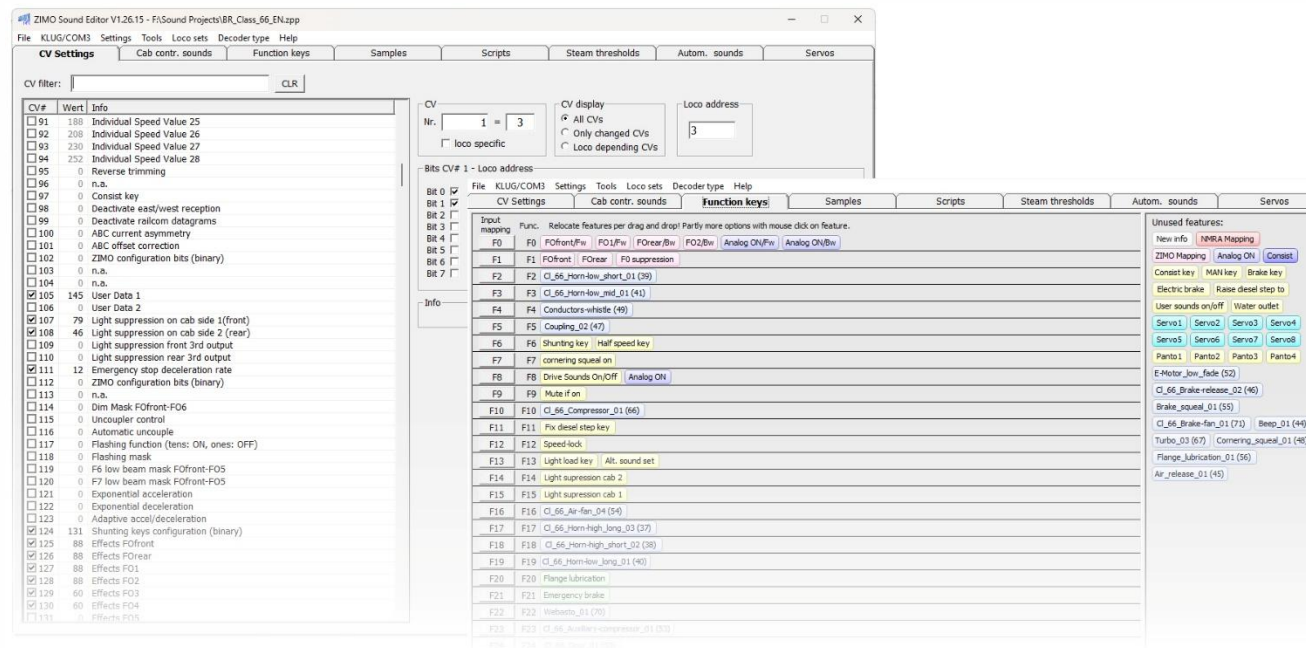


OPERATING INSTRUCTIONS

ZIMO Sound Editor

Release:

October 2025
November 2025
March 2026
July 2026



As of July 2026: The ZIMO Sound Editor replaces the previous ZPP Konfig application. It is still available for download as a combined installation package. During installation, you can choose whether to install only the ZIMO Sound Editor, only the ZIMO Sound Creator, or both programmes. The functionality and appearance remain largely unchanged; however, the ZIMO Sound Editor has been enhanced with new features, including support for ZIMO stereo decoders. All existing ZIMO sound projects can still be opened and edited as usual.

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1 - Introduction

The **ZIMO Sound Editor** programme is a tool for editing and customizing ZIMO sound projects. It is primarily aimed at **users and model railway enthusiasts** who wish to adapt existing sound projects to their own preferences as well as the varying specifications of their models. Typical use includes changing the function key assignment, adjusting volume levels and driving characteristics, and even adding custom made sounds. Another useful feature is the ability to use audio filters in real time to adjust the sound to the specific model.

The projects edited using the ZIMO Sound Editor are based on “ready to use” .zpp sound files, which usually originate from the ZIMO Sound Database. These can be opened in the editor, customized and then loaded to a ZIMO decoder. In addition to editing sound and function key assignments, the program also allows **CV values to be read and written**, as well as **software updates for decoders** and devices as **MXULF** and **KLUG**.

The **ZIMO Sound Creator** differs from the ZIMO Sound Editor. This tool is used to create and develop complete sound projects and is primarily used by professional sound designers, manufacturers and experienced users.

Whilst the ZIMO Sound Creator is designed for developing new sound projects, the **ZIMO Sound Editor** is specifically suited to the needs of **end users**: the convenient customization, testing and loading of existing sound projects into ZIMO decoders.

2 - Hardware requirements

PC running Windows XP or later; update device: MXDECUP, MX31ZL, MXULF or KLUG

3 - Connecting the hardware

Using MXDECUP

Connect the supplied mains adaptor to the mains and to the MXDECUP.

Connect the MXDECUP to the PC via a serial cable (or a USB-to-serial converter).

Connect the programming track or decoder to the MXDECUP's track output.

The MXDECUP enables decoder updates and sound load via the track to MX decoders, as well as CV programming. The virtual controller is not supported.

Using the MX31ZL

Power the MX31ZL using the supplied power supply and cable.

Connect the MX31ZL to the PC's USB port using the supplied cable.

Connect the programming track or decoder to the MX31ZL's track output.

Note: When you first connect the MX31ZL to the PC, it will prompt you for a driver. Select the file “ZIMO_Interface.inf” from the ZIMO folder (usually C:\Program Files (x86)\ZIMO\driver\ZIMO_Interface).

The MX31ZL enables decoder updates and sound load via the track to MX decoders, as well as CV programming. The virtual controller is not supported.

Using MXULF

Connect the MXULF to a power supply.

Connect the MXULF to the PC via a USB cable.

Connect the programming track to the MXULF's track output, or connect the decoder to the MXULF via an MSTAP/MSTAPG track cable or SUSI cable. Mainline decoders with a SUSI interface (e.g. MS950/MS990) can be connected directly to the MXULF using a SUSI cable.

The MXULF enables decoder updates (via track) and a sound load via SUSI and track to **MS/FS** and MX decoders, as well as CV programming. It also allows CV sets to be loaded via track to MN decoders.

Using KLUG

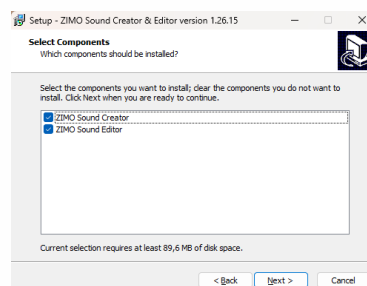
Connect the KLUG to a PC via a USB-C cable (the PC must have at least a USB 3.0 port).

Connect the decoder directly to the KLUG, connect the programming track to the KLUG's track output, or connect the decoder to the MSTAP/MSTAPG via a track cable or SUSI cable using the KLUG. Mainline decoders with a SUSI interface (e.g. MS950/MS990) can be connected directly to the KLUG using a SUSI cable.

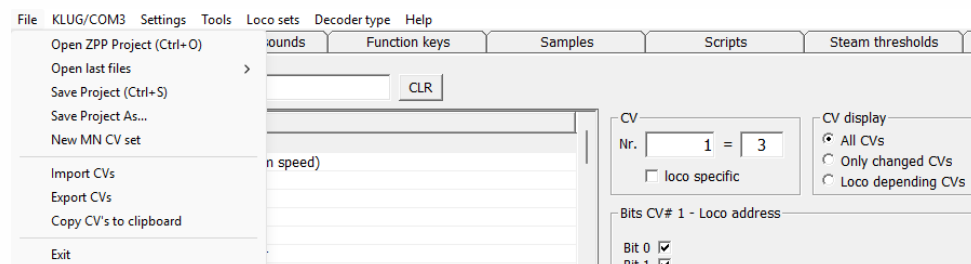
The KLUG enables decoder updates (via track) and sound load via SUSI and track to **MS/FS** and MX decoders, as well as CV programming. It also allows CV sets to be loaded via track to MN decoders.

4 – Installation: ZIMO Sound Editor

Download the ZIMO Sound Tools from the ZIMO website www.zimo.at. Run the downloaded installation file and follow the instructions. You can choose whether to install either the ZIMO Sound Editor, the ZIMO Sound Creator OR both programs at the same time



5 – File – Menu item



Open and save a .zpp file, as well as import and export CVs in various formats.

If no .zpp file is available and you wish to edit a sound project on a decoder, we recommend using the **ZCS** tool by Matthias Manhart, which can be downloaded from: [ZCS – ZIMO CV Setting Tool](#). .zpp files can also be edited in ZCS. Please refer to the [ONLINE help](#) provided there!

Open ZPP Project

On the [ZIMO Sound Database](#), sound projects are generally available as .zpp files. These can be downloaded, both free ZIMO projects as well as encrypted 'Coded' projects. With the latter, however, there is a restriction: existing scripts cannot be viewed or edited.

To open a project, select **Open ZPP Project** from the **File** menu. **Open last files** allow quick access to recently opened projects.

.zpp files can also be opened directly by double-clicking them, provided that the file extension was associated with the ZIMO Sound Editor during installation.

To set up the file association at a later time, right-click on a .zpp file in the Windows File Explorer and select **Open with**. Then select **ZIMO Sound Editor** and enable the option **Always use this app to open .zpp files**.

Save Project

To save the .zpp file under the same name, click **"Save"**.

To save the .zpp file under a new name or in a new folder, select **'Save Project As'** to create a copy of the project.

CV sets for MN decoders

CV sets in general

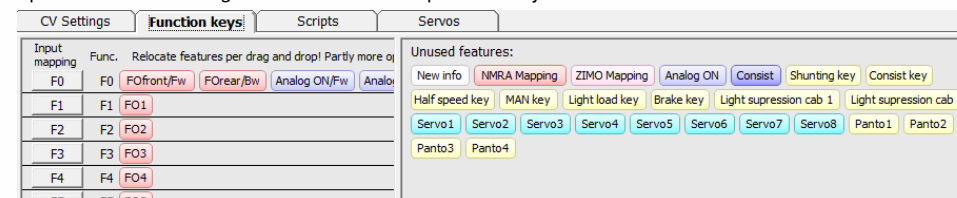
The ZIMO Sound Editor allows you to create complete sets with custom CV settings, transfer these to MN decoders, or quickly convert a sound project into a non-sound version. A clear advantage of CV sets is that you do not need to programme all CVs individually onto the decoder(s); they can be easily restored after a decoder reset and one set can be used on multiple MN decoders, for example, if they are used for the same or similar models.

New MN CV set

This allows you to create a **CV set** in a ZPP project for **MN decoders**. Regardless of which file is currently open, a new CV set with set number 10 is created (lower CV set numbers are not allowed). However, an open .zpp file that has just been edited can still be saved in the next step. The setting under 'Decoder type' automatically changes to MN decoder, and CV and function settings are reset to the MN default.

If you open the ZIMO Sound Editor without a project, it will also start in this state.

You can then configure any CV settings as desired. CVs relating to running characteristics and specific motor settings for the model are particularly useful here.



It is easier to set up and edit functions under 'Function Keys' than under CV settings. Simply using drag and drop, you can add previously unused features from the window on the right onto any F key on the left, or remove functions that have already been set up by dragging them from the F keys to the right. Functions can also be interchanged from one F key to another.

Function outputs can also be set up, moved and deleted here. By default, the CV settings assign one function output to each function key (NMRA standard). By left-clicking on a function output, you can also select the 'Just forwards' or 'Just backwards' setting, or set an effect. However, you cannot move them entirely free, as you are restricted here by the mapping set. Function outputs on F-keys higher than F12 or additional dependencies can be set up via 'Window – **Function Mapping**'. More detailed instructions on this can be found in the 'Tools' and 'Function Keys' sections below.

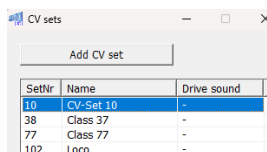
Scripts can be created or imported into a CV set for **MN decoders**. Please note, that all commands relating to sound functions are ignored by the decoder, though. This includes not only commands "Start sounds", but also queries or settings for diesel steps, as well as queries regarding the driving sound.

It therefore makes sense to use scripts that influence running behaviour or control specific lighting effects.

For example, the script for turning off the driver's cab lights from the [ZIMO Sample Scripts 2](#) is suitable here:

In a .zpp project, multiple CV sets can be added. This makes it possible to combine several sets into a single .zpp file.

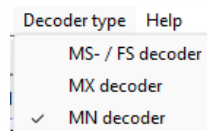
Under the **'CV Sets'** menu item, each set can be assigned a number in the range from **10 to 255**. It is also possible to customize the name of each set to make them easier to distinguish. To edit, **double-click in the respective field**.



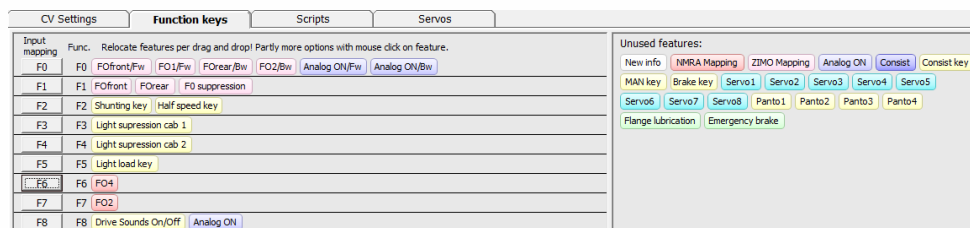
SetNr	Name	Drive sound
10	CV-Set 10	-
38	Class 37	-
77	Class 77	-
102	Loco	-

When you open a sound project in the ZIMO Sound Editor, you can easily create a CV set by simply by changing the decoder type to 'MN decoder'. All sound samples are removed from the .zpp file, but all other functions remain intact. These include NMRA and function mappings, modified CVs for driving and motor characteristics, functions such as the loco driving and shunting buttons, and also scripts.

Attention with scripts however: as already mentioned, all sound-related commands and queries are ignored! It is therefore essential to check scripts and, if necessary, adjust, deactivate or delete them to prevent unwanted behaviour. In some cases, missing sound samples in a script can be replaced with timers of the same duration. Also note: in "Coded" sound projects scripts get completely removed when switching to MN decoders.



In general, for a CV set created from a sound project, it is advised to move the function keys 'up' and remove any functions that are no longer required.



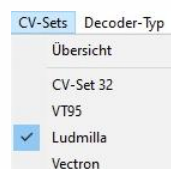
Input mapping	Func.	Relocate features per drag and drop! Partly more options with mouse click on feature.
F0	F0	FOfront/Fw FOJ/Fw FOrear/Bw FO2/Bw Analog ON/Fw Analog ON/Bw
F1	F1	FOfront FOrear FO suppression
F2	F2	Shunting key Half speed key
F3	F3	Light supression cab 1
F4	F4	Light supression cab 2
F5	F5	Light load key
F6	F6	FO4
F7	F7	FO2
F8	F8	Drive Sounds On/Off Analog ON

After loading a CV set onto an MN decoder, the set that was last selected in the ZIMO Sound Editor is automatically activated. This can be identified by a tick under 'CV Sets' or by a blue marker in the list.

If there is only one CV set, no further settings are required. If the project contains of several CV sets and a specific set is to be activated, **CV #8** must be programmed to the **value of the corresponding set number**.

In this way, multiple CV sets can be stored on a decoder and switched between them by programming CV #8. Even after a **decoder reset**, a CV set can be reactivated in this way.

The CV set currently active on the MN decoder can be read via **CV #258**.



CV-Sets	Decoder-Typ
Übersicht	
CV-Set 32	
VT95	
✓ Ludmilla	
Vectron	

Import CVs

Importing CV parameters from another sound project:

Menu selection: **File > 'Import CVs'**.

In the dialogue box that opens, select a source file. Compatible formats are: **.zpr** (other project files), **.txt** (text files) and **.csv** (CV set files).

Once selected, the CV settings of the active .zpp file will be overwritten by the values of the imported file.

Note: This process applies exclusively to CV parameter values. It is not possible to import sound samples. Caution when importing CVs, as essential functions of a sound project may be altered or disrupted.

Export CVs

CVs can be exported from the active .zpp file using the **'Export CVs'** function. The values can be saved in **.zpr**, **.csv** or **.txt** formats for further use in other sound projects or CV sets.

Copy CVs to Clipboard

This copies the CVs from the .zpp project to the clipboard. You can choose whether to copy only the modified CVs or all CVs, as well as the format: as text, for MS Excel, or as an MN CV set for the CV Set Creator. If the CVs are copied for an MN CV set, you can select a set name and set number in the next window.

Alternatively, you can right-click anywhere in the list of **CV settings** to copy CVs to the clipboard or import them from there.

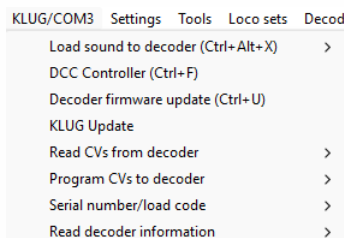
Exit

Exit closes the ZIMO Sound Editor. If changes have been made to a .zpp file, you will be asked again to confirm whether you wish to save them.

6 - KLUG/COM, MXULF/COM /.../ menu item

The naming of this menu depends on the device selected or found via Settings: **'Search update device'**.

Various actions are available in this menu. The range of functions may vary depending on the selected update device, decoder type or the open ZPP project.

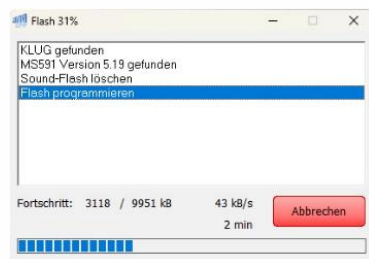


Load sound to decoder

This transfers the project opened in the ZIMO Sound Editor to a decoder.

If the decoder is to be loaded via the **SUSI interface**, select the **'SUSI'** option.

If loading via the **track**, select 'Rails MX' or 'Rails MS, FS' – depending on the decoder used. If the type of decoder is unknown, it can be checked using the **'Read decoder information'** function.



8-bit projects (for MX decoders) can usually also be loaded onto MS decoders. Diesel-mechanical projects are an exception.

16-bit projects can only be loaded onto MX decoders in exceptional cases (e.g. with a maximum project size of 8 MB and with appropriately adapted scripts). However, this is generally not recommended.

Although the ZIMO Sound Editor automatically converts between 8-bit and 16-bit, restrictions or malfunctions could be experienced due to the lack of full compatibility between MX and MS decoders.

It is advised to switch the decoder type accordingly so that the default settings or unmodified CVs are assigned correctly. In addition, the CVs for driving behaviour and lighting settings should be checked and adjusted if necessary.

The loading process is started in a separate window. Once the process is complete, 'Done' is displayed in the window.

Load CV set

This loads the currently open .zpp file, containing all existing CV sets, onto an **MN decoder** via the **track**. The currently selected CV set is activated immediately after loading. If a different CV set is to be activated on the decoder after loading, the CV set number is programmed via CV #8 on the DCC controller. CV sets created here cannot be loaded onto MX decoders.

DCC Controller

When connected via MXULF or KLUG and track, you can launch a software DCC controller to test the sounds and functions in the decoder. The controller also offers the option to apply various

audio filters to MS and FS decoders and to transfer these to the decoder or to the .zpp file. When connected via MXULF, individual CVs in the decoder can be written via POM CV and connected via KLUG, CVs can be read and written.

Testing functions

The controller starts with the main address (CV #1) set in the open project. This can be changed either by using the plus and minus buttons to increase or decrease the value by 1, or by entering the address directly. The arrows correspond to the desired direction of travel: green for forwards and red for backwards. The control on the right is used to set the driving speed (internal drive levels 0–126), whilst the F0–F28 and MAN buttons correspond to the functions of the project, where applied. Pressing the STOP button immediately sets the speed to 0.



Audio filter

With the **audio filter (Equalizier button)**, **MS and FS decoders** offer the option of adjusting the overall sound experience of a sound project to suit the specific characteristics of the model and speaker. The sound of a sound project is influenced not only by the type and size of the loudspeaker, but also by its position within the model's casing, the material of the casing, how the loudspeaker is mounted, the volume of the enclosure and other factors. Of the 7 different filter types available, **6 filters** can be applied **simultaneously**. Changes take effect immediately on the decoder and remain stored on the decoder when the audio filters are closed, until a hard reset is performed or a new sound project is loaded. The configured filters can also be transferred to an open .zpp project, read from a decoder, or saved externally as a *.flt file and imported elsewhere.

Opened via the DCC Controller, the audio filters are programmed directly to the decoder. Opened via the Tools menu, the settings are applied to the project.

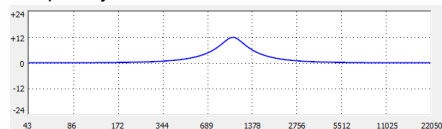
Under **'Filter Settings'**, configurations can be saved and loaded. There are also four sample files for common ZIMO loudspeakers provided as a reference. The configured filters are saved as *.flt files and can also be applied to other MS decoders via the ZIMO Sound Editor. Selecting 'Reset' removes all currently configured filters.

The **'Transfer to project'** function transfers the settings to the currently open .zpp project. They can then be saved together with the project and transferred to the decoder.

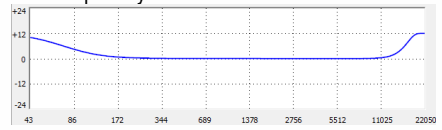
The **'Retrieve from Project'** function transfers the corresponding CV values set in the project to the audio filter window, enabling a clearer display and more convenient editing.

Available filter types are:

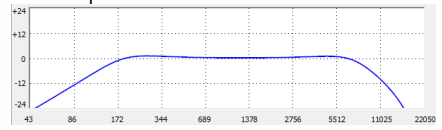
Peak: amplifies or attenuates the selected frequency



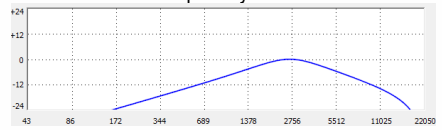
High-Shelf and Low-Shelf: boosts or attenuates the frequencies above/below the set frequency



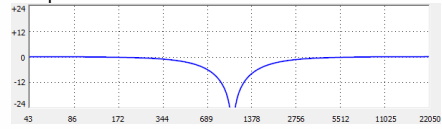
Low-pass and high-pass: attenuates high or low frequencies



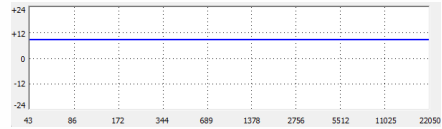
Bandpass: attenuates frequencies above and below the set frequency



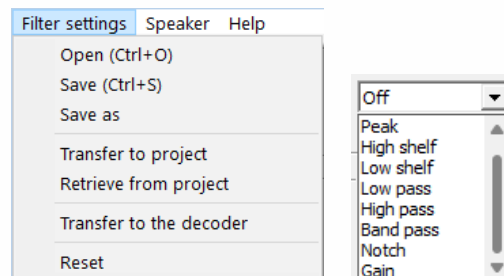
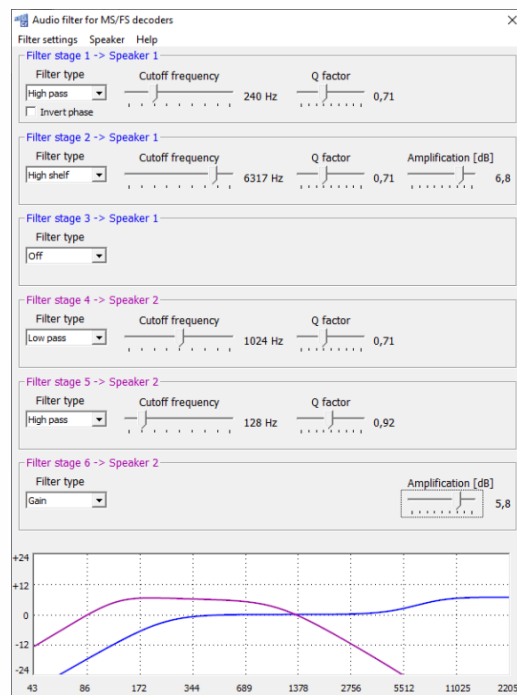
Notch: attenuates a very narrow range of frequencies



Gain: reduces or increases the overall volume



The **cutoff frequency** of a filter can be set within the range of **64 Hz to 64 kHz**.



The **filter quality (Q) factor** determines the slope of the filter response at the cutoff frequency.

The **gain** can be set within the range from **-12 dB to +12 dB**.

Up to six different filter types can be applied simultaneously.

The corresponding values are stored in the MS decoder as **CVs on page CV31 = 145 and CV32 = 2**. Once a satisfactory result has been achieved, these values can be transferred to the .zpp project. There, they appear at the end of the CV list.

From MS decoder firmware version 5.29.0 onwards, different filters can be applied to individual 'speakers' regardless of the decoder type within the MS and FS families. Even with decoders that have only one speaker output, the advantage is that sounds assigned to specific channels can be filtered differently. A practical example: in a sound project, the diesel engine and compressor have very low frequencies. In the model, this causes the speaker to scratch or crackle, as it cannot perform these sounds properly. If subjected to this continuously, it can also cause damage to the speaker. If you now assign the diesel thresholds and the compressor to speaker 2 in the ZIMO Sound Editor and apply a high-pass filter to it via the audio filters, the low frequencies can be reduced, the sound experience improved and the speaker spared. Instructions on how to assign individual sounds to different speakers can be found in the chapters 'Cab contr. sounds', 'Thresholds' and 'Autom. sounds'.

POM CV programming

When a KLUG is connected to the decoder via the track, individual CVs can be read or programmed directly. Enter the desired CV in the field on the left and press the **'Read'** button on the right to display the value. If you change the value in the field on the right, it can be programmed into the decoder by **clicking 'Write'**. With an MXULF connected via the track, CVs can only be programmed, but not read individually.

All operations appear in the 'CV changes' window, which opens automatically. Ticking the box next to 'Set CV value in project too' transfers the most recently changed value to the ZPP project, as well as all subsequent changes, as long as the box remains ticked.

Central station

The smaller 'Central station' window below the controller offers further programming and testing options. If there is a problem with the controller or the connection to the decoder, you can open the debug log, copy the log entry and send it to ZIMO by email for possible support.

Under 'Help', you'll find a list of the shortcuts available in the controller.

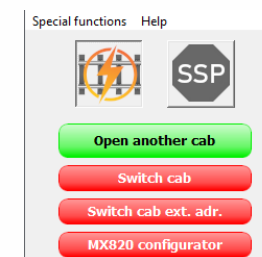


By clicking on this icon, you can disconnect from the decoder or the test track and then reconnect without having to close the entire controller.

SSP (which corresponds to the BCS function) forces a 'collective stop'. The connection to the decoder or test track remains active; speed step is forced to 0.

Open another cab

Additional controllers can be opened to test several decoders with different main addresses simultaneously. This is particularly useful for double-locomotive sound projects or, for example, when sound and function sound decoders interact in multiple units.



Switch cab

Here, the functions, the decoder address or individual CVs can be written to an **accessory decoder**. A detailed description of the MX820 decoder can be found on the [ZIMO website](http://www.zimo.at). The connection must be via the track.

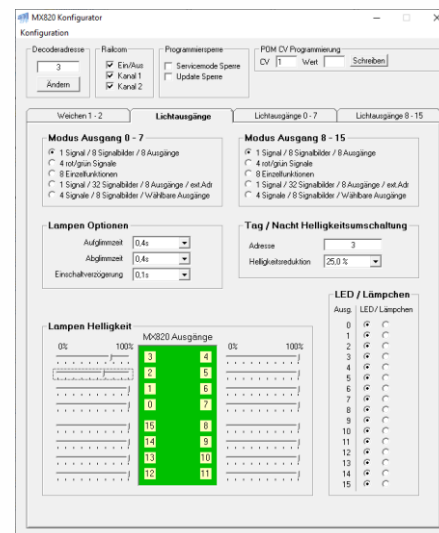
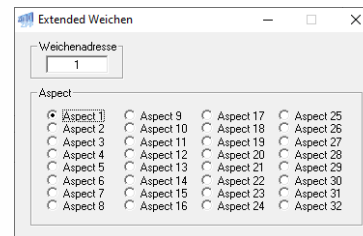
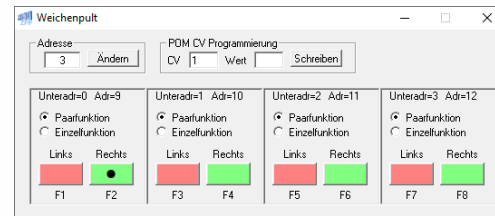
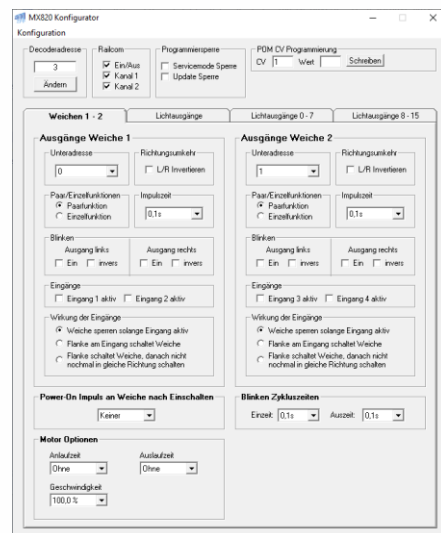
Switch cab ext. adr.

This is another way of testing the signal functions set in the MX820 configurator, by clicking on the 'Aspects'. The extended switch cab panel tests the functions of the setting '1 Signal / 32 signal aspects' under 'Light Outputs' in the MX820 Configurator; see the next chapter.

MX820 configurator

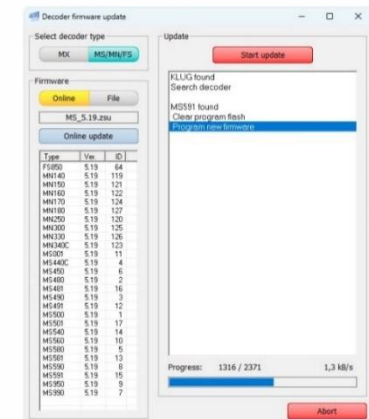
Provided an **MX820 accessory decoder** is connected via track, all settings take effect immediately on the decoder and can be tested and checked right away. Depending on the version of the MX820, various functions are available which can be programmed here. The decoder can be used for switch control, signal control or a combination of both. Individual signal aspects can be set up here and tested simultaneously. All settings are saved on the decoder and do not need to be confirmed individually.

Further details about the operation of the MS820 accessory decoders can be found in the separate [manual](http://www.zimo.at) of the MX820 decoders on www.zimo.at.



Decoder firmware update

This function allows decoders (including several units of the same decoder type) to be **updated** with a new firmware version. A new window opens in which you can select the ZIMO decoder family (MX or MS/MN/FS). Here, you can either select an update file saved on your PC or access the latest official firmware via 'Online'. Click 'Start Update' to begin the process. **Do not** disconnect from the decoder whilst the update is in progress!



KLUG Update

If KLUG has been selected via **Settings – Search for update device**, the KLUG Update option will appear here. You can select whether to update the KLUG using a locally stored update file or online. In the latter case, the latest available version will be used automatically. Instructions on how to do this will open:

1. Disconnect the KLUG from the USB
2. Press and hold the button on the KLUG
3. Reconnect the KLUG via USB
4. Release the button
5. The update will start.



The process takes just a few seconds. It is not possible to perform an online update of the MXULF using this method. A detailed description of the KLUG is provided in the separate [manual](http://www.zimo.at) at www.zimo.at.

Read CVs from decoder

Selecting this option transfers the CVs currently set on the decoder to the open .zpp file, overwriting all existing settings. Only one decoder can be connected for this. This is only useful if the .zpp file is either an 'empty' ZIMO Sound Editor file, or if the exact same sound project is already on the decoder and you wish to save the model-specific CV changes from the decoder.

Here and in the following menu options, you can select – depending on the update device – whether the action should be carried out via SUSI or via the track. If the decoder has a SUSI interface, the process is many times faster.

Program CVs to decoder

This writes the CVs from the open .zpp project into the decoder and overwrites any existing CV settings there.

Serial number/load code

This menu option allows you to read the decoder's **serial number** and programme a **load code**. **Only one decoder** may be **connected** at a time.

The **'Read current values'** function transfers both the serial number and any existing load code into the window.

A load code can be purchased via the **ZIMO Load Code Shop** at www.zimo.at/shop, or alternatively, as until now, by emailing the decoder's serial number and the desired sound provider to office@zimo.at or to the sound provider directly.

The serial number can be copied to the clipboard using the **"Copy"** button and pasted elsewhere.

A **load code** sent by email in the format xxx.xxx.xxx.xxx can be copied and pasted into the window using the **'Paste'** button. Alternatively, the values can be entered manually.

The **'Program load code'** function writes the corresponding values for **CVs #260–263** to the decoder. This enables all associated sound projects from the respective sound provider to be loaded onto this decoder.

In all cases, please ensure you read and transmit the decoder ID **carefully!**

Sound projects and load codes can only be used for sound decoders – specifically, MX and MS type sound decoders or FS function sound decoders – and will under no circumstances work with MX non-sound decoders or MN and FN type decoders.

Typing errors or mixed up digits result in incorrect IDs and thus an incorrect load code that cannot be used. However, as this is a valid load code (for a different decoder) and this information was received immediately after purchase and has therefore been 'used', there is **NO RIGHT OF RETURN**.

Read decoder information

This function reads out **the decoder type**, the **current firmware version**, the **serial number** and, if available, the programmed load code of the connected decoder. Only one decoder may be connected at a time.

7 - Settings – Menu item

Search update device

When you open the ZIMO Sound Editor for the first time, you are asked to select an update device. Each time you open the programme again, the last selected device is used automatically. Only one update device can be selected at a time, but this can easily be changed by performing a new search.

Options

The **'Connection'** section displays the currently selected interface and the associated **update device**. You can search for and select a new update device using the **'Detect device'** button.

If you load your own samples into a ZIMO Sound Editor project and, for example, want to set loop markers there, you can also configure a sound card here to listen to these new sounds. However, sounds already existing in the project cannot be played this way.

Under **'Default folders'** you can specify folders for various subjects.

Furthermore, the **programme language** can be set in this window. The options currently available are German, English and French.

8 - Tools – Menu item

Function Mapping

This window summarises all the setting options for function outputs. The settings displayed graphically here are written to the project as CV values. A detailed description of the CVs can be found in the respective decoder manuals. The setting options under NMRA Mapping and Advanced Mapping can also be combined.

Function outputs

All function outputs used in the project are listed, together with their respective effects and directions of travel.

You can assign **custom names** to the function outputs. These names will then appear in all relevant windows and menu items.

The **effects** can be selected and changed via the drop-down menu. Together with the **direction of travel**, they are assigned as a CV value to the respective function output.

The corresponding settings are saved in the following CV ranges:

- **CVs #125 to #132** (F00f, F00r, F01 to F06)
- **CVs #159 and #160** (F07, F08)
- **CVs #195 to #200** (F09 to F014)
- **CVs #205 to #207** (F015 to F017)

NMRA Mapping

Function mapping according to **the NMRA standard** provides a simple way of assigning one or more function outputs directly to function keys. These can be enabled or disabled here by clicking on them.

An **8-bit register** is available for each function key **from F0 to F12**, allowing up to eight outputs to be addressed. The assignment is determined by the value in **CV #61**, known as the 'left shift'.

In this window, the setting can be adjusted using the **'FO shift active'** tick box.

- **CV #61 = 0** (with the tick box selected) corresponds to the original **NMRA mapping**.
- **CV #61 = 97** (checkbox unticked) cancels the **left shift**, so that lower function outputs can be accessed even with higher function keys.

In pure **NMRA mapping**, only the headlights on the F0 key are designated as direction-dependent functions. The settings correspond to **CVs #33 to #46**.

The 'Show F0 names' option allows you to show or hide the labels assigned under the 'function outputs' menu item.

Dimming groups

There are five dimming value groups available, in which the dimming value can be adjusted individually.

If a general dimming setting for the function outputs has already been set in **CV #60**, the dimming configured here is applied in addition to that.

The '**Suppress Effect**' option deactivates an effect set up via CVs or via the 'function outputs' menu item.

In addition, it is possible to set function outputs assigned to a group to flash normally or inverse. The **flash times** are set via **CV #117**.

The settings for the dimming value groups are stored in **CVs #508 to #512**.

Advanced Mapping Groups

There are 17 mapping groups available, in each of them up to two function outputs can be configured for each direction of travel. If you wish to control more than two function per one function key, additional groups can be used for this purpose.

First, a **function key (F0-F28)** is selected. Usually, the option 'When F-key ON' is selected. In certain cases, however, it may be useful to invert the function and set it to 'OFF'.

Under '**Master Key**', a **dependency** on any function key can be defined. If the option 'Just on if M (Master) key on' is activated, this group is only active when the selected master key is switched on. The outputs configured in the master key can also be switched off using 'Yes' under 'Suppress outputs of M key', depending on the direction of travel.

The groups are arranged in **order of priority**, with groups higher up in the list having higher priority. The arrow keys can be used to move the position of individual groups up or down.

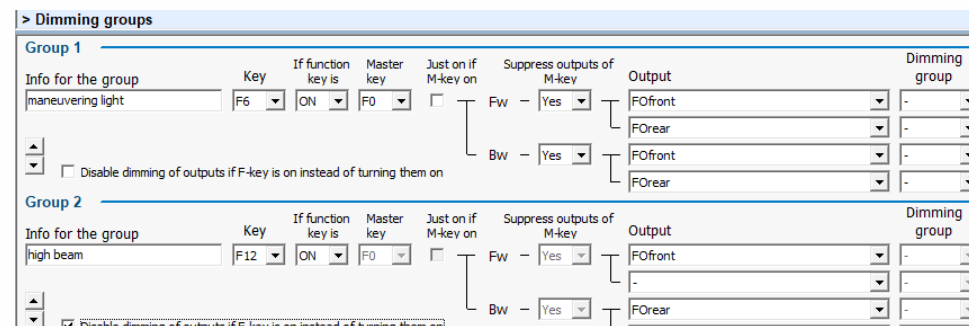
If function outputs are dimmed globally via **CV #60** and/or via a **dimming value group**, and, for example, you wish to switch on the full beam, you can activate the option 'disable dimming of outputs if F-key is on instead of turning them on'. This **cancels** any existing **dimming**.

A typical example of **functions with mixed mapping**:

Via the NMRA mapping, the F0 button is configured to control function outputs F00v (white light, cab 1) and F01 (red light, cab 2) when travelling forwards, and F00r (white light, cab 2) and F02 (red light, cab 1) when travelling backwards.

In addition, the Advanced mapping is used to switch on the shunting lights via the F6 key (shunting key), i.e. white lights on both sides with the red rear lights switched off.

The dimming value has been set to 120 in CV #60. The F12 key is used to switch on a full beam, which affects only the white lights.



Audio Filter

This window can also be accessed via the button on the DCC **controller**. If there is a direct connection to the decoder via the controller, changes to the filters can be heard immediately.

This is particularly useful if **the decoder and loudspeaker are already installed in the model**, as adjustments can then be made under real operating conditions.

If the **audio filters** are opened via the 'tools' menu, no connection to a decoder is required. In this mode, filter settings can be prepared or modified within the ZIMO Sound Editor project, or previously saved filter configurations can be applied. This also includes settings pre-configured by ZIMO for various types of speakers.

This approach is particularly useful when several **identical models** are to be loaded with the same settings.

A detailed description can be found in the '[DCC Controller](#)' chapter.

Connection docu

In this window, individual **labels** or **names** can be assigned to the various function outputs, servo connections, inputs or fan outputs. This allows the respective connections to be clearly named and more easily identified.

To assign a name, double-click on the empty area next to the relevant output.

Function Key docu

In this window, you can assign individual **labels** or **names** to the individual function keys. This is particularly helpful when a function is not clearly recognisable, for example with scripts, lighting functions or sounds that are not clearly named.

9 - Loco sets / CV Sets – Menu item

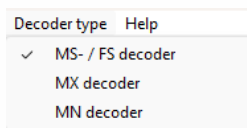
In the case of 'Collections' (with multiple sound projects) or other projects with more than one **loco sets**, you can access the individual sets here and edit them independently. See also the loco-specific CVs under 'CV Settings'.

If 'MN Decoder' has been selected under Decoder Type, you can create, select and edit new **CV sets** here. Depending on which CV set is selected, the corresponding settings are displayed in ZIMO Sound Editor. A detailed description can be found above under the '[CV Sets for MN Decoders](#)' chapter.

10 - Decoder type – Menu item

Here you can select the ZIMO decoder type for which a .zpp project is meant to be edited. Depending on the type, the default CVs in the 'CV Settings' will change. You should also take into account the differences in how the CVs work in the two decoder families MX and MS/FS/MN.

If there's an open sound project and you switch to 'MN Decoder', all samples are removed, whereas the layout of the remaining functions (light settings, shunting, loco driving and half-speed buttons, etc.) remain. It is also a good advice to check the remaining functions under 'function keys' and move them 'up' if necessary.



11 - Help – Menu item

If connected to the internet, **Online-Update** checks if there are more recent versions of the ZIMO Sound Tools available with the possibility to install them right away.

Furthermore, with **Open Sound Editor manual** and **Open script manual** you can open these manuals immediately in .pdf format.

The **Changelog** is also displayed here, showing the changes made in the latest versions of ZIMO Sound Editor.

The **'Log'** option records, loading processes and other things. In the event of recurring errors, this log can be copied into an email and helps to trace the faulty events.

12 - CV Settings – tab

All CVs and their set values are displayed here. Default values are shown without a tick and in grey; those that differ from the default values are marked with a tick and the value is shown in black. Depending on the respective decoder specifications, CV values or bits can be changed and saved here. Using '**CV filter**', you can either enter the CV number you are looking for, or search by text for CVs related to a specific topic (e.g. Thyristor). Detailed information on the MX and MS/MN/FS decoders can be found at www.zimo.at

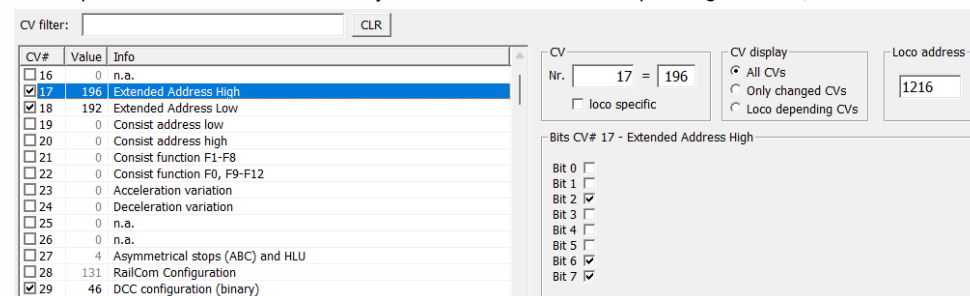
Where available, a brief information is displayed for each CV. This is particularly helpful when the individual bits of a CV are relevant.

If a sound project contains multiple **loco sets**, you can select a specific set via the '**Loco sets**' menu item and view the corresponding CVs.

By enabling the '**Loco specific**' option, the CV settings can be configured separately for each loco set.

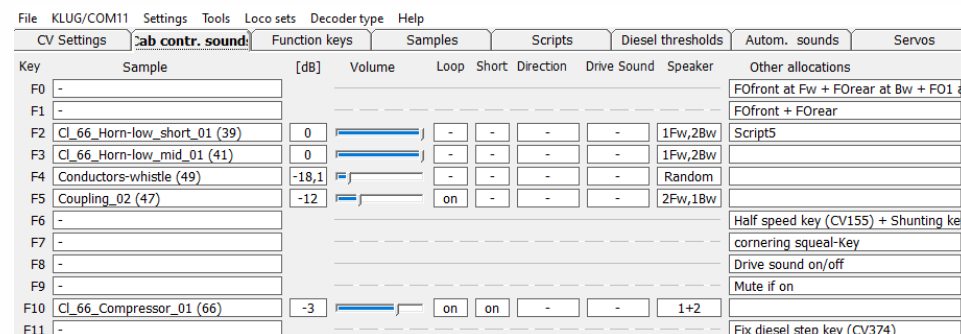
Via 'CV display', you can select which CVs are displayed: all, only changed, or loco depending CVs.

The **loco address** can be changed as required here. If a 'long address' greater than 127 is entered, the required values are automatically transferred to the corresponding **CVs #29, #17 and #18**.



13 - Cab contr. sounds – tab

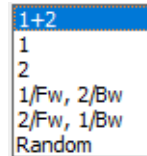
This tab lists all functions configured in the .zpp project. Sound samples are displayed with their ID in brackets and can be assigned to other function keys as desired via a drop-down menu. The volume of the sound samples can be adjusted, and they can be set to "Loop", "Short", or configured to play in only one direction of travel or depending on the drive sound is on or not. Under 'Other allocations' you will find all other functions that are configured otherwise, such as function outputs, keys with specific general functions like driving sound on/off, mute, loco driving, etc., as well as scripts linked to an F key.



ZIMO Stereo Sound

From MS and FS decoder firmware version 5.29.0 and ZIMO Sound Editor version V.2.00 onwards, you can select on MS420, MS950 or MS990 decoders to which speaker output (1 or 2) a function sound should be assigned to. The following options are available:

- Speakers '1+2': both speaker outputs are used equally.
- Speaker 1 or Speaker 2: only one is used at a time. For example, various steam locomotive pumps are suitable for this.
- Depending on the direction, you can assign a function sound using '1/Fw, 2/Bw' or '2/Fw, 1/Bw'. This could be the sound of coupling, for example.
- With "Random", the sound can be heard on random different speakers. Here, you could select a conductor's whistle.

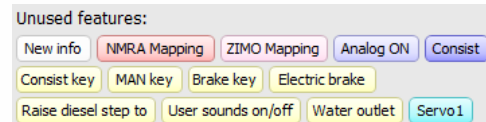


This allows for very realistic sound effects, particularly on larger models of gauge O, 1 and LGB. For OO or N gauge, this feature is ideal for twin-locomotive projects or electric multiple units, to achieve a more realistic sound experience. The further apart the speakers are positioned in the model, the more noticeable the effect will be.

14 - Function keys – tab

The Function Keys tab offers a user-friendly way to reorder and change the sounds and functions of the individual F-keys, delete some of them, add new ones, and use newly imported samples (see next point). Functions and samples that are not currently in use are displayed on the right and shown in different colours according to their groups.

Using 'New Info', you can add your own info texts to the individual F-keys. This info is also stored under the menu item 'Tools – Function key docu'.



Using "NMRA Mapping", new function outputs can be assigned to an F key. A window opens with the possible options. These vary depending on the setting of CV #60 and can be selected up to F12 at most – please refer to the respective decoder manuals for this.

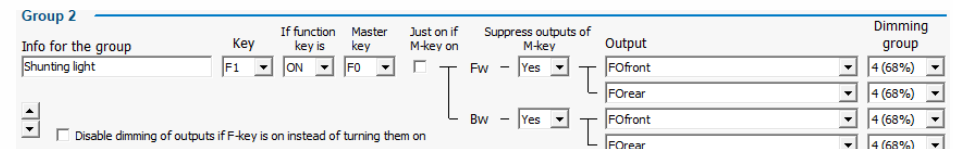
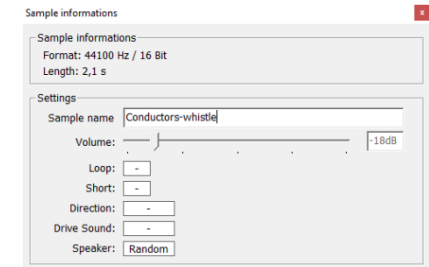
Using "ZIMO Mapping", you can assign a lighting function to any F key. A window opens showing the next available mapping group, where you can make the usual settings. For more information, please also check '[Advanced Mapping Groups](#)' above.

Sounds can be **swapped** by clicking on a sound and dragging it to another key with a sound assigned to it. Furthermore, you can right-click on a sound to select which speaker output it should be played. Information on the quality and length of the selected sound is also provided.

15 - Samples – tab

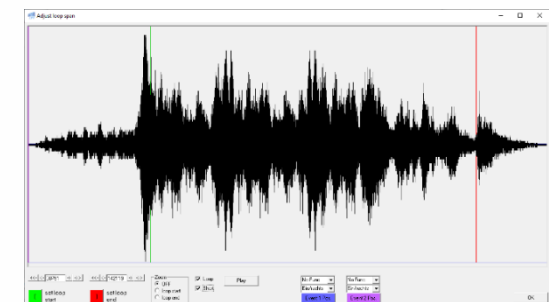
All sound samples present in the project are listed here – including those that are not currently in use or not assigned to any F key. You will also find information here about the size, quality, name and ID of each sound sample, as well as any configured events and loop markers.

Events and loop sections can be viewed and edited to a limited extent. Unlike the ZIMO Sound Creator, sound samples in ZIMO Sound Editor are embedded in the file and therefore cannot be edited as freely. Here, you can only view and change the position of markers as a numerical value. As a little assistance, the position of the markers is displayed under 'Change loop marker' of a sample.



Samples cannot be deleted from the project either.

You can import your own sound samples into the project using the 'Add sample from file (.wav)' button. These must be **mono**, in **WAV** format and must not exceed a quality of **44.1 kHz** and **16-bit**. We recommend 11 kHz for MX decoders and 22 kHz for MS decoders. The remaining available memory space is displayed and must not be exceeded. Events and loop markers can be set up in self-imported samples, just as in the Sound Creator, and they can be tested immediately in a separate window. To use them as automatic sounds (see below), the appropriate 'sample presets' must be set here.



16 - Scripts – tab

All **scripts** present in the .zpp project are displayed here. As long as it's a free .zpp project, the scripts can be opened, edited, deactivated and deleted. You cannot export existing scripts, this only works with those you created yourself.

Please note: scripts in Coded projects **cannot** be viewed, edited or deleted; they can only be deactivated. However, this usually leads to undesirable behaviour in the sound project, including sound or function failures; if problems occur, please clarify this with the **respective sound providers**. And note: when converting a Coded project into a CV set, the existing scripts are removed.

You can create your own scripts via 'Add'. In these new scripts, you can use both the sound samples already existing in the project and also your own imported samples. Naturally, you must

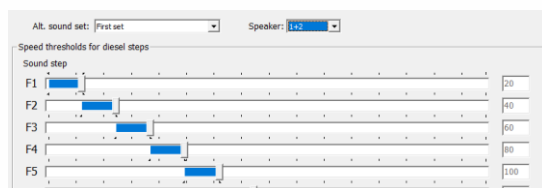
ensure that there are no conflicts with the other scripts, e.g. regarding F-keys or influence on driving behaviour.

Within scripts, you can also select which speaker a sound should be played.

You can also add or import your own scripts into CV sets.

The current guide to scripts can be opened directly as a PDF via the menu item **Help – Script Guide**.

17 - Thresholds – tab



Depending on the sound project, the thresholds between the individual **steam** or **diesel steps** can be adjusted here. For steam projects, the figure corresponds to the time in milliseconds between individual chuffs; for diesel projects, the figure corresponds to internal drive level 1–255. At MX decoders, please note that this also depends on the value in CV #5 which scales down the maximum drive level to CV #5 so sound steps beyond CV #5 will not be reached! Use CV #57 instead of CV #5 to prevent this. For electric projects, the term 'diesel step' is equivalent to 'fan speed', as fan noises are usually used here. However, driving sounds in the form of chuffs, diesel engine sounds or fan sounds cannot be changed or added in the ZIMO Sound Editor. This is only possible in the ZIMO Sound Creator. However, it is possible to select the speaker outputs through which the steam or diesel sequence is to be played. In this case, the entire sequence is assigned to a speaker – individual steam or diesel thresholds cannot be selected.

18 - Autom. sounds – tab

Sample assignment to the random generators

Up to **8 random generators** are available here, each of which can be assigned a separate sample. Each random generator has additional parameters such as volume, minimum interval, maximum interval, the duration for which the sound plays when triggered (if set to 0, it is played only once) and whether the sound is triggered only whilst driving, only when stationary or at all times. Furthermore, each random generator can be individually assigned to a speaker output. Existing samples or newly imported custom samples can be set up as random sounds. For newly imported samples, the intervals and loop parameters are set as described above; for existing samples, these parameters should ideally already be configured. The random generators only play when driving sound is ON. As soon as the driving sound is turned on, the timer for the minimum interval starts.

Special case: 'Air pump after stopping': by ticking the box in the top left-hand corner, random generator Z1 is played each time after the locomotive comes to a standstill. For steam locomotives, the fast running air pump is a suitable option here. To prevent this from playing after every short drive, a value in seconds should also be specified under 'Minimum break', after which the sound should be played again. Ticking the box corresponds to CV #154 Bit 4.

v Sample assignment to the random generators									
☒	Use random generators 1 and 2 for air pump								
	Sample air pump quickly after stopping	[dB]	Volume	Interval [s]	Loop time [s]	Driving condition	Speaker		
1.	Air_pump_01 (74)	-9		35	6	In stand	1		
	Sample air pump slow due to pressure loss			min. max.					
2.	Air_pump_02 (76)	-9		160 200	12	In stand	1		
	Sample								
3.	Coal_shovelling (84)	-12		180 220	8	In stand	2		
4.	Water_pump (82)	-9		130 150	11	In stand	2		
5.	Injector (80)	-12		100 150	5	In stand	2		
6.	Safety_valves (81)	-6		210 240	12	Always on	1+2		
7.	-	0		1 60	5	-	-		
8.	-	0		1 60	5	-	-		

Sample assignment to the switch inputs IN1 to IN4

In the 'Sample assignment to switch inputs IN1 to IN4' group, sounds can be assigned to a switch input. The current MS large scale sound decoders have 4 inputs for reed switches. The current MS 00 sound decoders have 1–2 inputs.

Please note, that one of the inputs could be used to trigger the wheel-synchronised chuffs (if CV #268>0) and then cannot be used to trigger a sound.

v Sample assignment to the switch inputs IN1 to IN4									
	Sample	Volume	Loop	Time[s]	Short	Key	Speaker		
1.	Cornering_squeal (87)	-6		on 0	-	F7 on	1+2		
2.	-	0		- 0	-	- -	-		
3.	-	0		- 0	-	- -	-		
4.	-	0		- 0	-	- -	-		

Sequence sounds

Automatic driving sounds refer to the sounds that are **automatically** played by the decoder during specific driving behaviours. Some of these must meet certain criteria in order to be used as such. Newly imported custom samples can be loaded into the project almost anywhere and existing ones can be replaced, but these must be set up accordingly. For more information on the individual sequence sounds and their criteria, please refer to the ZIMO Sound Creator manual at www.zimo.at.

Each automatic sound can be assigned separately to a speaker output. The individual functions are as follows:

v Brakes squeal			
Sample	Brake_squeal (103)	Max. speed	65
Volume	-14,9 dB	Min. drive time	12s
Speaker	1+2		

The **Brakes squeal** is played whenever the vehicle decelerates to a standstill. The value specified under 'Max. speed' describes the speed step below which the sound should be heard. This corresponds to CV #287. The 'Min. drive time' is the length of time a vehicle must have been running before the brakes squeal will be heard again. This corresponds to CV #288 (set to 0.1 s there).

Start Whistle

Sample: Min. standstill time:

Volume:

Speaker:

A **'Start whistle'** refers to a sound, that is played the moment the target speed becomes >0. This can be an actual start whistle of a steam locomotive, or, for example, the release of the brakes on diesel or electric locomotives. The minimum standstill time corresponds to CV #274 (unit 0.1 s), which is the minimum length of time the locomotive must have been stationary beforehand for the sound to play when it starts moving.

cornering squeal

Sample: Key: ☐ to suppress ☒ to activate

Volume:

Speaker:

Inputs for activation: ☐ IN1 ☐ IN2 ☐ IN3 ☐ IN4

Cornering squeal can either be assigned to a function key or optionally activated via an input (IN1–IN4). The key selected here corresponds to CV #308; in general, 'to activate' should be selected (corresponds to CV #307 = 128). If 'to suppress' is selected, the cornering squeal is always active and is suppressed by the function key (corresponds to CV #307 = 0). If one of the inputs is selected here, this corresponds to bits 0–3 in CV #307.

Change direction

Sample:

Volume:

Speaker:

The **Change direction** sound is played whenever the direction of travel changes whilst the driving sound is ON.

Idle Sound

Sample:

Volume:

Speaker:

The **Idle Sound** for steam locomotives is played in a loop as long as the driving sound is ON.

Water outlet

Sample: Min. standstill time:

Volume:

Speaker:

This sequence sound simulates the **Water outlet** or drain of a steam locomotive's cylinders. When stationary, a constant sound is played; while driving, a rhythmic hissing sound is heard. The 'min. standstill time' corresponds to CV #274 (set to 0.1 s there).

Thyristor

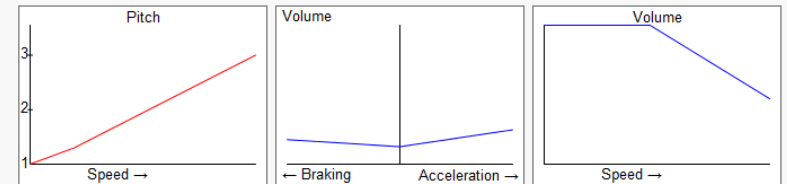
Sample: 2. Sample from notch: ☐ Do not raise the pitch of the 2. sample

Speaker:

☒ Thyristor sound may start before driving off ☒ Thyristor sound may get louder when braking

Pitch at mid speed: Mid. speed: Max. pitch: Max. Speed: Pitch step effect:

Volume during braking: Volume const. speed: Volume during acceleration: Volume reduction from: Volume reduction, steepness:



Thyristor sounds are used for a large part of the driving sound on certain electric locomotives. However, it is not strictly necessary to configure an actual Thyristor here. This, and all other, sequence functions can be used for other purposes as well.

The settings are displayed graphically and can be found in the following CVs: 'Thyristor sound may start before driving off' corresponds to CV #394 Bit 7, 'Thyristor sound may get louder when braking' to CV #158 Bit 6, 'Pitch at mid speed' to CV #290, 'Mid speed' CV #292, 'Max pitch' CV #291, 'Max speed' CV #838, 'Pitch step effect' CV #289, 'Volume during braking' CV #295, 'Volume const. speed' CV #293, 'Volume during acceleration' CV #294, 'Volume reduction from' CV #357, 'Volume reduction, steepness' (slope) CV #358.

If a second Thyristor sample is configured, it replaces the first sample from the specified speed step onwards. The pitch is either raised to the same level as the first sample, or the sample is played at a constant pitch ('Do not raise the pitch of the 2. sample' corresponds to CV #393 bit 4).

Tap changer

Sample: Volume: Speaker:

Number of shift steps: Do not play after departure for: Sample im Loop abspielen für: Pause at upshifting:

High speed tap changer set:

☒ Use samples in sequence instead of always starting with the first sample ☒ Skip start and end part when performing an upshift

The **tap changer (switch gear)** is used with specific electric locomotives. A sample configured here is played in accordance with the parameters. The setting options correspond to the following CVs: 'Number of shift steps' CV #363, 'Do not play after departure for' (in 0.1 seconds) CV #350, 'Play sample in loop for' CV #359, 'Pause at upshifting' CV #361.

The samples in a set within the "High-Speed changer" cannot be configured or edited in the ZIMO Sound Editor – this can only be done in the ZIMO Sound Creator.

v E-motor sound

Sample:

Speaker:

Fade in above notch:

Pitch slope with speed:

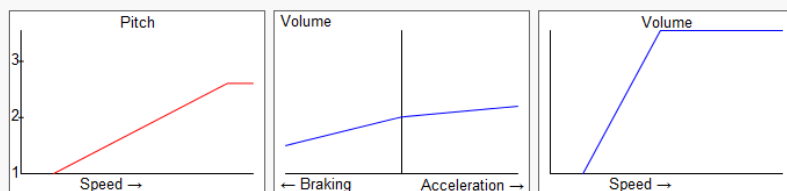
Maximum pitch:

Volume during braking:

Volume const. speed:

Volume during acceleration:

Volume Increase per notch:



The Pitch graph shows a linear increase from 1 to 3 as speed increases. The Volume graph shows a constant volume of 101 during braking and acceleration, and a constant volume of 50 during speed. The Volume vs Speed graph shows a linear increase from 50 to 120 as speed increases.

In diesel and electro loco projects, the **E-motor sound** is handled in a similar way to the Thyristor sound, and can be adjusted in pitch and volume depending on speed and 'load' (difference between target speed and actual speed). The following parameters are available: 'Fade in above notch' corresponds to CV #297, 'Pitch slope with speed' corresponds to CV #299, 'Maximum pitch' to CV #844, 'Volume during braking' to CV #373, 'Volume const. speed' to CV #296, 'Volume during acceleration' to CV #372, and 'Volume increase per notch' to CV #298.

v Electric brake

Sample:

Volume:

Speaker:

Key: to activate manually

Min. deceleration: to play electric brake sound

Lower speed limit:

Upper speed limit:

The automatic sound of the **Electric brake** corresponds, for example, to the sound of a cooling fan for the braking resistors of the prototype. The sound is played within the configured parameters. The F key specified here corresponds to the value in CV #380; the 'Min. deceleration' (number of speed steps which must be decelerated for the sound to be triggered) corresponds to CV #384; and the 'Lower' and 'Upper speed limit' correspond to CVs #381 and #382. There are also other possible parameters in CV #383 (pitch), CV #385 (downhill = negative motor load), CV #386 (loop time after standstill) and CV #348 bit 5 (solo drive key suppresses electric brake).

v Turbocharger

Sample:

Volume:

Speaker:

Influence of speed:

Influence of acceleration:

Solo drive key reduces the effect:

Minimum load to play:

Minimum diesel level:

Rate of ascent:

Rate of descent:

The **Turbocharger** is primarily used in diesel projects. Here, too, a number of parameters can be adjusted: 'Speed influence' corresponds to CV #367, 'Acceleration influence' corresponds to CV #368, 'Locomotive drive button reduces influence' to CV #834, 'Minimum load' to CV #369, 'Minimum diesel stage' to CV #829, 'Rise rate' to CV #370, and 'Fall rate' to CV #371.

19 - Servos - tab

Most ZIMO decoders have servo outputs. Large-scale decoders have up to 8 outputs, whilst 00 decoders have up to 2 outputs which can be used as an alternative to SUSI. The servos can be controlled via F keys or by internal special functions, such as drive levels or events in samples.

Pantograph control for servos

If a pantograph is meant to be moved via a servo, the 'Servo1' output, for example, must be defined as the 'Panto1' function under 'Servos', and then an F key and optionally a direction of travel must be set for Position 1 under 'Pantograph control for servos'. If the 'Sound is on' option is activated, the pantograph will raise at the correct moment during the "Startup" sound and lower again during the "Stop" sound. The exact point within the sound at which the pantograph raises or lowers must either have been configured in the Sound Creator beforehand, or an event marker must be set under "Samples".

Pantograph control for servos

Key	Further conditions	Sound is on
1 F11	Just forwards	☒
2 F12	Just backwards	☒
3 -	None	☐
4 -	None	☐

☐ Deactivate pantograph in this set



ZIMO Elektronik GmbH

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