



**d16 group**

Redoptor 1.2.0

/‘Redoptor/

Owner’s manual

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# Chapter 1

## Overview

Redoptor is a distortion effect with tube emulation.

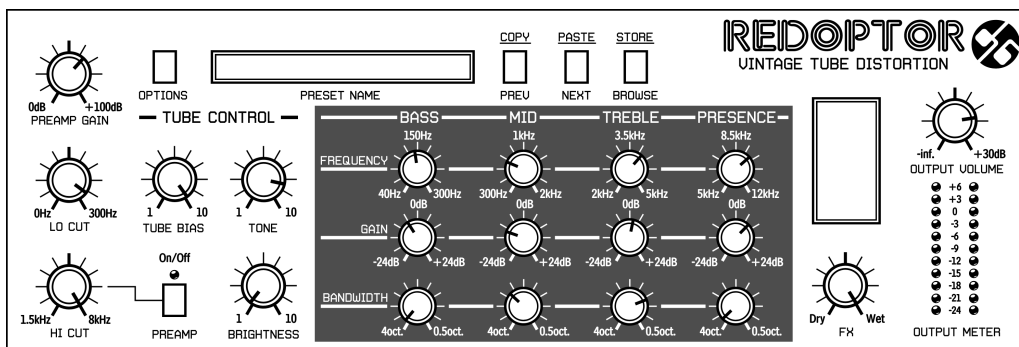


Figure 1.1: Redoptor graphical interface

We can distinguish two sections there:

- Configuration and preset management

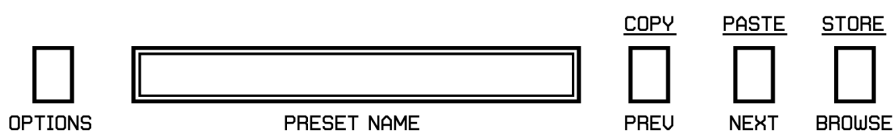


Figure 1.2: Configuration and preset management section

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

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# Chapter 2

## Signal flow

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

### 2.1 Basic modules

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

#### 2.1.1 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.

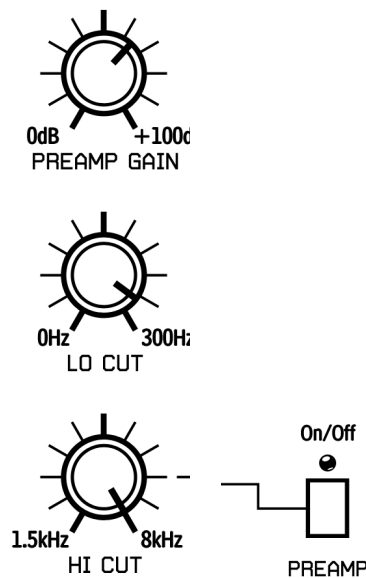


Figure 2.1: Preamp section

Preamp is controlled by four parameters:

**Preamp gain** - Value of signal's amplification in decibels - in range :  $[0dB \dots 100dB]$ .

**Lo cut** - It's a hi-pass filter's frequency - in range:  $[0Hz \dots 300Hz]$ .

**Hi cut** - It's a low-pass filter's frequency - in range:  $[1.5kHz \dots 8kHz]$ .

**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.

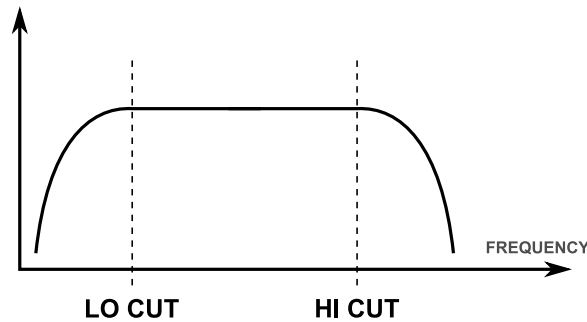


Figure 2.2: Low and Hi cut combination's frequency response

### 2.1.2 Tube distortion

This section emulates the tube distortion.

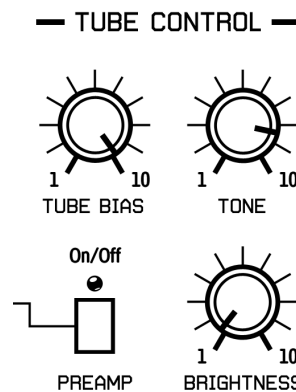


Figure 2.3: Tube distortion section

There are three controls in this section:

**Tuba 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.

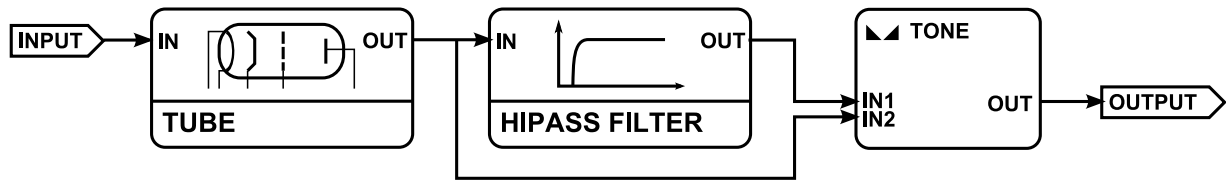


Figure 2.4: Diagram representing Tone parameter

**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.

### 2.1.3 Parametric equalizer

Parametric equalizer section with four frequency controls.

**Bass** - For boosting or cutting range [40Hz...300Hz].

**Middle** - For boosting or cutting range [300Hz...2kHz].

**Treble** - For boosting or cutting range [2kHz...5kHz].

**Presence** - For boosting or cutting range [5kHz...12kHz].

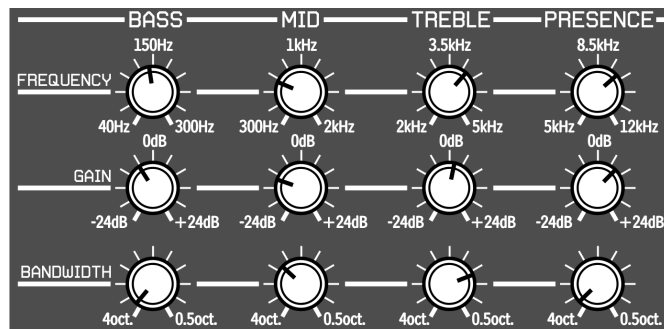


Figure 2.5: Equaliser section

Each band is controlled by following parameters:

**Frequency** - Centre frequency of a peak.

**Gain** - Gain value for a band [-24dB...24dB].

**Band width** - Width of the band [4octaves...0.5octave].

### 2.1.4 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.

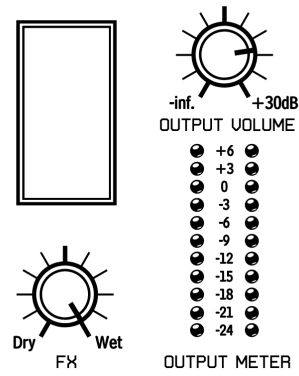


Figure 2.6: Master section

## 2.2 Path of the signal's flow

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

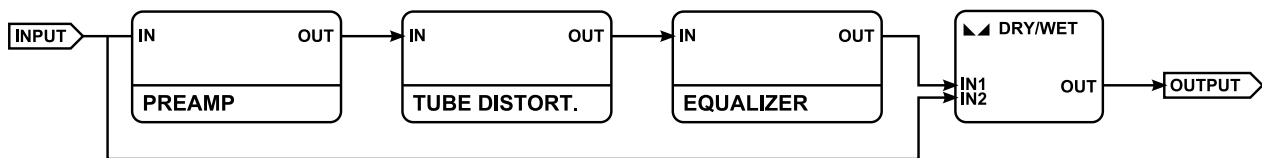


Figure 2.7: Signal flow

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# Chapter 3

## Preset management

### 3.1 Browsing presets

Presets are organized into groups. Storing like this is not compatible with the native method used by the host application. The user can see presets in the browser as being assigned to particular groups (defined by user).

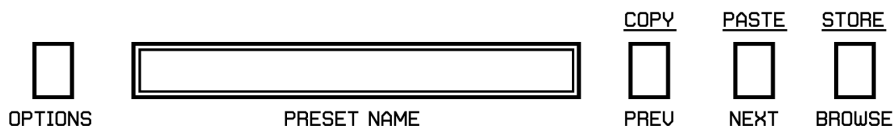


Figure 3.1: Configuration and preset management section

The user interface Preset Management controls are:

**Preset name** - This displays the name of currently selected preset. It also allows editing of the preset name.

**Prev/Next** - Those buttons are used to navigate through all presets (whole bank), **Next** button moves to the next slot, and **Prev** button to the previous one. When the end of a group of presets is reached, the first slot of the next group will be chosen when the **Next** button is pressed again. Similar action will be performed if we press the **Prev** button when the beginning of a group is reached.

**Prev + Ctrl** - **Prev** button pressed with **Ctrl**<sup>1</sup> key, copies current preset slot to buffer.

**Next + Ctrl** - **Next** button pressed with **Ctrl** key, pastes buffer to current preset slot with postfix *\_copy* added to its name.

**Browser** - Allows selection of presets using a browser menu.

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<sup>1</sup>On MacOS use **Apple** key instead of **Ctrl** key.

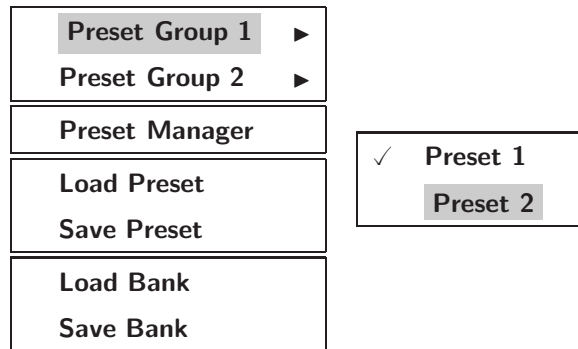


Figure 3.2: Browsing presets via context menu

It is worth mentioning that changing any of the presets is not permanent. After removing and reloading the plug-in again, the factory presets will be recalled. However, saving the project within the host application with Redoptor, and reloading that project will cause a recall of all changes we have made in this project.

## 3.2 Loading and Saving presets

There are some additional options that add functionality to preset management. They are placed in the context menu which is accessible from the **Browse** button:

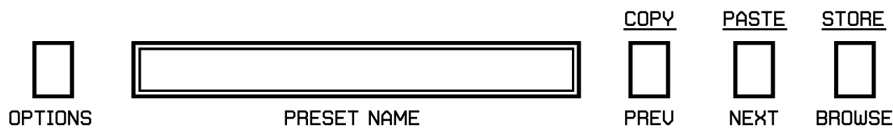


Figure 3.3: Configuration and preset management section

When we click this button, the context menu is unfolded:

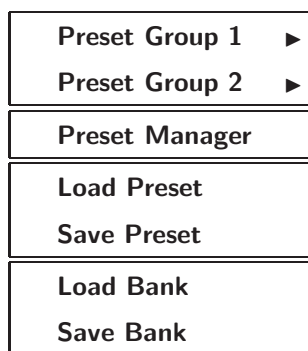


Figure 3.4: Preset management - under Browse button

In this chapter, we'll focus on the first 4 items:

**Load Preset** - Loading preset and overwrite the active slot from the file (**.rdprs- Redoptor Preset**).

**Save Preset** - Saving current preset as a file (**.rdprs- Redoptor Preset**)<sup>2</sup>.

**Load Bank** - Loading whole bank of presets from file (**.rdprsb- Redoptor Bank**).

**Save Bank** - Saving whole bank of presets as a file (**.rdprsb- Redoptor Bank**).

**Note:** *Internal files written by a Redoptor are in XML format and can be edited in a text editor.*

### 3.3 Preset manager

As was mentioned earlier, presets in Redoptor are organized into groups. Presets can be chosen from the context menu (under the **Browse** button). **Preset manager** is a tool, which allows to easy management of the presets structure. To open it, just click the **Browse** button:

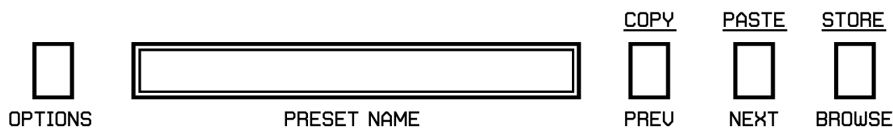


Figure 3.5: Configuration and preset management section

From the context menu choose **Preset Manager**:

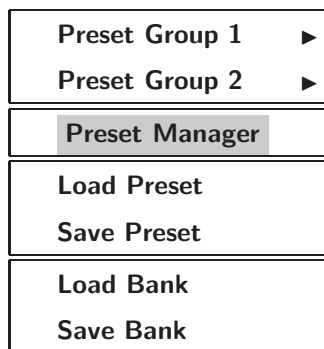


Figure 3.6: Preset manager - Item

The Preset Manager menu will appear.

<sup>2</sup>Before saving single preset, remember to **Store** it using **Ctrl + Browse** button if **On demand** preset storing is active, which is default behavior.

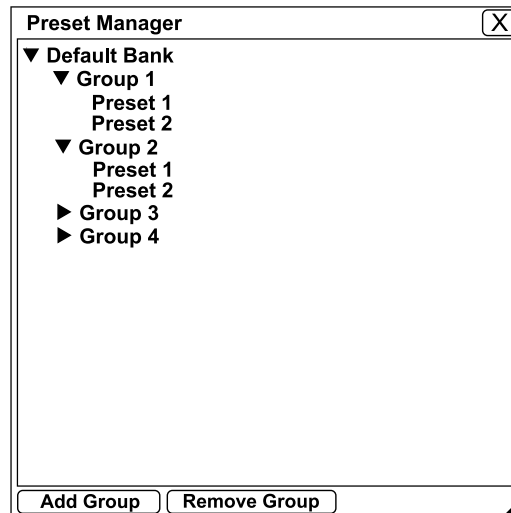


Figure 3.7: Preset manager window

This shows the preset structure with the bank name as the root. A preset represents the deepest level of the structure.

Each of the items can be renamed by double clicking on the item with the mouse.

The preset structure appears as a standard list of presets within the host application making it fully compatible with it. As a result, no matter how the structure is represented (either as a tree structure or flat), the maximum number of presets is 128. The number of presets in this structure cannot be changed. We can only move the presets from one group to another (by dragging) or changing their order in group. The Group order in the bank can also be changed by dragging.

There are two buttons at the bottom of the **Preset Manager** window.

**Add group** - Adding the empty group in a bank.

**Remove group** - This removes a group from a bank – but only when it is empty. It means that all preset slots were reallocated among the existing groups.

To exit from the **Preset manager** press the **Cross** button in the top right corner.

## 3.4 Preset storing

Using **Next**, **Prev** buttons within **Preset Manager** we can navigate through the preset bank. Any change made in preset can be stored automatically or on demand:

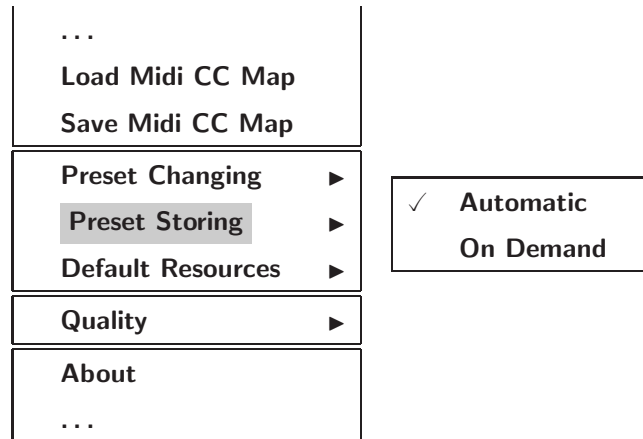


Figure 3.8: Preset storing flag

**Automatic** - When any parameter in the current preset is changed, it is automatically stored.

**On demand** - If a parameter is changed, the change is not saved within the preset until the **Store** button is pressed (**Ctrl** key + **Browse** button)<sup>3</sup>. Navigating to a new preset will cause changes to be lost unless stored. This is the default.

This Preset Storing flag is stored in a configuration file and applies to all newly inserted instances of the plug-in. Saving the configuration file is performed after closing any instance of the plug-in.

## 3.5 Preset changing

Switching between presets may cause some unwanted audible side effects. This flag may prevent this from occurring.

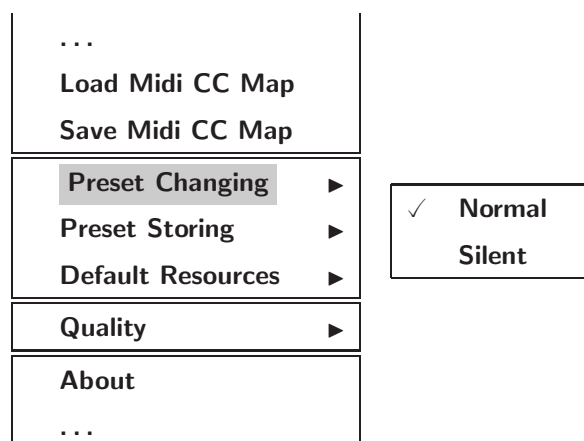


Figure 3.9: Preset storing flag

<sup>3</sup>On MacOS use **Apple** key instead of **Ctrl** key

**Normal** - Switching preset is performed in traditional way; all sound parameters are set to new values instantly. This setting is default.

**Silent** - Before switching preset, the sound fades out. After switching preset, the sound fades in. This feature is very useful during live performances when we wish to switch the preset without unwanted artifacts.

This flag is stored in a configuration file and applies to all newly inserted instances of plug-in. The configuration file is stored after closing any instance of the plug-in.

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# Chapter 4

## Configuration

### 4.1 Midi control

Redoptor has an ability to assign its controls (on GUI) to any **Midi Control Change** code (**MidiCC**), This allows control of the plug-in using external software or hardware.

**Note:** *This feature works only in VST version, AU effect plug-in has no midi input necessary to receive midi messages.*

#### 4.1.1 Midi learn

To assign a Redoptor control to a midi controller:

1. From the context menu under **Options** button, we set **Midi Learn Mode**.

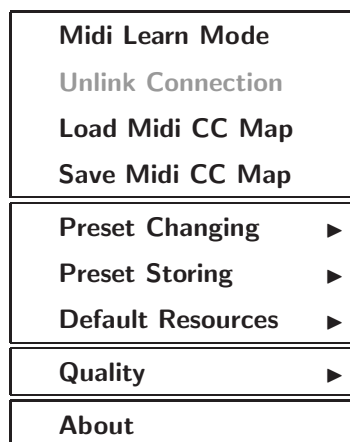


Figure 4.1: Options Menu

2. In the **Preset name** edit box, the *waiting...* message will appear. In this mode, plug-in is waiting for any movement of its controls on GUI or any of controls on the external midi controller connected to a host (with an active midi input channel directed to Redoptor). The edit box will display the name of currently modified control.

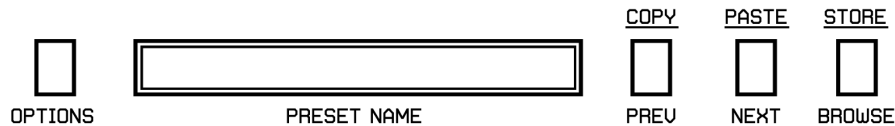


Figure 4.2: Configuration and preset management section

- When the control is set, go to the **Options** context menu and uncheck the **Midi Learn Mode** option. Last modified control on GUI will be assigned to the last moved control on the midi controller.

### 4.1.2 Midi Unlink

To disconnect midi controller and Redoptor GUI's control:

- From the context menu under **Options** button, we set **Midi Learn Mode** first.

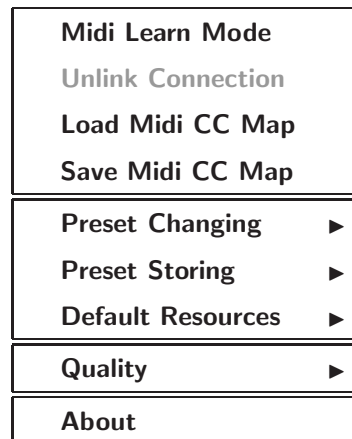


Figure 4.3: Options Menu

- In the **Preset name** edit box, the *waiting...* message will appear. In this mode, plug-in is waiting for any movement of its controls on GUI or any of controls on the external midi controller connected to a host (with an active midi input channel directed to Redoptor). The edit box will display the name of currently modified control.
- Unlink Connection** item in **Options** menu is activated now. Click it to disconnect Midi CC and GUI's control. <sup>1</sup>
- Uncheck the **Midi Learn Mode** option.

### 4.1.3 Loading and saving Midi Map

To save a Midi Map (mapping of GUI's controls with MidiCC), we can use the option from the context menu, which is accessible under the **Options** button:

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<sup>1</sup>You're allowed to unlink few connections one by one, by repeating steps 2 and 3.

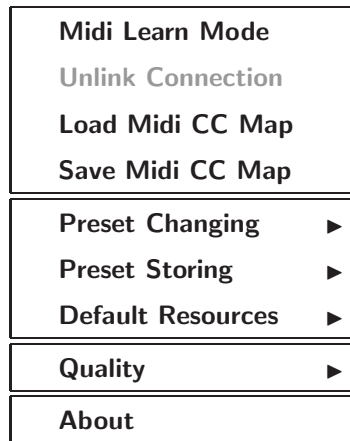


Figure 4.4: Options Menu

**Load Midi CC Map** - Loading a Midi Map from file (**.rdccmap-** Redoptor Control Map).

**Save Midi CC Map** - Saving a current Midi Map to file (**.rdccmap-** Redoptor Control Map).

**Note:** *Midi Map files written by a Redoptor are XML standardized, it means You can re-edit them within any text editor.*

#### 4.1.4 Sound processing quality

We have to our disposal following possible grades:

- Low,
- Medium,
- Higher,
- Highest

That can be chosen from the **Quality** submenu:

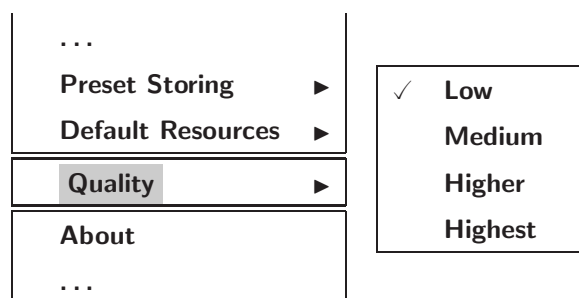


Figure 4.5: Quality control

The higher the quality of processing, the more CPU resources are required by the plug-in, but the better the sound quality. This setting is stored per single plug-in instance in the project file (in host application). It is not stored within the preset.

## 4.2 Default resources

There're included some default presets with Redoptor or empty Midi CC map. These are loaded every time it is started. This can be changed to point to user default presets or default Midi CC map.

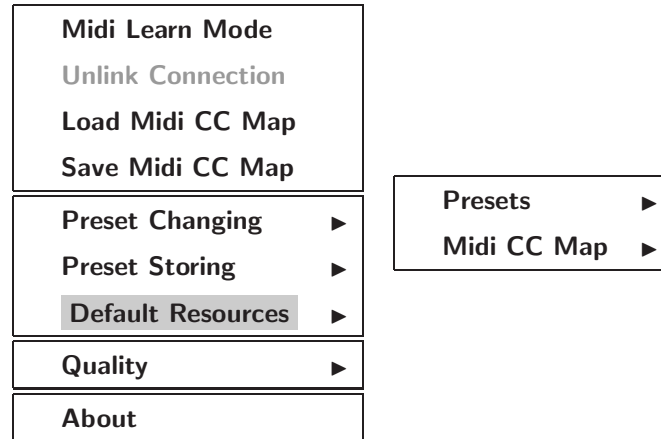


Figure 4.6: Default resources

The following types of resources can be replaced by user's ones and those will be loaded every time new instance of plug-in be loaded:

**Presets** - Default Redoptor's Preset Bank (**.rdprsb**)

**Midi CC Map** - Default Redoptor's Midi CC Map (**.rdccmap**)

### 4.2.1 Default presets

To set the default bank of presets, use the options from the **Presets** submenu:

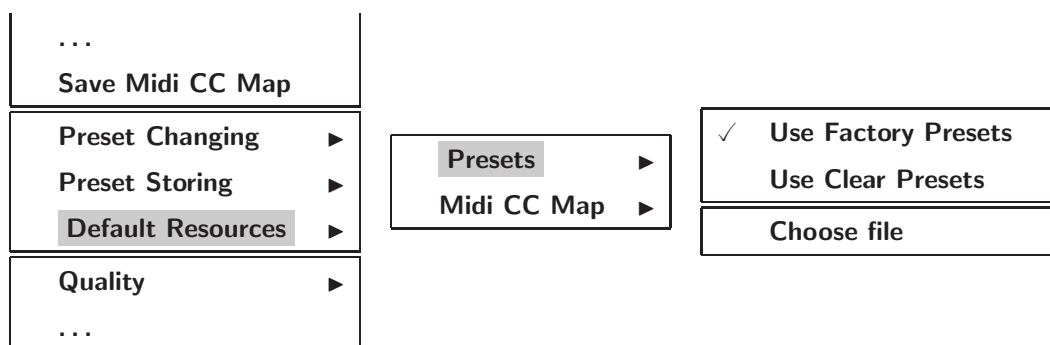


Figure 4.7: Default presets

We can choose one of following options:

**Use Factory Presets** - This is default one after installation of Redoptor. If You choose this option, default bank of presets becomes the factory one provided within plug-in by producer.

**Use Clear Presets** - After choosing this item from menu, the default bank will contain all presets consisting of zeroed parameters.

**Choose File** - It's possible to set by user his own default bank of presets he previously made, by using this option. **Choose File** opens a file dialog to browse a location where the bank of presets made by user is saved. When user confirms, the path to that bank is stored in the Redoptor's configuration file. And this bank becomes the default one.

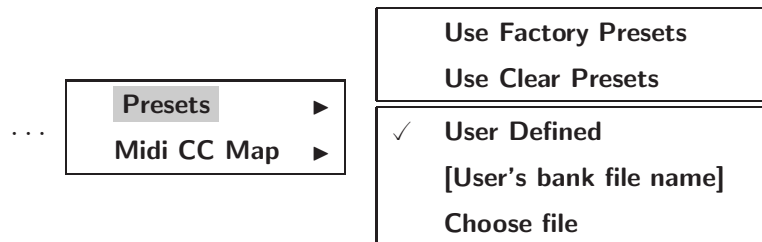


Figure 4.8: User's default presets

When the user's bank is set as a default preset bank, the menu indicates this fact by showing the checked **User Defined** menu item, and one row below the file name of user's preset bank.

### 4.2.2 Default Midi CC Map

The option used to set the default Midi CC map.

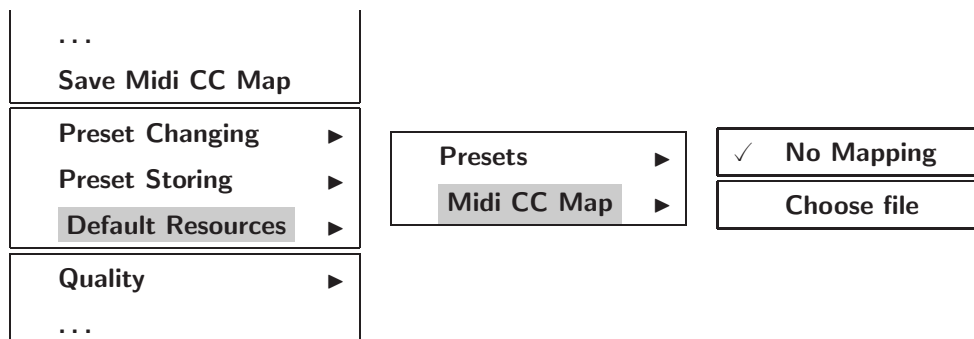


Figure 4.9: Default Midi CC Map

Only two options are available in this submenu:

**No Mapping** - It is the default one, mean no default Midi CC mapping is available after loading Redoptor into the host application.

**Choose file** - Similarly to selecting default preset resource, this options is used to set the default Midi CC Map, which will be loaded every time we load Redoptor in the host application. When we set the path to Midi CC Map using this options, it's indicated by showing Midi CC Map file name in this submenu:

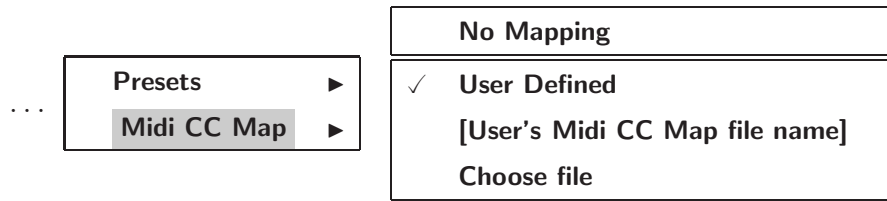


Figure 4.10: User's default Midi CC Map

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# REDOPTOR

VINTAGE TUBE DISTORTION



PRESET NAME

COPY  PASTE  STORE

PREU  NEXT  BROUWSE

OPTIONS

**TUBE CONTROL**

PREAMP GAIN: 0dB to +100dB

LO CUT: 0Hz to 300Hz

HI CUT: 1.5kHz to 8kHz

TUBE BIAS: 1 to 10

tone: 1 to 10

BRIGHTNESS: 1 to 10

PREAMP: On/Off

**BASS** 150Hz 40Hz 300Hz 0dB

**MID** 1kHz 2kHz 300Hz 0dB

**TREBLE** 3.5kHz 2kHz 5kHz 0dB

**PRESENCE** 8.5kHz 5kHz 12kHz 0dB

FREQUENCY: 40Hz 300Hz 2kHz 5kHz 12kHz

GAIN: -24dB 0dB +24dB

BANDWIDTH: 4oct. 0.5oct. 4oct. 0.5oct. 4oct. 0.5oct.

OUTPUT VOLUME: -inf. to +30dB

Wet FX

Dry FX

OUTPUT METER