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REDOPTOR

Vintage Tube Distortion

User Manual

Overview

Redoptor is a distortion effect with tube emulation.

Redoptor graphical interface

We can distinguish two sections there:

- Configuration and preset management

Configuration and preset selection section

- Signal processing control section consists of the all remaining controls.

Signal flow

This chapter describes the signal path through Redoptor. It explains the basic components of the unit and its control parameters.

Basic modules

Internally Redoptor consists of a few basic components. These correspond to the sections on the graphical user interface:

Preamp

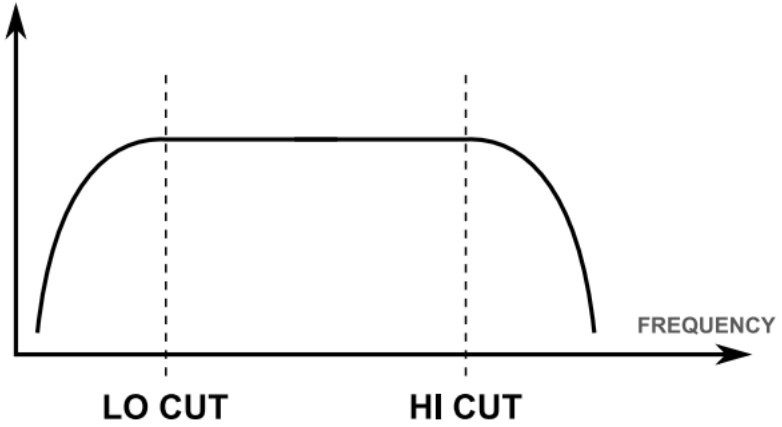
This amplifies the incoming signal. When it goes above the threshold value, the (tube) clipping starts to work. Shaping of the input signal can be performed using the **Hi Cut** and **Lo Cut** controls.

Preamp section

Preamp is controlled by four parameters:

- **Preamp gain** – Value of signal's amplification in decibels – in range : *[0 dB ... 100 dB]*.
- **Lo cut** – It's a hi-pass filter's frequency – in range: *[0 Hz ... 300 Hz]*.
- **Hi cut** – It's a low-pass filter's frequency – in range: *[1.5 kHz ... 8 kHz]*.
- **On** / **Off** – Turning off a low-pass filter completely (**Hi cut**).

Lo cut and **Hi cut** control the bandwidth of the input signal which passes through the preamp.



Low and Hi cut combination's frequency response

Tube distortion

This section emulates the tube distortion.

Tube distortion section

There are three controls in this section:

- **Tube bias** – This controls the amplitude of the odd harmonics appearing in distorted signal. The greater value of this knob, the more harmonics in the signal.
- **Tone** – This is a cross fade between the output from the fixed Hi-pass filter and the dry signal after the tube distortion.

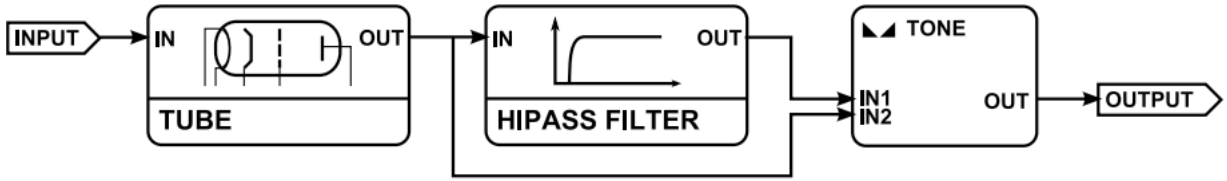


Diagram representing Tone parameter

- **Brightness** – Number of harmonics that emerge in the tube. This could also be described as the control which gives a smooth transition between tube distortion and diode clipping distortion.

Parametric equalizer

Parametric equalizer section with four frequency controls.

- **Bass** – For boosting or cutting range *[40 Hz … 300 Hz]*.
- **Middle** – For boosting or cutting range *[300 Hz … 2 kHz]*.
- **Treble** – For boosting or cutting range *[2 kHz … 5 kHz]*.
- **Presence** – For boosting or cutting range *[5 kHz … 12 kHz]*.

Equalizer section

Each band is controlled by following parameters:

- **Frequency** – Centre frequency of a peak.
- **Gain** – Gain value for a band *[−24 dB … 24 dB]*.
- **Band width** – Width of the band *[4 octaves … 0.5 octave]*.

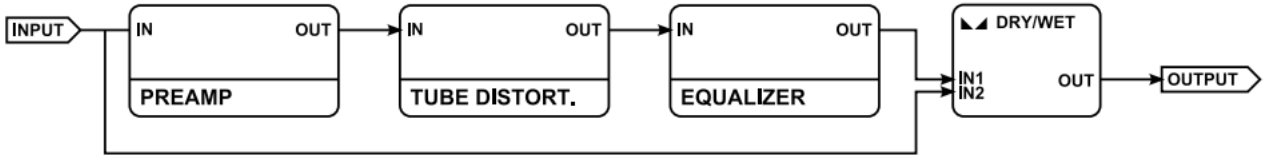
Master section

Controls output signal level and the signal wet/dry mix balance. The **Fx** knob controls the wet/dry signal mix and **Output volume** knob controls the final amplification.

Master section

Path of the signal's flow

The picture below shows the signal flow through the plug-in:



Signal flow

Preset Management

Browsing presets

Presets in the plug-in are hierarchically organized in groups and, contrary to the linear structure, this setting is not compatible with the native methods used within the host application. The user can see the presets assigned to particular groups in the **Preset Manager**. Groups can be also defined by the user.

Configuration and preset selection section

Controls available in the preset selection section:

- **Preset name** – Displays the name of the selected preset. Allows editing of the preset name before saving the preset. Clicking on the control causes a shift into edit mode. After applying changes through the keyboard, confirm the new name with the Enter button.
- **Prev** / **Next** – Buttons used to navigate through the preset bank. **Next** button moves the browser to the next preset. If the current preset is the last preset in a group, pressing **Next** moves the browser to the first preset in the subsequent group. **Prev** button moves the browser to the previous preset. If the current preset is the first preset in a group, pressing **Prev** moves the browser to the last preset in the preceding group.
- **Prev** + **CTRL** – **Prev** button pressed while holding **CTRL** copies the edited preset to the buffer.
- **Next** + **CTRL** – **Next** button pressed while holding **CTRL** pastes the buffer to the current preset with postfix "_copy" added to its name.
- **Browse** – Opens a **Preset Browser** menu in the bottom part of the GUI.

➲ *Note: On **MacOS** use **Apple CMD** key instead of **CTRL** key.*

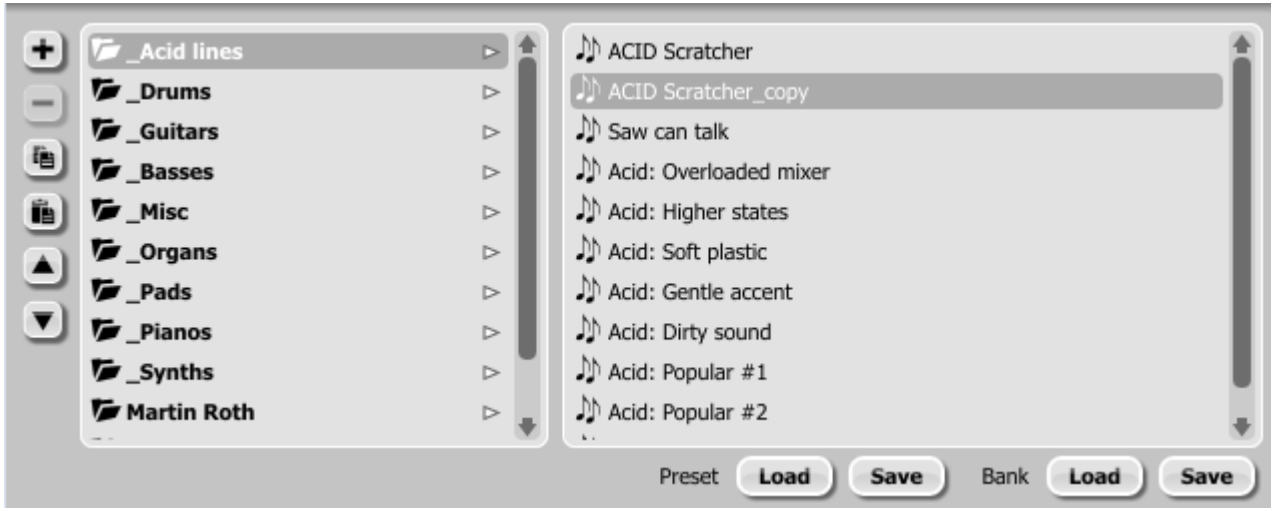
Changes in the preset bank are not permanent. After removing and reloading the plug-in, the default preset bank will be loaded. However, saving the project within the host application will also save the status of the plug-in including changes in the preset bank. After reloading the project, all changes in the current parameter settings and in the preset bank will be restored.

Preset Browser

As it was mentioned, the preset bank in the plug-in has a hierarchical structure i.e. presets are organized in groups. Presets can be selected by Next/Prev buttons, which navigate through the structure in a linear way or by using the **Preset Browser**. The **Preset Browser** is a tool which allows to easily manage the preset structure. To open it, click **Browse** in the preset selection section:

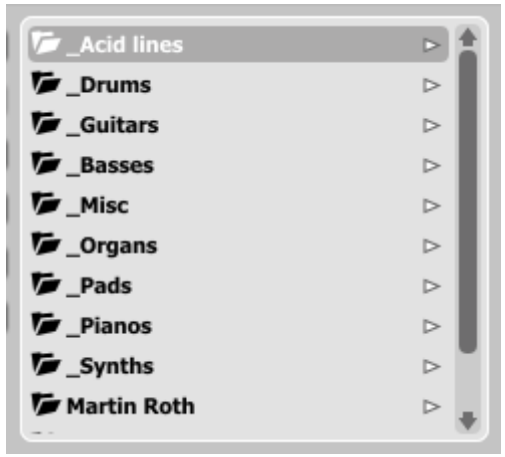
Configuration and preset selection section

The **Preset Browser** will unfold under the GUI:



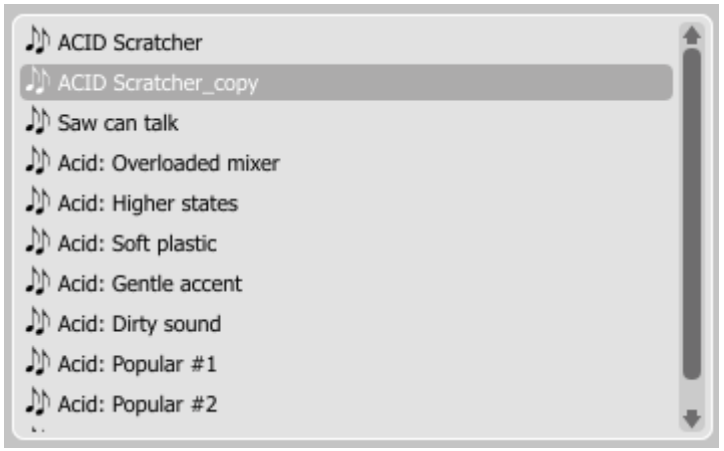
Preset Manager

The left side shows the list of groups in the preset bank:



List of groups in the preset bank

The right side shows the list of presets in the selected group:



List of presets in the selected group

Actions available in the **Preset Browser**:

- Clicking on a slot in the preset list loads the selected preset.
- Clicking on a slot in the group list selects a group of presets.
- Both presets and groups can be renamed. Double clicking on a slot toggles edit mode. After entering the new name, press enter to finish.
- The bank of presets has exactly 128 items. The number of presets cannot be changed. This means that there is no possibility of adding or removing presets. Only relocating them between groups or changing their order is possible.

  By dragging the preset you may:

  – Change its position in the group by dropping it in a different slot in the list of presets in a selected group.

  – Move the preset to a different group by dragging and dropping it in the chosen slot in the group list.

  Holding CTRL or SHIFT and using the mouse button allows to select more presets:

  – Holding CTRL and clicking on presets selects single items.

  – Using SHIFT allows to select a range of presets. The first click marks the beginning of the range and the second click marks the end.

  When more than one presets are selected, it is possible to drag them to a different group.

➲ *Note: Changing the order of presets in a group is possible for a selected single preset. Changing the order by dragging several presets in a group is inactive.*

On the left side of the **Preset Browser** there are function buttons located:

Function buttons of the Preset Browser

– Adds a new empty group to the preset bank.

– Removes a group from the preset bank, but only if the selected group is empty. Before removing a group, remaining presets should be relocated to different groups. An empty group can be recognized by the lack of bold font and the lack of a pointer on the right from its name.

Empty group in the Preset Browser

– Pastes the edited preset to the buffer; works exactly like the combination of **Prev** and **CTRL**.

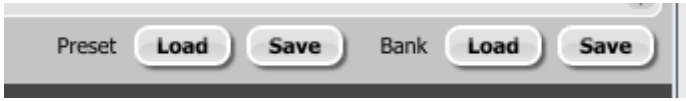
– Overwrites the selected preset with the buffer content; works exactly like the combination of **Next** and **CTRL**. The postfix "_copy" is added to the name of the preset pasted from the buffer.

– Works exactly like **Prev** on GUI; allows to move backwards on the hierarchical structure of presets.

– Works exactly like **Next** on GUI; allows to move forward on the hierarchical structure of presets.

Loading and Saving presets

At the bottom of the **Preset Browser** there are function buttons which allow to save/load presets on/from the hard drive.



Loading and Saving presets from the hard drive functions

Four buttons are available:

- Preset **Load** – loads a single preset from a file (file .rdprs – Redoptor preset).
- Preset **Save** – saves the current preset to a file.
- Bank **Load** – loads the entire bank of presets from a file (file .rdprb – Redoptor bank).
- Bank **Save** – saves the entire bank of presets to a file.

➲ *Note: Before saving the preset to a file, save it in Redoptor using **CTRL** + **Browse** when **On demand** function is selected in the plug-in configuration.*

➲ *Note: Files saved by Redoptor are compatible with **XML** format, which enables their edition in any text editor.*

Configuration

Configuration and preset selection section

After clicking on **Options** in the preset selection and configuration section, a configuration panel unfolds in the bottom section of GUI. The panel has three tabs:

Configuration panel tabs

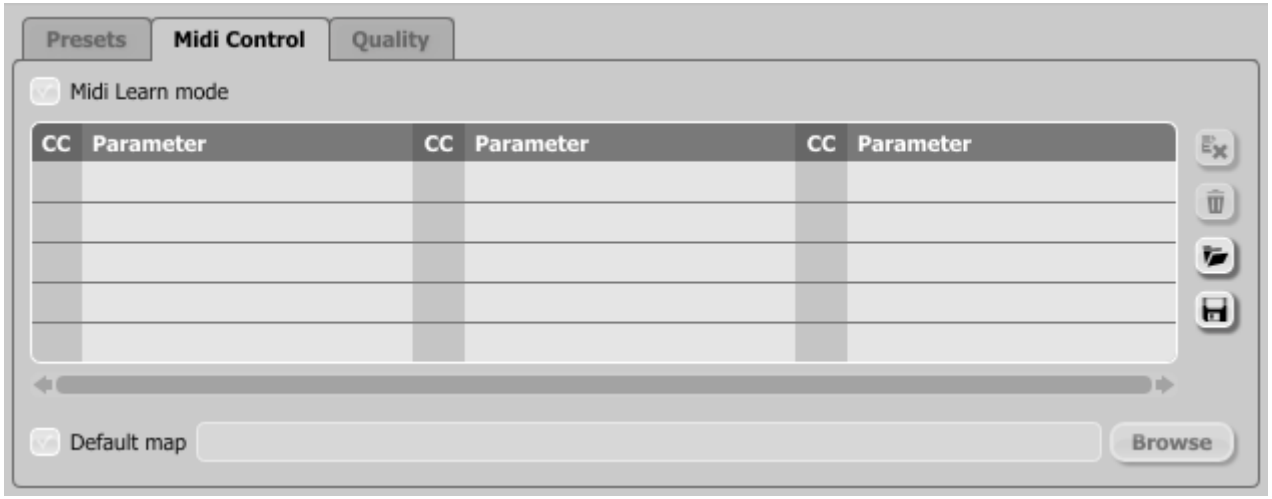
- **Midi control** – configures MIDI communications with the plug-in.
- **Presets** – configures presets switching; indicates personal resources loaded instead of default presets.
- **Quality** – conversion track quality settings.

Clicking on **Options** while holding **CTRL** opens a window with information about the version and the license owner.

Midi control tab

➲ *Note: This feature works only in the VST version of the plug-in, due to the fact that the AU specification does not include a MIDI input port necessary to receive MIDI messages.*

Redoptor can assign its controls (on GUI) to any MIDI CC (Midi Control Change), allowing the control of the plug-in using external hardware or software.



Midi Control tab

Controls included in the tab:

- **Midi learn mode** – Checkbox which activates Midi learn mode.
- A list of active MIDI CC links containing pairs comprising of a CC code and the name of the plug-in parameter.
- **Default Map** – Checkbox which activates a default MIDI CC map. When the map is activated it will be loaded with creating a new instance of the plug-in.

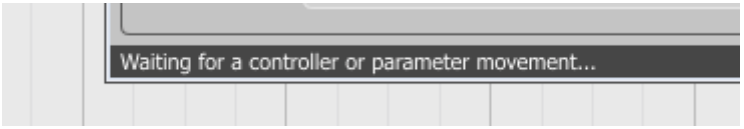
Midi learn

Assigning a Redoptor control to the MIDI controller requires:

1. Checking **Midi Learn Mode** checkbox in the **Midi Control** tab:

Midi Learn Mode selection checkbox

2. In the status bar in the bottom section of GUI a message should appear *"waiting for a controller or parameter movement..."*:

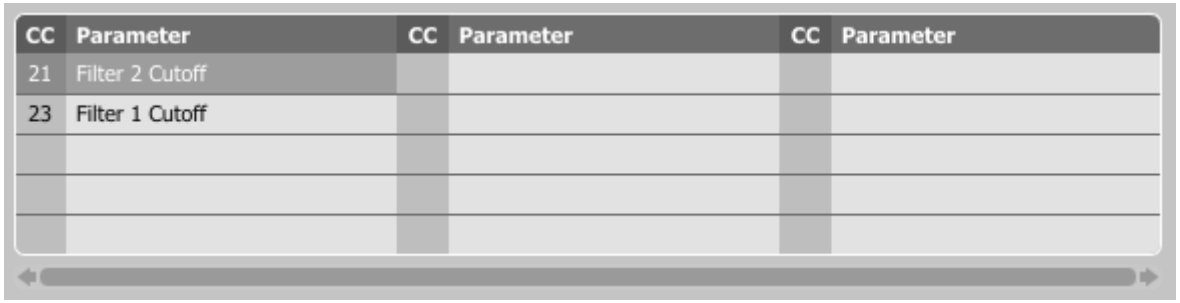


Status bar

In this mode the plug-in waits for any change in the parameter value (movement of any control on GUI) and for the movement of any MIDI CC control from the external MIDI controller, which operates on an active MIDI input channel directed to Redoptor. The order of these actions is irrelevant.

During the above-mentioned actions, the status bar informs about the currently changing values of controls and provides their names.

When a MIDI control <–> GUI control link is established, a line is added to the MIDI CC link list:



CC	Parameter	CC	Parameter	CC	Parameter
21	Filter 2 Cutoff				
23	Filter 1 Cutoff				

MIDI CC link list

When a link is established for a controller, it is possible to repeat the operation for the next MIDI CC and parameter pairs. Subsequent links will be created and added to the list.

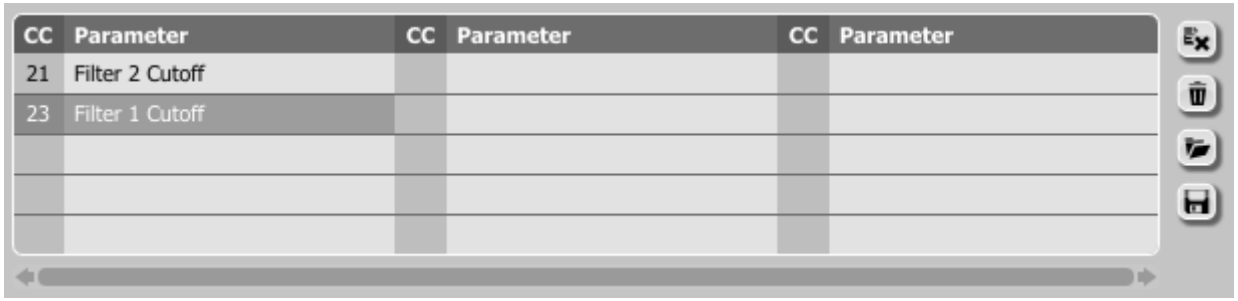
3. When all the needed links are created, uncheck the **Midi Learn Mode** checkbox.

In order to create new links, it is possible to reactivate the **Midi Learn Mode** at any time.

The links are always sorted in an ascending manner in relation to the CC column according to the MIDI CC code.

Unlinking and midi link management

On the right side of the link list there are 4 function buttons located:



MIDI CC link list and function buttons

– Removes a selected link; choosing any link from the list and clicking on it highlights the selected link. Using this button removes the selected link.

– Removes all MIDI CC links.

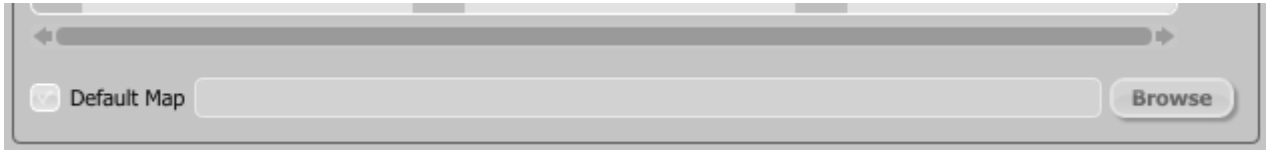
– Loads link lists/MIDI maps from file (.rdccmap – Redoptor MIDI CC Map).

– Saves link lists/MIDI maps to file.

➲ *Note: MIDI map files are saved in **XML** format, which enables their edition in any text editor.*

Default MIDI Map

Selecting a default MIDI Map:



Default MIDI Map selection

1. Check the **Default Map** checkbox, which activates the **Browse** button on the right.
2. Click **Browse** and select a file with a saved MIDI Map.

After selecting the MIDI map the text box on the left from the **Browse** button shows the path to the active map file. A default MIDI map is loaded each time when the plug-in is loaded.

Presets tab

Preset Storing

Using **Prev**, **Next** buttons or the **Preset Browser** navigates through the preset bank. Any change in the current preset can be stored automatically or on demand. Depending on the selection one of the two options is active:

Preset Storing flag

- **Automatic** – Any change of a parameter in the current preset is automatically stored.
- **On Demand** – If any parameter is changed, the change is not saved in the current preset until the **Store** option is used (**CTRL** + **Browse**). Selecting a different preset from the bank causes irreversible loss to changes applied to the parameters, unless the **Store** option is used.

The **Preset Storing** flag is saved in the Redoptor configuration file and applies to all new instances of the plug-in. When removing any instance of the plug-in from the host application the configuration file is saved.

Changing Type

Changing between presets may cause undesirable sonic artifacts. Switching the **Changing Type** flag may prevent this phenomenon.

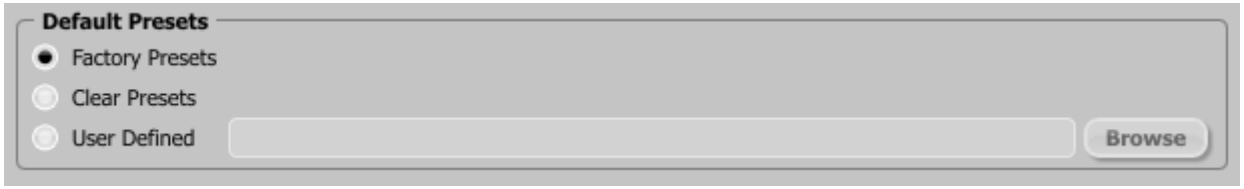
Changing Type flag

- **Normal** – Changing presets takes place in a classical manner; all parameter values are rapidly changed into new values.
- **Silent** – Before changing the preset the output signal is muted. Next, the parameters are set to new values and the signal level is restored to its previous value. This feature is significant in live performances, during which, sonic artifacts caused by preset changes are undesirable.

The flag is saved in the Redoptor configuration file and applied to all new instances of the plug-in. When removing any instance of the plug-in from the host application the configuration file is saved.

Default Presets

D16 provides a set of default presets with Redoptor. They are applied to every new instance of the plug-in. If a bank of presets is created which should be applied every time instead of factory presets, it is possible to select such an on option **Default Presets** section:



Default presets selection

Options available in the **Default Presets** section:

- **Factory Presets** – Default value after installing Redoptor. Choosing this option loads the factory presets with every new instance of the plug-in.
- **Clear Preset** – Zeroed parameters with every new instance of the plug-in.
- **User Defined** – Preset bank selected by the user. When choosing User Defined option, the Browse button on the right side is activated. Using this button opens a dialog box in order to select a path to the user's preset bank. Confirming the path saves it in the Redoptor configuration file. The selected preset bank will be loaded as default.

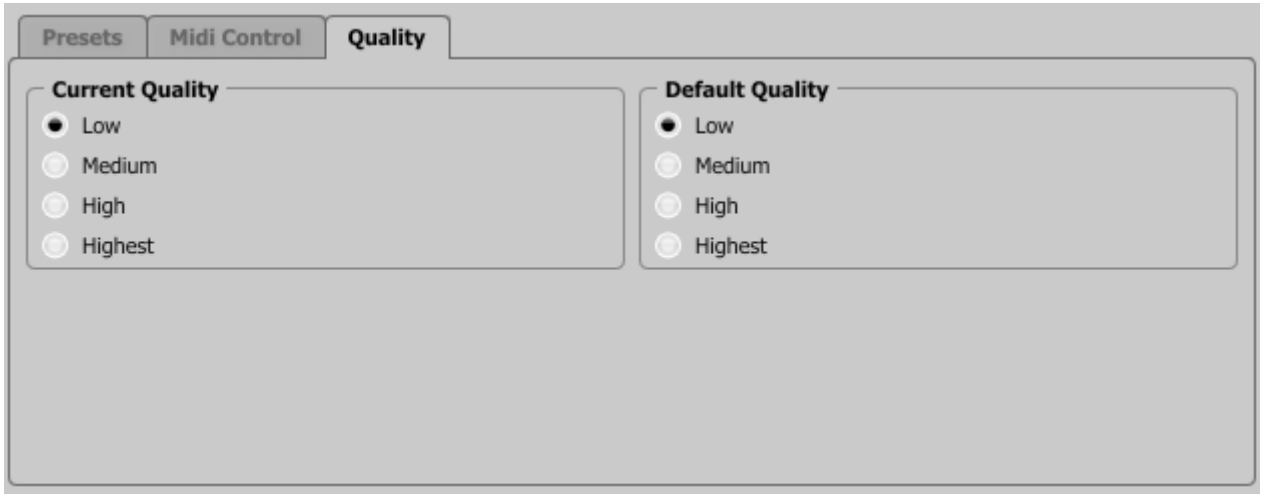
  The text box on the left from the **Browse** button shows the path to the user's preset bank.

Quality tab

Adjusts the quality of the conversion track depending on the processor's capacity. Four quality values are available:

- **Low**
- **Medium**
- **High**
- **Highest**

The higher the conversion quality is, the more processor's capacity is required by the plug-in. Higher conversion quality leads to better sound quality.



Quality tab

Current Quality

The **Current Quality** flag value is stored in Redoptor per instance and saved within the host application project file. The flag is not saved in the preset.

Default Quality

Default value of the **Current Quality** flag for new instances of the plug-in. The flag is saved in the Redoptor configuration file. When removing any instance of the plug-in from the host application the configuration file is saved.

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