FX PERMUTATOR

USER GUIDE

Version 1.3
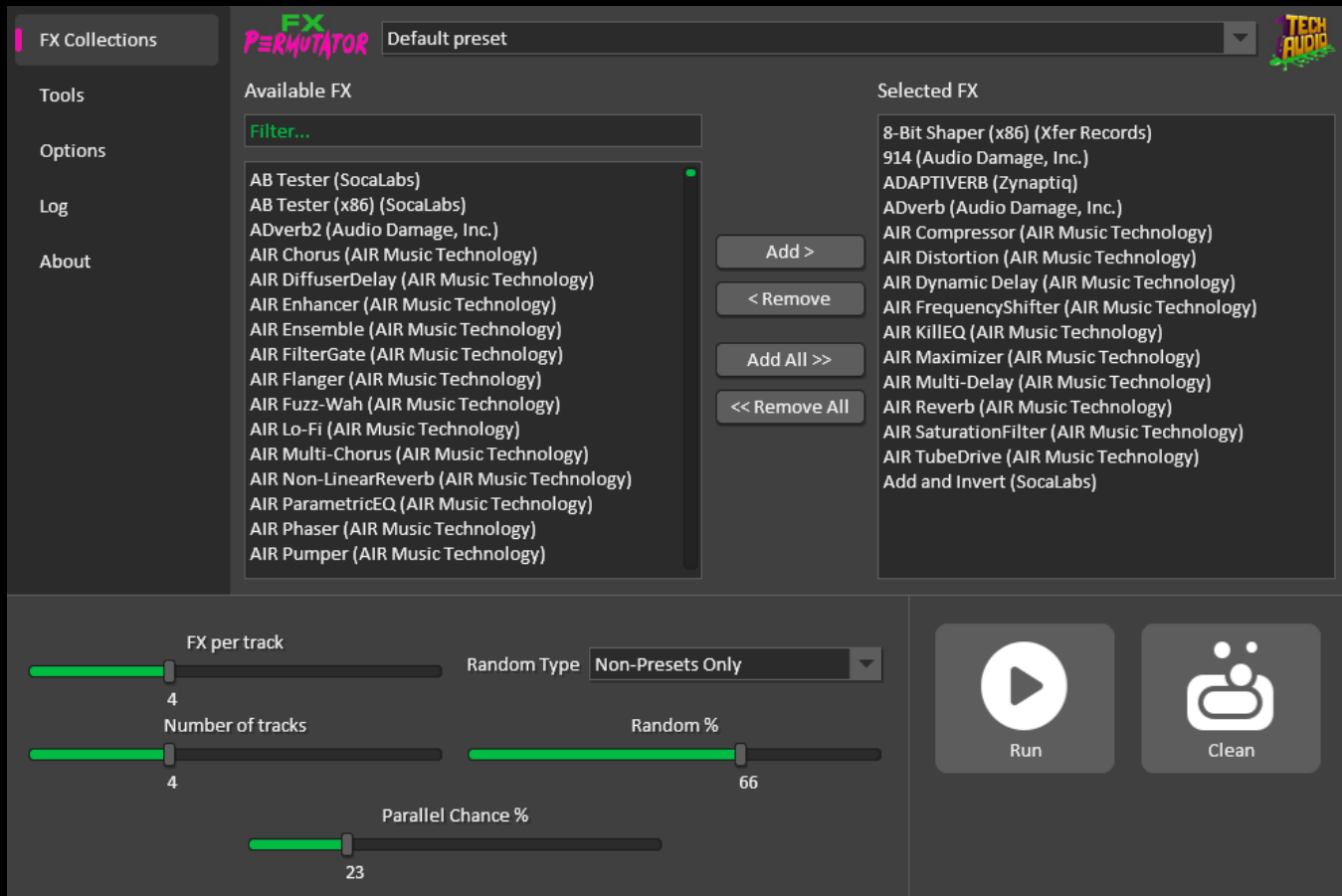@2023 Tech Audio

Table of Contents

What is FX Permutator?

FX Permutator is an original Reaper script developed by **Tech Audio**. It breathes new life into your existing VST plugin collection. Sort, combine, and curate your plugins into unexpected bliss!

How does it work?

FX Permutator creates permutations based on the audio files and plugins you choose from your arsenal. All you have to do is select an audio track or media item in Reaper, add plugins from the list you have available, and determine:

- How many plugins do I want per chain (**FX per track**)?
- How many chains do I want to generate (**Number of tracks**)?
- How do I want the VST presets and plugin parameters to behave (**Random Type**)
- How much parallel processing do I want per chain (Parallel Chance %)

That's it! Click **Run**, and the script will go to work. It will create up to ten new tracks with unique plugin chains based on your randomization settings, along with copies of the target media item and regions for easy listening and decision-making.

Based on your run settings, it will randomize the plugins' presets, parameters, or both -- blasting your audio files off into different dimensions!

And it doesn't stop there. We've created additional tools so you can save your FX chains, interact with Reaper's FX Containers, shuffle the order of the new plugin chains, and further randomize the parameters and presets, so you can feed your curiosity and discover new surprises!

FX Permutator is a never-ending presentation of the sonic possibilities of your favorite plugins… and ones that have been long forgotten.

Features

- Create and store collections of plugins
- Apply plugin collections to tracks
  - Randomize plugin presets
  - Randomize plugin parameters
  - Randomize plugin slot location (FX chain order)
  - Randomize inclusion and interaction with Reaper's new FX Containers **NEW IN VERSION 1.3**
  - Randomize chance of adding parallel processing to your chain **NEW IN VERSION 1.3**
- Tweak results by continuing to randomize the above settings
- Easily render FX Permutator tracks with automated regions
- Save and share interesting FX chains with your friends

Reaper installation

FX Permutator can be installed like any other Reaper script. To import the script from a repository via ReaPack, go to **Extensions > ReaPack > Import repositories…** and paste this FX Permutator repository link: **https://github.com/TeamAudio/reascripts/raw/main/index.xml**

Or you can download the script from the **Tech Audio** website, click **Actions > Show action list… > New action… > Load ReaScript…** and select **TA_FXPermutator.lua** from your file explorer to import the script.

To enable functionality, you will need to first purchase a **license** on our website. A single license allows for 3 activations of the script on the devices of your choice.

To activate the script in Reaper, select **"Script: TA_FXPermutator.lua"** from the list in the Actions window. If it is your first time running FX Permutator, you will be prompted to enter your activation code, which requires an internet connection for verification.

From there, you should see FX Permutator's beautiful interface and the world of possibilities it brings!

Getting started

First run

To begin, FX Permutator needs an audio file to target. Start by adding a new audio file to your timeline, or open a project in progress.

Within the FX Permutator interface, you will primarily use the **FX Collections** and **Tools** tabs to generate and modify new plugin chains. Go to the **FX Collections** tab to see the list of plugins you have available.
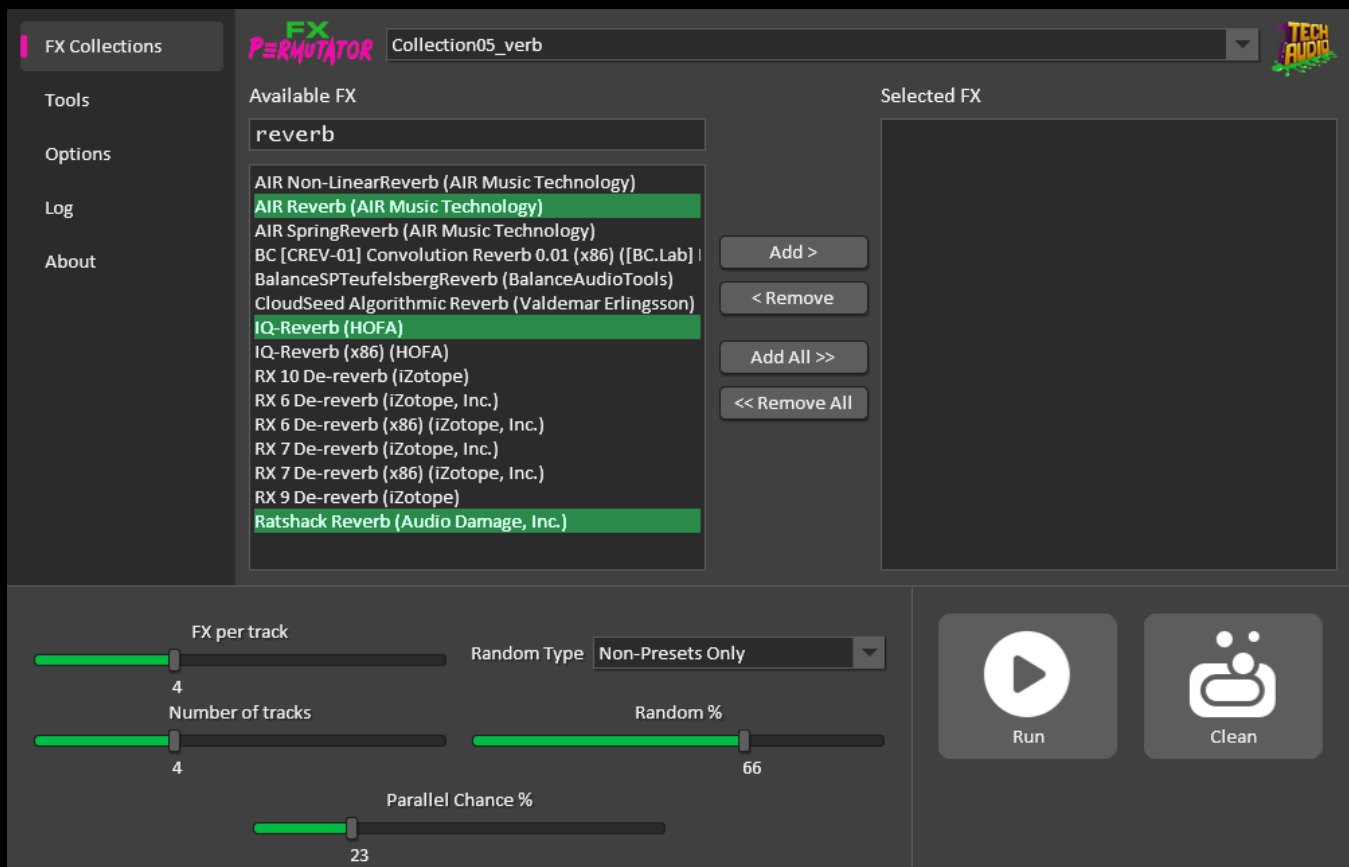
Select which plugins you want FX Permutator to randomize (using the Ctrl/Cmd key to select multiple plugins) and press the Add button to move them to the **Selected FX** list. You can also filter by keyword search. In the example above, we're filtering by all plugins that have "**reverb**" in their name

Add as many as you like (and remove them in a similar fashion). FX Permutator will choose from this list and add only the number of plugins you determine in the next step.
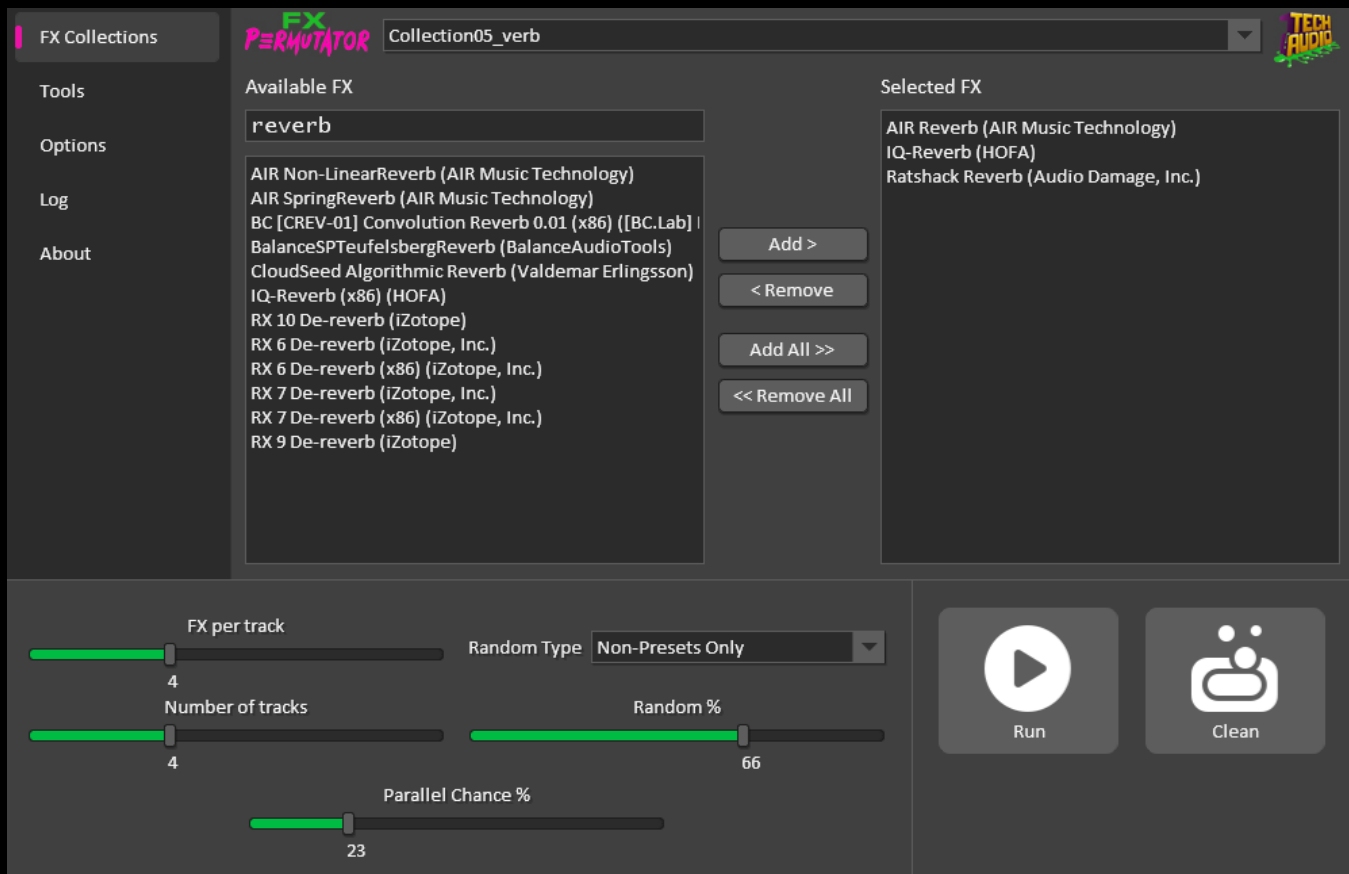

When you are happy with your selected FX, determine the following settings:

- **FX per track** - the number of plugins you want to be randomized on each track.
- **Number of tracks** - the number of tracks (and therefore new plugin chains) that you want to be created in the run.
- **Random %** - the percentage at which FX Permutator will randomize the plugins' parameters.
- **Random Type** - determines how FX Permutator will randomize plugin parameters:
  - **All** - will randomize key plugin parameters even if it has a preset assigned.
  - **OFF** - means only presets will be randomized on an initial run, but not their parameters.
  - **Non-Presets Only** - means only plugins not assigned a preset will be randomized.
    - This feature was added to keep your preset parameters in place and only randomize plugins without presets
- **Parallel Chance %** - the percentage chance to have parallel routing applied to the plugins in your chain
  - Reaper defaults to serial routing of the plugin output, but now in Reaper 7 you can assign parallel routing as well.

If you are using FX Permutator for the first time, a reasonable starting point is:

- **FX per track = 4**
- **Number of tracks = 10**
- **Randomize % = 100**
- **Random Type = Non-Presets Only**
- **Parallel Chance % - 20**
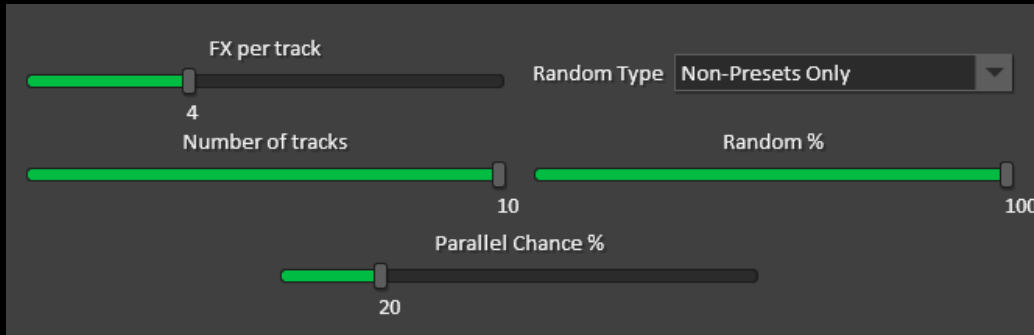
Once you're set, press the Run button. You will be prompted to select either a **Media Item** or a **Track** (which will affect all items on that track) or cancel the operation. Select one of these options to start the process.
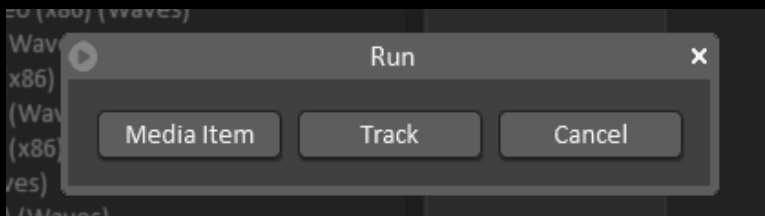

FX Permutator will then begin randomizing your settings and generating new tracks. The run process may take a little while depending on the number of new chains and the heft of the plugins you're using. However, you can see the progress in the **Log** window even if you don't see any new tracks pop up immediately.
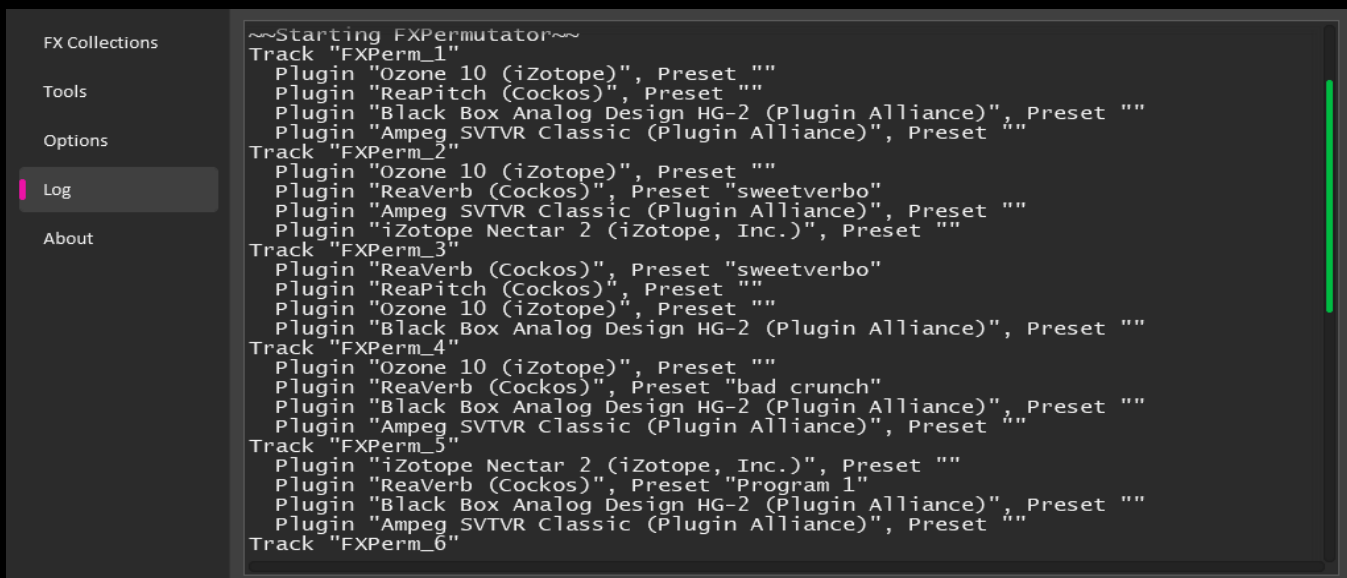
And voilà! Your new tracks will appear along with new regions so you can quickly find the combinations you like the most.

One note: the FX will be disabled by default, so be sure to enable them first to hear your interesting new sounds. Depending on the types of plugins you're using, it may be wise to enable the tracks one at a time, so you aren't met with a wall of noise.
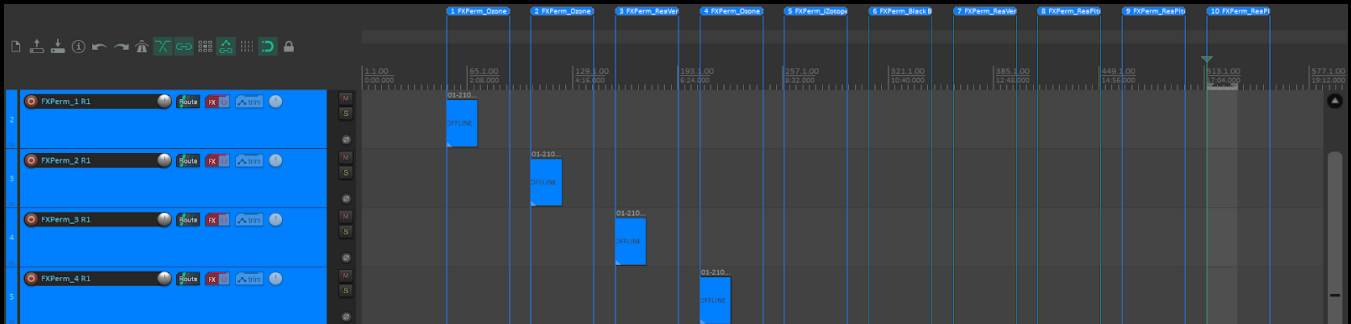
If you like what you hear, you can save your collections for later use. Please know that when you add a new plugin to a list, it will be automatically saved to that FX collection list.
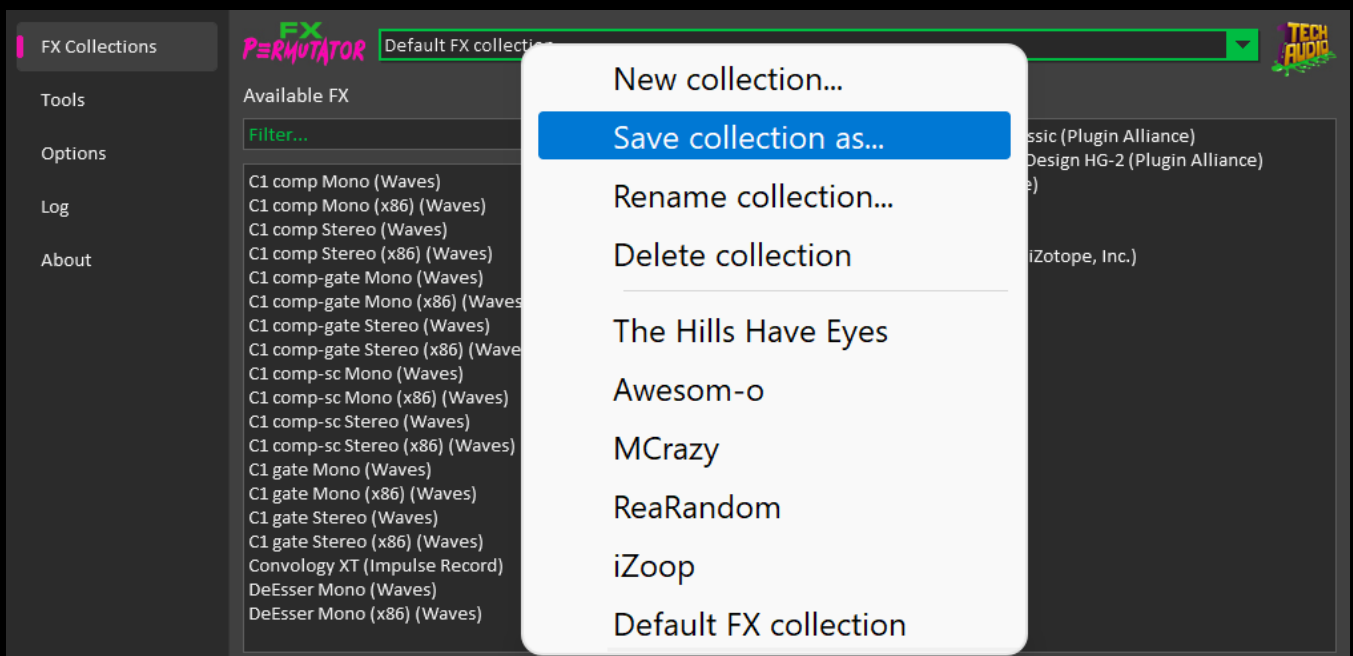
And it doesn't end there!

In the Tools window, you can further tweak your new plugin chains and discover your favorite new concoctions by shuffling the order of the chains, randomizing the plugins, and randomizing the presets.

You can also save your FX chains (not to be confused with your FX collections). More about saving your FX chains can be found in the **Save FX Chains** section below.

Further runs

After your first run, there's no doubt you will want to hear another random combination. Simply add or remove plugins, tweak your randomization settings, and press Run again. The possibilities are endless, and FX Permutator does the leg work to make these discoveries as easy as the click of a button.

FX Permutator also keeps you organized with a helpful naming convention. It differentiates tracks by labeling the track count and run count. For example, if you set the **Number of tracks** to 3 in your first run, the tracks will be named:

- FXPerm_1 R1
- FXPerm_2 R1
- FXPerm_3 R1

The track count is "_1" and the run count is "R1".

If you run FX Permutator again to create three new tracks, they will be named:

- FXPerm_1 R2
- FXPerm_2 R2
- FXPerm_3 R2

With this workflow, FX Permutator takes out the guesswork, so you can focus less on the "work" and more on the "flow".

And if you want to start fresh with only your original audio track, just press the **Clean** button in the control bar to remove selected tracks or all tracks.
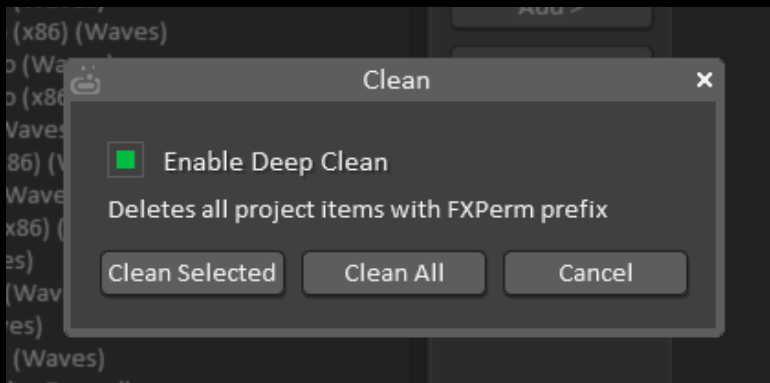

You can also **Enable Deep Clean** to remove all regions and tracks using the "FXPerm" prefix, but use this with caution. If you have the same prefix throughout your session on non-permutated tracks or regions, they may also be removed.

Other than that, it's easy to start with a nice, clean slate!
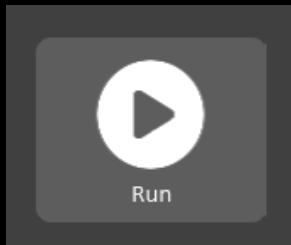
Interface elements

Now that you know how to get started, follow the information below to learn more about how you can modify your settings and get the most out of FX Permutator.
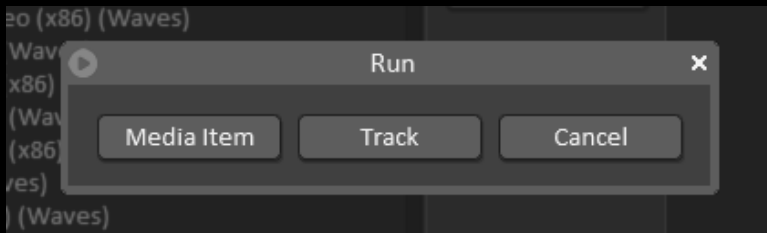
Control bar
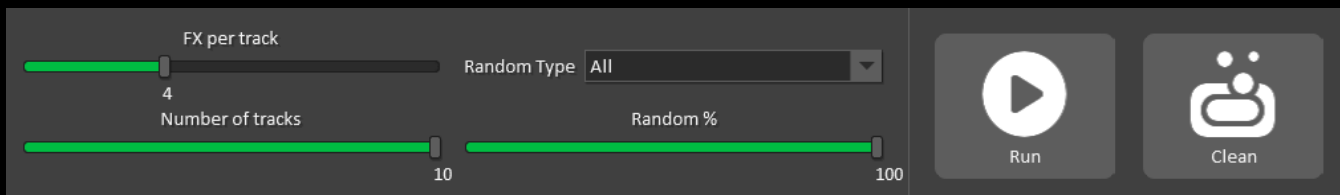
In the **control bar**, you will find the main controls for generating new randomized plugin chains.

Run

This button is the main function of FX Permutator. It lets you start the process by creating new tracks based on the other settings in the control bar.

When pressed, you can choose to target a single **Media Item** or select an entire **Track**.

In either case, it will create the number of tracks determined by the Number of tracks slidebar.

Clean

This button helps you remove tracks that aren't to your liking. When selected, you are given a few options:

- **Clean Selected** - remove the tracks you have selected in your project.
- **Clean All** - remove all tracks from your most recent run of FX Permutator.
- **Enable Deep Clean** - removes all regions and tracks using the "FXPerm" prefix.
  - Use with caution - if you have the same prefix throughout your session on non-permutated tracks or regions, they may also be removed.
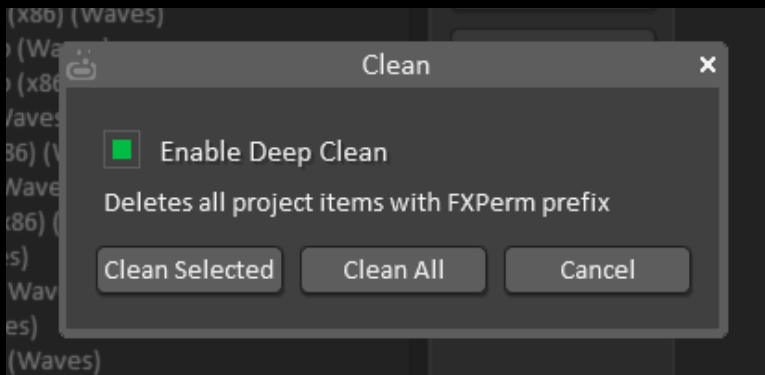
FX per track
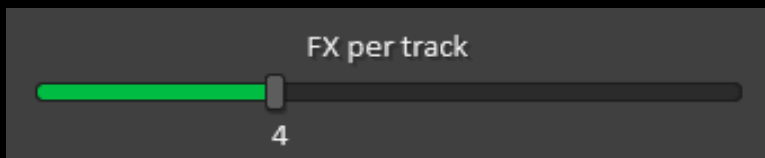
This option lets you choose the number of plugins you want to be randomized on each track. You can select up to 10 plugins, but be sure to take into account any plugins you've selected that:

- May prompt for access to licenses (i.e. iLok, Waves, etc.). License prompts will pop up when these plugins are accessed, so ensure they are already authorized or that your thumb drive is plugged in.

- Are heavy on RAM usage. This will slow down FX Permutator's process, but you can still see updates within the Log window.
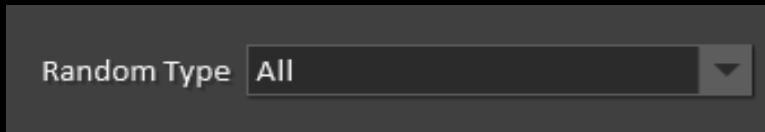
Number of tracks
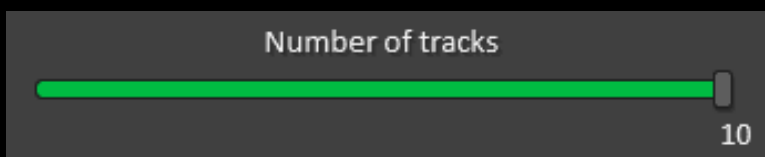
This option allows you to choose the number of tracks (and, therefore, new plugin chains) that you want to be created in the run.

The tracks' naming convention is "FXPerm_1 R1" with "_1" indicating the track count and "R1" noting the run count.

Random type

This option lets you choose if FX Permutator will randomize parameters, presets, or both:

- **All** - will randomize key plugin parameters even if it has a preset assigned.
- **OFF** - means only <u>presets</u> will be randomized on an initial run, but <u>not their parameters</u>.
- **Non-Presets Only** - means only <u>plugins not assigned a preset</u> will be randomized.
  - This feature was added to keep your preset parameters in place and only randomize plugins without presets.
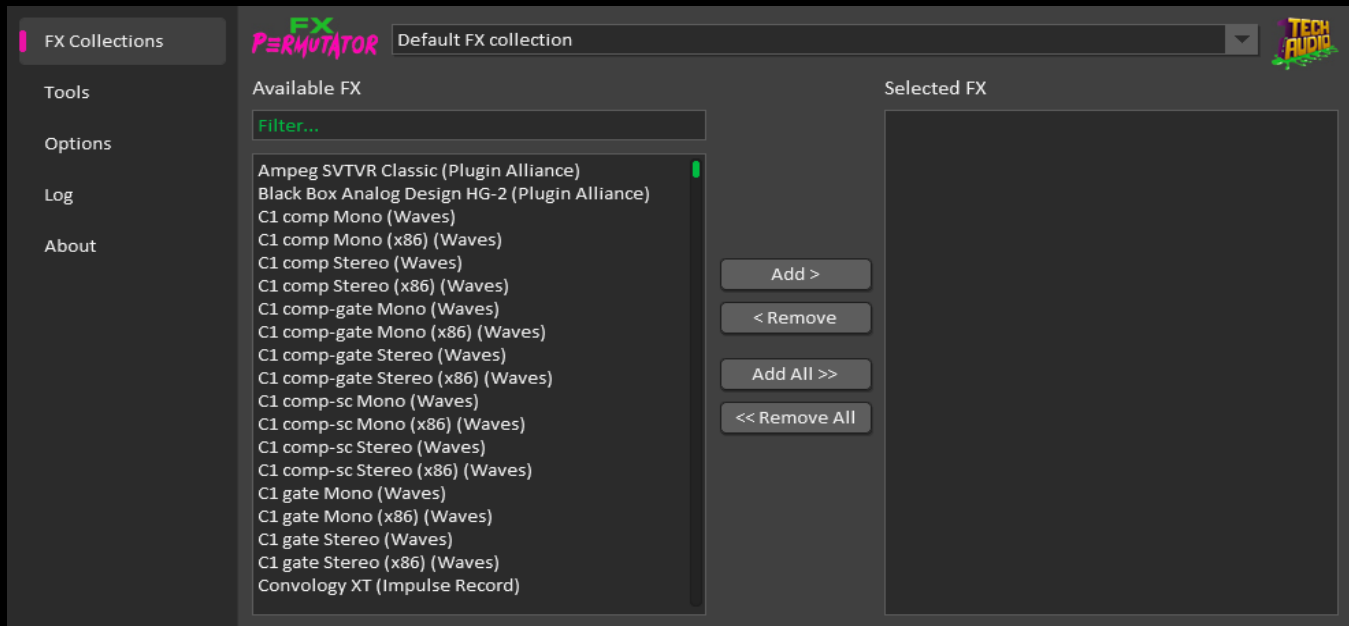
Random %
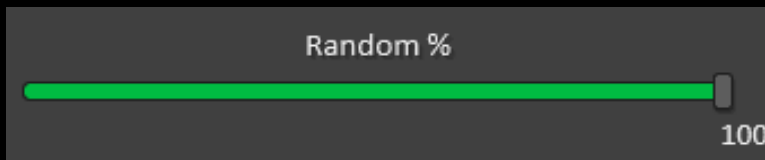
This option allows you to determine the percentage at which FX Permutator will randomize the plugins' presets and parameters.

Parallel Chance %
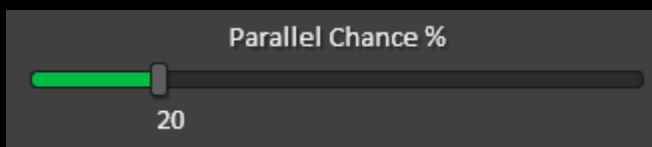
This option allows you to determine the percentage at which FX Permutator will enable parallel processing on the plugins in your chain. Reaper introduced parallel routing of plugins in Reaper 7

FX collections

This window is the home base for your plugin collections.

In the dropdown menu, you have options to:
- **New collection…** - create and name a new collection.
- **Save collection as…** - save the plugins in the Selected FX list.
- **Rename collection…** - rename your current collection.
- **Delete collection** - delete your current collection.
- And at the bottom of the menu you will also find a list of your saved collections in the order of their creation date.
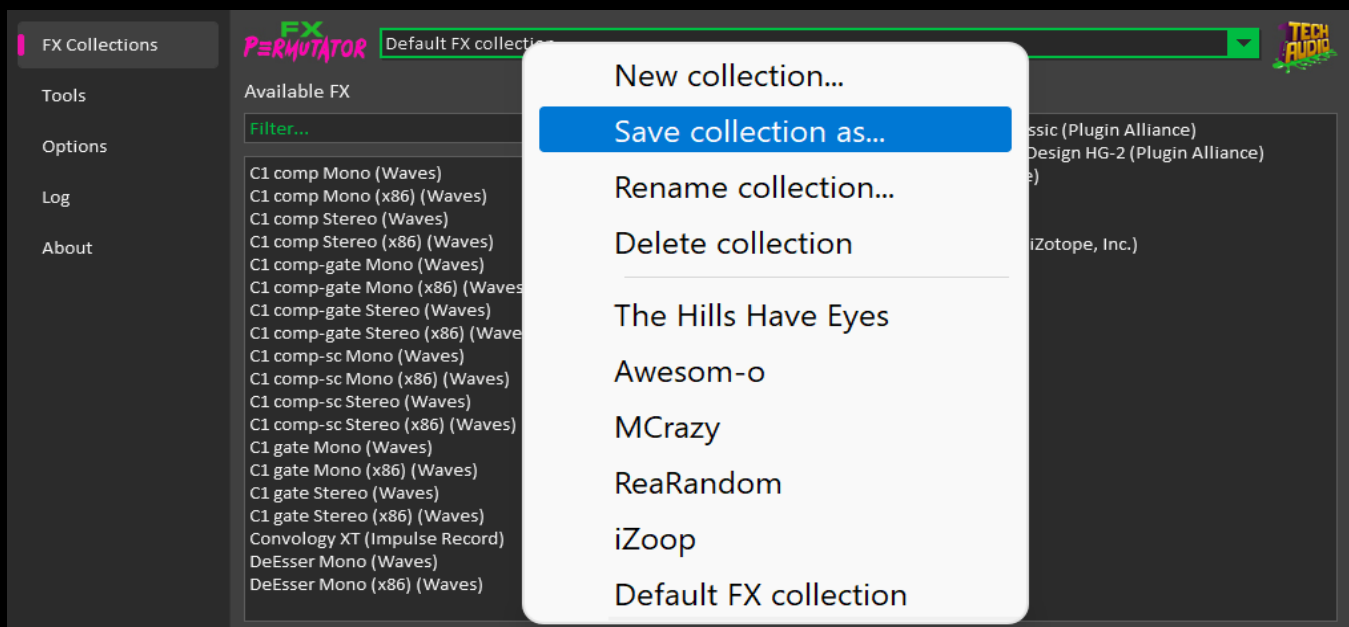
Available FX list

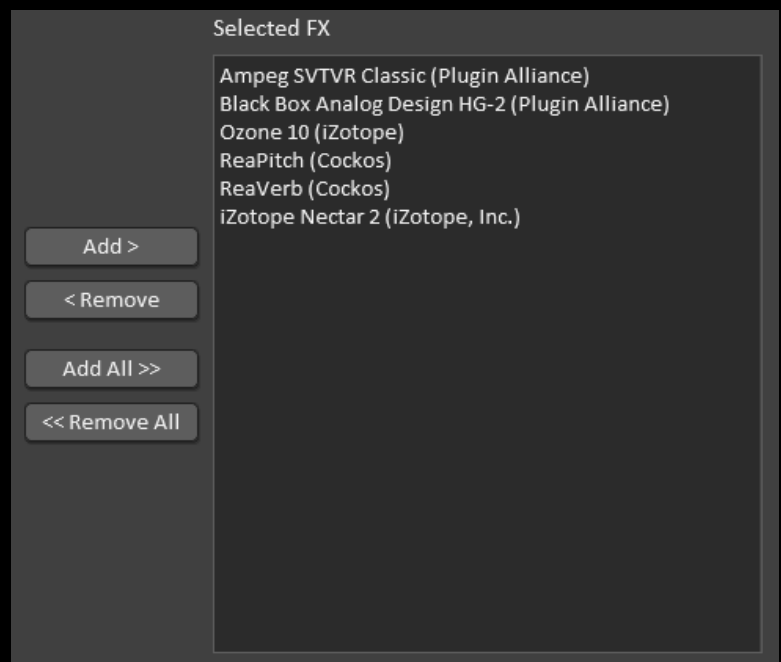In this window, you will see the plugins you have available for FX Permutator to use. You can press the **Add >** or **< Remove** buttons (or **Add All >>** or **<< Remove All**) to add them to the **Selected FX** list.

You can also use the **Filter…** text box to narrow down your results.

Available FX

Filter...

Ampeg SVTVR Classic (Plugin Alliance)
Black Box Analog Design HG-2 (Plugin Alliance)
C1 comp Mono (Waves)
C1 comp Mono (x86) (Waves)
C1 comp Stereo (Waves)
C1 comp Stereo (x86) (Waves)
C1 comp-gate Mono (Waves)
C1 comp-gate Mono (x86) (Waves)
C1 comp-gate Stereo (Waves)
C1 comp-gate Stereo (x86) (Waves)
C1 comp-sc Mono (Waves)
C1 comp-sc Mono (x86) (Waves)
C1 comp-sc Stereo (Waves)
C1 comp-sc Stereo (x86) (Waves)
C1 gate Mono (Waves)
C1 gate Mono (x86) (Waves)
C1 gate Stereo (Waves)
C1 gate Stereo (x86) (Waves)
Convology XT (Impulse Record)

Add >
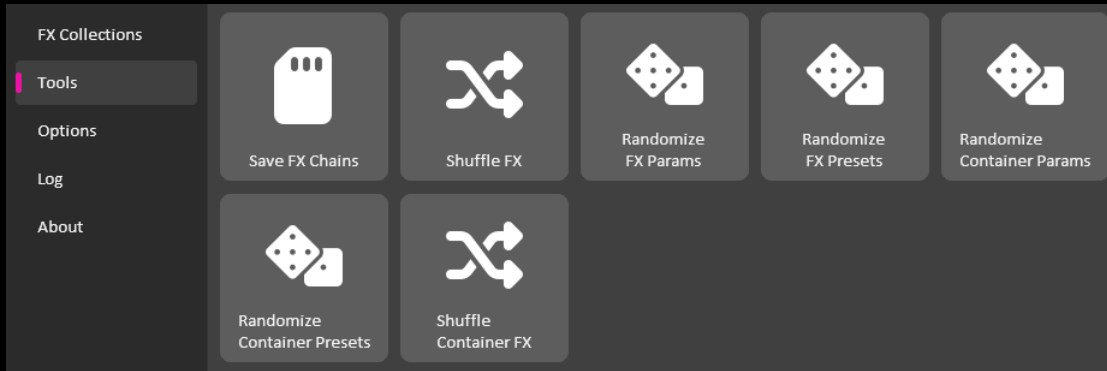< Remove
Add All >>
<< Remove All

Selected FX list

This is the list of plugins from which FX Permutator will choose to randomize. You can add as many plugins as you'd like; however, know that only the number of **FX per track** will be used in the permutation.

Add >
< Remove
Add All >>
<< Remove All

Selected FX

Ampeg SVTVR Classic (Plugin Alliance)
Black Box Analog Design HG-2 (Plugin Alliance)
Ozone 10 (iZotope)
ReaPitch (Cockos)
ReaVerb (Cockos)
iZotope Nectar 2 (iZotope, Inc.)

Tools

This window shows you all the ways you can further tweak and save your new plugin chains.
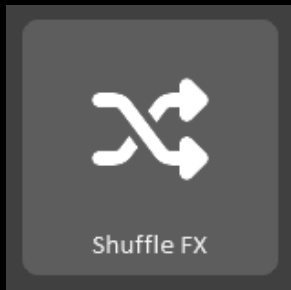
Save FX chains

This button lets you save the plugin chains created by FX Permutator. You can choose to **Save Selected** tracks, **Save All** tracks, or cancel the operation.
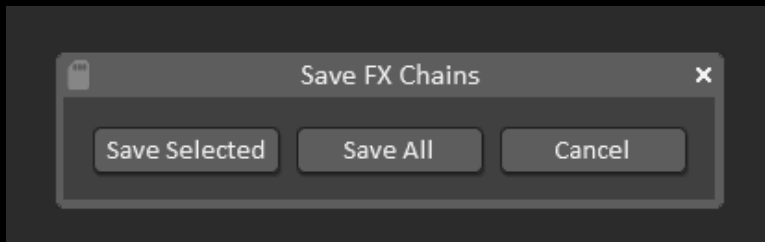
To choose the location for the saved FXChains, go to the **Options** windows and on the **FX Chains** tab, you can designate a path in the **FXChain File Path** text entry box. If none is set or the path is invalid, it will use the Reaper default path: *AppData\Roaming\REAPER\FXChains*.

Shuffle FX

This button shuffles the order of the FX chains <u>on the tracks you have selected</u>. You can see this in action by selecting a few tracks, opening the Mixer in Reaper (or the interfaces of the plugins you've selected), and pressing **Shuffle FX**.
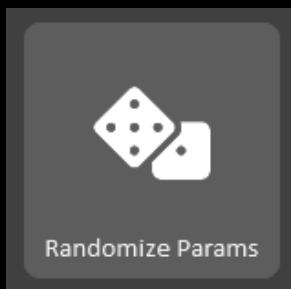
Before shuffling:

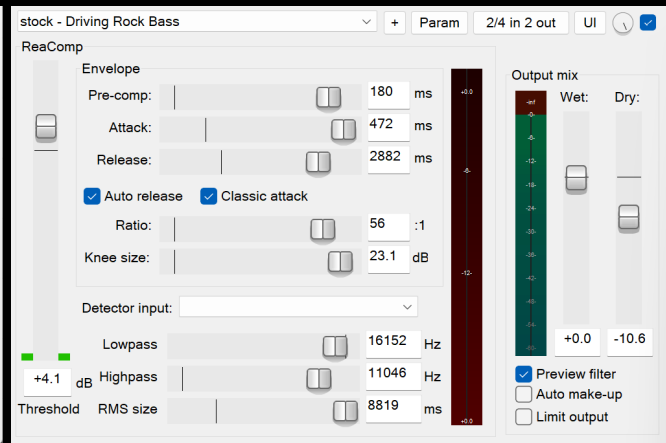

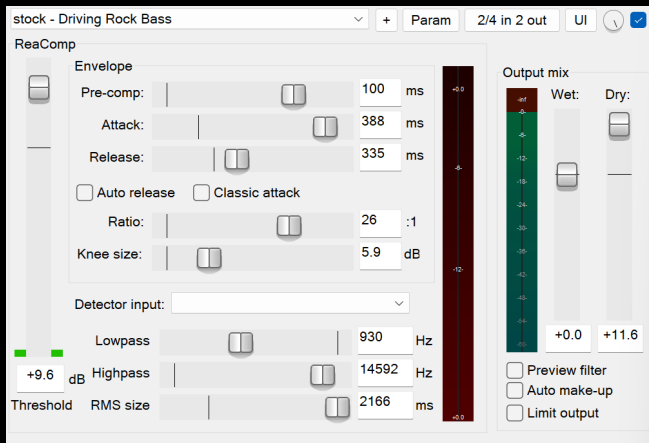**After shuffling:**

Randomize Parameters

This button lets you randomize the <u>FX parameters of the tracks you have selected</u>. To see this in action, select a track, open a plugin from your FX list, and press **Randomize FX**.

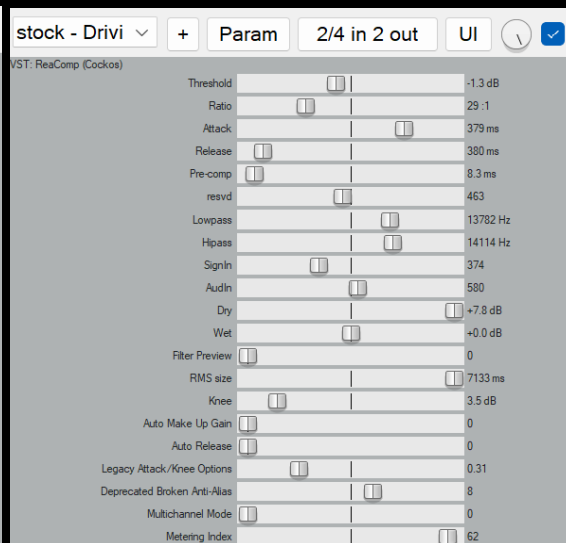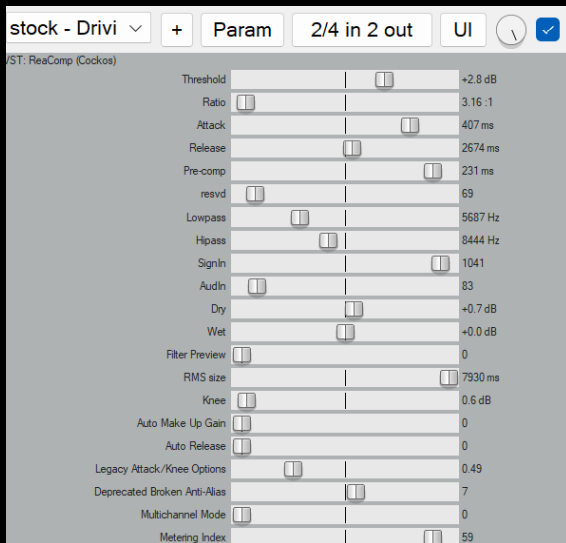**Before:**   **After:**

For some plugins, it's not immediately clear in the UI if changes were made, so you can also press the FX UI button to view the list of parameters and see how they have been affected.

Before: **After:**

Randomize presets
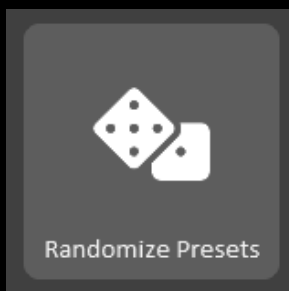
This button allows you to randomize your plugins' presets. FX Permutator can only see what presets the Reaper UI wrapper can expose, which is explained further in the **Best practices** section below.

To see the names of the presets FX Permutator chose to modify in the permutation, open the **Log** window. You will see a list of tracks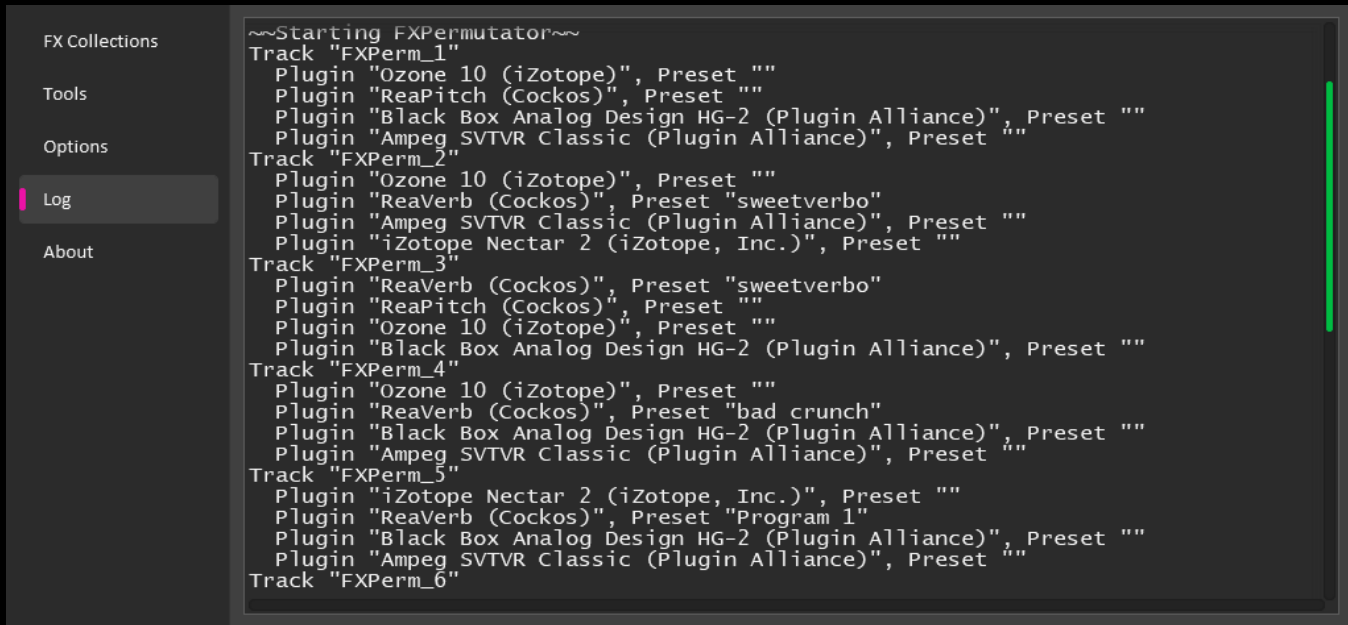 with the plugins and presets they now contain. If the preset is blank (i.e. Preset ""), FX Permutator did not choose a preset or the plugin has no preset for FX Permutator to randomize.
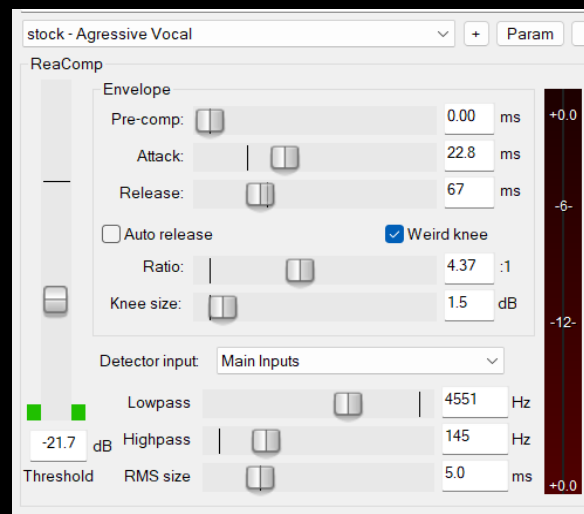

Just like the other tools, you can press Randomize Presets to affect the <u>tracks that are selected</u>. To see this in action, open a plugin with a named preset (any Reaper plugin will work), select a track, open the FX window, and see the preset change when you press **Randomize Presets**.

Before randomizing preset:
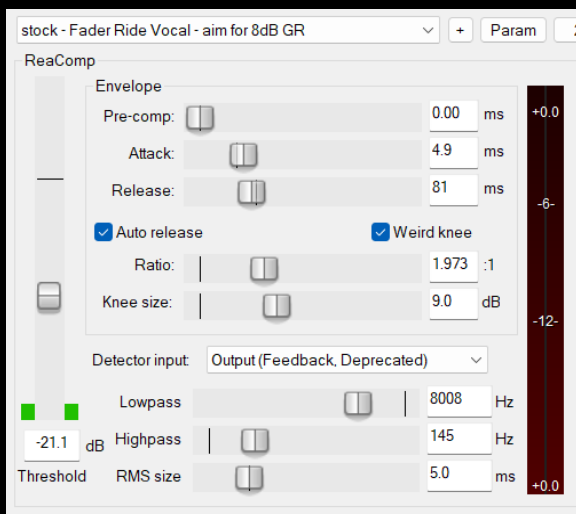
After randomizing preset:

FX Container Tools
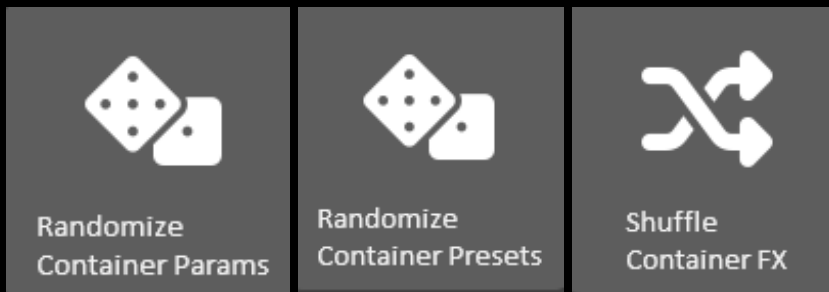
Reaper 7 introduced FX Containers which give you the ability to have a containerized plugin chain *within* your track's plugin chain. Trippy! These tools function just like their parent level counterparts but only deal with the plugins that are contained within a Reaper FX Container object. Your option are:

Randomize Container Params - Randomize the parameters for the plugins within a selected FX Container(s)

Randomize Container Presets - Randomize the presets for the plugins within a selected FX Container(s)

Shuffle Container FX - Shuffle the order of the plugins within a selected FX Container(s)

Options
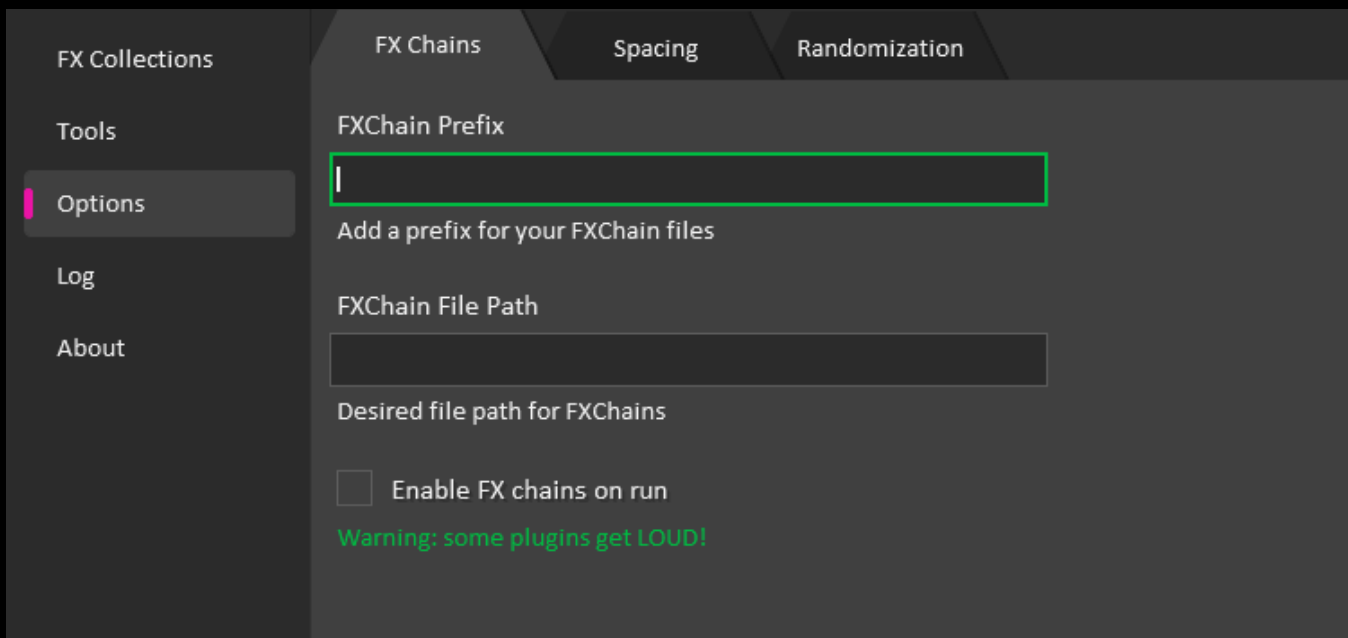
In the **Options** window, you can adjust various settings to assist your workflow.

FX chains

On the **FX Chains** tab, you can choose how you want to save your FXChains and how they behave.

FXChain Prefix - lets you add a prefix to your saved RfxChains. These are saved in the folder dictated by the FXChain File Path. The naming convention is:

“[Prefix] [Track X] - [Name of Track].RfxChain”

- For example, if you set the prefix to “Favorite” and have a track named “FXPerm_1 R2”, the result will be:

“Favorite Track 1 - FXPerm_1 R1.RfxChain”

FXChain File Path - lets you set the location for the saved FXChains. If left blank or if the path is invalid, it will use Reaper’s default path: *AppData\Roaming\REAPER\FXChains*.

Enable FX Chains on run - when enabled, your FX will not be bypassed by default.

- **WARNING**: While this seems like a good idea, it may not be the best workflow for all plugins, especially ones that activate upon playing regardless if the playhead is on a media item (such as Vinyl by iZotope) or plugins that are very loud, such as compression or distortion plugins.
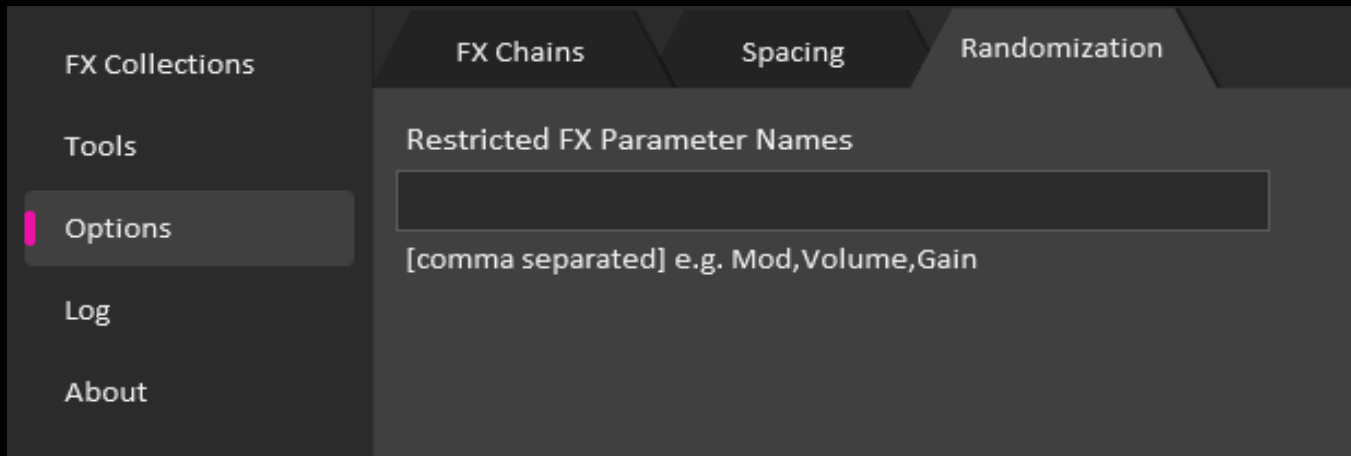
Spacing

This window focuses on the length of your regions.

Item Spacing - lets you change how many seconds in between the tail of the previous region and the start of a new one.

Region Tail - lets you change the latter part of a region, which is determined by how many seconds after a media item ends. This helps with chains that have longer tails.

Randomization

This window lets you determine your randomization settings.

Restricted FX Parameter Names - lets you enter names of specific plugin parameters you do not wish to randomize. This can be useful for restricting and tuning exactly what you want to randomize. These names must be separated by a comma, e.g. Mod,Volume,Gain.

FX Containers
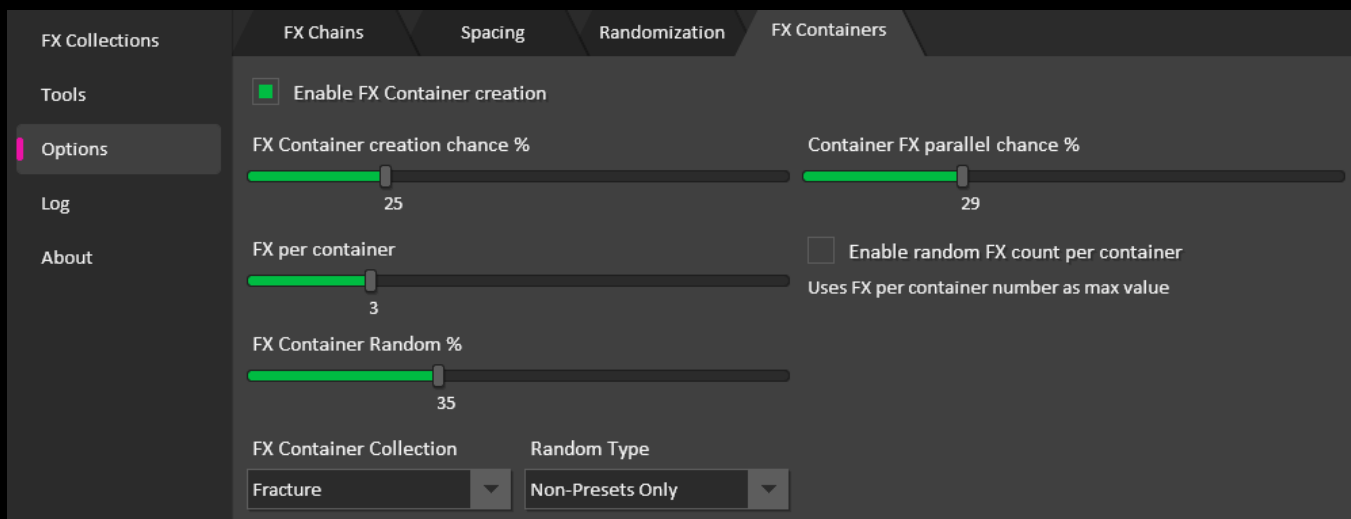
This window lets you determine the inclusion and behaviors of Reaper's FX Containers within FX Permutator. If you're unfamiliar with FX containers, you can learn more about them here. Important to note that Reaper treats an FX Container as a single plugin. However it's a special folder that can contain many plugins.

Click the checkbox: "**Enable FX Container creation**" to allow the inclusion of FX Containers in your main chain

Then adjust the following settings before you start your run.

FX Container creation chance % - The percentage chance that the FX in your chains will become containers. 100% will yield all containers in your chains, no single plugins.

FX per container - Behaves just like FX Per Track in the main control bar UI but determines how many plugins per **container** created.

Enable random FX count per container - Enabling this checkbox allows you to randomize the number of plugins per container. The value you have set in **FX per container** will act as the max value. 1 being the min value

FX Container Random % - Behaves just like Random % in the main control bar UI but determines the randomization of plugin parameters within FX Containers only

FX Container Collection - a drop down that features your saved FX Collections. You can specify a specific collection to be used just for the **FX Containers**. Default is [**Currently Selected FX**]

Random Type - Same functionality as the Random Type drop down in the main control bar UI.

Container FX parallel chance % - Behaves just like Parallel Chance % from the in main control bar UI but limited to the plugins in the Container…you get the idea by now.

Log
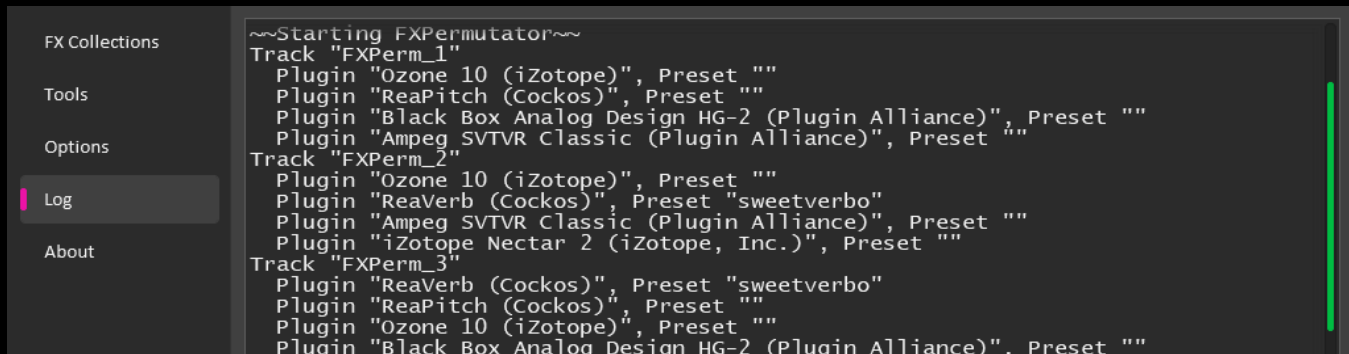
The **Log** window provides useful information about what FX Permutator is doing. It will list each track name (e.g. "FXPerm_1") and the plugins on that track as well as the names of the presets being used. If you only see a "" next to Preset, that means that no preset was used in that run.

About

On the **About** window, you will find information about the version of FX Permutator you are using as well as the year it was developed, copyright information, and a link to the **Team Audio** website.

Best practices

Run as a separate process

FX Permutator is powerful but can become unstable due to plugin stability and behaviors. Odds are, if your system already has some problematic plugins, you will likely see some crashes when using them with FX Permutator. We recommend switching over problematic plugins to run as a **Dedicated process** in Reaper.

To do this, press the FX button, right-click the problematic plugin, select **Run as**, and select **Dedicated process**. More information about dedicated processes can be found on the **Reaper blog**.
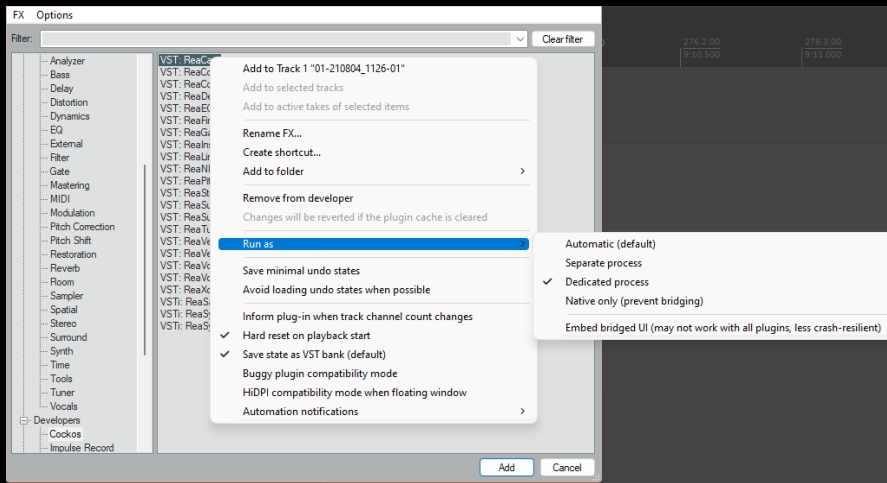
Preset library repository

To get the best out of FX Permutator, you will need to make sure Reaper is supplied with readable plugin presets. A lot of plugins do not natively provide access to their presets, so we have created a repository of presets you can load in Reaper.

**FX Permutator preset repo link: https://github.com/TeamAudio/fx-presets**

To import a Reaper preset library file, go to your track's FX chain, press the "**+**" button near the preset dropdown menu, select **Import preset library (.rpl)...**, and select the .rpl for the plugins
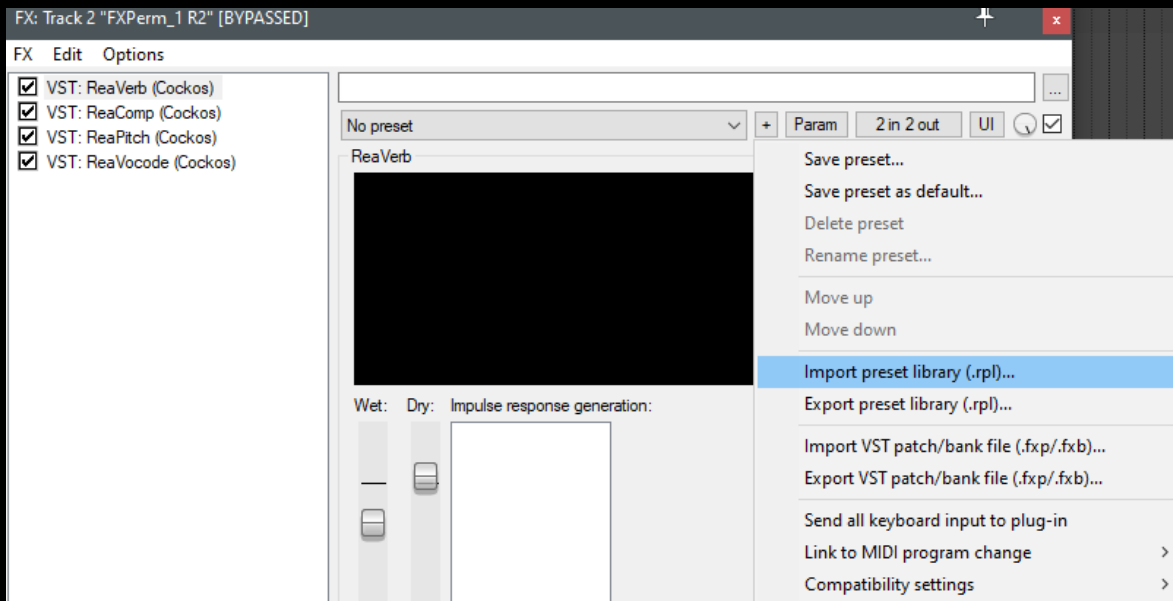
When adding these preset libraries in Reaper, please make sure you verify the plugin type (VST, VST2, VST3, etc.) and download the correct version.

VST versions

Each plugin type will have different preset library files you will need to import. If presets are available, they will be shown in the drop-down list of presets.
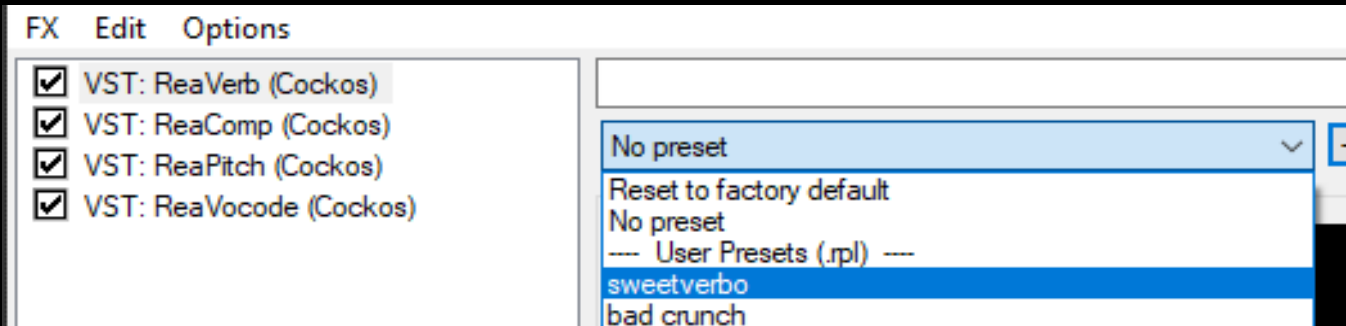
Be aware that the VST/VST2/VST3 versions may have different presets. For example, a VST may have no preset while the VST3 version does. This may affect what **Random Type** you want to select to randomize the parameters.

The imported preset .rpl for a VST/VST2/VST3 will depend on who authored it, and they may react differently to randomization as well. For instance, some VST3s contain Midi CC information, meaning they contain 129 additional tracks. Though Midi CC data is always filtered and never randomized, this can cause a VST3 to delay during randomization, while the VST version may respond quickly.

Additionally, there can be varying delays across any VST depending on the number of parameters the VST has and the number of presets that you have available to randomize.

Troubleshooting

If you're installing Reaper and you're importing your configuration file from a previous Reaper setup, you may need to delete or rename a few .ini files depending on what you've added to your exported configuration file.

If you open up FX Perm on a new Reaper install, or on a new machine, and the FX Perm UI still lists all of your plugins from your previous workspace, you'll want to locate and delete/rename reaper-vstplugins.ini and reaper-vstplugins64.ini

Once you delete these files and open Reaper, these files be rebuilt with your current plugin index. We recommend making a backup of your config directory before deleting any files.

For additional help please don't hesitate to contact us at **support@techaud.io**.

Thank you

We want to keep making useful tools and fun toys. If you like FX Permutator, please help us spread the word. Tell a friend for us and we will love you forever. Well, we already do love you forever, but we'll love you even more. Thank you so much.

Glossary

- FX chain = the chain of plugins stored on a track
- FX collection = the list of plugins selected for FX Permutator to access on a run
- VST = Virtual Instrument
- .rpl = Reaper Preset Library