

PULSATEC ANALOG PASSIVE EQUALIZER



User Manual

Requirements

Software and hardware requirements of the product



Windows PC

OS version Windows 7 or newer

CPU 2.0 GHz SSE (Multicore 2.4 GHz recommended)

RAM 8 GB (16 GB Recommended)

Software VST2 / VST3 /AAX compatible host application (32bit or 64bit)



Apple Mac

OS version OS X 10.13 or newer

CPU Apple M1, Intel based 2.0 GHz RAM 8 GB (16 GB Recommended)

Software AU / VST2 / VST3 / AAX compatible host application (64bit!)

Hardware requirements / recommendations are based on estimates performed on available computers at D16 Group HQ, and therefore cannot cover all possible configurations available on the market. CPU usage may vary widely depending on the manner in which the product is used. Factors that may contribute to variance in CPU usage include particular patch and its complexity, the global quality setting, project sample rate. In order to form a better understanding of how a plug-in will behave within your current setup, we highly recommend downloading the demo and giving it a try.

Preliminary information

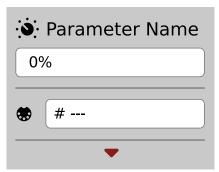
This chapter contains general advice for using the plug-in's interface.

To do a right-click on macOS with single button mice:

Either use your mouse click while holding the CTRL key on your keyboard or use two fingers on your touchpad.

Checking the value of a parameter

Right-click on any parameter to check its value in its context menu:



A parameter's context menu

Note: It's currently not possible to enter a precise value in the input box; it's just to check the value.

Fine-tuning continuous parameters

Tweak a control (knob) while holding the **CTRL key** (on **Windows**) or **Apple CMD** key (on **macOS**) - this will make the tweaking more precise while moving the mouse pointer up and down.

Double-click to reset a continuous parameter's value

Double-clicking on a parameter restores its value to the initial state, either default (right after loading the plug-in / loading it along a project file) or from the most recently loaded preset.

Overview

Pulsatec, the *Analog Passive Equalizer*, is a virtual recreation of a set of classic audio equalizing units from the 1950s. Upon loading the plug-in in any **VST**, **Audio Units**, or **AAX** host application, the graphical user interface (GUI) appears:



Pulsatec's graphical interface

The interface comprises two main sections:

• **Preset Management** (the top-most section)



• Signal Processing (all other controls)

Signal Flow

In this chapter, we describe the signal path through **Pulsatec** and explain each component and its controls along the way.

Equalizer (Main) Section

The plugin is essentially a 4-band equalizer, with four subsections on the GUI, each controlling a different frequency band:

Low Frequency Band

This section functions as a low shelving filter.

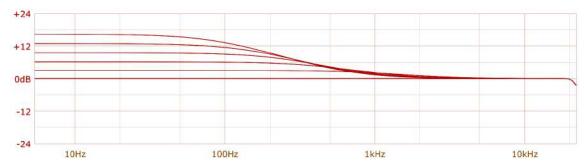


Low Frequency section

It contains three parameters:

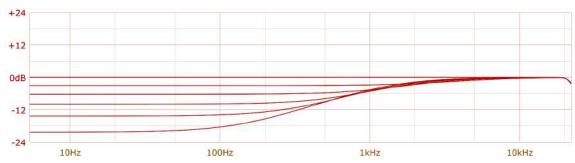
Low Frequency – Sets the frequency for the low shelving EQ. The parameter is discrete, allowing selection from a limited set of frequencies.

Low Boost - Controls the amount of boost for the band.



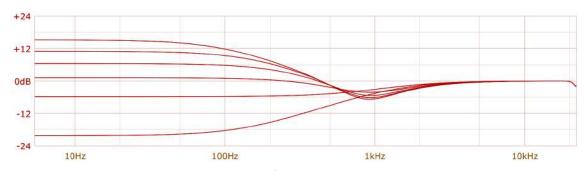
Boost at 100 Hz from min to max

Low Attenuation - Controls the amount of attenuation for the band.

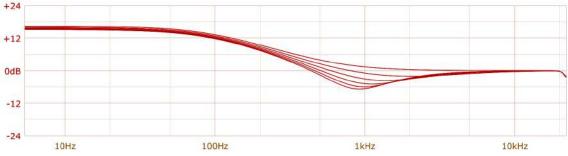


Attenuation at 100 Hz - min to max

This design allows for both boosting and attenuating the same frequency range, creating a distinctive frequency dip that enhances control over the low-end spectrum.



Attenuation and boost at 100 hz - Boost changing from min to max



Boost at 100hz while Attenuation changing from min to max

Mid-Low and Mid-High Bands

These sections manage the middle part of the frequency spectrum. Each behaves similarly to a typical peaking filter EQ.

Mid-Low

Mid-High



Mid-Low and Mid-High sections

Both bands are controlled by the same set of four parameters, but cover different frequency ranges:

- Frequency Sets the center frequency for the peak. The parameter is discrete.
- Bandwidth Sets the width of the frequency peak.
- Gain Controls the strength of the boost or cut.
- Boost/Atten Switch Selects whether the band is in boost or attenuation mode.

High Frequency Band

This section provides a high shelving EQ for attenuating the higher part of the spectrum.



High Freq section

It includes the following parameters:

- **High Frequency** Sets the cutoff frequency of the high shelving filter. The parameter is discrete.
- High Attenuation Controls the attenuation amount for the selected frequency.

Quick Bypass

The **On/Off** switch in the upper-left corner of the GUI allows for a quick bypass of the effect, enabling comparison between the processed and unprocessed signal.



Bypass switch

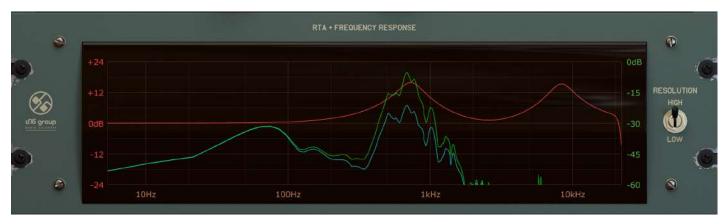
Real-Time Analyzer (RTA)

At the bottom of the GUI, a clickable "Open RTA" label toggles the real-time frequency analyzer.



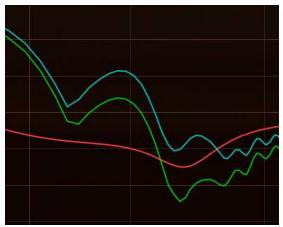
Clickable Open RTA label

This tool is especially useful when working with EQs, as it overlays the EQ's frequency response curve on top of the real-time spectrum.



Real Time Analyzer

The teal line represents the frequency content before equalization. The green line shows the content after equalization.



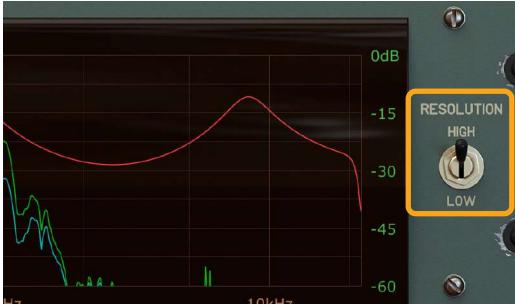
Frequency content before and after equalization

When hovering over a point in the RTA screen, the exact **frequency** and **amplitude** are displayed.



Peeking frequency and amplitude on RTA screen

To the right of the RTA screen, a switch controls the resolution of the real-time frequency analysis



Resolution switch.

Master Section

The master section includes:



Master section

- Output Volume Knob Controls the output signal level.
- Output Meter Displays the output level visually.

Preset Management

Preset storage

Presets, both from **Factory** content and user ones, are stored as files in proper locations on the disc. Each time a plug-in instance is loaded into a project, these locations are scanned and the presets found there are consolidated into a single linear structure (list) in the **Preset Browser**.

Browsing presets

The **Preset management section** (no matter what kind of preset it concerns) enables quick navigation and browsing of the preset structure:



The Preset management section

- PRESET Displays the name of the currently loaded preset. Clicking the display opens the Preset Browser panel, allowing you to browse factory / user presets.
- Prev / Next Hovering over right side of the Preset display exposes the Prev / Next buttons:
 They allow for linear browsing of the presets list (depending on currently set filters see sections below).
- Save - Saves current parameters as a new preset or allows for overwriting of the existing one (see sections below).

Right-clicking over the **Preset** display opens a context menu with two additional options:

- Init Restores initial settings of plug-in parameters.
- Reload Reloads the most recently loaded preset.

The Preset Browser looks as follows:



The Preset Browser

There are four main parts:

- Sources Situated in the left column, filter content Sources for displayed presets.
- Filter Below Sources, a preset Filter that uses the Tags system.
- Results List of presets (shown in the middle column) from Sources that meet criteria set in the Filter.
- Info pane The right column shows information about the currently selected preset(s), divided into several subsections.

Sources

In this section, you can choose a Source / Source(s) that you want to browse presets from.



Preset Sources

There are two resources to choose from:

- Factory Delivered together with the plug-in and cannot be modified (read-only).
- User Created by the user and can be freely modified or shared with other users.

Choosing any of them will cause the results to narrow to the presets from one resource.

Filter

The section below is the **Filter**, which represents a preset filtering system using **Groups** and **Tags** to browse the content.



The Filter section

Groups and tags

Each **Preset** is described by a few common **Groups**. Within each of them there may be one or more **Tags** from a particular set.



The Filter group

Presets from the Factory resource were assigned Groups and Tags when they were created.

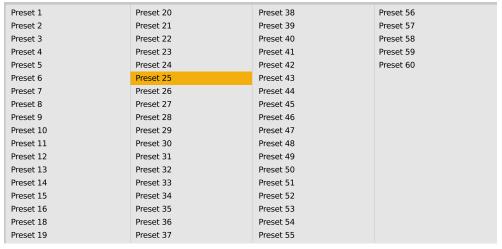
Groups and Tags describe the content clearly, taking into account the plug-in's purpose.

Editing of the **Groups** and **Tags** for **Factory** content is limited. User presets can be described with the same **Groups** and **Tags** as **Factory** content, or you may define additional **Tags** within factory **Groups** and even create your own **Groups** with your own **Tags** to describe your own presets.

The only limitation is that a user cannot remove factory **Groups** or **Tags** from **Factory** content.

Results

This is a list of presets from chosen **Sources** that meet the filtering criteria. The basic function of this section is to browse and load presets. It can also be used for editing, which is described later.



The Results list

- Click any name to choose and load the preset.
- **Double-click** the name to choose, load the preset and close the browser.

Using Hitting X closes the browser.



Close Browser window

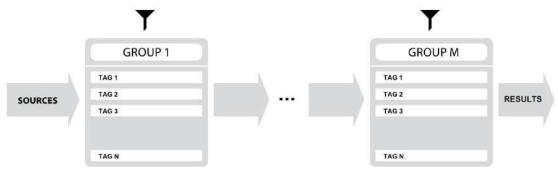
Preset filtering using Groups and Tags

The **Filter** section contains **Groups** of **Tags**. Each Group is represented by a rectangle with the **Group** name + set of **Tags** inside.



Group 2 with two tags set (Tag 2 and Tag 3)

The filtering process cascades from top to bottom. This means that all presets available in the selected **Sources** are filtered by selected **Tags** from the first **Group** (uppermost one), then the **Group** below and so on, until filtered by the last active **Group** (the bottom one).



Preset Filtering with the use of Groups

The result of the cascade filtering process is listed in the middle column, the **Results** / presets list section. You can also consider the **Results** list as an intersection of preset sets, found by filtering through every individual **Group**.

Basic Actions

Tags work as toggle buttons. Click to *activate / deactivate* a **Tag**; a gray background color means that the **Tag** is inactive, and orange means that the **Tag** is *active*.



Group 2 with two tags set (Tag 2 and Tag 3)

If at least one **Tag** in a **Group** is active, then the **Group** (filter) also becomes active, otherwise the **Group** chosen doesn't affect the filtering process at all.

Group operator

When a single Tag is active in a Group, only presets having that Tag set are displayed in the Results.

If two or more Tags in a Group are active, the Results depend on the Operator chosen for the Group:



A Group operator

The **Operator** button works in toggle mode and offers a choice of two alternative **Operators** for the **Group**:

- Any D Means that a preset is shown in the **Results** when the preset includes at least one of the active **Tags** from the **Group**.
- All **\(\sigma\)** Means that a preset is shown in the **Results** only when the preset includes all active **Tags** from the **Group**.

Filter enable / disable

You can quickly enable / disable the Filter using the toggle switch in the top-most section of the Filter:



An On/Off switch for a Group Filter

Other types of filtering

Searching by name

Alternatively, you can look for a preset by entering its name or just a piece of its name into the **Find preset** field:



The Find preset input

The **Results** are refreshed on-the-fly and they work together with the other filters.

Using the X icon clears the entire field:



Clearing the search field

Filtering Favorite presets

You can mark presets as a **Favorite** by clicking the **Heart** icon while hovering on preset name **D**. You can unmark presets by clicking the icon again (toggle mode):



Setting a preset as a Favorite on the list

[■] Logical OR between Tags in the Group

[■] Logical AND between Tags in the Group

It's allowed for every **source** (**factory** or **user**)

The flag is stored globally, meaning that a **Favorite** preset will be accessible as such from every other instance of the plug-in **D**.

Once you have your Favorite presets flagged, you can quickly filter them using the toggle button with a Heart icon on it:



Favorite presets filtering

If the button is active, then only Favorite presets will be shown (considering all remaining filters).

Filtering Pinned presets

You can **Pin** one or more presets using the **Pin** icon while hovering over a preset name **.** You can unpin a preset by clicking the icon again (toggle mode):



Pinning a preset on the list

Unlike **Favorites**, this flag works locally and it's stored with the project file (not global config), so **Pins** are stored individually for every instance (with total recall, so a plug-in state is recalled if saved in the context of a project).

But, similarly to Favorites, you can easily filter presets using the toggle button with the Pin symbol on it:



Pinned presets filtering

If the button is active, then only **Pinned** presets will be shown (considering all remaining filters).

Sometimes project or plug-in reload may be required

It's allowed for every source (factory or user)

Info pane

The column to the right shows information about the selected preset or presets. It also provides access to some of the preset editing functions.



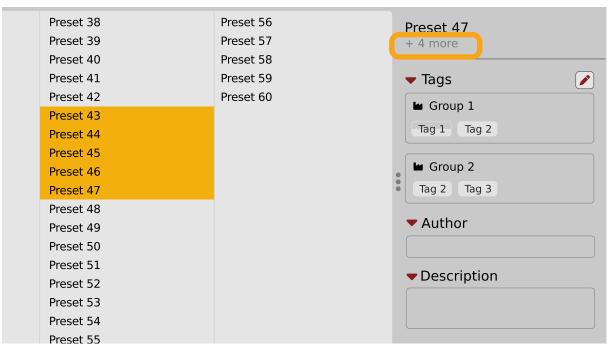
The Info pane

There's a preset name at the top.



The Preset name in the Info pane

Additionally, if you've selected more than one preset there's information about how many more have been selected:



Selecting more than one preset

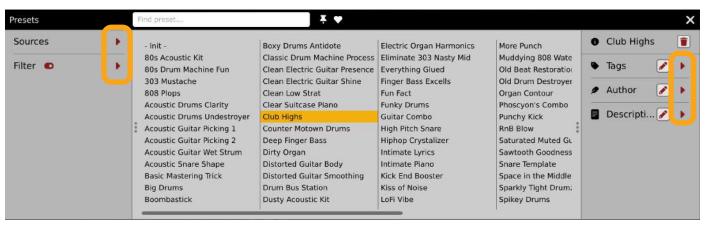
Below the preset(s) name there are few common sections describing selected presets:

- Tags
- Author
- Description

Browser's visual adjustments

Folding sections

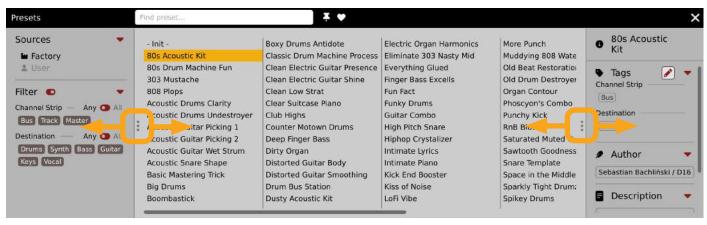
If you don't need to see the contents of every section / subsection, you can fold some of them up using the Caret icons:



Sections folded up

Resizing columns

You can use the three-dotted handles to change a column's width to your preference.



Resizing Browser columns

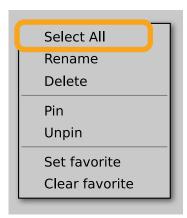
Editing presets

You can perform certain actions on presets, such as adjusting **Groups** and **Tags**, deletion, renaming the presets as well as their export or import. One should bear in mind, however, that some operations are only allowed on user presets but not on **Factory** content.

Preset selection for Edit

Some operations can be done on more than one preset, so you're allowed to select more than one preset at once; in the **Results** section, you can choose a preset or a set of presets in the following ways:

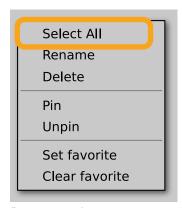
- Click a preset Selects (and loads) one preset from the list.
- Win (ctrl + Click the preset), Mac (cmd # + Click the preset) Adds another preset to an already chosen preset or a set of presets.
- Shift + Click the preset Selects a range of presets from the last chosen preset to the preset clicked with the Shift key.
- Right-Click on any **Preset** in the **Results** section and choose the **Select All** option this selects all presets:



Selecting all presets

Preset renaming

On a selected preset , right-click to open the context menu and select the **Rename** option:



Preset renaming

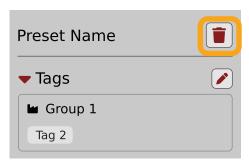
Preset deletion

Once you have selected one or more presets, right-click to open the context menu and select the **Delete items Delete items** option:



Deleting presets

Alternatively, you can use the **Trash bin** button in the **Info pane** to delete selected presets:



The Trash bin button

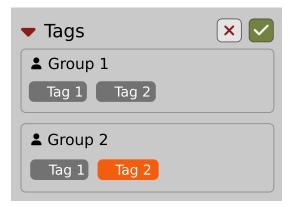
Tags editing

When you select a preset or presets to change their tags, click the **Pencil** button next the **Tags** section in the **Info pane** to enter **Edit mode** for the **Tags**:



Entering the Tag edit mode

With the Edit mode enabled, you will see all possible Groups and Tags available for the preset(s):

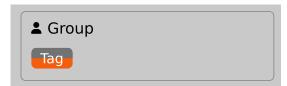


The Tag Edit mode

Tag buttons work in toggle mode, much like filtering. Clicking them either sets or erases a **Tag** for a chosen preset. If a **Tag** is set for a preset, it is indicated by an orange background color, whereas if a **Tag** is not set, it has a gray background color.

If you choose multiple presets with existing tags, **Tag** buttons will appear orange if a specific **Tag** appears in all selected presets, and gray if it appears in none.

When a specific **Tag** is set only for a few of the selected presets, it appears as half-gray and half-orange.



Tags appearing only in part of selection

Changing the **Tag** status for one or more chosen presets sets or erases this **Tag** in all these presets. A status change is signaled by an **Asterisk** to the left of a **Tag**.



A Tag with a status change

Tag buttons highlighted in half-gray and half-orange color (where **Tag** values across the highlighted presets aren't all the same) workin a three-state system when switching between states; they turn gray if you erase the **Tag** for all selected presets, orange if you set the **Tag** for all selected presets, and return to half-gray and half-orange if the selected items remain unchanged or are returned to their initial state.

Potential changes have to be confirmed using the **OK / Cancel** buttons at the top part of the **Tags** section:



Confirmation buttons in the Tags section

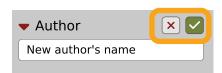
Author editing

When you select a preset or presets to change the **Author**, click the **Pencil** button next the **Author** section in the **Info** pane to enter the **Edit mode** for the **Author** field:



Editing Author

Once you've finished editing the field, confirm the operation using the **OK / Cancel** buttons:

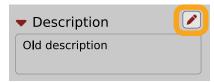


Confirming Author editing

This operation is possible for user content only.

Description editing

When you select a preset or presets to change the **Description**, click the **Pencil** button next the **Description** section in the **Info pane** to enter the **Edit mode** for the **Description** field:



Editing Description

Once you've finished editing the field, confirm the operation using the **OK / Cancel** buttons:



Confirming Description editing

This operation is possible for user content only.

Setting presets as Favorites

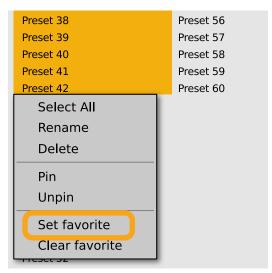
As described in the chapters above, you can mark a preset as a **Favorite** by clicking the **Heart** icon while hovering over the preset name:



Setting a preset as a Favorite

The flag is stored globally, meaning that a **Favorite** preset will be accessible as such from every other instance of the plug-in **D** .

It's also possible to perform the operation for a selection of presets. After you select the desired presets in the **Results** window, right-click on the presets to open a context menu:



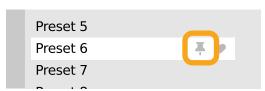
Setting Favorite presets from the context menu

And select the **Set favorite** option.

To clear Favorite flags for the selection of presets, use the Clear favorite option instead.

Pinning presets

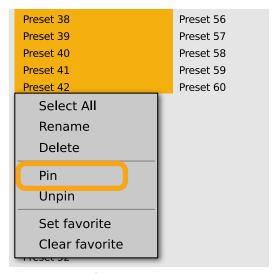
You can **Pin** one or more presets using the **Pin** icon while hovering over the preset name:



Pinning a preset

Unlike **Favorites**, this flag works locally and it's stored with the project file (not globally). This means the **Pins** are stored individually for every instance (with total recall, so a plug-in state is recalled if saved in the context of a project).

It's also possible to perform the operation for a selection of presets. After selecting the desired presets in the **Results** window, right-click on the presets list to open the context menu:



Pinning presets from selection

And select the Pin option.

To clear the **Pin** flag for a selection of presets, use the **Unpin** option instead.

Preset exchange

If you want to make a backup, or exchange a preset with a collaborator, you can export / import selected presets.

Export

Select a preset or presets that you're going to export and drag-and-drop them outside your DAW into a location you'd like to store them:

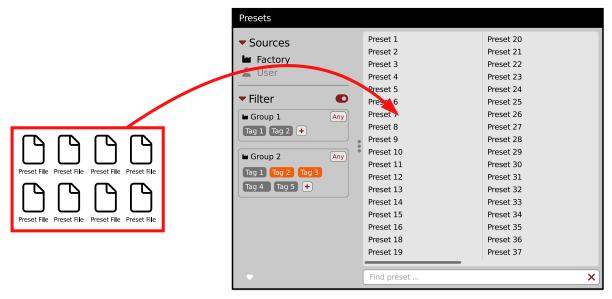


Exporting presets

The presets will be saved as individual files (one per preset) in the plug-in's native format.

Import

If you'd like to import preset files, you can drag-and-drop preset files from where they're stored, into the preset browser:



Importing presets

They will be automatically imported as user presets.

Importing Patterns

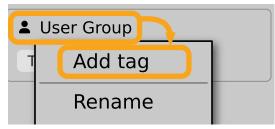
Specifically within the **Pattern browser**, it's possible to import:

- Native Phoscyon 2 patterns.
- Banks from legacy versions of the plug-in (Phoscyon 1.x) which will be accessible as alternative Sources, after
 you drag-and-drop them into the Browser.
- Patterns from Audiorealism ABL 2 or 3 instruments which will be included in User patterns after import.

Creating custom Tags and Groups structure

Adding custom Tags

Users are allowed to add their own custom **Tags** to both their own content and factory content. To add a new **Tag** to an existing filter **Group**, click over the **Group**'s name to pull down a menu and select the **Add Tag** option **□**:



Adding a new Tag

You can do this either in the Info Pane (right column, while the Tag edit mode is enabled) or Filter (left column).

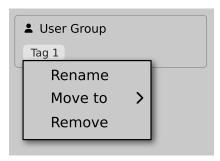
Editing custom Tags

There are a few edit options available for a user to perform on their own **Tags**, which are available by right-clicking a **Tag's** name in the **Filter** section:



The Filter section

You will see a context menu with all the available options:



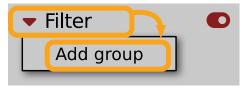
Editing options for a user Tag

- Rename Changes the name of a Tag.
- Move to Moves a Tag to another Group.
- Remove Deletes a Tag.

The menu is accessible only for a user's own **Tags**.

Adding custom Groups

You can add a custom filter to **Groups** by clicking the **Filter** label and selecting the **Add Group** option from the pull-down menu:



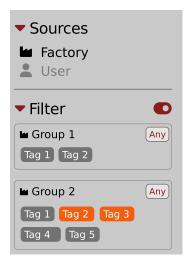
Adding a user Group

From here, you can add **Tags** to that newly created **Group** (see above), or move **Tags** from other **Groups**.

You can also add a custom filter to **Groups** in the **Info Pane** (right column) or **Filter** (left column).

Editing custom Groups

There are a few edit options available for a user to perform on their own **Groups**. Click on a **Group's** name in the **Filter** section:



The Filter section

You will see a context menu with the following options:



Edit options for a user Group

- Add Tag Adds a new tag to the Group (described earlier).
- Rename Changes the Group's name.
- Remove Deletes the Group, possible only when all Tags in the Group have also been removed.
- Move up Moves a Group up in the Filter. Possible unless the Group is already the topmost one.
- Move down Moves a Group down in the Filter. Possible unless the Group is the last one.

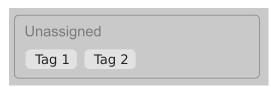
These operations are possible only on user **Groups**.

Groups in the Filter are ordered with Groups from Factory content first, then user groups below.

You can edit user **Groups** in either the **Info Pane** (right column, while **Edit mode** for **Tags** is enabled) or **Filter** (left column).

Unassigned Tags

When you receive content from a collaborator who uses different **Tags** and **Groups**, some Tags may show as **Unassigned**. This happens if the filter structure made by a preset's author is different.



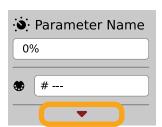
Unassigned Tags

You can move the **Tags** across your **Groups** to make them fit your scheme, or re-tag the collaborator content entirely.

Configuration

MIDI Learn

Right-click any plug-in parameter to open the context menu:



A context menu

Left-clicking outside the menu area closes it automatically.

Clicking the bottom arrow expands the menu and displays all available options:

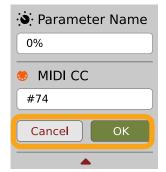


An expanded context menu

Linking a parameter to MIDI CC

The **Learn** function enables a quick assignment of physical controllers (from a MIDI controller) to plug-in parameters.

- 1. Click the **Learn** button to put the plug-in into a pending state before moving any MIDI CC controller.
- 2. Once the CC is recognized, click **OK** to save the change or click the **Cancel** button to restore the previous setting.



Linking a parameter to MIDI CC

Unlinking a parameter from MIDI CC

You can also delete a MIDI CC code attributed to a parameter from the context menu:

1. From the context menu, click the **Clear** button:

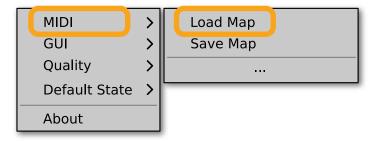


The Clear MIDI CC button

2. Then confirm using the **OK** button.

Loading / Saving a MIDI CC Map

These options are available in the MIDI submenu, accessible under Cog icon in the left-upper corner:

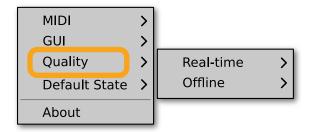


The Load Map and Save Map options

- Save Map Saves the current MIDI CC map to a file.
- Load Map Loads a MIDI CC map from a stored file.

Quality settings ^D

The **Quality** submenu under **Cog** icon in upper-left corner allows to choose sound quality for **Real-time** or **Offline** modes.



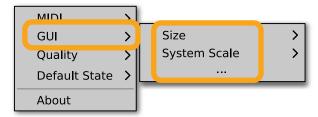
Quality settings

The higher the quality, the bigger the impact on the CPU.

This function is optional and may not be available in the specific plugin.

GUI

The **Size**, **System Scale** and **Theme** options are accessible from **GUI** submenu under **Cog** icon in upper-left corner of the plug-in. With these, you can adjust look of the plug-in, according to the pixel density and resolution of your screen:



The GUI Size and System Scale options

Size

This option lets you choose one of several default skin sizes to best match the plugin to the resolution of your computer monitor.

System Scale

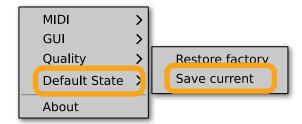
System Scale controls the rescale factor for the whole plug-in. For the best visual results, you should set it to the exact value from your system settings (screen properties).

Default Settings

You can save your current settings so that the plug-in will default to them for each new instance, or restore the plug-in to load with its factory settings.

Changing default settings

- 1. Click the **Cog** icon in the left-upper corner of the plugin.
- 2. Go to the **Default State** submenu and choose the **Save current** option.



Changing the default state of the plug-in

With this option, the current plug-in state will be saved as the default / initial state for when you insert a new instance of the plug-in.

The plug-in state includes: sound parameters (default preset), views, preset filters, sound quality settings, loaded / created MIDI CC map and GUI settings.

Restoring factory defaults

To return the default state for new instances to factory settings:

- 1. Click the **Cog** icon in the left-upper corner of the plugin.
- 2. Go to the **Default State** submenu and choose the **Restore factory** option.

Table of Contents

Requirements	3
Preliminary information	4
Overview	5
Signal Flow	6
Equalizer (Main) Section	6
Low Frequency Band	6
Mid-Low and Mid-High Bands	8
High Frequency Band	8
Quick Bypass	9
Real-Time Analyzer (RTA)	9
Master Section	11
Preset Management	12
Preset storage	12
Browsing presets	13
Sources	14
Filter	14
Groups and tags	14
Results	15
Preset filtering using Groups and Tags	16
Basic Actions	16
Group operator	16
Filter enable / disable	17
Other types of filtering	17
Searching by name	17
Filtering Favorite presets	17
Filtering Pinned presets	18
Info pane	19
Browser's visual adjustments	20
Folding sections	20
Resizing columns	20
Editing presets	21
Preset selection for Edit	21
Preset renaming	21
Preset deletion	22
Tags editing	22
Author editing	24
Description editing	
Setting presets as Favorites	
Pinning presets	25
Preset exchange	
Export	
Import	27

Importing Patterns	27
Creating custom Tags and Groups structure	
Adding custom Tags	
Editing custom Tags	
Adding custom Groups	28
Editing custom Groups	29
Unassigned Tags	29
Configuration	30
MIDI Learn	30
Linking a parameter to MIDI CC	30
Unlinking a parameter from MIDI CC	31
Loading / Saving a MIDI CC Map	31
Quality settings	
Size	32
System Scale	32
Default Settings	32
Changing default settings	32
Restoring factory defaults	33