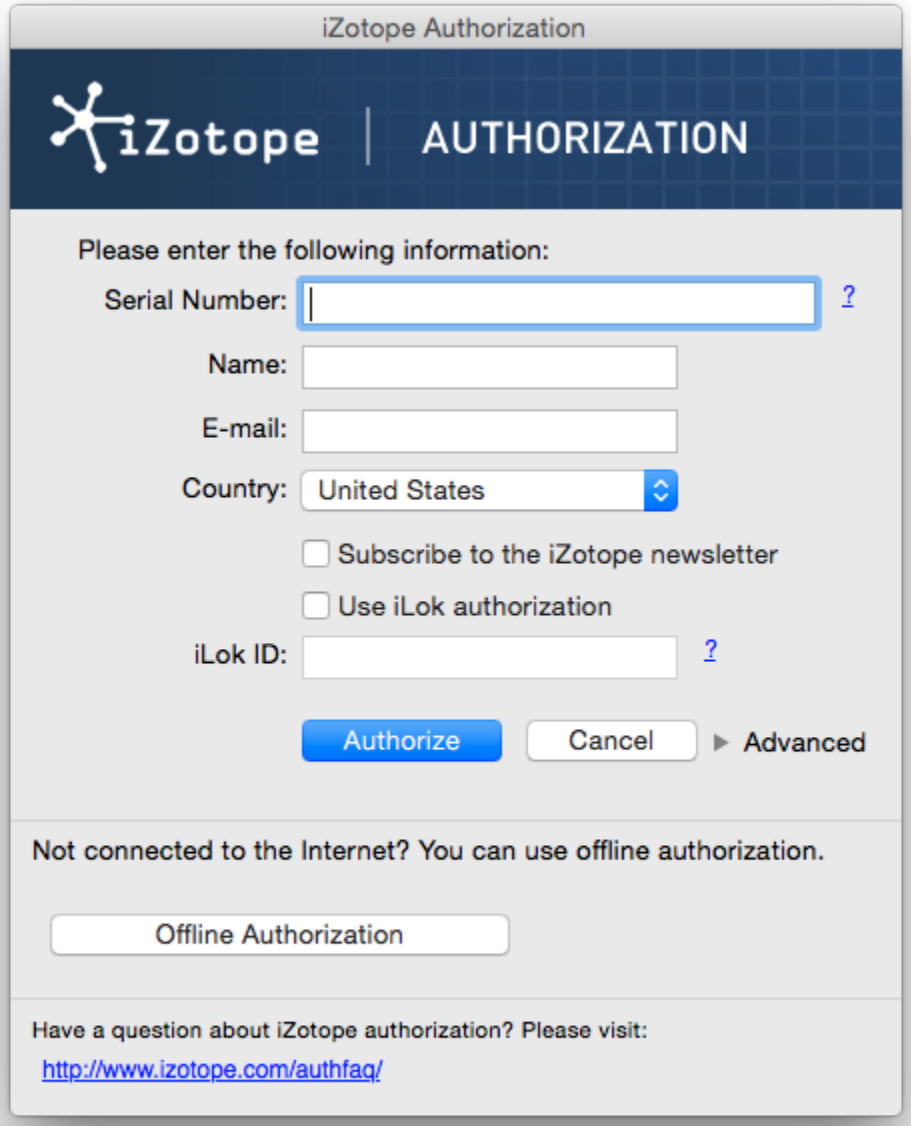
The first time you open a plug-in from the RX Plug-in Pack, the Authorization Wizard will appear.

You can choose to either click Authorize to authorize all the plug-ins or instead click Continue to use it in Trial mode for evaluation purposes. Please use your supplied RX Plug-in Pack serial number to fully authorize your product.



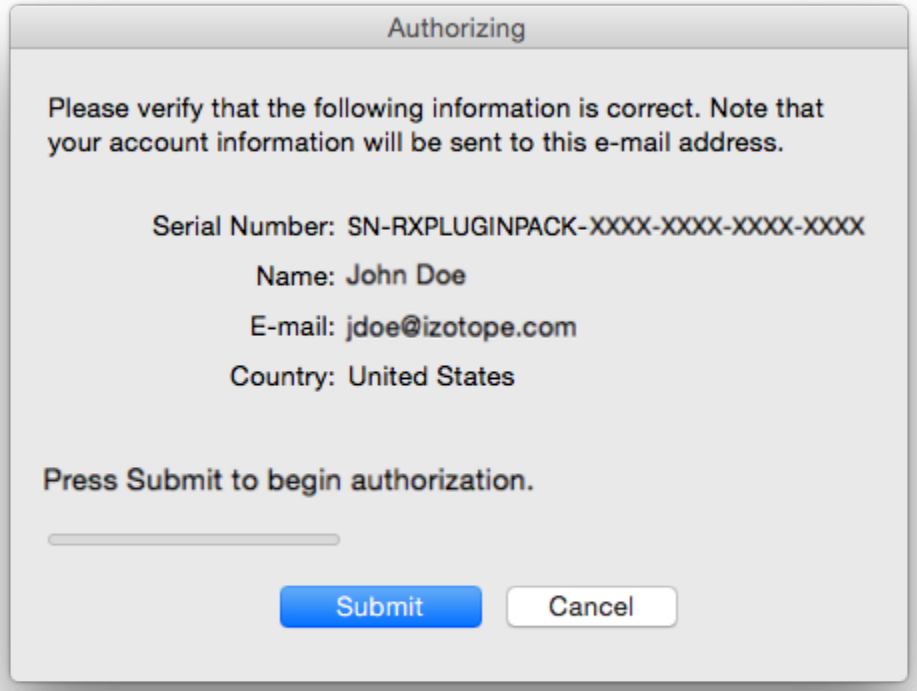
After opening a plug-in from the RX Plug-in Pack and launching the Authorization Wizard, perform the following steps to complete the authorization process online:

1. Click on “Authorize.”



2. Enter the serial number, using all capital letters, as it is shown in the purchase confirmation email. SN-RXPLUGINPACK-XXXX-XXXX-XXXX-XXXX
3. You must also enter your name and a valid email address.

4. Note: Clicking the Advanced button reveals a set of options that allow you to store your RX Plug-in Pack authorization on a portable hard drive or flash drive. More detail can be found at www.izotope.com/en/support/authorization/
5. Please make note of the email address you use to authorize your license, as your license and iZotope account will be linked directly to this email address.
6. When you have confirmed that your serial number and email information is accurate, click once more on "Authorize."



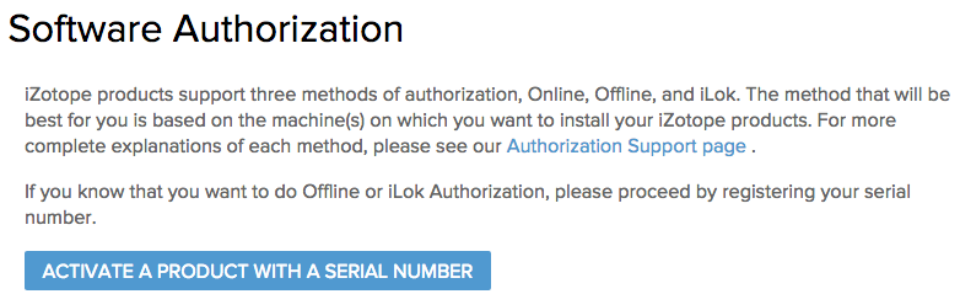
1. Click on "Submit" to send your authorization information to iZotope.
2. Once the authorization is accepted, click on the Finish button to complete the authorization.

AUTHORIZING YOUR COPY OF RX PLUG-IN PACK OFFLINE

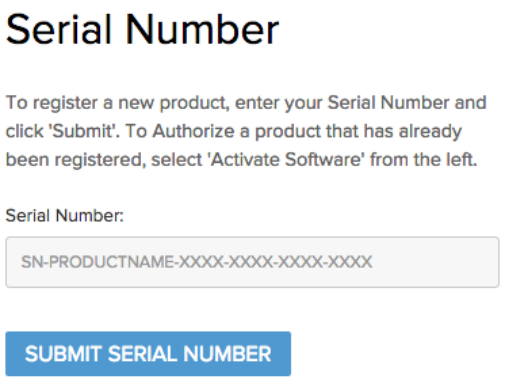
Some customers choose to keep their workstations offline; for these instances, a simple offline authorization option has been included.

After opening any plug-in from the RX Plug-in Pack and launching the Authorization Wizard, the following steps will complete the authorization process offline:

1. When first prompted to authorize the RX Plug-in Pack, click on “Authorize.”
2. Click on the option for “Offline Authorization” at the bottom of the authorization window.
3. You will be given a unique Challenge Code that is specific to your computer only.
4. Write down or make a copy of the exact Challenge Code. It will look like this: IZ-RXPLUGINPACK-XXXXXXXX-XXXX-XXXX
5. Next, using a system with Internet access, login to your customer account at the iZotope website: www.izotope.com/en/account/log-in/
6. Click on “ACTIVATE A PRODUCT WITH A SERIAL NUMBER,”



7. Register the RX Plug-in Pack serial number (SN-RXPLUGINPACK-XXXX-XXXX-XXXX-XXXX)



8. Select the “Challenge/Response option and click on “Submit.”
9. Enter your full Challenge Code copied in step 3.

10. After submitting your Challenge Code, you will receive a unique authorization file named “iZotope_RX_Plug-in_Pack_xxxxx.izotopelicense”.
11. Copy this file to your offline computer.
12. Once the authorization file is copied to your offline computer using a network, hard drive, or USB thumb drive, click the Choose File... button in your authorization wizard.
13. Navigate and select the authorization file and click “Next” to authorize your machine.
14. You should now receive a message that your authorization has been successful, you may click “Finish” to begin using your RX Plug-in Pack.

iLOK SUPPORT

RX Plug-in Pack supports the iLok copy protection system.

The plug-in will be able to detect iLok keys and assets if you already use iLok and PACE software on your system.

If you don’t already have PACE or iLok, we will not install any PACE or iLok software to your system, and iLok authorizations will be unavailable.

Authorizing RX Plug-in Pack with iLok

1. When first prompted to authorize RX Plug-in Pack, click on “Authorize.”
2. Next, enter the serial number in all capital letters as it is shown on the included card or purchase confirmation email.
3. This would look something like: SN-RXPLUGINPACK-XXXX-XXXX-XXXX-XXXX
4. You must also enter your name and a valid email address. Make note of the email address you use to authorize your license. Your license and iZotope account will be linked directly to this email address.
5. Select “Use iLok Authorization” and enter your iLok ID.
6. When you have confirmed that all your information is accurate, click once more on “Authorize.”
7. Lastly, click on “Submit” in order to send your authorization message to the iZotope servers.
8. You will now be instructed to log in to your iLok account and transfer your RX Plug-in Pack license to your iLok.

9. When you have completed this step and have your iLok connected to the computer on which you want to use the RX Plug-in Pack, click “Next.”
10. You should now receive a message that your authorization has been successful and may click “Finish” to begin using your RX Plug-in Pack.

REMOVING YOUR CURRENT AUTHORIZATION

Use the Remove Authorization button in the “Settings” in any of RX Plug-in Pack plug-ins to remove your current RX Plug-in Pack authorization.

After removing your authorization, RX Plug-in Pack authorization screen will pop up when you restart the program. Now you can re-authorize using a new serial number. You may also remove your authorization at any time in order to run in Trial or Demo mode.

HOW TO CONTACT IZOTOPE CUSTOMER CARE

For additional help with authorizing RX Plug-in Pack:

- Check out the Customer Care pages on our web site at www.izotope.com/support
- Contact our Customer Care department at support@izotope.com

More information on iZotope’s Customer Care department and policies can be found in the iZotope Customer Care section.

RX PLUG-IN PACK

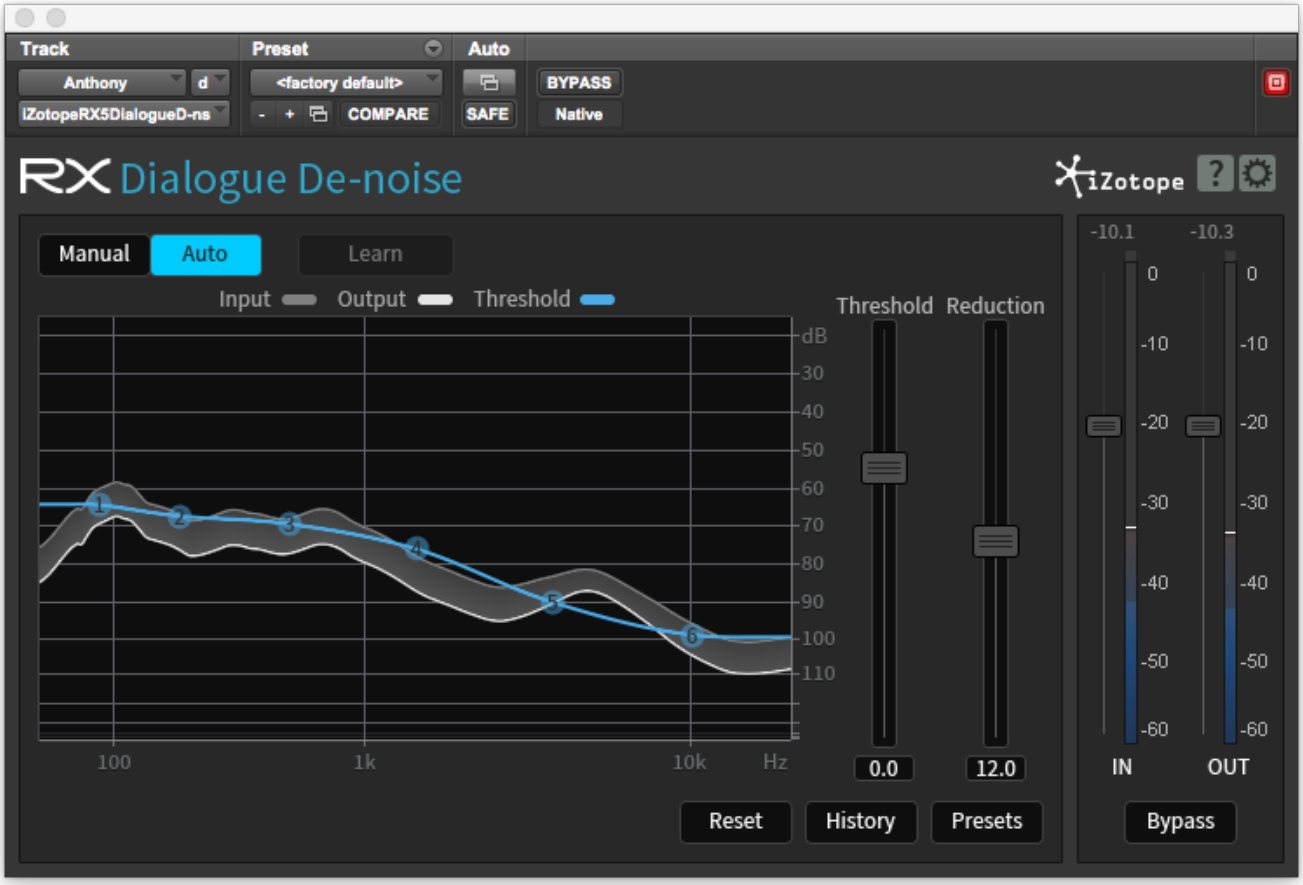
Dialogue De-noise Plug-in

Dialogue De-noise plug-in is a simple, zero-latency denoiser ideal for achieving basic high-quality denoising on a variety of material (vocals and voice) with the minimum amount of time spent tweaking controls.

The amount of denoising is determined by the noise threshold curve. A higher threshold generally means more noise reduction. The noise threshold curve is determined by the positions of the six threshold nodes.

The Dialogue De-noise plug-in can intelligently analyze the signal and determine the best noise threshold for your signal. In a DAW, this feature can be used to write automation in case you need to override the automatic settings and correct the noise threshold by hand.

Under the hood is a series of 64 psychoacoustically spaced bandpass filters which act as a multiband gate to pass or stop a signal based on user-defined threshold values. If a signal component is above the threshold for the filter, it will be passed. If a signal component is below the threshold for the filter, it will be attenuated.



AUTO

While in Auto mode, the Dialogue De-noise plug-in will analyze the incoming signal and adjust the noise threshold automatically to compensate for changes in the noise floor. This can be useful for removing noise from recordings with variable noise floor and continual noisy sections, and works well for almost any recording of vocals and spoken word. If you would like to use Dialogue De-noise plug-in on other musical material, the Manual mode is recommended.

Please note that the noise threshold settings in Auto mode may be different from the settings set using only the Learn function in Manual mode. Because the adaptive noise threshold is continually being adjusted, it is set lower to prevent artifacts from occurring during

MANUAL

In Manual mode, the Threshold Nodes are set by hand or with the Learn feature.

Once set, Threshold Nodes don't change position in Manual mode unless automated by a host. Use Manual mode if you feel that Auto does not yield the results you would like or if you would like to write and read automation from a DAW.

LEARN

When the Dialogue De-noise plug-in is set to Manual, you can use the Learn button to set the noise threshold to a noise reference.

Find a passage of pure noise in your audio and use Learn to analyze it. Longer selections of noise will set the Threshold Nodes to more ideal locations. We recommend finding at least one second of pure noise.

The Learn function analyzes the audio passing through the plug-in and adjusts the Threshold Node controls automatically. This is useful when used on a section of audio that is only like the noise you want to remove so you can get a more accurate result when removing noise from the rest of your audio.

THRESHOLD NODES

The Threshold Node controls on the frequency spectrum display allow you to change the noise threshold curve, which can be thought of as the "noise profile." These six points can be adjusted manually to suit the noise currently in your signal. These controls can be automated to compensate for shifts in the audio's noise floor.

In Auto mode, the Threshold Nodes are adjusted automatically in realtime.

In Manual mode, more than one Threshold Node can be selected at a time for manual adjustment by clicking and dragging anywhere on the interface.

THRESHOLD

The master Threshold control allows you to offset the noise thresholds plotted by the Threshold Nodes.

If you find that audio you would like to remain unprocessed is being processed, try adjusting this control.

REDUCTION

Provides control over the maximal depth of noise reduction (in dB) that will occur per frequency band while a signal component is below its threshold. If you have your thresholds set properly and don't like the results you're getting, try adjusting this control.

METERING

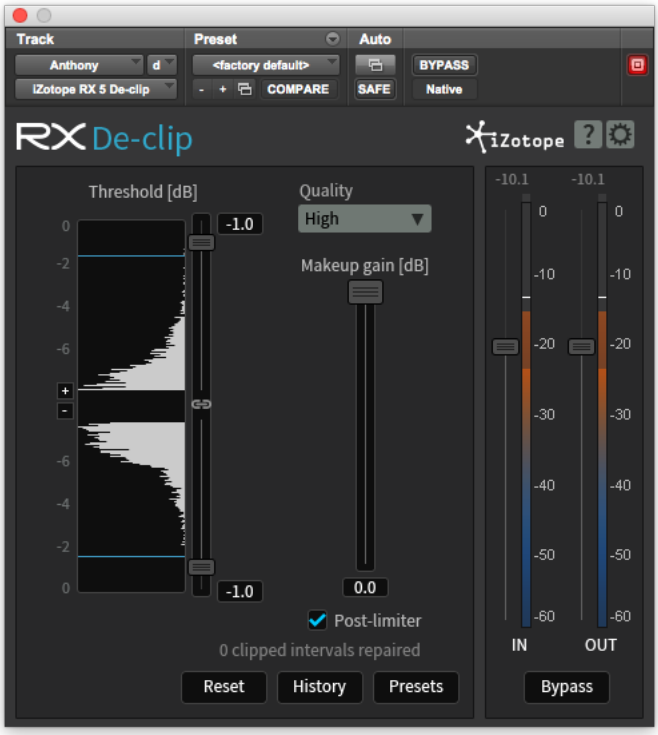
The Input Spectrum meter shows the level of the signal at the input of the denoiser filters.

The Output Spectrum meter shows the level of the signal at the output of the denoiser filters.

The Gain Reduction Region is the area between the Input and Output Spectra and shows the amount of processing currently happening to your signal.

RX PLUG-IN PACK

De-clip Plug-in



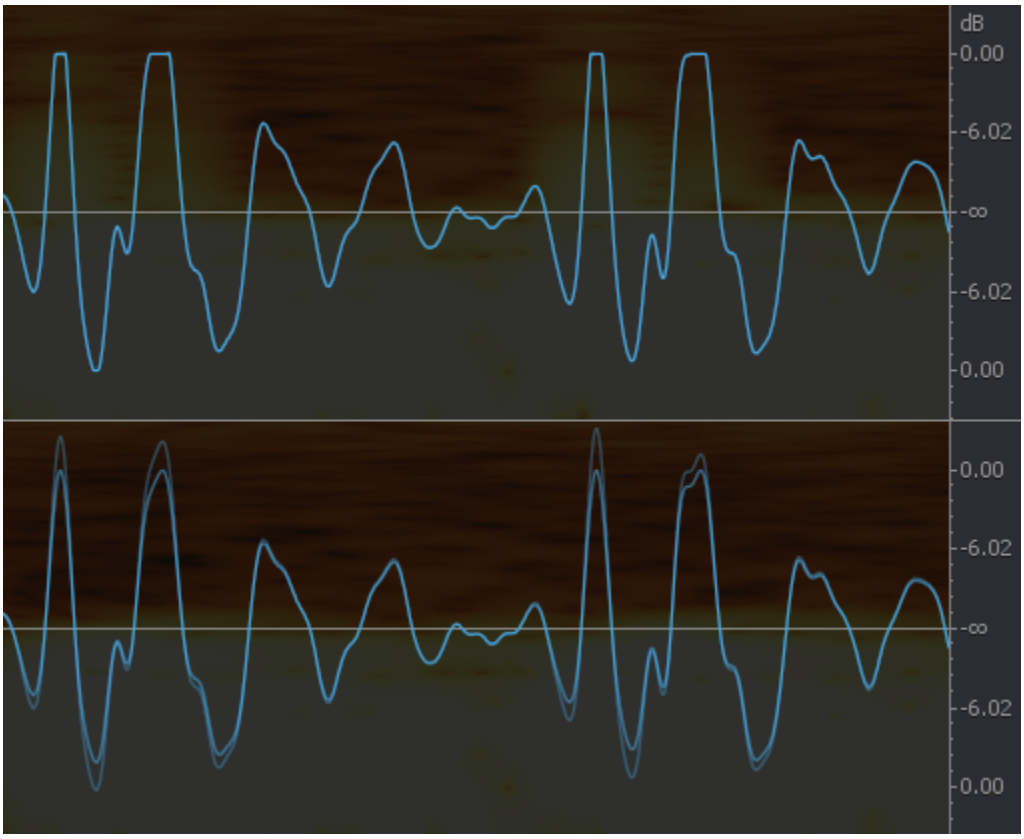
De-clip repairs digital and analog clipping artifacts that result when A/D converters are pushed too hard or magnetic tape is over-saturated.

De-clip can be extremely useful for rescuing recordings that were made in a single pass, such as live concerts or interviews, momentary overs in “perfect takes”, and any other audio that cannot be re-recorded.

De-clip will process any audio above a given threshold, interpolating the waveform to be more round. Generally, the process is as easy as finding the clipping you want to repair, then setting the threshold just under the level where the signal clips.

You can usually find clipping by listening for the distortion that clipping causes.

A waveform before and after clip repair. The after example (bottom) shows the original repaired waveform (faded) and the post-limiting waveform (bright).

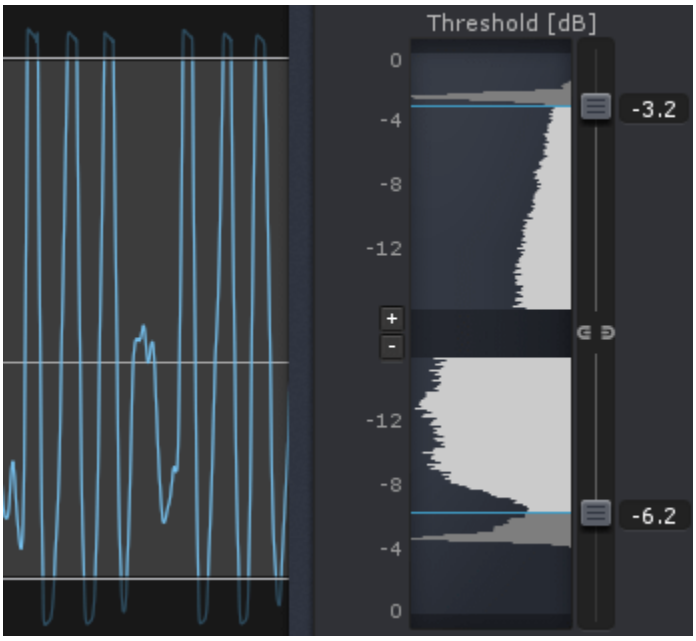


HISTOGRAM METER

Displays waveform levels for the current selection as a histogram.

The histogram meter helps you set the Threshold control by displaying the audio level where the waveform's peaks are concentrated. This usually indicates at what level clipping is present in the file.

A histogram is an analytical tool that displays how many samples are present at a given signal level over a window in time. The longer the line for the histogram is, the more energy is present at that amplitude. If a lot of energy tends to collect near the top and bottom edges of a waveform, that waveform is probably clipped and distorted.



Clipped peaks in waveform, with histogram from selection

In the RX Plug-in, the histogram runs as a realtime meter.

The histogram's range can be scaled if you need a better view of your signal. Use the (+) and (-) buttons to scale your display and value resolution for the De-clip plug-in. These buttons reduce (+) and/or expand (-) the range of the threshold slider and histogram. You may want to extend the histogram range when your clipping point is lower than what you can see on a histogram or if you don't see anything on the histogram.

If you are using the De-clip control overlay on the waveform display, you can use the mouse's scroll wheel on the waveform amplitude scale to adjust the threshold control resolution.

THRESHOLD [DB]

Selects the clipping level used for detection of clipped intervals. Generally, this should be set just below the actual level of clipping.

Note: adjusting the Clipping Threshold will display a blue line within the histogram and a gray line on the waveform itself. This gray line shows the level on the waveform above which the De-clip algorithm will process the audio file. All sections of the waveform above this level will be regarded as clipping. Within the histogram itself the elements of the file that will be processed (above the blue line) will appear gray.

To set the threshold, move the Threshold slider until it lines up with the place in the histogram just below where clipping is concentrated.

You can also set the clipping threshold from the RX waveform display. By default, De-clip Threshold is enabled in the Effect Overlays section of the View menu. When this option is enabled, you can see the relationship of the De-clip Clipping Threshold settings to your file's waveform, and make adjustments to the setting by clicking and dragging on the red threshold line.

If you would like greater control resolution or need to apply De-clipping to a different amplitude range, you can adjust the amplitude range of the waveform display by using the zoom control, clicking and dragging the amplitude ruler, or using your mouse's scroll wheel over the amplitude ruler.

QUALITY

Controls the interpolation processing quality.

There are three quality modes in RX's De-clip: Low, Medium, and High. Low quality mode processes very quickly; High quality mode processes slowly but is capable of achieving better results. In many cases you will find that Low quality mode gives you great results. To save time, always start by previewing the Low quality modes first. You can also use the Compare feature to try multiple modes and preview the results.

MAKEUP GAIN (DB)

Selects the gain to be applied to the selection after De-clip.

The De-clip process causes an increase in peak levels. The Makeup gain control can be used to prevent the signal from clipping after processing. It is also useful for matching the level after processing to unprocessed audio outside of the selection.

POST-LIMITER

Applies a true peak limiter after processing to prevent the processed signal from exceeding 0 dBFS.

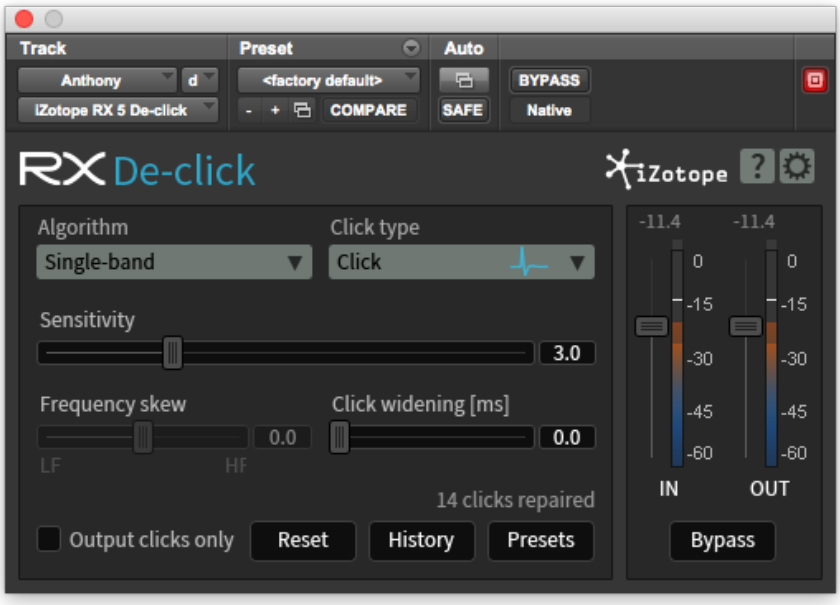
De-clip usually increases signal levels by interpolating signal segments “above” the clipping point, which can make the signal clip again if the waveform format offers no headroom above 0 dBFS.

If the post-limiter is disabled, the restored intervals above 0 dBFS can be safely stored even without makeup gain as long as the file is saved as 32-bit float. Intervals above 0 dBFS will clip when played back through a digital-analog converter.

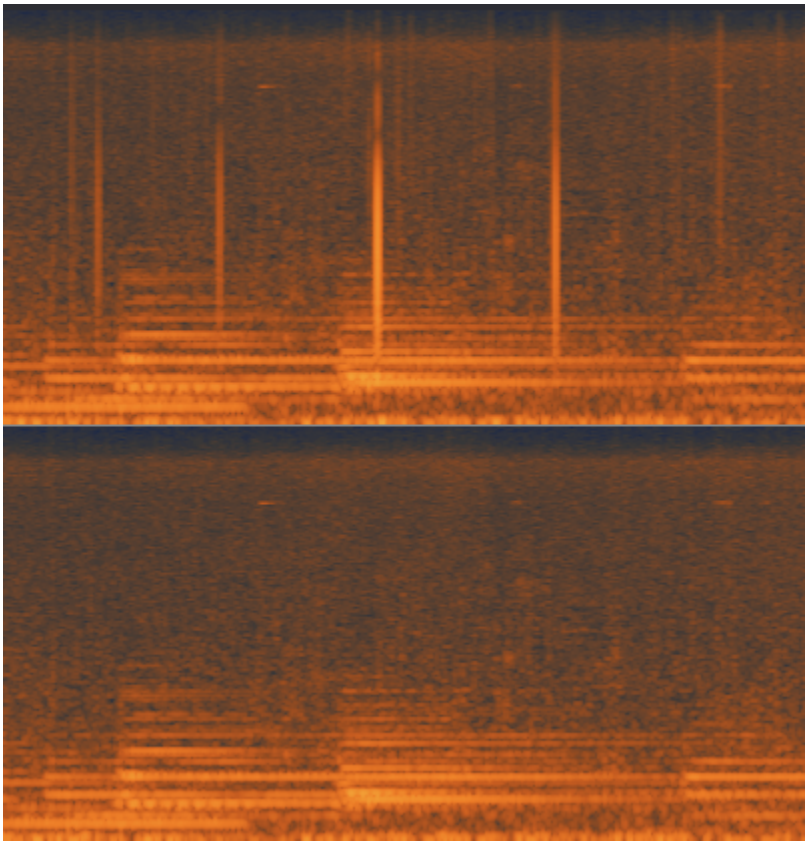
RX PLUG-IN PACK

De-click Plug-in

The De-click plug-in is useful for repairing clicks and glitches (short impulse noises) from a wide variety of material, including digital errors, mouth noises, mistaken drumstick hit, interference from cell phones, or any other audio problem caused by impulses and discontinuities in a waveform.



The De-click plug-in's sophisticated algorithm analyzes audio for amplitude irregularities and smoothes them out. Here's a recording with clicks before, and after click removal:



Algorithm

Controls the interpolation processing quality and configuration depending on the type of clicks and pops in the audio.

- **Single-band:** processes quickly and works well on very narrow "digital" clicks
- **M-band (periodic clicks):** multiband processing for removing regularly repeating clicks with a wider spectrum, or regular clicks that have concentrated low or high energy (like thumps or optical soundtrack perforation noise)
- **M-band (random clicks):** multiband processing for wider vinyl clicks and thumps, with a protective algorithm for preserving periodic audio elements characteristic to certain instruments such as brass or vocals

Click Type

Changes the De-clicker controls to address specific kinds of clicks.

- **Click:** the default setting of De-clicker. Optimized to handle most clicks
- **Thump:** skews the click detector frequency response toward lower frequencies to tackle thumps
- **Discontinuity:** widens the click processing range to smooth out clicks caused by waveforms that change suddenly in amplitude

Sensitivity

Controls the sensitivity of the click detector.

Low values of this parameter will remove fewer clicks, while higher values can repair too many intervals which can result in distortion.

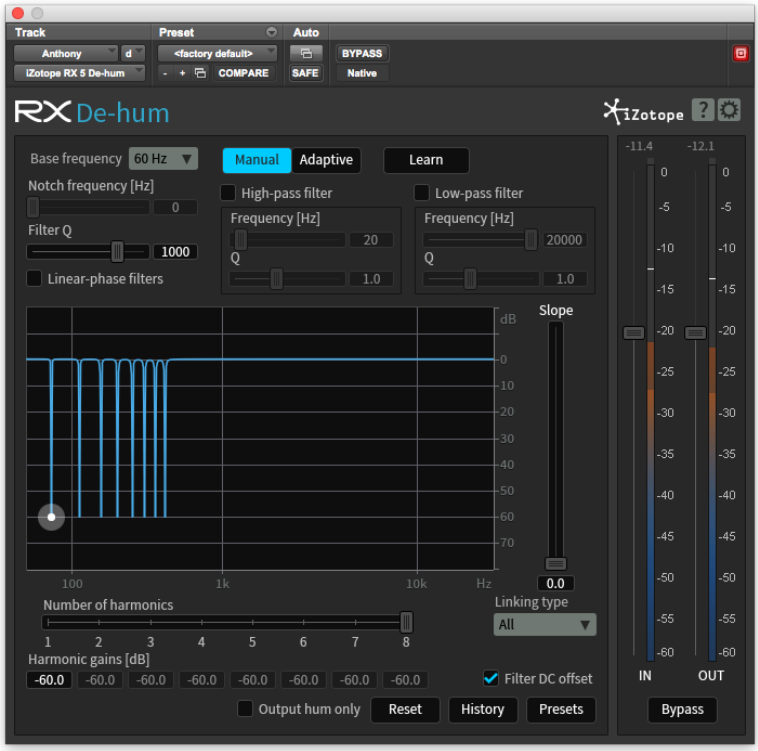
Clicks only

Outputs the difference between the original and processed signals (suppressed clicks).

RX PLUG-IN PACK

De-hum Plug-in

De-hum is designed to remove low frequency buzz or hum from your audio file. Hum is often caused by lack of proper electrical ground. This tool includes a series of notch filters that can be set to remove both the base frequency of the hum (usually 50 or 60 Hz) as well as any harmonics that may have resulted. The De-hum plug-in is effective for removing hum that has up to seven harmonics above its primary frequency. Some very high frequency buzz can also be removed with the De-click plug-in.



BASE FREQUENCY

Sets the base frequency of the hum to be removed. The two most common base frequencies that cause hum are 50 Hz (Europe) and 60 Hz (U.S.). You can manually specify a base notch by choosing the Free option.

MANUAL/ADAPTIVE

Adaptive mode will allow the De-hum plug-in to adjust its noise profile based on changes over time in the incoming audio. In this mode, the De-hum plug-in will analyze incoming audio for the specified learning time to determine what is hum and what is desired audio material. Adaptive mode can work better with sources that are constantly evolving.

In the Manual mode, the base hum frequency does not change over time.

LEARN

The De-hum plug-in can also automatically locate the root fundamental of any hum in your audio. Simply make a selection containing the trouble frequencies, and click the Learn button. This will automatically set the Base Frequency to the result of the Learn calculation. The De-hum plug-in can analyze any audio with prominent hum, if you don't have a passage of pure hum. This is, however, less reliable than learning from only hum.

The two most common base frequencies that cause hum are 50 Hz (Europe) and 60 Hz (U.S.). Under the Frequency Type field in the De-hum plug-in, choose the appropriate frequency and then hit Preview to hear if this has an effect.

In some cases, you may need to choose the Free Frequency Type (e.g., when a recording made from analog tape is not precisely at its original recorded speed). Selecting this option unlocks the Base Frequency control and allows you to manually find the Hum's root note. With Preview engaged, move the slider up and down until you find the point where the hum lessens or disappears.

FILTER Q

Controls the bandwidth of filters for base frequency and harmonics.

LINEAR PHASE FILTERS

Enables linear-phase FIR filters with a high FFT size. De-hum's linear phase filters have a very accurate frequency response at the expense of latency and filter pre-ringing. When this is disabled, De-hum will use minimum-phase IIR filters, which are only susceptible to post-ringing (which is usually less noticeable than the pre-ringing introduced by FIR filters).

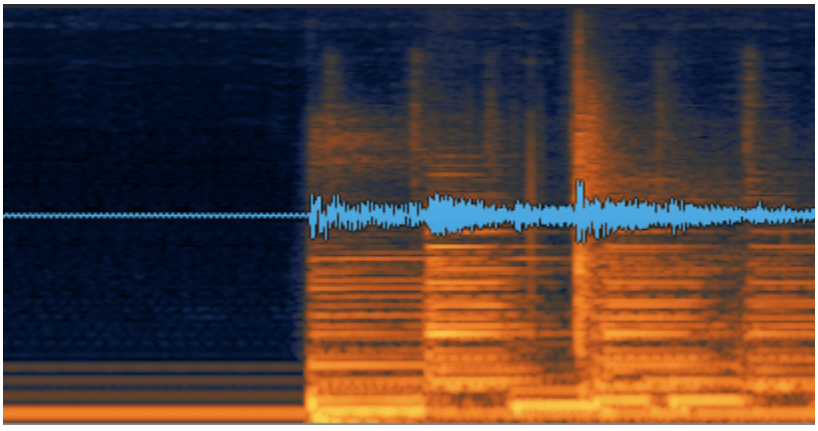
HIGH/LOW-PASS FILTERS

These filters allow high/low frequencies to pass while attenuating low/high frequencies respectively.

- **Frequency (Hz):** sets the cutoff frequency for the filter
- **Q:** sets the bandwidth of the high-pass filter

NUMBER OF HARMONICS

Because higher frequency harmonics often result from hum, the De-hum plug-in has control for attenuating these overtones. Using the Number of Harmonics control, you can select up to 7 harmonics above the primary hum frequency. Again, the spectrogram display in many cases makes it easy to identify the number of hum harmonics in your project. After selecting number of harmonics, use the Harmonic Slope control to set how aggressively the higher harmonics are being cut. The Filter Q control adjusts the width of the hum filters.



60 Hz hum with harmonics

LINK HARMONICS

Links the gain of all of the filters, none of the filters, or odd/even filters.

SLOPE

When harmonics are linked, this controls the slope of the gain/suppression. As the harmonic order increases, the gain/suppression level resolves closer to 0 dB. When linking type is odd/even, an odd/even slope separate control appears that allows you to control the amount of gain/suppression for both odd and even harmonics.

HARMONIC GAINS (DB)

Gives numerical readout of gain settings in dB. You can also manually type in your gain settings for any of the harmonics.

OUTPUT HUM ONLY

By selecting the Output hum only checkbox, you can also hear the hum that is being removed. This is useful for fine-tuning your settings. Play through a section of your clip where the hum is mixed with other material, select this mode, and hit Preview.

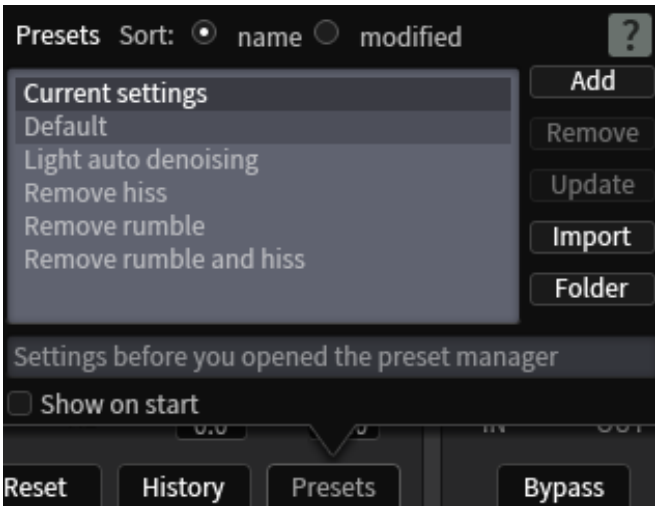
Now you can adjust parameters like the Filter Q (width) control and the Harmonic Slope control to maximize hum removal while minimizing the effect on the program material.

RX PLUG-IN PACK

RX Plug-in Pack Presets

PRESETS

From the Preset Manager, you can select from default presets and presets you have saved.



To browse presets, press the Presets button and click the name of any preset. If you like what you hear, press the Presets button again to hide the window.

Add

Clicking this button adds the current settings as a new preset. You can type a name and optionally add comments for the preset. Note that a few keys such as * or / cannot be used as preset names. If you try to type these characters in the name they will be ignored.

Note: this is because presets are stored as .XML files for easy backup and transferring. Their filenames are the same as the names you give the presets (for easy reference) and therefore characters that are not allowed in Windows file names are not allowed in preset names.

Remove

To permanently delete a preset, select the preset from the list and click the Remove button.

Update

When you click the Update button your current settings before you opened the preset window are assigned to the selected preset (highlighted). This is useful for selecting a preset, tweaking it, and saving your changes to the existing preset.

Import

Imports a preset into the preset folder.

Folder

Opens a dialog that shows your current preset folder. You can also select a new preset folder from this dialog.

Renaming Presets

You can double click on the name of a preset to enter the edit mode and then type a new name for that preset.

Cancel

Press Escape to close the preset system dialog and revert to the settings when you opened the preset manager.

RX PLUG-IN PACK

Trials | RX Plug-in Pack & RX Audio Editor

USING A RX PLUG-IN PACK IN TRIAL MODE

1. Download the latest installer for the RX Plug-in Pack on the iZotope Product Downloads page
2. Install the RX Plug-in Pack and launch your audio or video editor software
3. All plug-ins will be in a fully functional trial period for 10 days

If you are using the demo version of the RX Plug-in Pack and would like the full version, you can purchase RX Plug-in Pack direct from the iZotope online store, located at: www.izotope.com/store

RX PLUG-IN PACK OWNER'S DEMO RX 5 AUDIO EDITOR

1. Download the latest installer for the RX 5 Audio Editor on the iZotope Product Downloads page
2. Install the RX 5 Audio Editor and launch your audio or video editor software
3. RX 5 application & plug-ins will be in a fully functional trial period for 30 days
4. After the RX 5 Audio Editor trial period is over and users are done with the demo, the RX Plug-in Pack will need to be re-installed
5. Authorization of the re-installed RX Plug-in Pack will automatically function

RX 5 AUDIO EDITOR OWNER'S DEMO RX PLUG-IN PACK

1. This is not advised, since all the plug-ins in the RX Plug-in Pack are the same version of plug-ins in RX Audio Editor
2. If a customer installs RX Plug-in Pack over an existing RX 5 Audio Editor, the user will need to re-install the RX 5 Audio Editor in order to get their plug-in to be authorized again

RX PLUG-IN PACK

iZotope Customer Care

HOW TO PURCHASE THE FULL VERSION OF RX PLUG-IN PACK

If you are using the demo version of the RX Plug-in Pack and would like the full version, you can purchase RX Plug-in Pack direct from the iZotope online store, located at: www.izotope.com/store

Once your purchase is complete, you will be sent an email confirmation and a full version serial number that can be used to fully authorize your current installation of the RX Plug-in Pack.

IZOTOPE CUSTOMER CARE POLICY

iZotope is happy to provide professional technical customer support to all registered users. We also offer valuable pre-sales support to customers who may be interested in purchasing an iZotope product.

For details, please see our Product Support Policy.

Before contacting iZotope Customer Care team, you can search our Product Knowledgebase to see if the solution to your problem has already been published.

HOW TO CONTACT IZOTOPE CUSTOMER CARE FOR TECHNICAL SUPPORT

For additional help with the RX Plug-in Pack:

- Check out the Customer Care pages on our web site at www.izotope.com/support
- Contact our Customer Care department at support@izotope.com

iZotope's highly trained Customer Care team is committed to responding to all requests within one (1) business day and frequently respond faster. Please try to explain your problem with as much detail and clarity as possible. This will ensure our ability to solve your problem accurately, the first time around. Please include all system specs and the build/version of the RX Plug-in Pack that you are using.

Once your Customer Care request is submitted, you should automatically receive a confirmation email from iZotope Customer Care. If you do not receive this email within a few minutes please check your spam folder and make sure our responses are not getting blocked. To prevent this from happening please add support@izotope.com to your list of allowed email addresses.

INTERNATIONAL DISTRIBUTION

Customer Care is also available from our international distributors worldwide, for any customers who purchased their iZotope products through a certified iZotope distributor.

Check with your local distributor for their availability. If you would like help locating your local distributor please contact iZotope Customer Care.

Thanks for using the RX Plug-in Pack!

–The iZotope Team