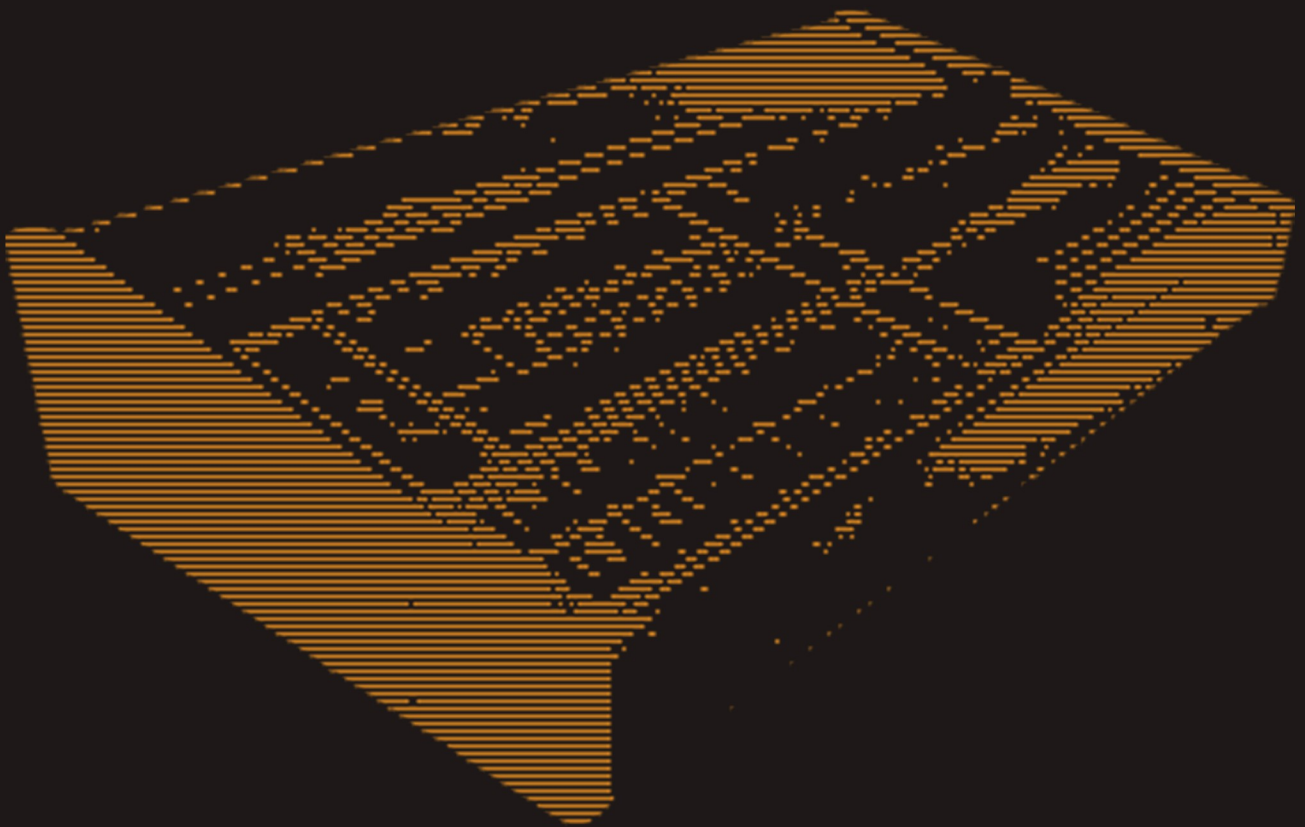


Virtual EPROM Tool

for Quadelectra Jackbox L1MDrum



Operation Manual

1. Introduction

Welcome to the Virtual EPROM Tool for the L1MDrum!

The L1MDrum Virtual EPROM Tool enables you to change the default sound set that comes with your Jackbox L1MDrum Rack Extension. Back in the early 80s, when the original LinnDrum was introduced to the world, musicians could change its default sounds by opening the actual unit, and swapping the EPROM chips containing the sample data!

Following this capability of the original hardware device, the L1MDrumm is capable of changing its stock sounds too. Don't worry! You won't have to "hack" into your device! The procedure is done using regular Rack Extension Patches (*.repatch files). However since Rack Extensions do not have the ability to load and embed sounds in patches via SDK an external application is needed to perform that task. Virtual EPROM Tool for L1MDrumm is that application.

We hope you enjoy using the Virtual EPROM Tool for L1MDrum (or just VETLM)

1.1. Installation

The L1M Virtual EPROM Tool is an Adobe AIR application, so you will need to install the Adobe AIR framework beforehand, to install and use it. To do so visit the AIR download page in Adobe's website at <https://get.adobe.com/air/>

The download process is very easy!

Once ready, go to the location you have downloaded the L1M Virtual EPROM Tool and extract the zip file contents. Afterwards double click on L1MVirtualEPROMTool.air (in some cases in Windows the file extension .air might not be visible).

You will be prompted with the dialog box bellow:

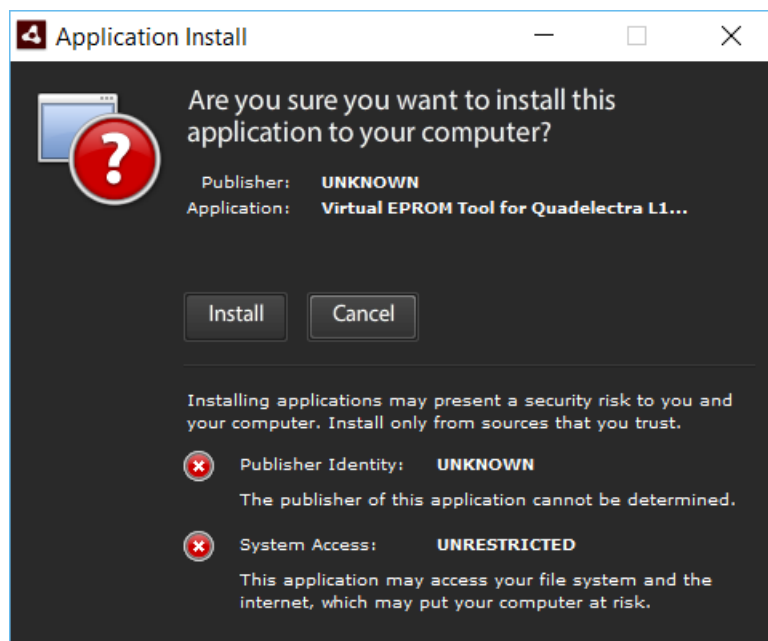
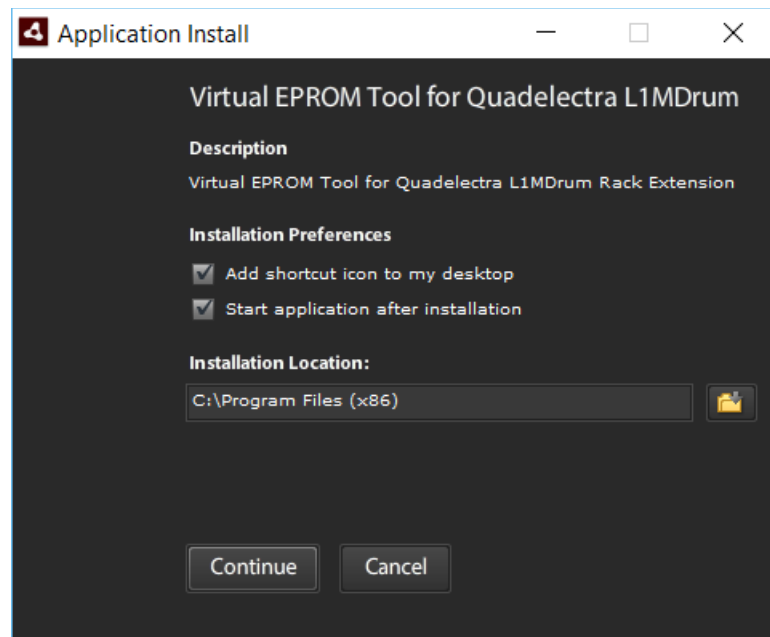


Fig 1.1-1: Adobe AIR warns you about an undetermined publisher.

The Adobe AIR installer will warn you about an undetermined publisher, due to the fact that the certificate used to sign this application is not issued by a trusted authority. You may ignore this warning, and click “Install”.

In the next dialog box you may set the installation location and other parameters. If you are not familiar with this process you may leave these values at their defaults.



*Fig 1.1-2: Setting the installation location and other parameters.
Leave as-is if you do not understand these values*

Click "Continue". The software will be installed at the Location specified under "Install Location". If you have used the default settings, the application will automatically launch for the first time after installation is finished.

2. The Basics

Changing sounds in the VETLM is a simple three stage procedure:

1. Load or Create an L1MDrumm patch. Note that by default, a new patch is already
2. created for you when you open the application.
3. Make changes to the patch. (Load new sounds, or delete existing ones)
4. Commit these changes by saving the patch.

Its important to understand this procedure, because while you process the patch (Step #2 - loading or erasing sounds) no actual changes are made to the patch. Meaning that can always delete all changes and return to the initial state of the patch when you loaded / created it.

However once you save your patch, these changes are consolidated to the file and you can no longer revert them. This of course does not mean that your saved patch file is not prompt to new changes.

3. The Application Window.

The application window is pretty much straightforward:

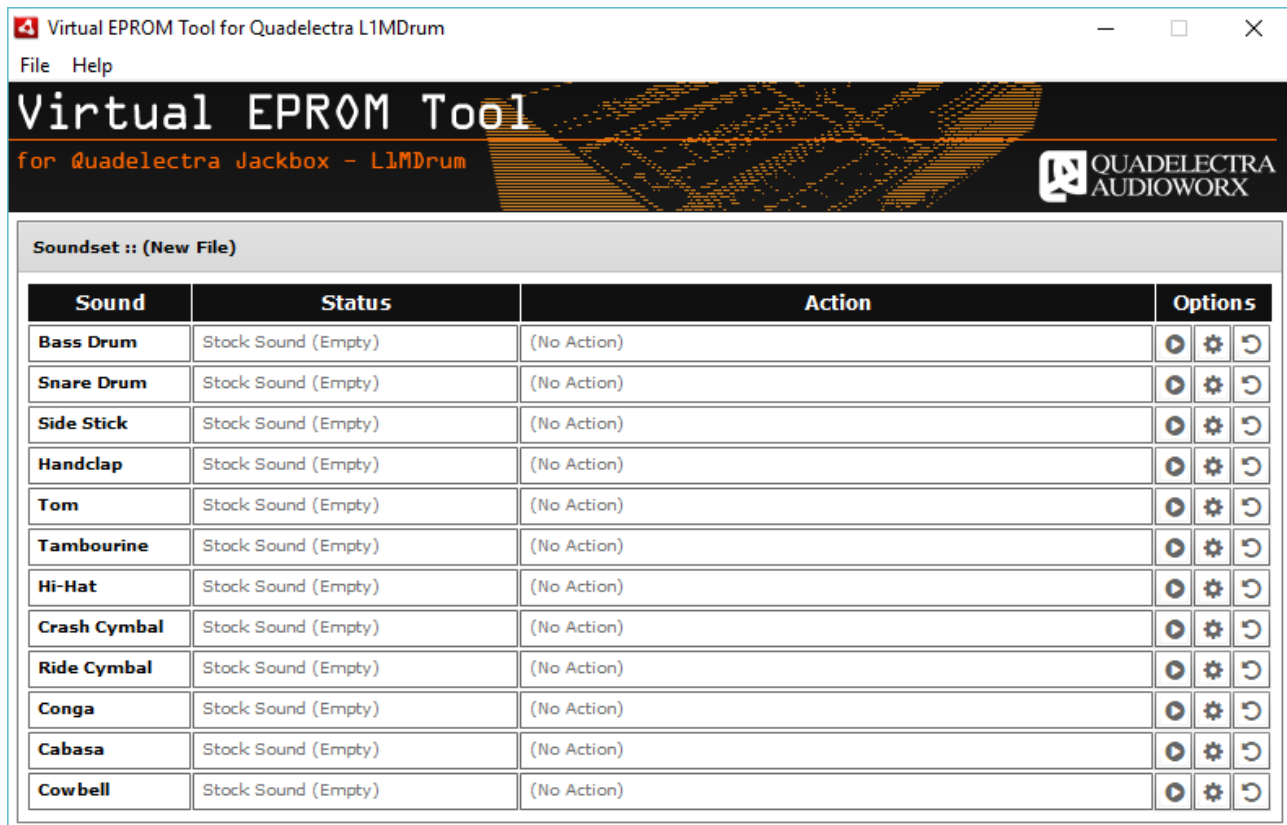


Fig 3-1: The Application Main Window upon startup.


Just below the header you can see the Sound set group and its current name. Inside the sound set group there is a table which describes the current state of the sound set.


Each drum sound is represented as a row and each operational element of the application as a column. These columns are:


1. **Sound:** The name of the sound to change. Note that L1MDrum, just like its hardware counterpart, uses the same sample in some cases to produce two or three different drum sounds. Check the “Appendix 1: Sound Set Information” for more information on these information.
2. **Status:** This column displays the status of each sound. A sound status can either be empty which means that there is no sample associated with that sound in the current set, or it can be set to “Custom Sound” which means that there is a custom sample for the current sound. When a sound status is set to empty the stock / default sound is used.
3. **Action:** This describes the current action taken by the user as he processes the

sound set. This action can be either “None” , “ROM Dump” indicating that a raw EPROM file dump is about to replace the current sound, “Wave File” indicating that a wave file is about to replace the current sound or “Clear” which means that the current sound data will be cleared (if any) and the stock sound will be used instead.

4. **Options:** This column provides all the available commands to manipulate the each sound. There are three option buttons.

 **Play Button:** You can preview the sound by clicking on the play icon. You can only preview your own custom sounds once loaded. The stock sounds are unavailable for preview.

 **Change Button:** This is where you click to load new or delete existing sounds from the current sound set. We'll examine this procedure later on.

 **Reset Button:** The Reset button, clears the current user action for a sound by setting it to “None”. It will NOT clear ie. a sample that's already been consolidated to the loaded patch file. to remove a sample, turn to section 3.1.3 in this manual.

3.1. Making Changes To The Sound Set.

To make changes to your sound set click on the “Change” Button. A dialog box will appear with three options:

1. Remove Custom Sound
2. Load uLAW ROM Dump Files (BIN)
3. Load Sample (WAV, AIFF)

3.1.1. Loading EPROM Dump Files.

L1MDrum uses 8-bit 24000 Hz uLaw encoded samples, same format that the original drum machine used. That's why you can directly import EPROM binary files to the Virtual EPROM Tool without making any changes or transcoding them.

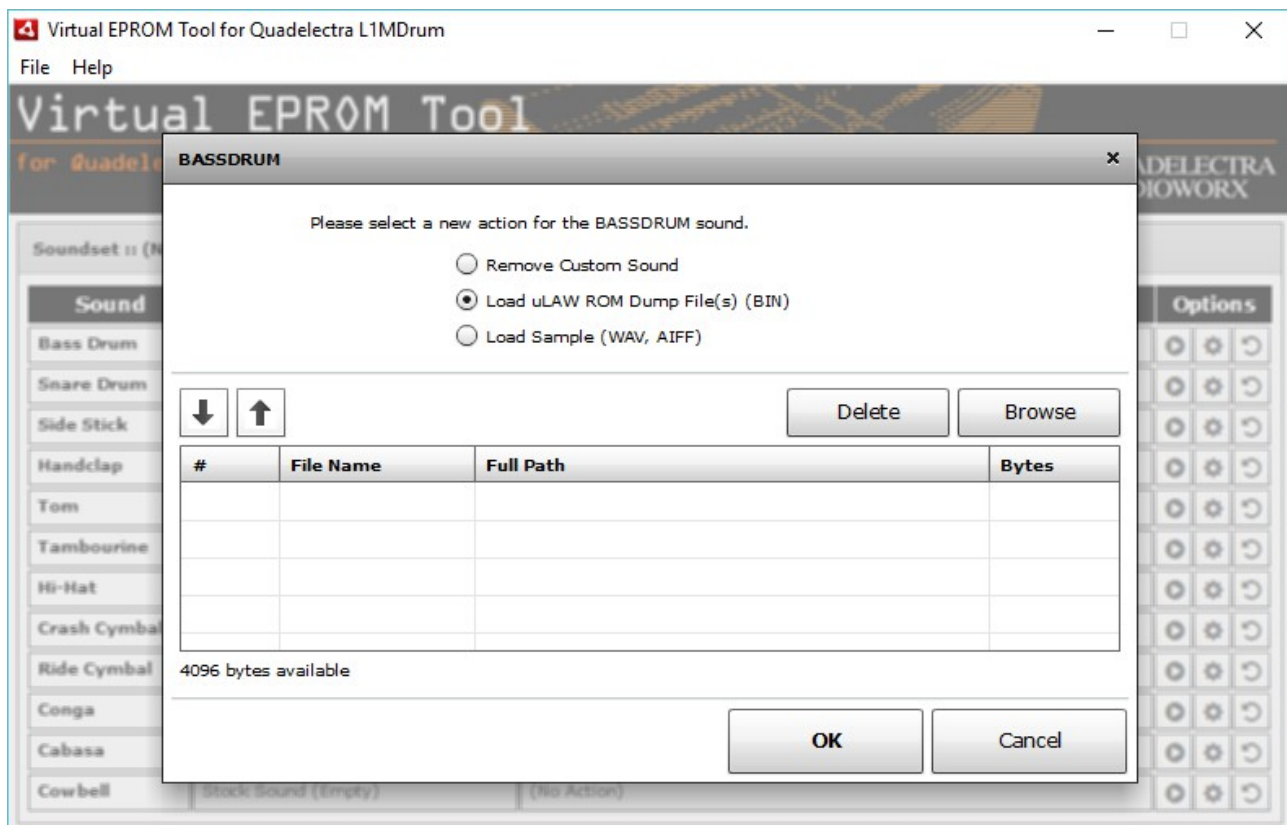


Fig. 3.1.1-1: The dialog for loading EPROM binary files.

To load EPROM dumps choose from the dialog “Load uLAW ROM Dump Files”. The lower half of the screen will change to a list grid with some additional options such as “Delete” and “Browse”.

The list grid implies that you can load more than one memory dump files for each sound. No, that's not a mistake! Back in the day EPROM chips would carry as much as 4 kB to 8 kB of data. In terms of duration 4 kB translates to ~250 ms of sound at 24 kHz, meaning that sounds longer than 250 ms required more than one EPROMS to be completely stored. The original LinnDrum would use 1, 2, 4 or even 8 EPROM chips to store a single sample. Consequently some samples are stored in a series of EPROM binary files instead of a single one.

To load one or more files click on the “Browse” button. You can select more than one files. Once you have made your selection click OK to complete the import process.

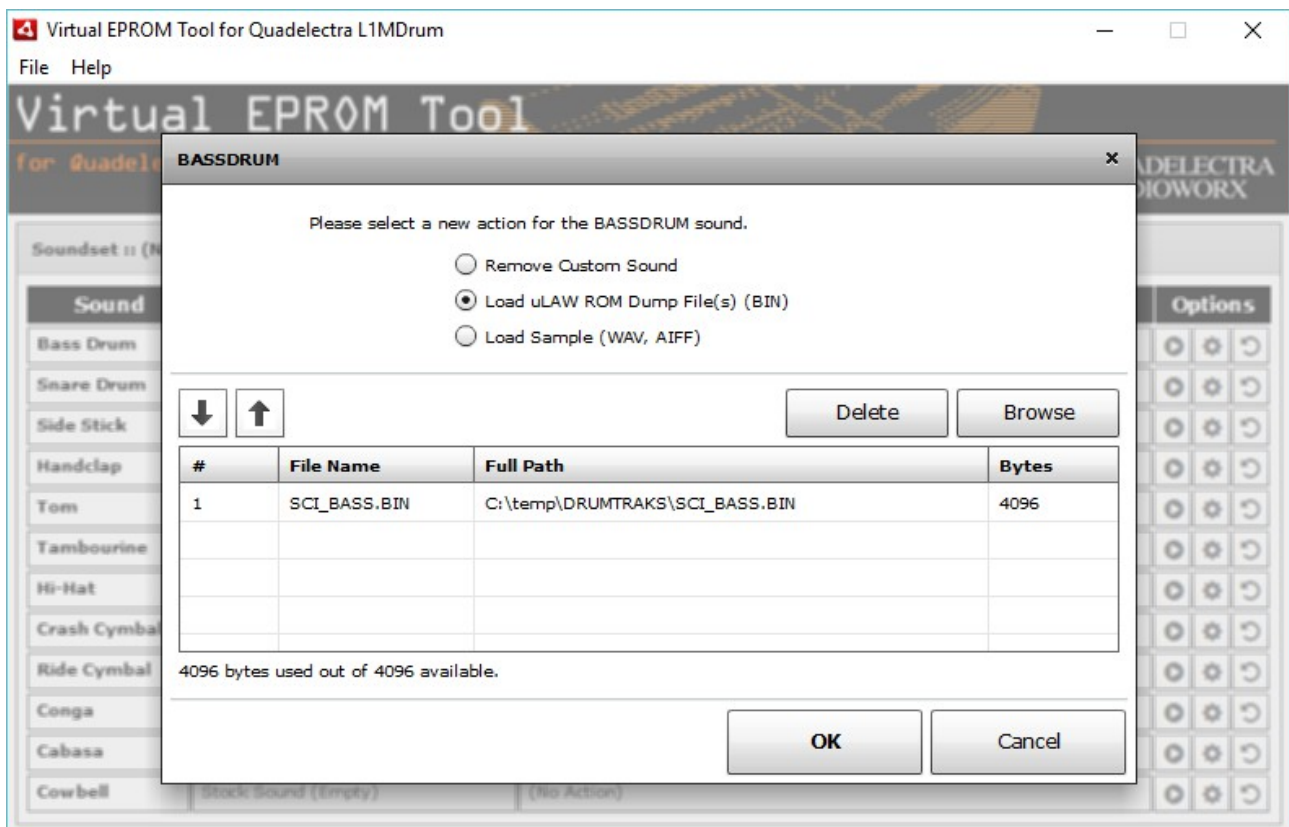


Fig. 3.1.1-2: An EPROM binary file is loaded to the BASSDRUM.

Notice that under the list, there is a status line which indicates how many bytes have been used from the available memory for that sample. This is very important: You cannot exceed the space intended for each sound, like you wouldn't do in the original hardware!

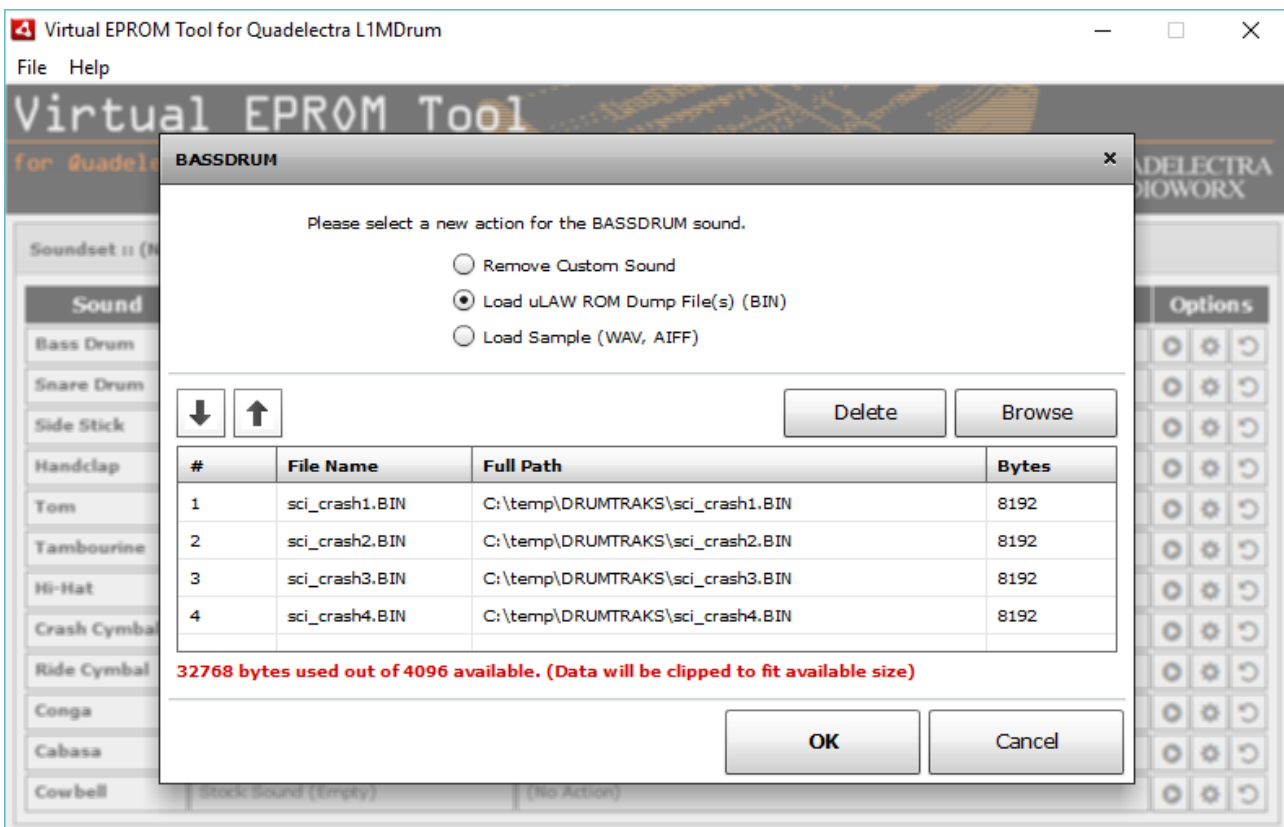


Fig. 3.1.1-3: The 4 dump files assigned to the BASSDRUM are 32Kb in size. Much more than the allowed 4Kb designated for that sample. The data will be clipped.

A sample can of course still be used if its larger than the available memory, but it will be trimmed to fit in the designated limits. Consider reading “Appendix I: Sound Set Information” for detailed information about the sample sizes.

You can of course delete any files from this list, by selecting them and clicking delete. Also you have the ability to re-arrange the binary files in the list using the “Up” / “Down” arrows at the left of the top of the list.

When you press “OK”, the files you have selected will be added one after the other starting from #1.

3.1.2. Loading Wave Files

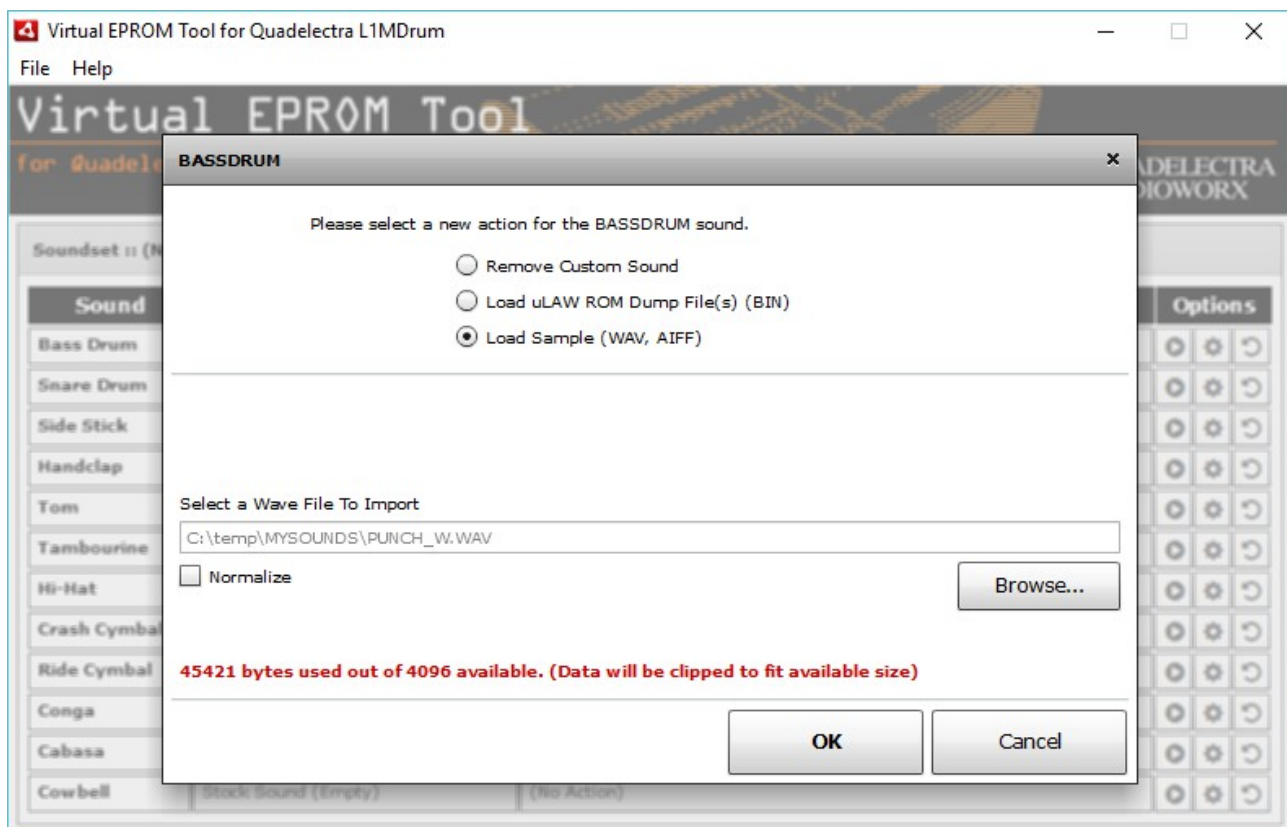


Fig. 3.1.2-1: A wave file is about to be imported. As you can see size restrictions apply in transcoded files as well. Also, there is no option to import multiple waves.

The Virtual EPROM Tool can also import ordinary wave files. However, in this case these files are transcoded to the original device format (24 kHz, 8-bit, Mono, uLAW encoding). ULAW encoding delivers better sound quality than ordinary linear PCM. Nevertheless you still have to deal with the restrictions of 24 kHz so it's always a good idea to preview your sounds.

The allowed formats are WAV and AIF, bit-depths: 8, 16, 24 and 32 of any sample frequency and channel number. Transcoding will use the first channel of the wave file and resample it to 8-bit uLAW at 24 kHz (mono of course).

Finally you have the option to normalize the imported sample before transcoding it. Normalization is recommended for optimal encoding results, especially for low amplitude files.

Size restrictions apply in this case too. Also multiple files are not allowed for transcoded waves!

3.1.3. Removing Existing Samples

The last option -found at the top of the list- is to remove an existing sample. Remember that we described the sound set alteration as a three stage process. This means that all

changes can be reverted before saving the patch in order to commit them.

When your loaded patch already contains a consolidated sample (i.e. a sample which was previously saved with it), “Remove Custom Sound” will remove it from the patch, on your next save.

If there is no consolidated sample for the sound you wish to remove, no usable result will be produced (ie: the stock sound will not be removed).

3.2. Loading And Saving Patches

When you have made all desired changes in your patch, its time to save it.

Virtual EPROM Tool saves your changes directly to the Rack Extension patch file format, compatible with the Quadelectra Jackbox L1MDrum RE.

We described the sound set alteration as a three stage process.

1. Load or Create an L1MDrum patch. (By default, a new patch is already created for you when you open the application)
2. Make changes to the patch. (Load new sounds, or delete existing ones)
3. Commit these changes by saving the patch.

Which means that all changes prior to saving, can be undone, restoring each sound to its original state. You can use the “Reset” button found at the right, under the “Options” column for each sound.

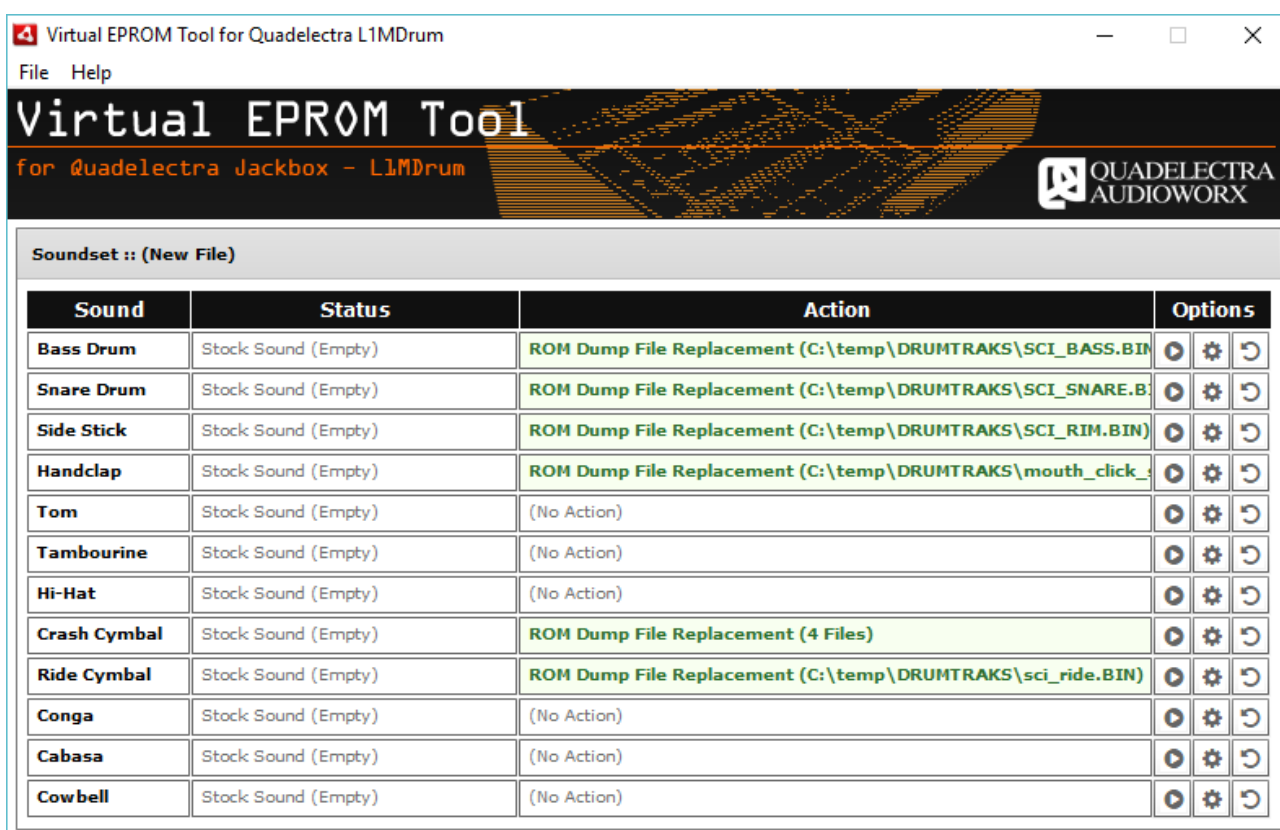


Fig 3.2-1: An altered sound set before saving. Notice the Status column.

You can always revert a sound to that Status by clicking the Reset Button on the rightmost of that row.

When you save your patch however, you commit to those changes. And you can't revert using "Reset". You can apply any further changes resuming from step #2.

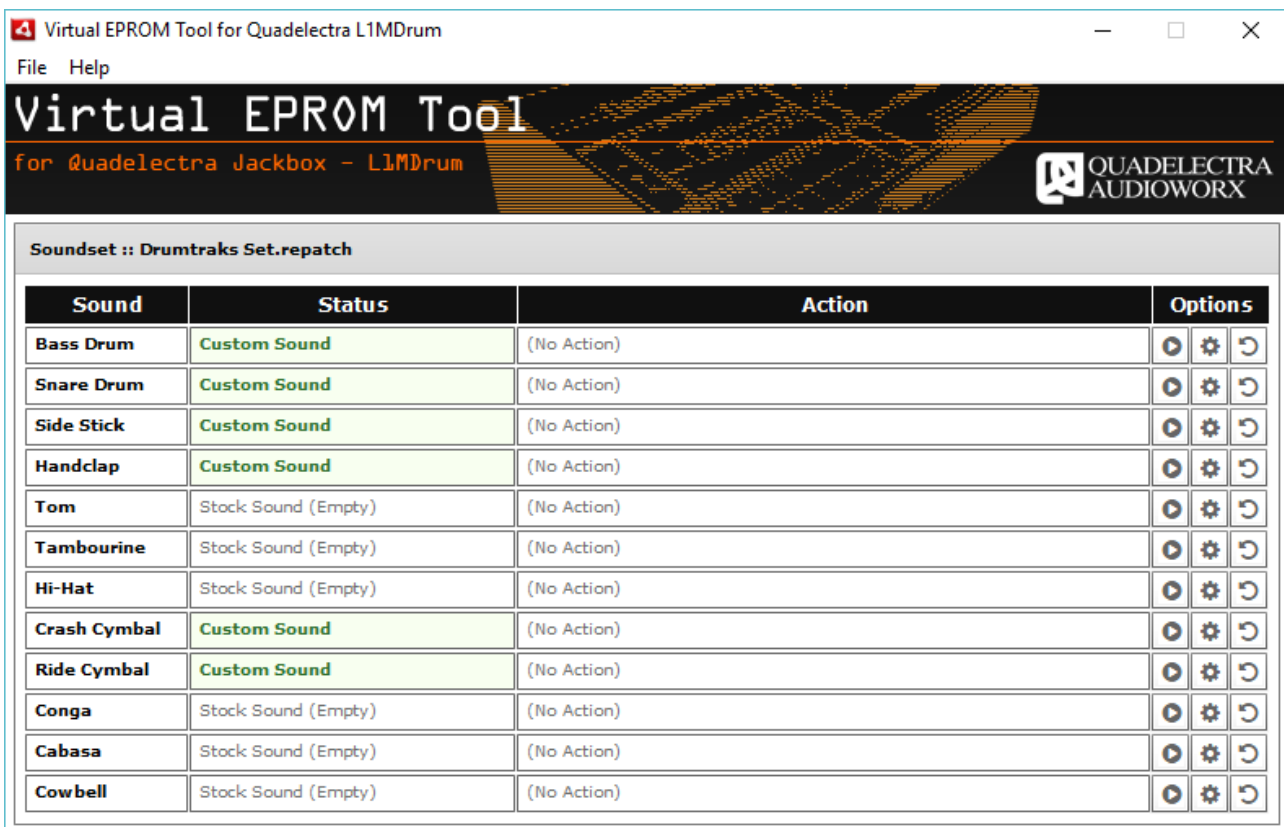


Fig 3.2-2: The sound set from Fig 3.2-1 after it was saved. Notice that all prior actions are consolidated as the new patch statuses.

3.3. About Previews

L1M Virtual EPROM Tool allows you to preview your own samples. Stock drumset sounds are not available.

There are two sources from which L1MVET creates these previews: While compiling, the previews from the sounds you add or replace come from the actual wave data you load. For binary ROM files, previews are expanded from 8bit uLaw encoding, while in case of regular wave files the previews come from a resampled 24 kHz /16bit version of the file that L1MVET creates.

When you save your sound set (or load a new one), all consolidated sounds are converted to 24 kHz, 8bit uLaw format, your previews will once again be expanded versions of these data.

This information is useful to know since you might notice a slight degrade the quality of some sounds after you save them, originating from the uLaw encoding.

APPENDIX 1: Sound Set Information

The Jackbox L1MDrum Sound Set Information table.

Sound	Size	Usage	MIDI Key(s)
BASSDRUM	4096Kb (1 Chip)	BASSDRUM	B0 (35), C1 (36)
SNAREDRUM	4096Kb (1 Chip)	SNAREDRUM	D1 (38), E1 (40)
SIDESTICK	4096Kb (1 Chip)	SIDESTICK	C#1 (37)
CLAP	4096Kb (1 Chip)	CLAP	D#1 (39)
TOM	8192Kb (2 Chips)	TOM HI TOM MID TOM LOW	F1 (41), G1 (43) A1 (45), B1 (47) C2 (48), D2 (50)
TAMBURINE	4096Kb (1 Chip)	TAMBURINE	F#2 (53)
HI-HAT	16384Kb (4 Chips)	HI-HAT CLOSED HI-HAT OPEN	F#1 (42), G#1 (44) A#1 (46)
CRASH	32768Kb (8 Chips)	CRASH	C#2 (49)
RIDE	32768Kb (8 Chips)	RIDE	D#2 (51)
CONGA	8192Kb (2 Chips)	CONGA HI CONGA LOW	D#3 (62) E3 (63)
CABASA	4096Kb (1 Chip)	CABASA	A3 (68)
COWBELL	4096Kb (1 Chip)	COWBELL	G#2 (55)

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