

# Zimo MS decoder programming tips and tricks

by DCCSound

Zimo has two SW packages for sound editing, which can be confusing at first for those new to the eco system:

- 1) Zimo ZSP: Used to build projects from one's own sound files, i.e. from the ground up. The end result is either or both a \*.zpr (small size) and \*.zpp file (large size). One is unable to open a zpp file using this program without an associated, matching \*.zpr file. Hence the Zimo ZPP SW is required to open a \*.zpp file in the absence of a \*.zpr file.
- 2) Zimo ZPP: Used to load an existing project file (\*.zpp) produced by for example by Zimo or a 3<sup>rd</sup> party. These include encrypted projects, accessible via a "load code".

## File formats:

- 1) \*.zpp is a project file containing sounds, though the level of editing is quite low. Additional sound files can be added to this format. It requires the use of Zimo ZPP SW to edit and load to a decoder.
- 2) \*.zpr is a small file used in Zimo's ZSP program. It is more a directory file for sound files.
- 3) \*.zip is a compressed format file containing \*.zpp, \*.zpr as well as sound files, aka the lot.
- 4) \*\_crypt.zpp is an encrypted project file, with included sounds protected. A load-code is required to write this type of zpp file to a sound decoder.

## Directory set up:

It is important to define a logical directory structure early on, prior to importing sound files into a project. The same goes for the chosen project file name. If a project is renamed outside ZSP, the SW will lose reference and the project will need rebuilding.

## Best practice to avoid decoder bricking (3 tips):

- 1) Ensure the ZSP software is the latest version as it is updated with bugfixes and new updates periodically. [https://www.zimo.at/web2010/products/zsp\\_zimo-sound-programmer.htm](https://www.zimo.at/web2010/products/zsp_zimo-sound-programmer.htm)
- 2) Ensure the sound project is opened and saved using the latest version of ZSP before writing to a decoder.
- 3) Ensure the decoder software / firmware is the latest. This needs to support the latest ZSP SW and sound files, so should always be written to the decoder before the sound project. [https://www.zimo.at/web2010/support/MS-MN-Decoder-SW-Update\\_EN.htm](https://www.zimo.at/web2010/support/MS-MN-Decoder-SW-Update_EN.htm)

## Simple steps to loading a sound project to an MS decoder:

- 1) Save your latest sound project (\*.zpp) and a copy of the decoder SW (\*.zsu) to a USB drive. Ensure no other files are on the drive.
- 2) Connect the USB drive and decoder to the MXULF/A programmer
- 3) Power up the MXULF/A and wait for it to boot
- 4) Press the "1" button, which loads the decoder software (\*.zsu) file. Refer to graphic.
- 5) Once the \*.zsu file has loaded to 100% (can take about 1 minute), press the "R" button to reset the MXULF/A. Refer to graphic.
- 6) Then, press the "2" button which loads the sound project (\*.zpp) file. Refer to graphic.
- 7) Once the \*.zpp file has loaded to 100% (can take ~ 20 minutes), the decoder may be used.



ZIMO MXULF/A sound programmer

### ZSP Sound programmer walk-through

#### *Samples tab*

- 1) Select Steam or Diesel project type
- 2) Diesel-Set: To apply a custom name to the set, right click in the sound step graphic and select “rename diesel set”. This can be used to create multiple sets, e.g. cold and hot starts and a way to manipulate the flow of the prime mover sound, e.g. dynamic brake control.
- 3) Speed thresholds: Recommended: Min 33, max 224 (32 increments)
- 4) User samples window: Right click to change loop markers, i.e. to enable two sounds for a function key separated by silence
- 5) To get the sound flow to jump from F2 to F3 quickly, set loop markers with red then green (not green then red) for both going up and coming down.

#### *Cab controlled sounds tab*

- 1) Assign user-controlled sounds via the drop-downs
- 2) Set the volume levels (CVs for individual function keys do not seem to save consistently or be effective)
- 3) Select loop, though the designation should carryover from the sound sample “change loop markers” action.
- 4) Select “short” if the sound flow is to escape at any point during the loop

#### *Decoder controlled sounds tab*

- 1) Assign decoder controlled (e.g. speed dependent) sounds via the drop-downs
- 2) Cornering squeal should be set in this tab as it will only sound when speed is above zero
- 3) Set the volume levels (CVs for individual function keys do not seem to save consistently or be effective)
- 4) Assign the drive sound to either F8, or F1
- 5) Set User sounds to “always on”
- 6) For the mute key, select “Inverted”

### *Random/Reed sounds tab*

- 1) Assign decoder random controlled sounds via the drop-downs, e.g. compressor(s)
- 2) Utilise multiple drop-downs for the same sound file to produce variation, e.g. a compressor cycling when idle versus moving

### *CV settings tab*

It is best to follow Zimo's decoder manual, which details the roughly 1024 CVs on an MS decoder, and can be found here: [https://www.zimo.at/web2010/products/ms-sound-decoder\\_EN.htm](https://www.zimo.at/web2010/products/ms-sound-decoder_EN.htm)

Specific tips worth mentioning (not an exhaustive list!):

- 1) Double click CVs for details, including bits
- 2) Set headlights to F0 via CV 33 (F0v) and CV 34 (F0r). Set both to 0.
- 3) Braking: Set CV4 to 128, CV349 (F6 brake control) to 24 (which takes over CV 4)
- 4) A "start whistle" can be applied to a brake release sound (CV273=starting delay)
- 5) Dynamic brake: Set CV#374=4 (assigns to Fn key 4), CV#375=0 (drops PM to idle sound)
- 6) EMD 645 dynamic brakes, use "set 2" diesel set from idle to notch 4. Use Cv345 (sound switch key) from set 1 to set 2 = 4 (for Fn key 4). See CV835 & CV346= sound with conditions
- 7) CV146 for gearbox lash, to be released by Zimo soon
- 8) CV 9 = 58. Motor control frequency
- 9) CV 12 = 53 (assumes no mfx / interoperability with ESU ECoS)
- 10) CV 13 = 1. Sound will support analog (DC) mode
- 11) CV 29 = 14. 28/128 speed steps, analog and Railcom support.
- 12) CV 56 = 0, values are in CV 147 and 149
- 13) CV 158 = 76. Railcom and sound configuration settings.
- 14) Zimo sound project numbering system:
  1. CV 105 is either the NMRA producer number or "145" (ZIMO)
  2. CV 106 is the number of the sound provider (DCCSound is 18)
  3. CV 254 is the individual sound provider's own internal sound project number
  4. CV 255 = 0 (project ID)
  5. CV 256 is the individual sound provider's own project version number

Script button:

In this window scripts can be defined to control sound flow and function outputs. Scripts can also be exchanged via import/export with other users.

ZIMO mapping button:

This feature is used to define lighting control and assign dimming to groups of functions for example.

Steam modelling:

- 1) Use 8 chuffs for two turns of the wheels (setting the frequency with CV 267, 354).
- 2) Chuffs are best cut at the beginning of each chuff sound
- 3) Use 3 or 5 H-M-L sets for different speeds. The numbers between the chuffs are in msec the latency between to chuffs. M1-M2=200 (as high as 600), M2-M3=200, M3-M4=60
- 4) Use the same wav files for "H" as well as "M" stages, varying with CVs 275, 276.
- 5) If varying L-M-H sounds, one can use CV 394 (bit 5) to cross-fade sounds.

*Ext.Programm tab*

No comments to date



[www.dccsound.com](http://www.dccsound.com)

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