WAVE U
OPERATING MANUAL

ENGLISH VERSION

WAVEREX WAVE U

wave u
BY SYNTHASTIX
SAMPLE EXPANSION

Preface

Thank you for purchasing WaveU. We are convinced that it will bring you a lot of joy in the future and above all a lot of momentum to your now **30-year-old** U-110 or U-220.

Why you should read the manual

Manuals are usually unpopular, boring or even annoying. We have made every effort to make sure that you don't fall asleep after reading the first two pages.

Whether you read this manual is up to you, you can also put it aside. However, you should know that this manual informs you about the correct use of WaveU. You will also find important safety instructions that you must follow. They are highlighted in gray and therefore easily recognizable. You don't want to expose yourself and your environment to unnecessary danger, do you?

Your WaveReX Team

This is a product to praise the glory of Roland and its outstanding musical products!

Note

We assume no responsibility for mistakes that may appear in this manual. The content of this manual is subject to change without notice. A current version of this manual can be found at:

www.waverex.de/downloads/

Great care has been taken in the preparation of this manual to eliminate errors and inconsistencies.

Manufacturer:

SynthastiX – Komponenten für elektronische Klangerzeuger

Owner: Marco Pawlowski

Im Plaul 8

D-55270 Essenheim

Germany

The WaveReX Team

Development:	Marco Pawlowski
Software:	Dominik Vogel
Design:	Mario Neitzke

Many Thanks to

Emily, Anne, Rainer Buchty, Tobias Hopp, Dirk Stephan and all our supporters

How to reach us

www.waverex.de
www.waverex.com

www.shop.waverex.de

www.instagram.com/waverexboard/

www.facebook.com/WaveReX/

www.youtube.com/channel/UCfJzIp27T1ikvZaYJJHWSPA

Manual - Revision

English Version:	1.0 – 19.12.2022

Table of contents

Safety instructions

Please read these safety instructions carefully. It is essential that you understand these instructions in order to use WaveU safely.

Keep the safety instructions handy until the end of WaveU's life.

If you have any questions or are unsure how to use WaveU, contact our support team immediately.

WaveU is a plug-in card for the PCM CARD slots (ROM) of the Roland U-110 and U-220. It serves as a replacement for the PCM cards of the Roland company.

ATTENTION!

Only insert WaveU into the designated card slot. Make sure that the card is oriented correctly.

WaveU was developed for use in private households as well as for use in recording studios.

ATTENTION!

Use outside closed rooms can cause damage to WaveU and your device. Use WaveU only indoors.

Due to its design, WaveU is particularly sensitive to inappropriate force effects.

ATTENTION!

Do not attempt to bend, compress or twist WaveU. Never force WaveU into the card slot of your device. Do not drop WaveU or apply force to the card.

WaveU is an electronic product. It contains state-of-the-art electronic components and was developed and built according to the current state of the art.

ATTENTION!

Use WaveU only in rooms with room temperature and low humidity. Do not expose WaveU to liquids. This can damage or even destroy the electronic components.

WaveU's housing protects the underlying components and serves as an insertion aid into the card slot.

ATTENTION!

Never open the card. This can destroy the card and the electronic components. A defective housing can no longer guarantee proper insertion into the card slot. This can lead to malfunction or destruction of WaveU or even your device.

WaveU's contacts are gold-plated to withstand mechanical demands longer. Nevertheless, this is a contact-based technology.

ATTENTION!

Even though WaveU is designed to last, try to remove WaveU from the card slot only when necessary.

WaveU works with non-hazardous voltages.

ATTENTION!

However, you should avoid touching the gold contacts. The contacts can be permanently attacked by the skin grease. And don't even think about licking the contacts!

Metal objects on the contacts can cause short circuits.

ATTENTION!

Never short-circuit the contacts! This will destroy WaveU and can cause you serious physical damage!

A defective WaveU can severely damage your device.

ATTENTION!

Do not use WaveU if it has any obvious damage. If you are not sure, contact support.

A defective device can severely damage your WaveU.

ATTENTION!

Do not use WaveU if your device has a defect. Faulty voltages, short circuits etc. can destroy the card.

Web: www.waverex.de

Mail: support@waverex.de

Notes

EU Declaration of Conformity

Hiermit erklären wir

Hersteller: SynthastiX – Komponenten für elektronische Klangerzeuger

Marco Pawlowski, B.Eng.

Im Plaul 8

D-55270 Essenheim

dass das nachstehend bezeichnete Produkt

Produkt: WaveU

Produkttyp: Speicherkarte mit passiven elektronischen Bauteilen zur Anwendung in den Roland-Geräten der Serie U und D-70

Typennummer: SX 003

Seriennummer: 60001 bis 69999 (fortlaufend)

in seiner Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der nachstehend aufgeführten EU-Richtlinien entspricht. Bei einer mit uns nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.

Es wird die Übereinstimmung mit den folgenden Richtlinien erklärt:

- EU-Richtlinie EMV 2014/30/EU vom 26. Februar 2014
- EU-Richtlinie RoHS2 2011/65/EU vom 8. Juni 2011
- Richtlinie (EU) 2017/2102 vom 15. November 2017

Angewandte harmonisierte Normen insbesondere:

EN 55032:2016-02 Elektromagnetische Verträglichkeit von Multimediageräten und -einrichtungen - Anforderungen an die Störaussendung (CISPR 32:2015); Deutsche Fassung EN 55032:2015

Nieder-Olm, 19.12.2022

Ort/Datum der Ausstellung

Marco Pawlowski, CEO

Intended use

WaveU has been designed exclusively for the RS-PCM Sound Modules of the U series from Roland Corporation Japan and is compatible only with these devices. It is designed to be used in the PCM CARD slot (ROM) of the device.

Attention!

Never use WaveU in incompatible devices. You can destroy your device and WaveU!

The warnings in this manual and on the back of the card must be read, understood and applied.

Reasonably foreseeable misapplication

WaveU must never be inserted into a card slot that is not labeled PCM CARD, such as a card slot RAM CARD, which is designed exclusively for program memory cards.

WaveU contains sensitive electronics. The card must not be exposed to weather conditions as this may destroy the electronics.

WaveU may only be used for the purpose described in this manual. Any misuse of WaveU is considered improper use.

WaveU has only been tested in U-series devices. Even though WaveU is technically identical to the SN-U110 cards, you use WaveU in the Roland D-70 at your own risk.

Preparation

To connect WaveU to your computer you need a micro USB cable. This is not included in the delivery.

You can also use a USB extension, but make sure that the total length does not exceed 5m. This is not included in the delivery.

Up to Windows 7 you need a USB driver. You can download it from the download page www.waverex.de/downloads/.

If you use Windows 8 or higher you don't need any drivers.

To create your own cards and upload them to your WaveU you need the software editor from WaveReX. Download it from the download page www.waverex.de/downloads/. Make sure you always use the latest version so you don't miss any updates or bugfixes.

Even if you have already turned on your U with anticipation, turn it off first and be patient for a moment.

In the following we will introduce you to the functionality of WaveU and the software editor with a kind of quickstart. If you are familiar with the basic principles of the sound generation of your device, you can start right away. However, we recommend that you first read the chapters Basics and Technical Data. Here you will find a basic explanation of how the whole system works and what you should pay attention to.

The Hardware

① – WaveU card

② – Micro-USB-connector

③ – Status LED (green)

④ – Transmission LED (blue)

⑤ – Contacts (back side)

The USB port

The USB port on your WaveU is used to transfer data from your computer to WaveU. It is a USB-B micro connector.

WaveU is powered by both your device and USB, whichever is higher.

Attention!

When new, the connector may still be a little tight. Never insert your USB cable with force, you can destroy the connector!

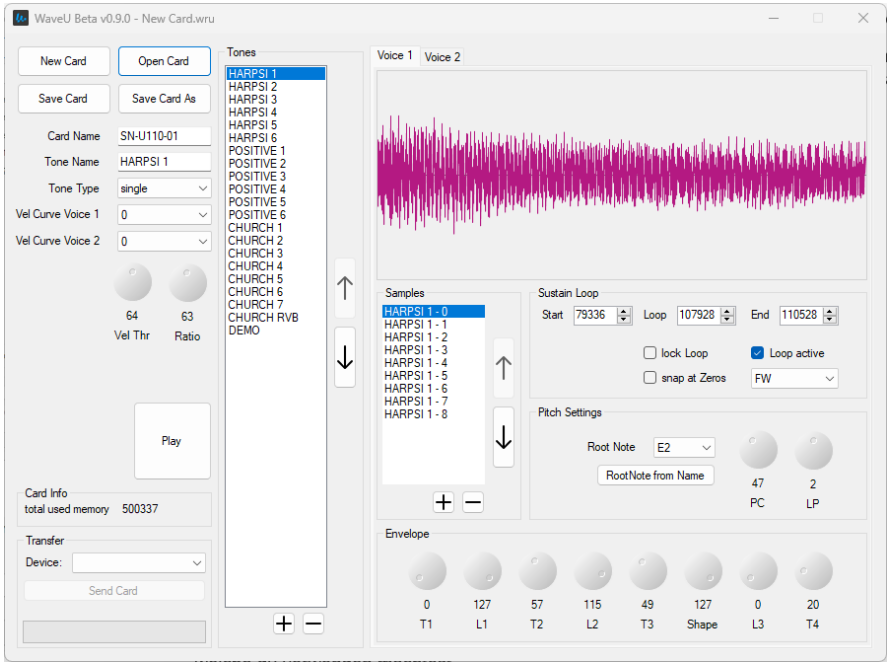
The card

The card was manufactured in a sandwich process from conventional board material (GRP). The layers are both soldered and glued. The cover is made of stainless steel and protects the internal electronic components. It is also firmly glued. Trying to open the card or the lid will definitely destroy your WaveU. Under normal circumstances there is no reason for this.

If you have problems with your card not being recognized, please refer to the **Troubleshooting** chapter.

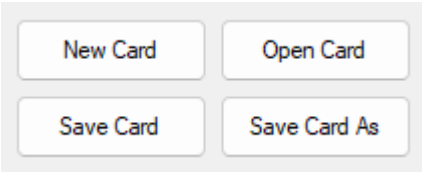
The software editor

In the main window you can manage and edit your compilations. Here you can add tones, edit them and load your compilation onto your WaveU. You can also preview your samples here and always have an overview of the used memory size.



The content of the main window represents the content of your virtual card. All tones listed in the Tones list are loaded onto the WaveU and are then available in the U as card sounds. 128 tones are possible per card.

The user interface



"New Card" Button

Press this button if you want to discard your composition and create a new one.

"Open Card" button

With this button you can load previously saved compositions into the editor.

Note that you can only open files with the extension ***.wru**.

Also note that opening a card will permanently erase your current compilation. Therefore, always save your work before loading a card.

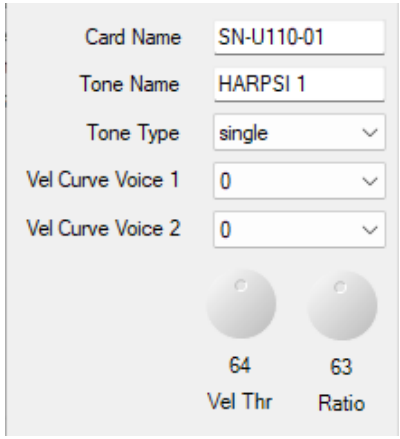
"Save Card" button

With this button you can save your compilation as a virtual card (image). Cards are saved with the file extension ***.wru**.

"Save Card As" button

Saves your compilation under a different name.

General area

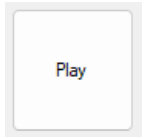


Here you can change the **name of the card** as it is displayed in the U, as well as the **name of the tone**. You can also set the **Tone Type** and the **Velocity Curve for Voice 1 and 2** using the drop-down fields.

The **Velocity Threshold** knob can be used to set the threshold value of the velocity between Voice 1 and 2, especially for the Tone Type Velocity Switch. If e.g. 64 is set as Threshold, all velocities up to 64 Voice 1 and all velocities from 64 Voice 2 will be played.

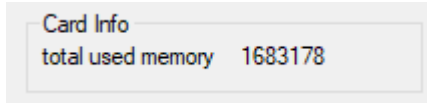
The **Voice Ratio** knob determines the ratio between Voice 1 and Voice 2 for tones with two voices.

Play button



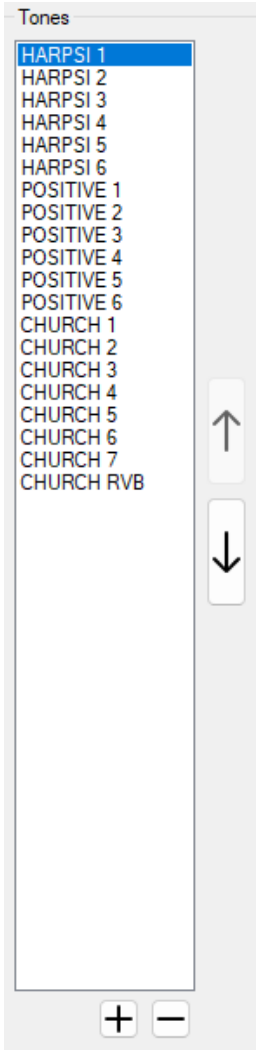
Press Play to preview the currently selected sample. Alternatively, you can press the space bar.

Card-Info



Here you will always see information about the size of the compilation. Note that you must not exceed a size of 512kb. 12288 bytes are basically occupied by the card format.

Tones list



All tones listed here are subsequently available as a tone within a timbre in the U.

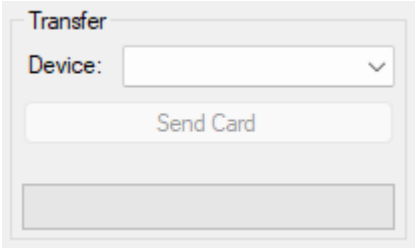
Use the Plus (+) button to add a new, empty tone to your list.

Select an instrument and press the Minus (-) button to delete the tone from the list.

Mark an instrument and use the arrow keys on the right side of the list to change the arrangement of the instrument within the list.

128 tones can be created per card. The list is therefore limited to 128 tones.

Transfer



In the Transfer area you will find the Device selection field. All WaveUs that are connected to your computer are displayed here. Use the selection box to choose the WaveU that you want to write to.

You will also find the Send Card button here, which you can use to transfer your compilation to your WaveU. The progress bar at the bottom informs you about the progress of the transfer.

Knobs

You can operate each knob in several ways.

You can click on it with the **left mouse button** and move the mouse up or down. The knob moves in fine steps. To make larger steps hold down the **CTRL key**.

Alternatively, you can use the **mouse wheel**. Move your mouse pointer over the slider and turn the mouse wheel for small steps or press **CTRL** for large steps.

You can also simply click on the numerical value below the slider and enter the desired numerical value directly.

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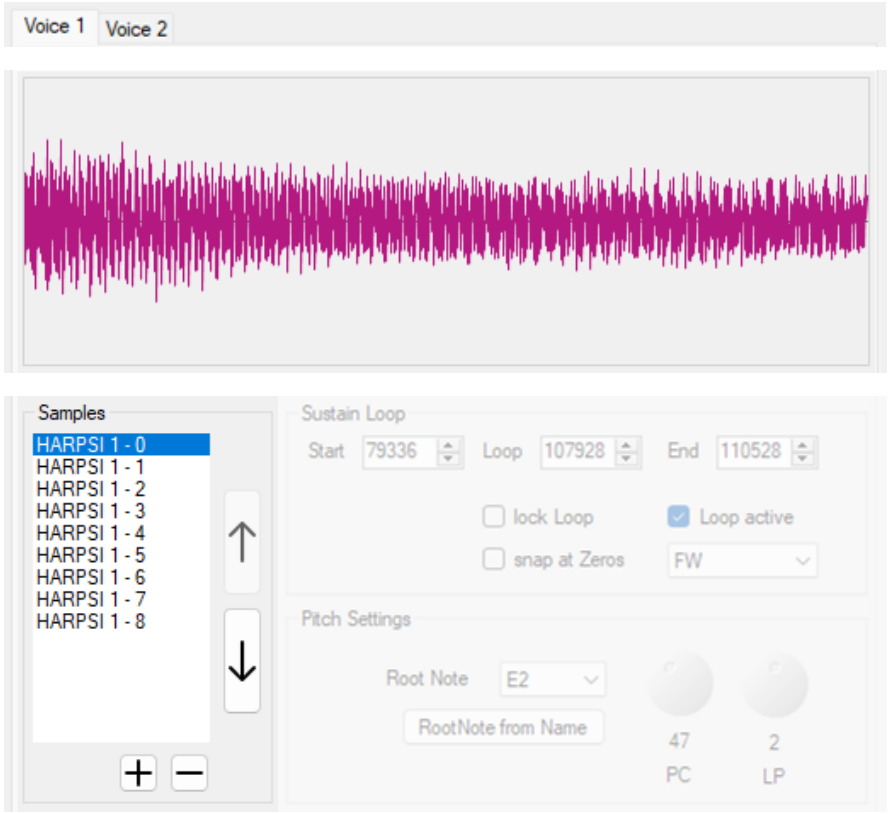
The Voice-Editor



Voice tab

Select here which of the two voices should be displayed and edited in the Voice Editor.

Waveform display

Here you can see the waveform of the currently selected sample. You can watch every change of the sample live here.

Samples list

This list contains all samples of the currently selected voice and represents a multisample. Multisamples contain several samples which can be distributed over several keyboard zones.

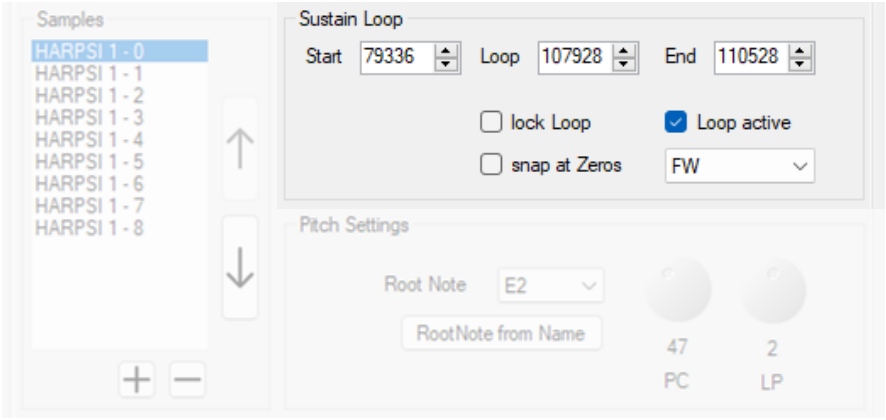
Use the Plus (+) button to add a new, empty sample to your list. Then double-click the sample to assign a file to it. Alternatively, you can add files to the list by drag&drop.

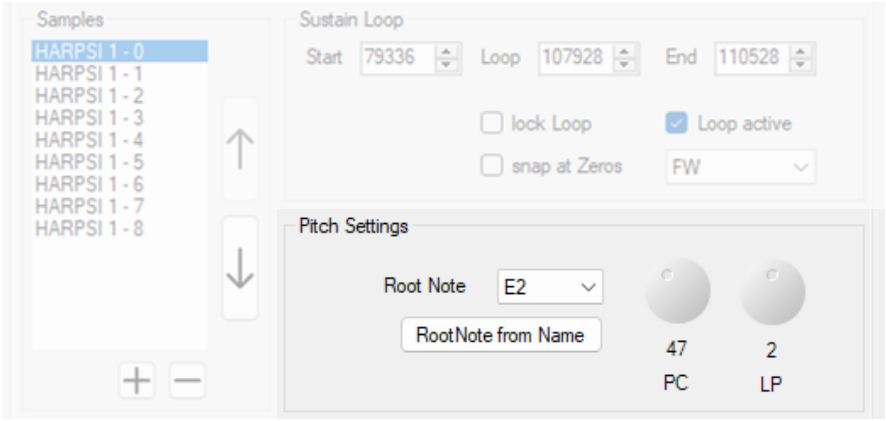
Select an instrument and press the minus (-) button to delete the sample from the list.

Mark a sample and use the arrow keys on the right side of the list to change the order of the sample within the list.

Each voice can contain 12 samples, so the sample list is limited to 12 samples.

Note that you cannot change the name of the samples, because it is not displayed in the device. The sample names are therefore of no importance.





Loop settings

Here you can make all settings for the loop and the length of the currently selected sample.

Activate the checkbox **Loop active** to activate the looping of the sample. Use the checkbox below to select between the two loop modes forward (**FW**) and backward (**BW**).

Use the arrow keys at the respective fields to set the offset, i.e. the start, loop and end point of the sample in single steps. Activate the checkbox **snap at zeros** to adjust the step size of the arrow keys to the respective distance of the zero crossings. The offset is thus set to the next zero crossing of the sample. This can be helpful when searching for a suitable loop.

Activate the checkbox **lock Loop** to keep the loop length when the loop start or sample end is changed.

Pitch settings

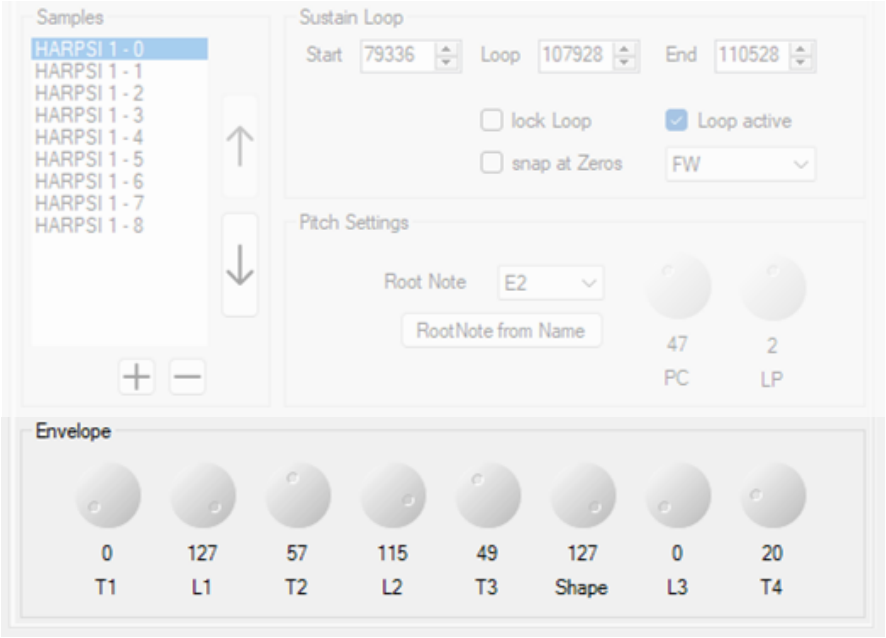
The drop-down field allow you to set the **root note** for the currently selected sample. This also serves as the top key for the key zone in which the sample is played. This keyzone is limited downwards by the top key of the keyzone below it, if present.

If the sample name contains the root note, this can be taken over via the **RootNote from Name** button.

The **PC** (Pitch Correction) knob can be used to adjust the pitch of the sample (positive only) and the **LP** (Loop Pitch) knob can be used to adjust the pitch of the loop (positive and negative) in cent steps.

Best Practice:

To avoid the disadvantage that the pitch correction only works positively, Roland likes to set the root note of the samples a semitone too low and compensate the rest via the pitch correction.

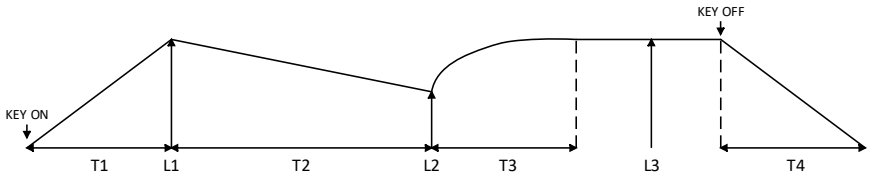


Envelope settings

In the lower part of the voice editor, the envelope for the currently selected tone can be set using the knobs.

Please note that an envelope always refers to the entire tone. Separate envelopes for each sample are not supported by the U.

The envelope of the U is basically built up according to the following scheme:



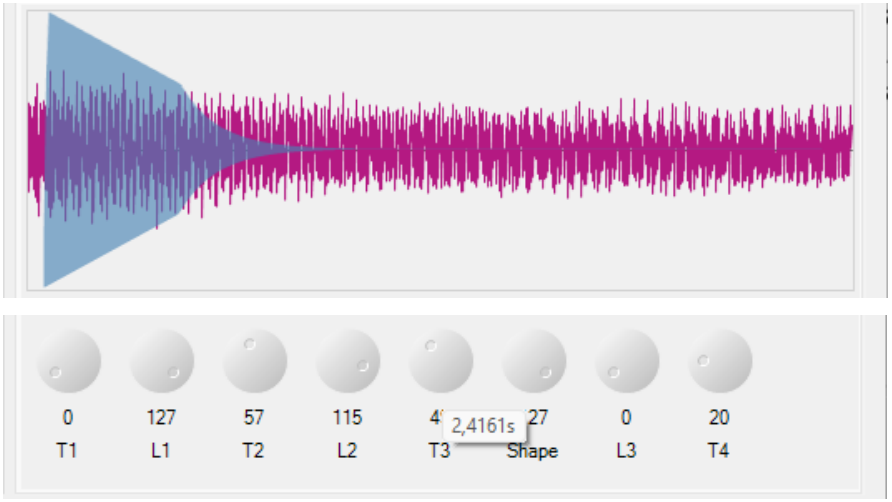
This scheme is already known from other Roland devices and corresponds most closely to an AHDSR envelope. The envelope has a few peculiarities, which we will discuss in more detail later.

T1 represents the time until the level of the sample has risen to the value **L1**. T1 is comparable to the **attack time** and L1 to the **attack level**. The course of this part of the envelope is always linear.

T2 is the time until the level has changed from L1 to **L2**. L2 can be higher or lower than L1. If both levels are the same, it is a classic **hold**. The course of this part of the envelope is also always linear.

T3 is the time in which, starting from L2, the **sustain** level L3 occurs. This curve is either concave, if L2 is larger than L3, or convex, if L2 is smaller than L3. The degree of curvature can be adjusted via the Shape parameter.

The last parameter, **T4**, corresponds to the classic Release Time and represents the time it takes for the sample to drop from sustain level L3 to zero. This time starts as soon as the keyboard key is released.



The expected envelope is displayed in blue in the waveform window when you move the mouse over one of the controls. In addition, a tooltip shows

you the approximate length when you position the mouse pointer over one of the T knobs.

All level parameters L1 to L3 take values from 0 to 127.

The values are logarithmic and correspond to dB values, but not integer ones, which is why they are not so memorable. We have therefore decided to display the integer values. However, if you move the mouse pointer over the slider, the currently set dB value is displayed via a tooltip.

If you want to know exactly and do all the math, calculate **20 * log10 (x * 1 / 127)**. X stands for the integer value set at the controller. The others may please take the following facts as given:

A halving of the value corresponds to a decrease of 6dB, a doubling of the value corresponds to an increase of 6dB. In the following, a few values and their correspondence in dB are briefly exemplary:

127	=	0dB	=	full volume
113	=	ca. -1dB		
101	=	ca. -2dB		
90	=	ca. -3dB		
64	=	ca. -6dB		
32	=	ca. -12dB		
8	=	ca. -24dB		
1	=	ca. -42dB		

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First steps

The principle of WaveU

With the software editor for WaveU you can compose a virtual card, a so-called image, on your computer. This image can contain up to 128 tones and 2 voices per tone. The image can then be transferred from the editor to your WaveU and used by the U.

Connecting

Turn on your computer and wait until it has booted up.

Take your WaveU out of the box. The side with the label is the top side. The bottom side has the warning labels.

Do not put your WaveU in the U for now. First place it on a smooth, dry surface, e.g., a table.

Now take the micro-USB cable and connect it to your WaveU. The other side of the cable can then be plugged into a free USB port on your computer, it doesn't matter if you use a USB2 or USB3 port. WaveU will be powered when the green LED is lit.

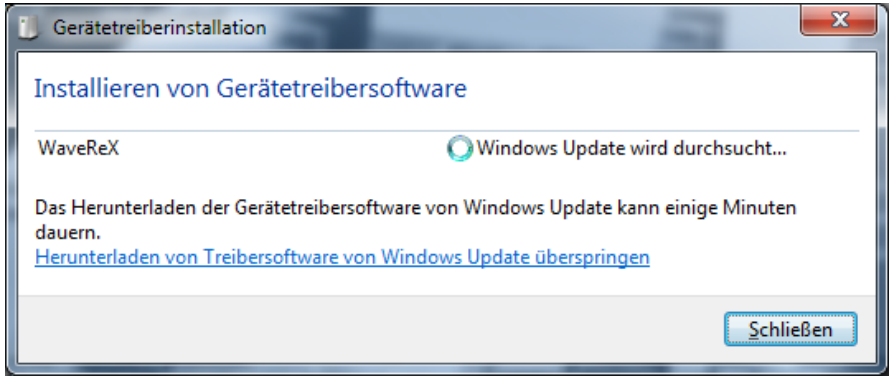
Your WaveU will start in bootloader mode for five seconds. You can see this by the double blinking of the blue LED. After that, your WaveU will automatically start in operating mode.

Starting with Windows 8, Windows should now install the drivers on its own. Check in the device manager if your device appears as **WaveReX bootloader**, then you have done everything right.

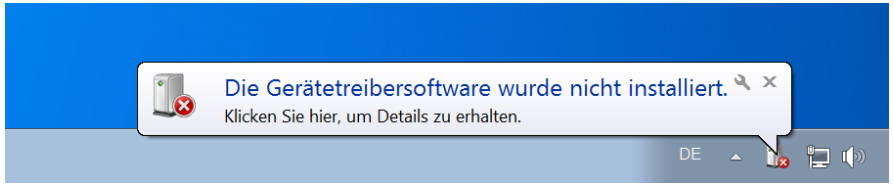
Installing the USB driver

If you are using Windows 7 or an older version, you have to install the drivers manually.

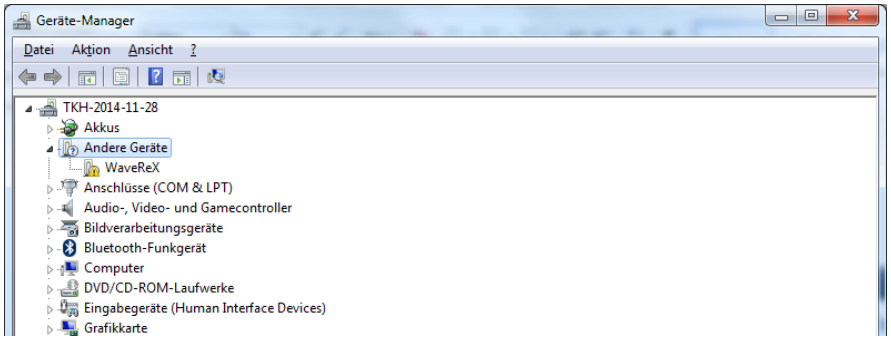
Plug your WaveU into the computer. If Windows 7 starts installing the device drivers immediately, you can simply close or ignore the window.



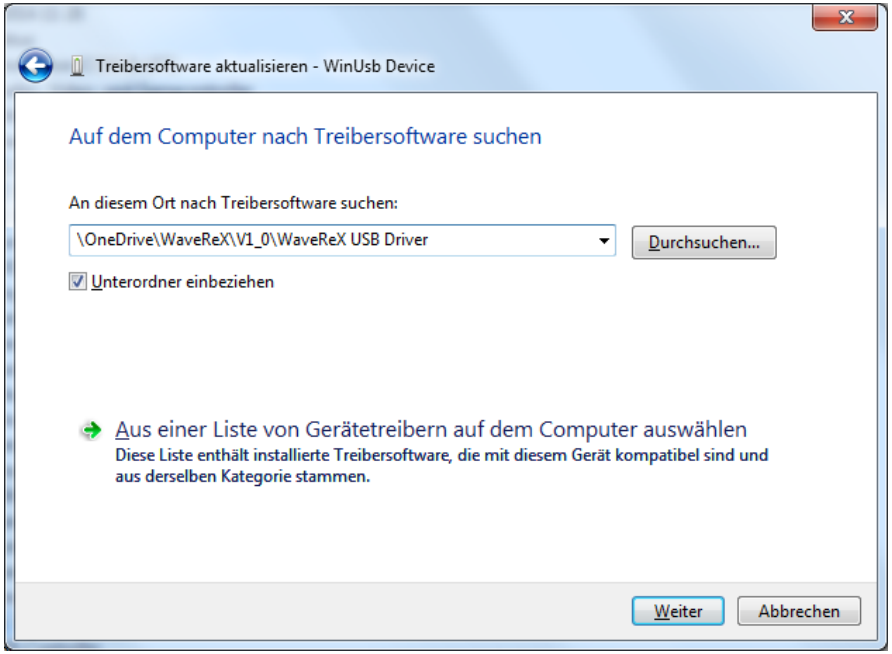
However, at least the following message should appear in the taskbar: "The device driver software has not been installed" (Sorry, the pictures are only available in German)



Go to the Device Manager. WaveReX should appear under **Other Devices**. Right-click on WaveReX and select **Update Driver Software...**.

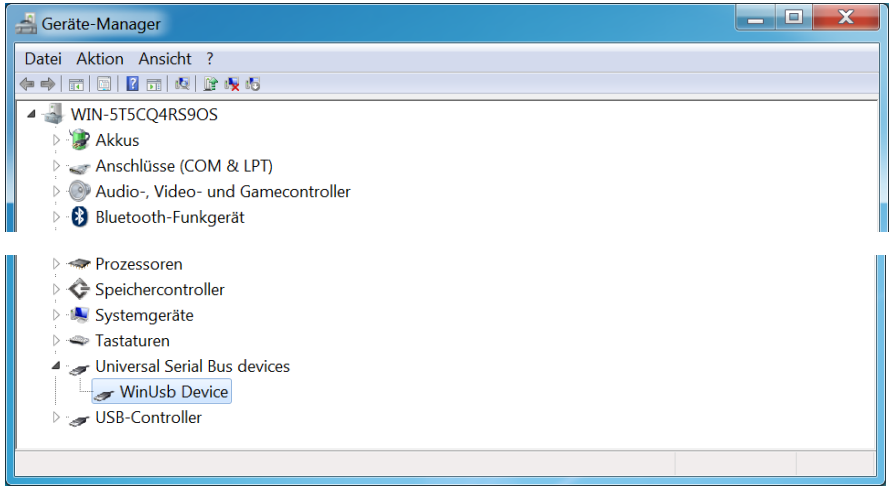


Select **Search for driver software on the computer**. Then specify the folder of the USB driver under **Search for driver software in this location:**



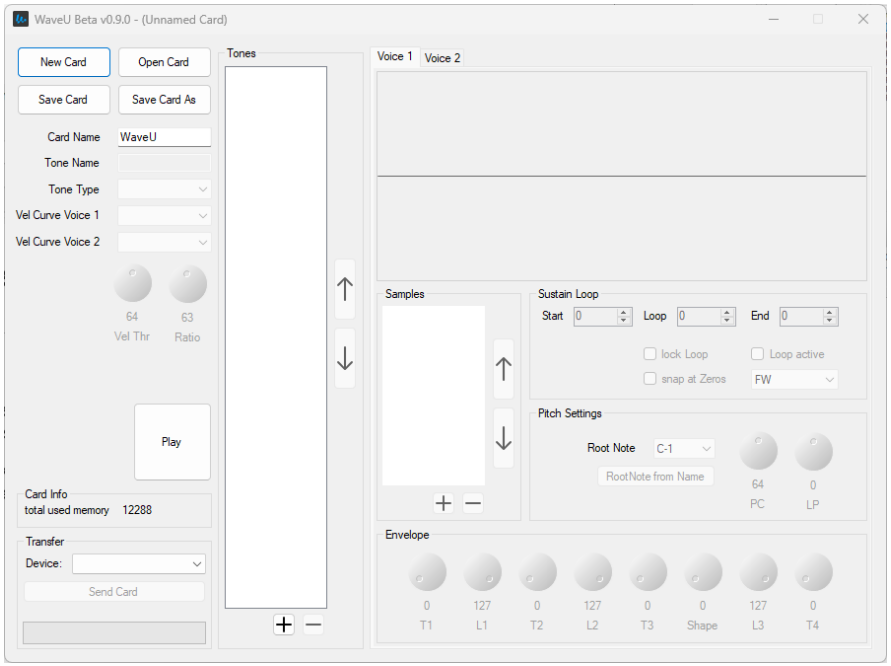
Confirm with **Next**. Windows will then install the driver for WaveU.

WaveU will be displayed in the Device Manager as **WinUsb Device** under **Universal Serial Bus** devices from now on.

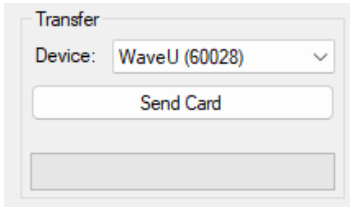


Opening the software editor

Make sure that your WaveU is already connected to your computer. Now open the WaveU software editor. You have also downloaded it from our site before. You should now see the main window:



You can see if your WaveU is connected to the software in the lower left corner of the device overview. The connected WaveU and its serial number are displayed here.



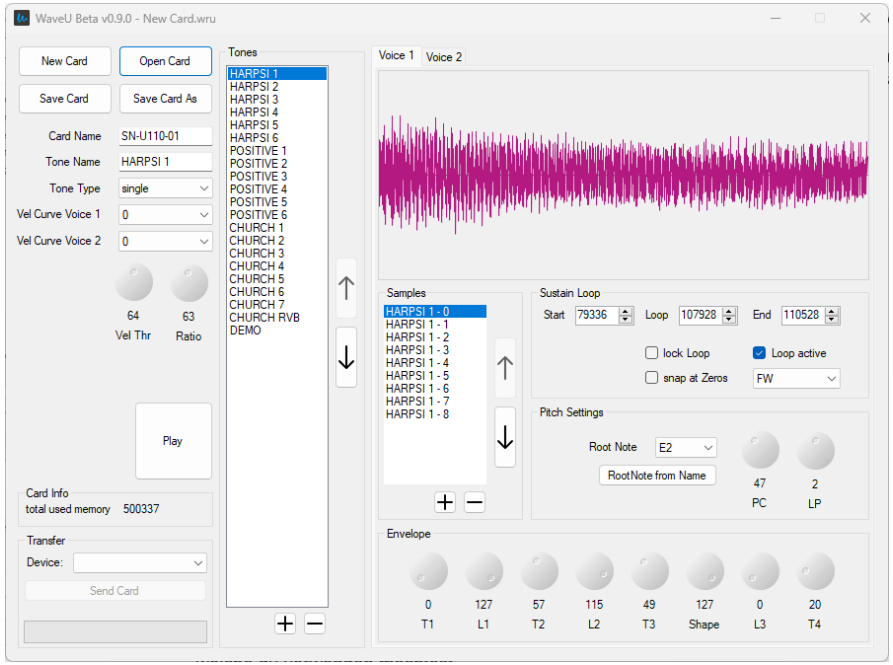
You can also connect multiple WaveUs. In this case, you can use the drop-down field to select the WaveU you want to use.

Loading a card

Click the Open Card button. A dialog box opens. Here you can select a previously saved card. The files have the extension *.wru.

If your files are in another folder, navigate to the desired folder via the window.

Double-click on the file or select it and click the Open button. The contents of the card will be loaded and displayed in the main window.



Editing a card

Deleting a tone

To delete a tone from your compilation, first select the tone to be deleted and press the minus key (-) below the tone list.

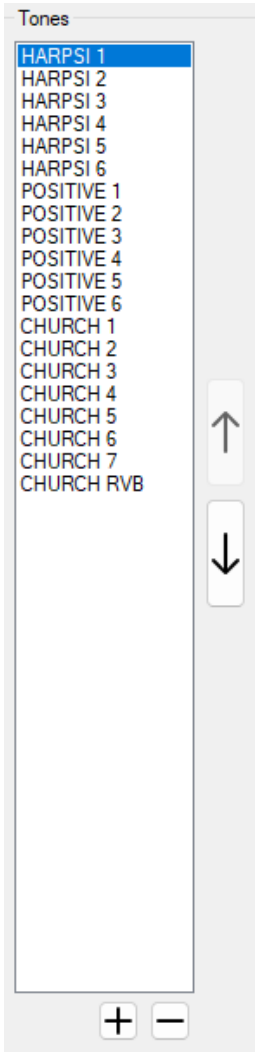
If there are no more tones in the list, the minus button will be grayed out.

Adding a tone

First make sure that there are less than 128 tones in the list. Exactly 128 tones fit into the list. If it is full, you cannot add any more tones. You can see this by the grayed out plus button.

To add another tone to the list and thus to your compilation, press the plus button (+) below the list. A new, initially empty Tone is created.

Each tone consists of at least one voice, at most two voices, which correspond to a multisample. Samples can be assigned to these voices later.



Rename a tone

First select the tone you want to rename in the Tones list.

Now enter the new name for the tone in the Tone Name text field. The input is automatically accepted, you don't have to press Enter or the like.

Note that the U supports only eight characters for tone names.

Rearranging the tones list

The tones are available in the U in the order in which they are in the tones list. If you want to change the order, first select the tone in the list that you want to reorder. Now press the arrow keys to the right of the list to move the tone within the list.

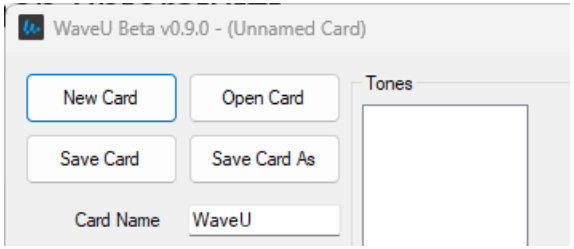
Create a card

Click New Card in the main window. If you have worked on a compilation before, remember to save it.

The main window is now empty and you can start your work.

Changing the card name

The card name as displayed in your U defaults to **WaveU**. However, you can change it at any time to your liking.

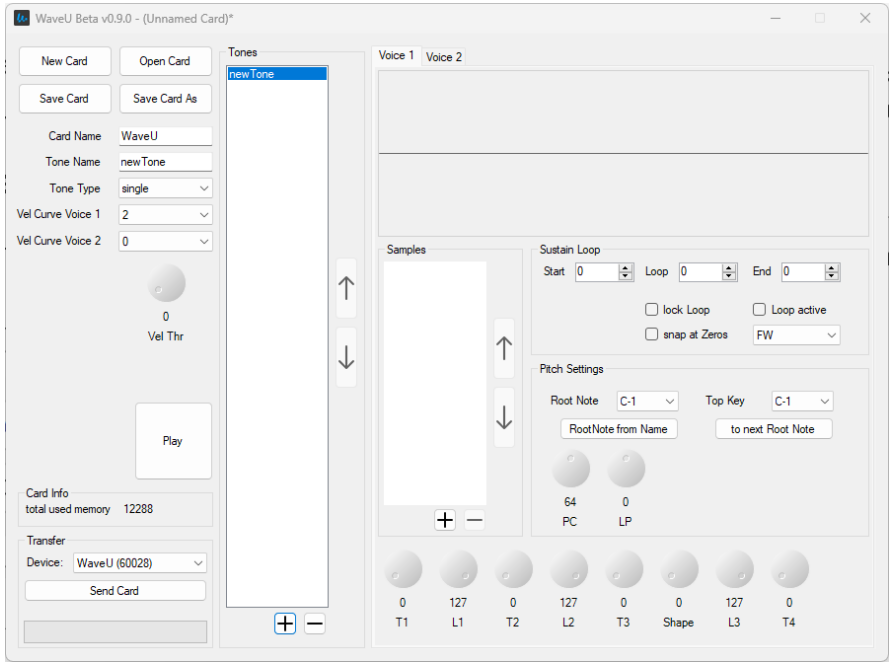


The **Card Name** text box is located in the upper left corner of the main window.

Creating a tone

Click on the plus button below the Tones list in the main window.

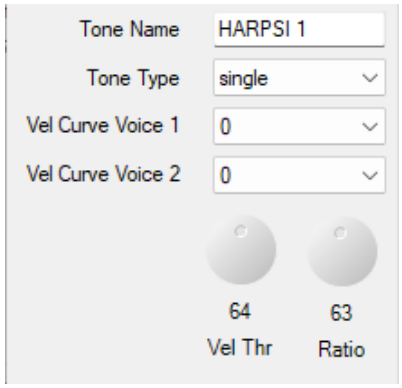
An empty (Init)Tone will be created and displayed in the Tones list. It is initially named **newTone**. All sliders and parameters are initially set to their default values.



General tone settings

Now you can make general settings for the tone. The general settings for the respective tone can be found in the left window.

Please note that the parameters listed here are globally valid for the entire tone.



You can change the name of your tone via the text field Tone Name. The length here is Roland-typical 8 characters.

Below that, you can specify the type of tone using the Tone Type drop-down field. If you have created a new tone, Single is preset here. This means that only Voice 1 is available. Check this and click on the Voice 2 tab in the Voice Editor and make sure that all parameters for this voice are grayed out. Now select Dual from the Tone Type drop-down box. Voice 2 should now be activated. But let's start with a Single Tone for now, so set the Tone Type back to Single.

The next two dropdown fields allow you to set a velocity curve for each of the two voices separately. Here you can choose from 9 different curve types. Please note that the curve for Voice 2 is only relevant if you have selected a Tone Type that uses both voices, such as Dual.

The Velocity Threshold knob can be used to set the threshold for velocity, such as for the Tone Type Velocity Switch.

Example: If this is set to 64 and it is a Velocity Switch type Tone, Voice 1 will play for all velocities up to 64 and Voice 2 will play for all velocities above 64.

Tone Types

Single – this is a Tone that consists exclusively of Voice 1. Accordingly, the velocity curve can only be changed for Voice 1. The Velocity Threshold parameter has no effect on a single tone.

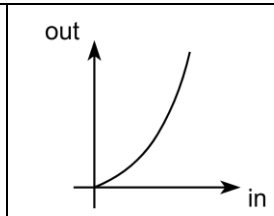
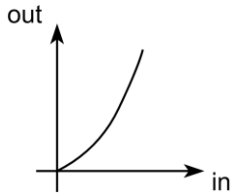
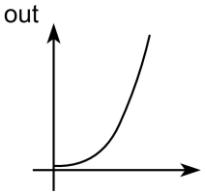
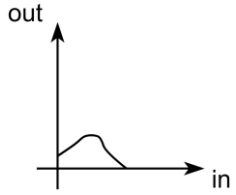
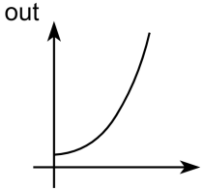
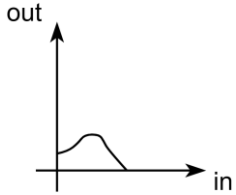
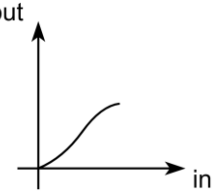
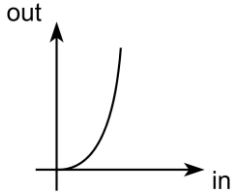
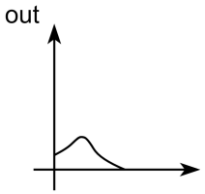
Dual – a tone consisting of both voices, which are played simultaneously. However, a velocity curve can be specified separately for both voices. The Velocity Threshold parameter has no effect on a Dual type tone.

Detune – this is also a Tone that consists exclusively of Voice 1. However, this is additionally detuned in the device. The velocity curve can only be changed for Voice 1. The Velocity Threshold parameter has no effect on a Detune type Tone.

veloMix (Velocity Mix) – a tone consisting of both voices. For all velocities below the set threshold Velocity Threshold, only Voice 1 is played. Above the set threshold, Voice 2 is also played. A velocity curve can be specified for both voices. The Velocity Thresh-old parameter thus controls when Voice 2 starts.

veloSw (Velocity Switch) – one tone, consisting of both voices. For all velocities below the set threshold Velocity Threshold, only Voice 1 is played. Above the set threshold, only Voice 2 is played. A velocity curve can be specified for both voices. The Velocity Threshold parameter thus controls when switching between Voice 1 and Voice 2 takes place.

Velocity Curves

0		5	
1		6	
2		7	
3		8	
4			

Adding samples to a voice

A Tone is initially just an empty shell with no content, a few basic settings and the Voice, which is also initially empty.

A voice is a multisample that can contain up to 12 individual samples. Each Tone can consist of up to two Voices.

A multisample can be seen as a container, in which all samples with the corresponding parameters are located. Multisamples are used to assign each individual sample to a fixed zone on the keyboard (key zone).

To load samples into a voice you have two possibilities:

You can add a new, empty sample by clicking the plus button (+) below the sample list. Then double-click on the new sample in the list. A dialog window will open. Use the window to navigate to the folder where your samples are located. Select the sample you want to add to your voice. Double click on your selection or confirm by clicking OK.

The second way to add a sample is by drag and drop. Simply drag your sample over the samples list and release it. The sample will be added to your voice. Alternatively, you can drag multiple samples into the list at once.

The name of the sample is taken from the file name without spaces or special characters. Renaming the sample is not possible, because the Roland format does not provide a sample name. Accordingly, no sample name can be displayed by the device.

Setting a loop

The Loop active checkbox is activated by default and looping of the sample is therefore active. If you do not want a loop, deactivate the checkbox.

If the loop is deactivated, the sample will only be played from the start point to the loop point!

If the loop is activated, the sample is played from the start point over the loop point to the end and then the loop. How the loop is played depends on the loop mode, which you can set in the dropdown field.

The sample positions (offsets) Start, Loop and End can be set in single steps using the arrow keys on the number fields or entered directly in the text field. The offsets are the start point, the loop (start) point and the end of the sample. The start point defaults to the sample start (zero-based, i.e. 0) and can only be changed upwards. The sample end is set by default to the sample end and can only be changed downwards.

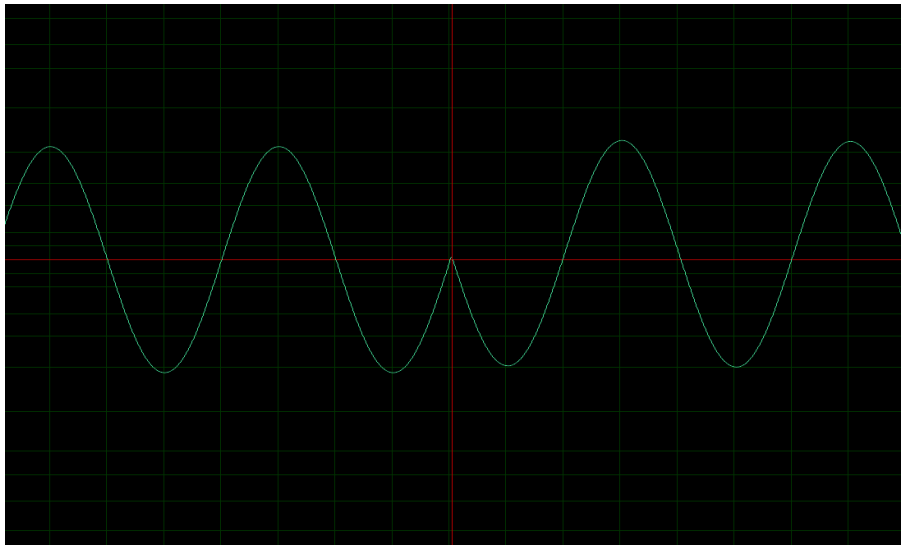
To set the step size of the number fields to the zero crossings of the sample, check the snap at zeros checkbox. This way, each time a number field is changed, the corresponding offset is set to the next zero crossing. This is especially useful for loops.

Activate the checkbox lock Loop if you want to change the loop offset or end offset but keep the loop length. If you change the loop offset, the end offset will be changed by the same value. The same applies to the end offset.

Loop Modes

If the Loop Mode Forward (FW) is selected, the sample will be continued from the loop point after reaching the end and played back in a continuous loop.

Note that the beginning of your loop must match the end. Let's take a sine wave for example. If the sample ends, for example, with the zero crossing of the negative oscillation, the loop must start with the positive half-wave. Otherwise, this happens:



If the Loop Mode Alternating (ALT_INV) is selected, the sample will continue inversely from the end to back to the loop point (etc.) after reaching the end and will be played in a continuous loop. This loop mode is sometimes called Ping Pong.

Note that the sample is continued inversely in the loop mode Alternating. This means that the sample must be point-symmetrical at the end of the sample for this loop to work at all. The easiest way to achieve this is to place the end of the sample on a zero crossing.

Let's take a sine wave again, for example. If the sample ends with the zero-crossing of the negative half-wave, this is inverted for the loop, i.e. figuratively speaking flipped upwards (the point symmetry is thus given) and played backwards. The sine wave is thus continued correctly. If you get a result like on the picture above, just change the Loop Mode to Alternating. Now it should fit.

The Alternating Mode is also interesting to counteract the effects of lyring or jumping, which often occur with loops. These effects occur because the beginning of the loop often differs from the end (frequency response, modulations, etc.). The transition from the end of the loop to the beginning is

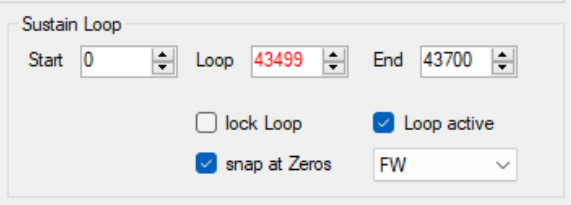
then clearly identified as a jump. This is not the case with a ping pong loop, since there is no "hard" transition here, but the looping is always fluid between the end and the beginning.

Special feature of the loop

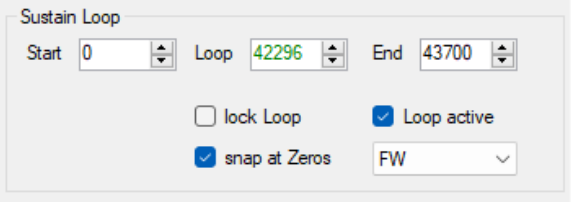
At this point it should be mentioned that it will not always be easy or sometimes even impossible to find a suitable loop. This is especially due to how the loop point for the U must be addressed. Furthermore, it depends on the digital representability of the frequency thus the loop length. In addition, there is the compression of the sample.

To support you as good as possible in the search of a (also technically feasible) loop, we have implemented an algorithm. Whenever you change the loop point or the end point of the sample, it checks whether the loop is feasible. This is indicated by the coloring of the loop offset.

If the address is red, you can be sure that the loop will not work, or the device does not read this address as it is written on the card.



However, if the address is green, there is a reasonable suspicion that the loop works like this. If you additionally place your loop and end point on a zero crossing, you increase the chance enormously. If you also increase the loop length, the loop should work well.



As a basic principle, it can be said that short loops are difficult to implement. You should therefore always go for longer loops.

In addition, you should always lower the volume of the U to test your loop. A wrong loop can lead to loud noise due to the sample compression, which is how you can always recognize a wrong loop.

You might be wondering if we could have done something about this. The answer is no. We can't do anything about the way the device works. We can only provide you with a suitable tool that will make your life much easier.

File formats

The Roland U-Series natively uses mono samples with a sample rate of 44100Hz and a bit depth of 16Bit.

It is not necessary for you to convert your samples before import. This is done by the software editor. We have built in an excellent resampler that converts your samples into the required format with high quality. So, you don't have to worry about the quality of your samples.

It doesn't matter if your samples are stereo, have a higher sample rate or bit depth.

Please note that all samples will be converted to the U's native sample rate (44100Hz).

< At this point, for those interested, please note that the U's samples must be provided in a format compressed to 7Bit. So, a higher bit depth than 16Bit does not help at all to a higher quality.>

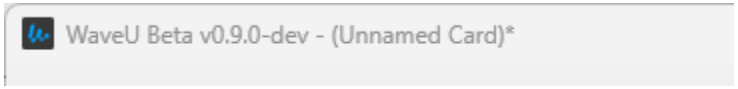
Please note! Currently only Wav and Aiff files can be loaded.

Saving a card

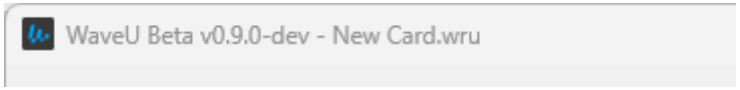
You can save your composition at any time. To do this, click the Save Card button in the main window.

A dialog box will open. Navigate over the window to your preferred location. Enter the name of your compilation and click OK to save it.

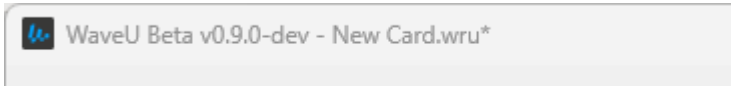
You can tell that your compilation is unsaved by the fact that "Unnamed Card" is displayed in the title bar of the window.



As soon as you have saved it, the file name will be displayed here.



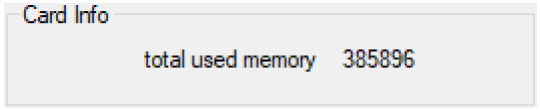
If your composition has changed, this is indicated by a * after the file name. You should now save again in order not to lose your changes.



Transferring a card

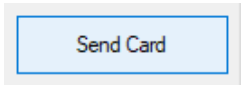
When you have completed all settings to your satisfaction, you can transfer the card to your WaveU.

Check if your configuration fits on your WaveU. Remember: you have 512kB of memory available. You can see how much space your compilation takes up under Card Info.



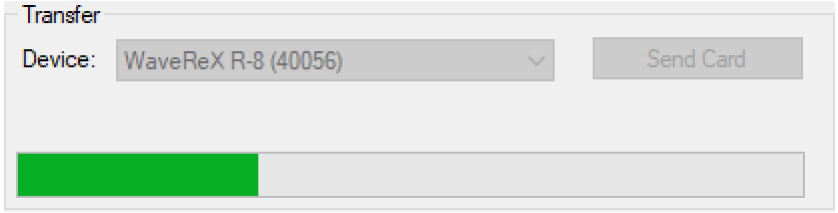
Here you can see the size of the map in bytes. Please note that even with an empty card 12288 bytes of the card are always occupied by the card format.

Click on Send Card in the lower right corner to start the transfer.

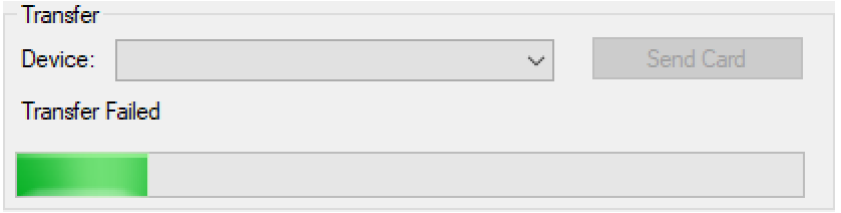


The left corner of the WaveU flashes blue to indicate that the transfer is in progress. You can see the progress of the transfer on the progress bar of the software. After a few seconds, the transfer should be complete and the blue LED will turn off.

The status display informs you if the transfer was successful.



If the transfer was not successful, the status **Transfer Failed** is displayed. In this case, check whether your WaveU is connected to the computer and is displayed as described above under Device.



And go to the U…

If the transfer was successful, unplug the micro-USB connector from your WaveU and make sure your U is off.

Insert your WaveU into one of the U's PCM CARD slots (ROM) with the label facing up and the gold contacts (down) first. You will feel a slight resistance.

Push your WaveU straight into the slot as far as it will go. The card is inserted correctly when the lettering Sound Library is on the same level as the chassis.

Now switch on your U.

When the card is correctly inserted, the upper right corner of your WaveU will light up green, indicating that your WaveU is powered by the device.

Now select a patch on the device that you want to change and assign your newly created sounds to it.

We have set the card number for WaveU to 31. So please make sure that you have selected card 31.

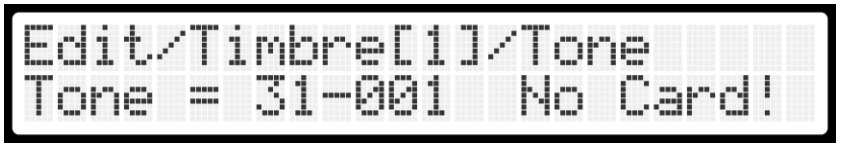
Technical data

Compatibility:	Roland U-110, U-220, D-70
Number of tones on card:	128 maximum
Number of voices per tone:	2
Number of samples per voice:	12
Memory capacity:	512kB
Length of samples:	11.6 sec in total
USB-Anschluss:	USB-B-Micro
Native sample format of U:	44100kHz, 16Bit (7Bit compressed), Mono

Troubleshooting

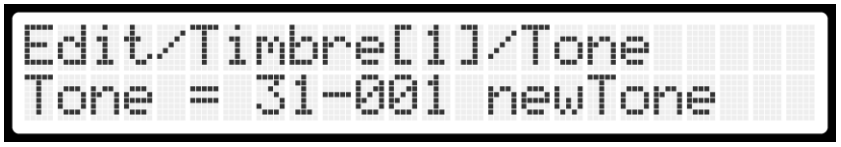
My card is not recognized in the U

Make sure that you have selected card 31. If the card is not readable, you should see a screen like this:



First, make sure that there is readable content on your WaveU. Without content the card is unreadable for your device.

You can tell that the U has recognized and read your card by the fact that the text No Card! has been replaced by the name of the sound, like this:



Don't let it drive you crazy! All WaveU have been tested and left the house fully functional. Maybe there is something you didn't pay attention to.

If you still have problems, please contact support at support@waverex.de.

The software editor does not show my WaveU

Please make sure that your WaveU is installed correctly. Please refer to the section Installing the USB driver.

If this is not the cause of the error, make sure that your USB cable is not defective. Just replace it with another one.

In fact, some USB cables are charging-only cables (missing the data lines). Make sure that you really use a data cable.

If that does not help, please contact support at support@waverex.de.

I have found a bug

Please report it to the support. We will immediately arrange for a bug fix.

Don't hesitate to send us your suggestions for improvement. We have made WaveU for YOU.

Can you provide Roland’s cards as an image?

No, we will never do that for copyright reasons! And please, we really mean it. Please don't ask for it either!