QASIC RZ-I

Samples Patch Creator

Operation Manual

QUADELECTRA AUDIOWORX

1. Introduction

Welcome to the Samples Patch Creator for your Quadelectra Jackbox ASIC RZ-i (or QASIC RZ-i) Drum Module.

ASIC stands for Audio (to) String Interchange Conversion, which is a technique we developed to be able to import samples to Rack Extensions using the standard patch format, while maintaining compatibility with the RE standards.

Our first machine to adopt this technique is the QASIC RZ-i which is a virtual drum module based ton CASIO RZ-1. Not accidentally, since the original hardware device was one of the first to support sampling, allowing musicians to use their own sounds in their drum patterns. Like it's hardware counterpart QASIC RZ-i offers a way to use custom sampled sounds under the same format and rules. The custom samples are saved and recalled via standard Rack Extension patch files, and can be saved with your song.

Since nor Reason neither Rack Extension SDK provides a mechanism to import samples, an third independent application is used to pack samples in to a patch and ultimately to the machine's memory banks.

The Samples Patch Creator Application does exactly that: It allows you not only to configure the memory of the RZ-i according to the settings of the original machine, but also to import samples to be used with it.

1.1. Installation

The Samples Patch Creator 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 Samples Packager file and extract the zip file contents. Afterwards double click on QASICRZISamplePatchCreator.air (in some cases in Windows the file extension .air might not be visible).

You will be prompted with the dialog box bellow:

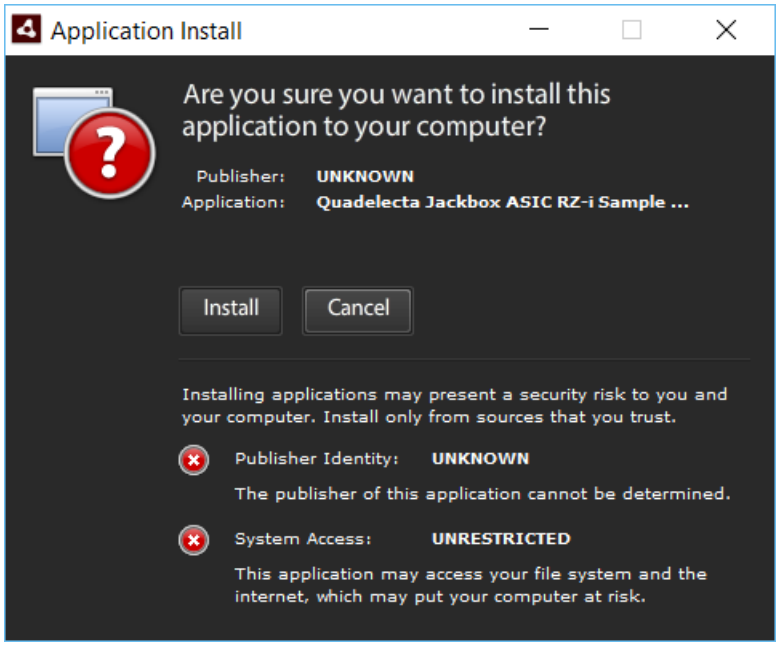

Fig 1.1-1: Adobe AIR warns you about an undetermined publisher.

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.

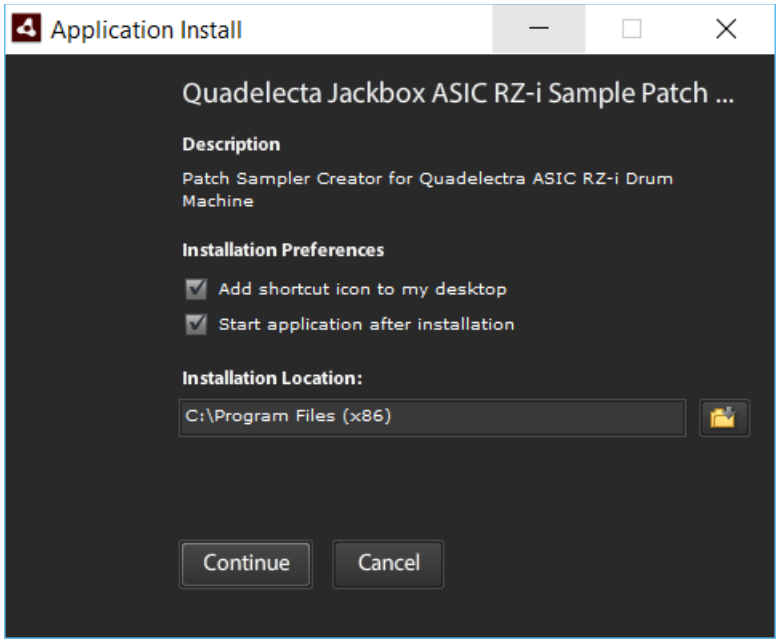

Fig 1.1-2: Setting the installation location and other parameters. Leave as-is if you do not understand these values

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

The original Casio RZ-1 had a small memory of 16Kb to capture user sound data. This memory could be configured (split) in different ways, to either hold four samples of 4Kb each or one sample using all the available memory, along with some other variations.

RZ-1 supported 8-bit / 20KHz sampling which gives you approximately 200ms of sound per 4Kb.

Using the Samples Patch Creator Application you simulate this procedure, having the exact same options to store and manipulate your samples. The bank configuration is saved within the patch itself and you don't have to configure anything separately from the device panels.

3. The Application

When you start the application, the window looks like this.

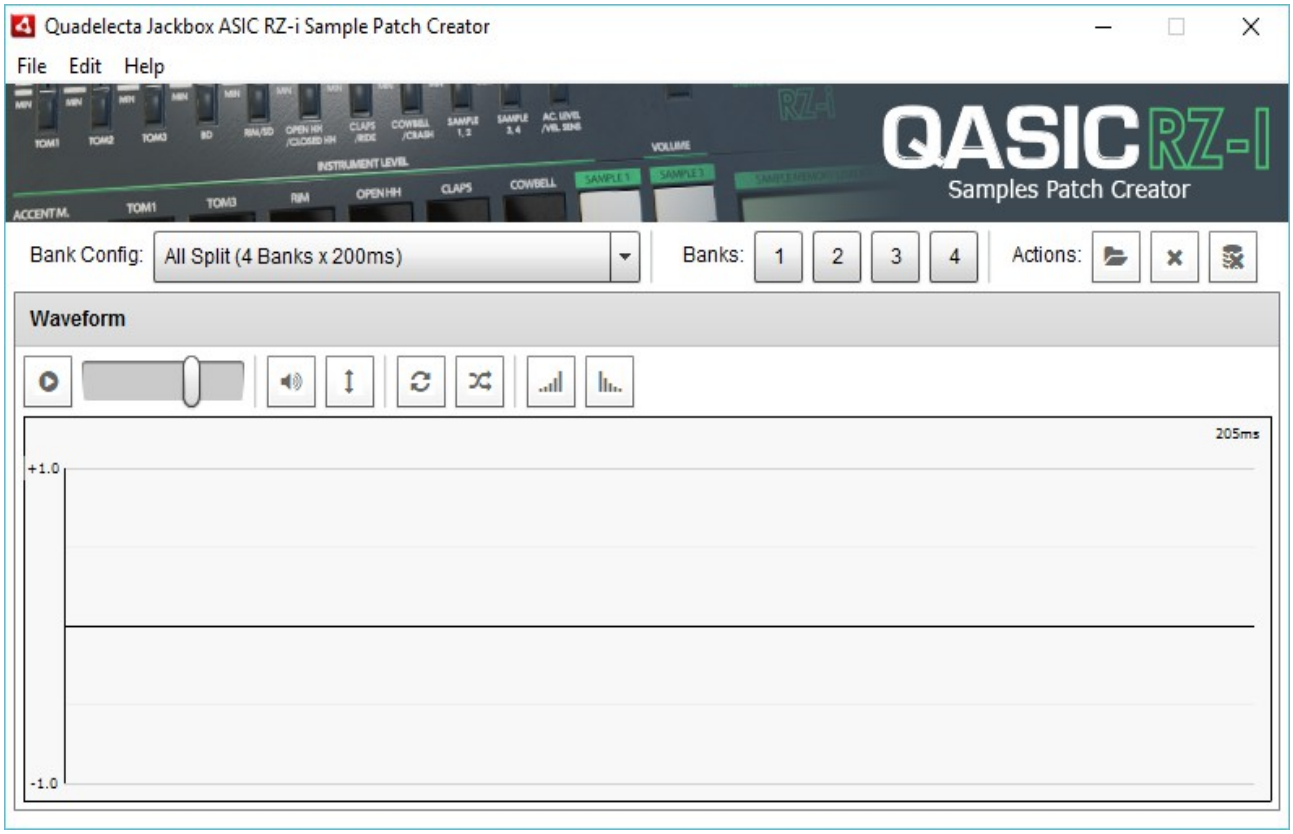

Fig 3-1: The Application Main Window upon startup.

There are two sections in the screen that require special attention (besides the menu bar of course):

1. The sample bank toolbar (right under the heading)

2. The Waveform Editor right bellow.

3.1. The Sample Bank Toolbar

The sample bank toolbar provides functionality to compartment memory and load samples to it.

At the leftmost there is a combo box named “Bank Config”. From this combo box you can select how the banks are configured. In respect to this setting the “Banks” buttons right next to the combo will change to reflect its setting. Clicking any of these buttons selects a bank where a sample is loaded and displays it to the Waveform Editor bellow.

Here is a list of all available configurations:

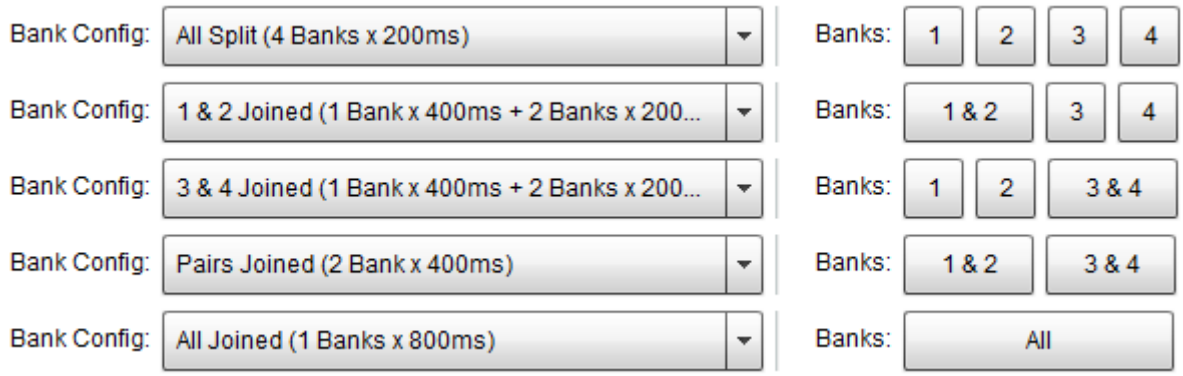

Fig. 3.1-1: The available bank configurations, and their respective bank button schemes.

For more information about these Bank Configurations please see APPENDIX 1: Bank Configurations.

3.2. Actions

At the right side of the Banks toolbar there are 3 buttons, one for each available action:

- Browse Button: The browse button opens up a system file dialog for the user to select a sample to load. QASIC RZ-i Samples Patch Importer supports both WAV and AIF formats, for 8, 16, 24 and 32 bit depth, in any rate and channel configuration. However all samples are transcoded to 20KHz / 8bit / Mono, and truncated to fit the available memory size.

- Clear Sample Button: As the title says, this clears the currently selected sample. You will be asked to verify this action.

- Clear All Button: This button clears the entire sample memory. You will be asked to verify this action.

3.3. The Waveform Editor

The largest portion of the application window is occupied by the Wave Editor panel. The Wave editor provides basic editing functions that can be applied to the samples before packaging. These functions are (from left to right – as they appear on toolbar):

- **Play Button:** As expected this will playback the current waveform.

- **Volume Slider:** You can control the playback volume using this volume slider.

- **Change Gain Button:** This option will open a dialog from which you can change the gain of the waveform.

- **Normalize Button:** This button will open a dialog from which you can normalize

the current sample to a specific level.

Reverse Wave Button: This option will reverse the wave from start to end.

Invert Phase Button: Clicking the “Invert Phase” will invert the sign of the positive and negative phases of your waveform.

Fade In Button: The “Fade In” button will open a dialog from which you can apply a fade in to your waveform.

Fade Out Button: The “Fade Out” button opens a dialog that will allow you to apply a fade out to your waveform.

3.1.1. Changing The Waveform Gain

Clicking the “Change Gain” button, will cause the following dialog to appear:

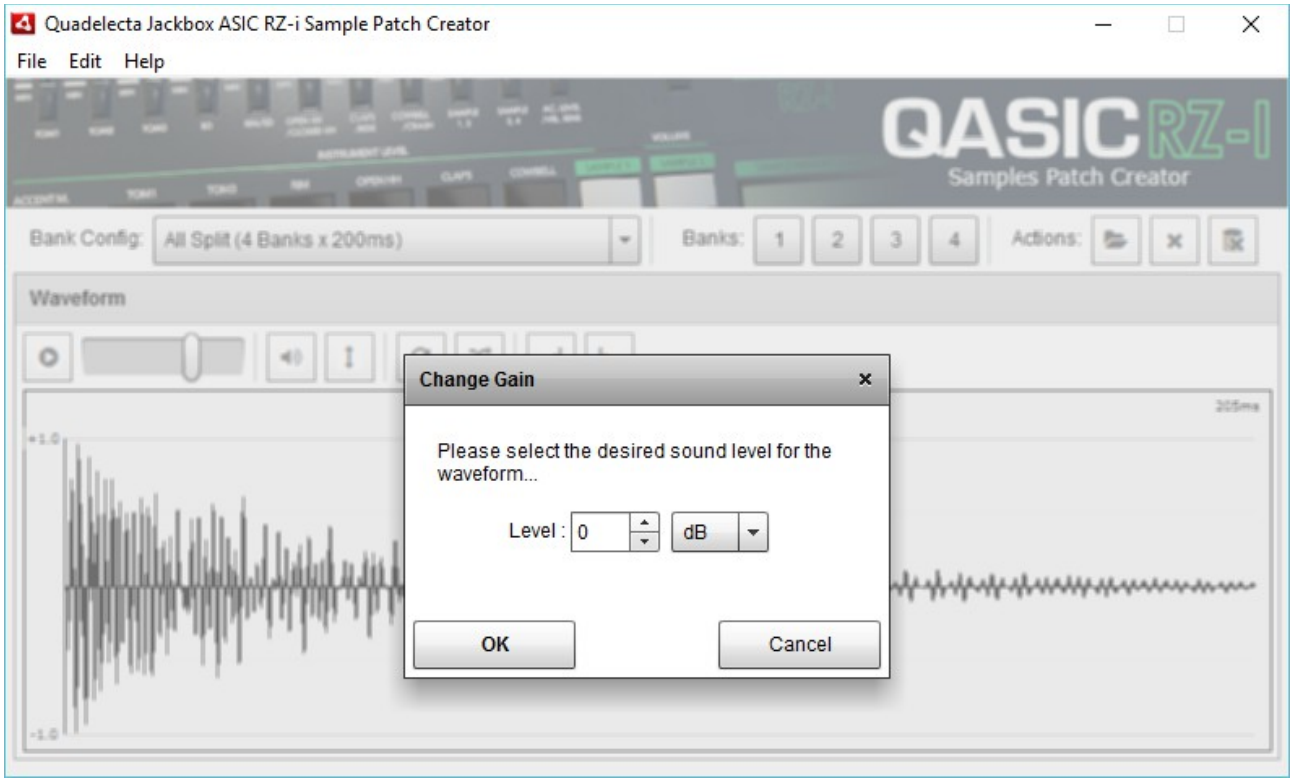

Fig. 3.1.1-1: The “Change Gain” Dialog

You can set the desired gain to a positive or negative value to increase or decrease the volume of the sample. Increasing the value will clip extremely loud peaks of your sample, so make sure you use “Change Gain” correctly! If you want to set your sample to the optimal level without clipping we suggest you use the “Normalize” function below.

The new gain can be expressed in either decibels (dB) or percentage (%). You can set this option from the combo box at the right of the input box.

3.1.2. Wave Normalization

When you click on the “Normalize” button the following dialog will appear:

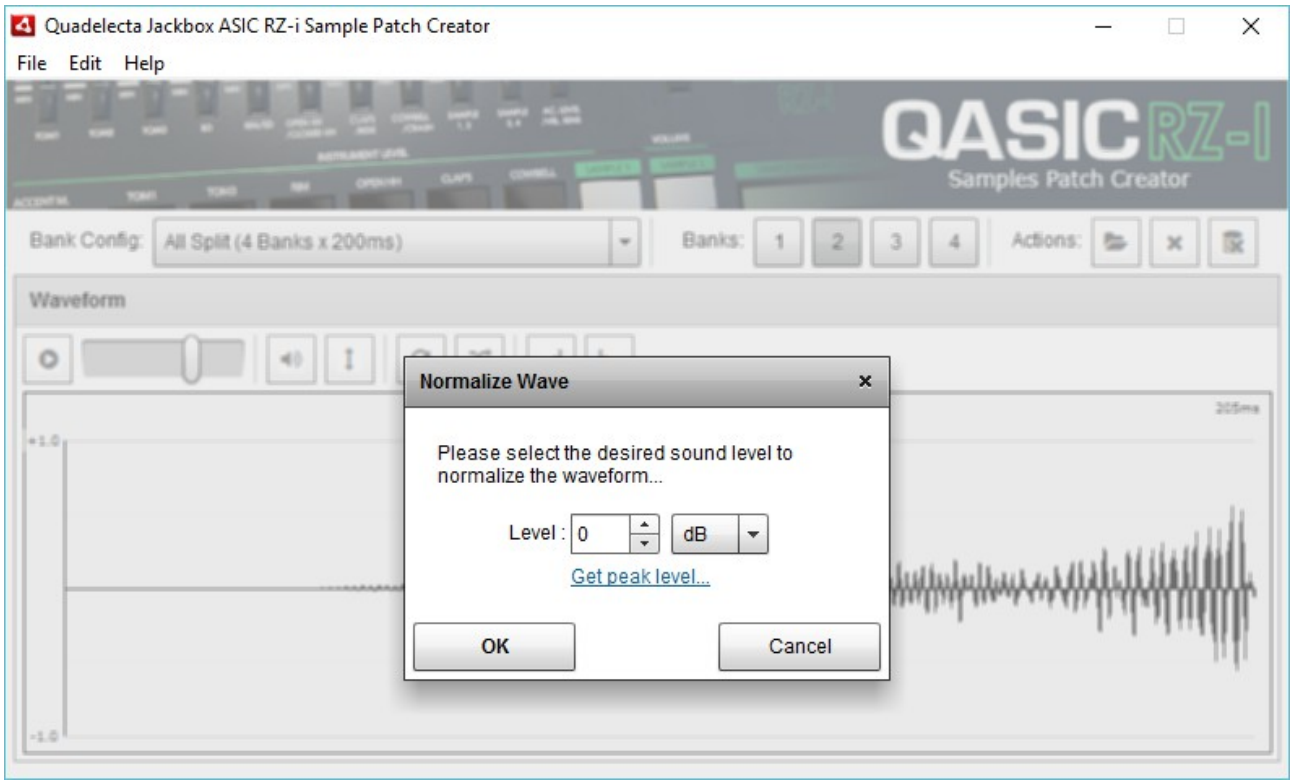

Fig. 3.1.2-1: The “Normalize” Dialog

Its not accidental that this dialog and the “Change Gain” dialog look alike. That's because while “Change Gain” will allow you to raise or lower the sample level **BY** a certain amount, the “Normalize” option will allow you to set the sample level **TO** a certain amount.

So if f.e. your sound's peak level is at -3.0 dB and you choose to normalize it to -3.0 dB no processing will take place. Ideally you use “Normalize” to normalize your samples to 0dB. This ensures that your samples will be stored using the maximum available amplitude - in which they are not distorted.

The “Normalize” Dialog also provides a link-button which you can click to measure the wave peak level. By clicking on “Get peak level” under the form input controls, a dialog similar to the following opens:

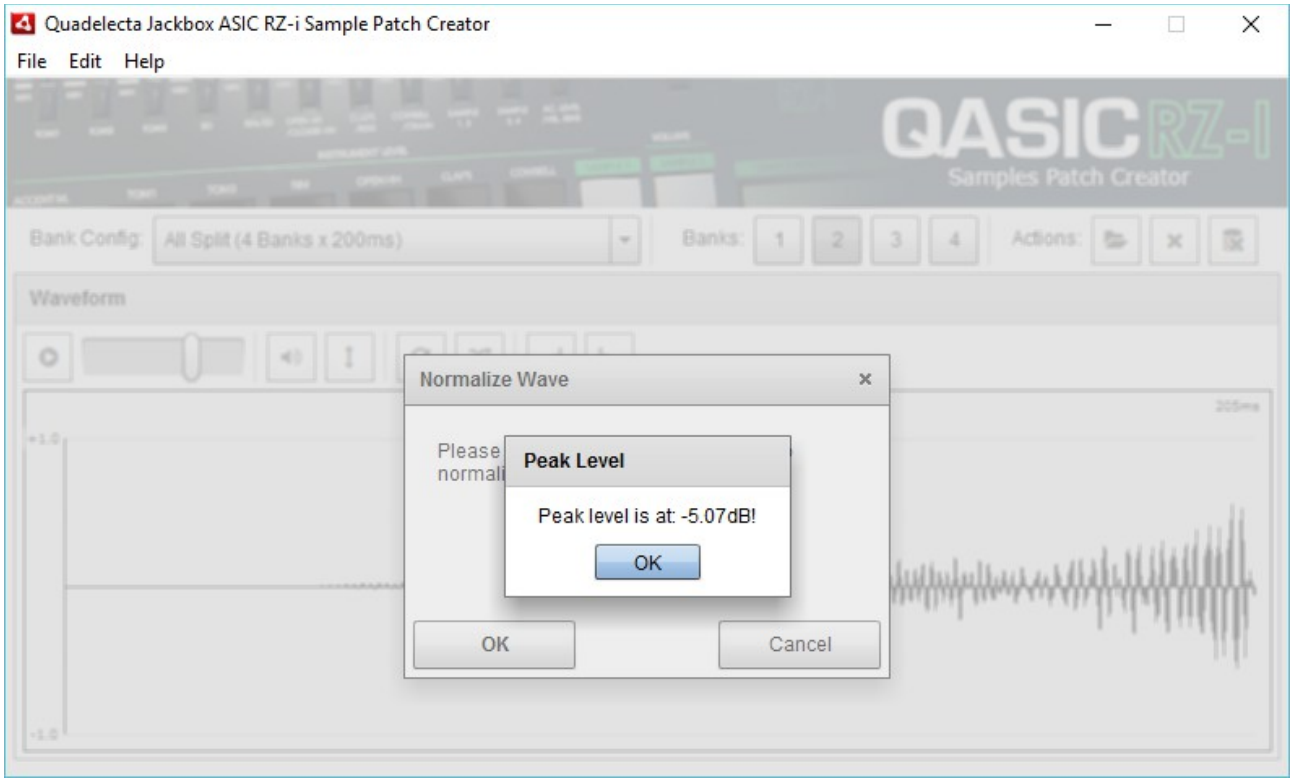

Fig. 3.1.2-1: Using the "Get peak level". This waveform has a highest peak of -5.07dB.

Getting the peak level is very in cases where you want to match your samples to a specific value of another sample.

3.1.3. Fade In & Fade Out.

The wave editor also provides "Fade In" and "Fade Out" functions. Once you click one of the corresponding buttons, the dialog similar to the following appears:

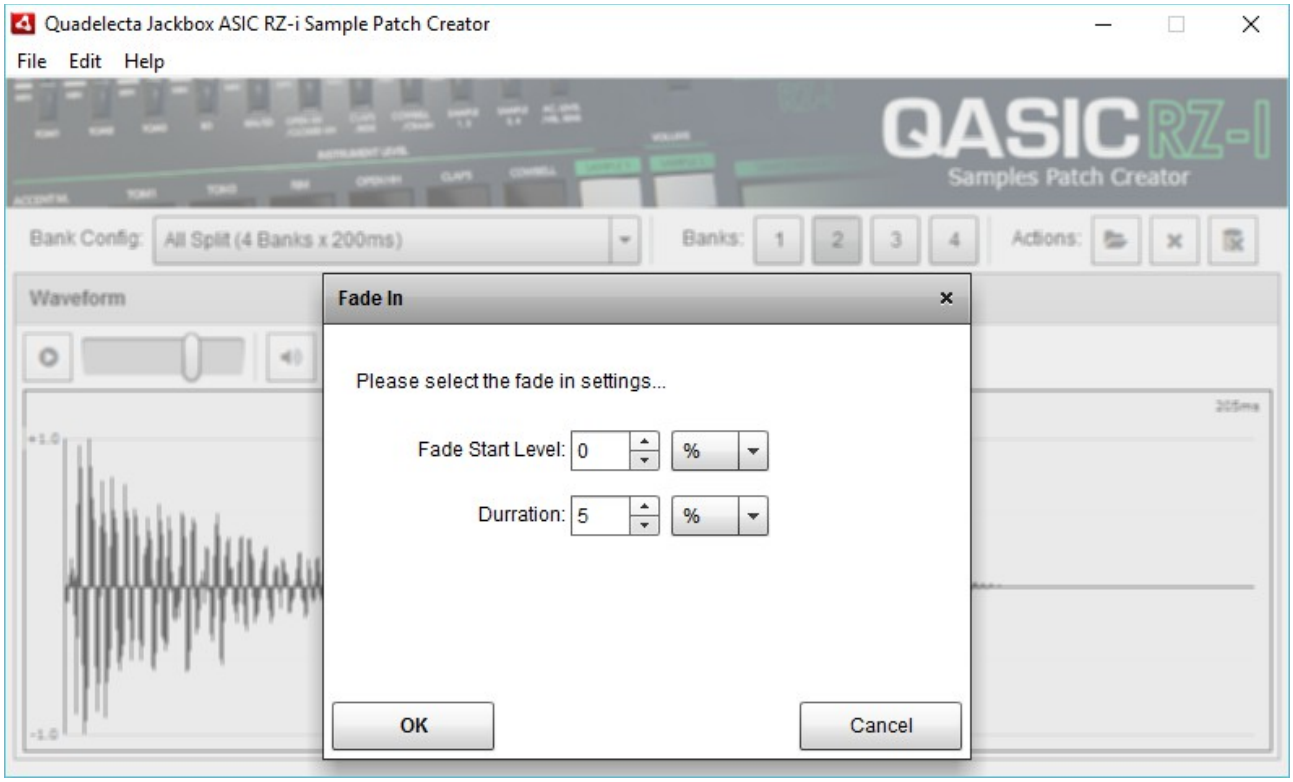

Fig. 3.1.3-1: The Fade In Dialog. Similar to the "Fade Out".

You set the fade in / out effect using two sets of controls:

1. Fade Start Level (or Fade End Level for "Fade Out"): This sets the level at which the fade in will start or the fade out will end. A typical value is 0 which means that the fade will begin / end to a complete silence.

   You can set the Fade Level in either a Percentage (%) or Decibels (dB).

2. Duration: This sets the duration of the effect. For the fade in this duration begins at the start of your waveform, while for the fade out operation the duration ends at the waveform end.

   The duration can be set in either a percentage (%) of the file length (Ie 50% means half the length of the file), or in milliseconds (ms)

APPENDIX 1: Bank Configuration

The table illustrates the bank configuration options for Quadelectra Jackbox QASIC RZ-i drum module.

#	Bank Configuration	Description
1	All Split	All banks split. You can store 4 different samples, ~200ms each.
2	1 & 2 Joined	Banks 1 & 2 are joined providing ~410ms of sample space. Banks 3 and 4 remain split.
3	3 & 4 Joined	Banks 3 & 4 are joined providing ~410ms of sample space. Banks 1 and 2 remain split.
4	Pairs Joined	Memory is configured as 2 pairs: 1&2 and 3&4, each capable of carrying ~410ms of data.
5	All Banks from 1 to 4 are joined	All banks from 1 to 4 are joined giving you the ability to store a sample about 820ms in size.

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