MTB DCC FW Updater 1.0

User Manual

1. Introduction

MTB DCC FW Updater is an application primarily intended for updating the firmware of MTB decoders. For its operation, it requires a **DCC-prog** connected via the USB port. The application is distributed as a standalone executable file for Windows 10 and higher. Firmware for individual decoders is loaded from separate binary files (*.bin) available on the manufacturer's website.

In addition to firmware updates, the application allows reading and writing a vehicle identifier text of up to twelve characters, abbreviated as ID. This is a proprietary extension of decoder functions beyond the DCC standard, introduced by MTB.

The application uses a DCC broadcast command with address 0 to detect the decoder and determines the decoder's address itself by reading the CV in service mode. This approach enables communication with the decoder without knowing its address but excludes working with multiple decoders at once. Therefore, only one vehicle may be present on the connected programming track.

2. DCC-prog

For powering the DCC decoder and communicating with it, a simple USB converter called DCC-prog is used. It connects to the PC via a standard USB-C **data** cable. The DCC signal is brought out to two large pads opposite the USB-C socket, which can either be fitted with a small screw terminal with a 3.5 mm pitch, or wires can be soldered directly onto them. Near the USB-C socket is a green LED that indicates the converter's functionality. If it glows dimly, the converter is operational, but the DCC output is disabled. If it glows brightly, the DCC output is active. A bit further away is a red LED that signals any errors in USB communication.

The DCC-prog does not require an external power source for programming decoders; it suffices with the 5 V / 500 mA power supplied by the USB port per the USB standard. The built-in converter boosts the voltage for DCC to 12 V, with sufficient power for programming..

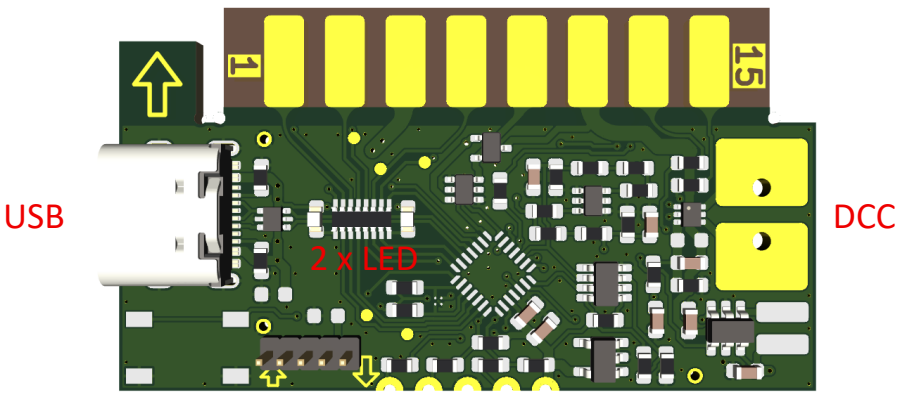


Fig. 1: DCC-prog version 1.0

In operating mode, the DCC-prog identifies itself in the system as a virtual serial port and uses the driver included in the Windows operating system.

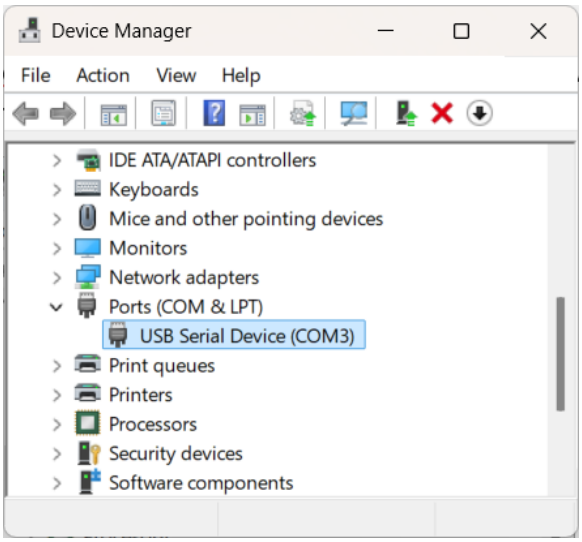


Fig. 2: Connected DCC-prog in Device Manager

3. First Application Launch

As mentioned in the introduction, the MTB DCC FW Updater is a standalone executable (EXE) file that does not require system installation. Simply extract it from the downloaded archive to your desired folder and enable execution. The procedure is described in detail below:

1. Download the ZIP archive with the latest version of the application from the website mtb-model.com.
2. Extract the compressed application to a folder of your choice. You can use the Windows Explorer's function available via the context menu - right-click on the downloaded archive.

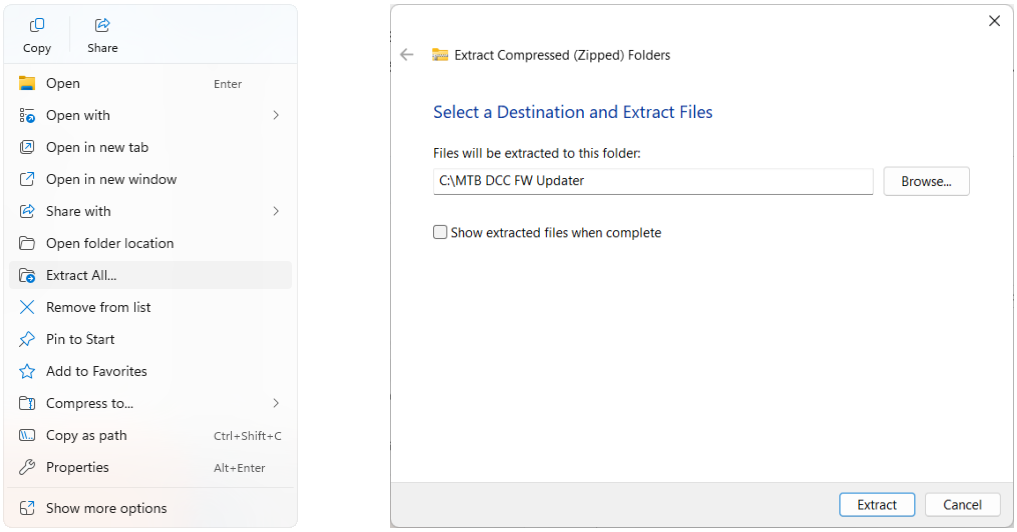


Fig. 3: Context menu for file extraction and target folder selection

3. Launch the extracted EXE file and allow the application downloaded from the internet if the SmartScreen filter is activated. The run-approval button appears only after clicking "More info".

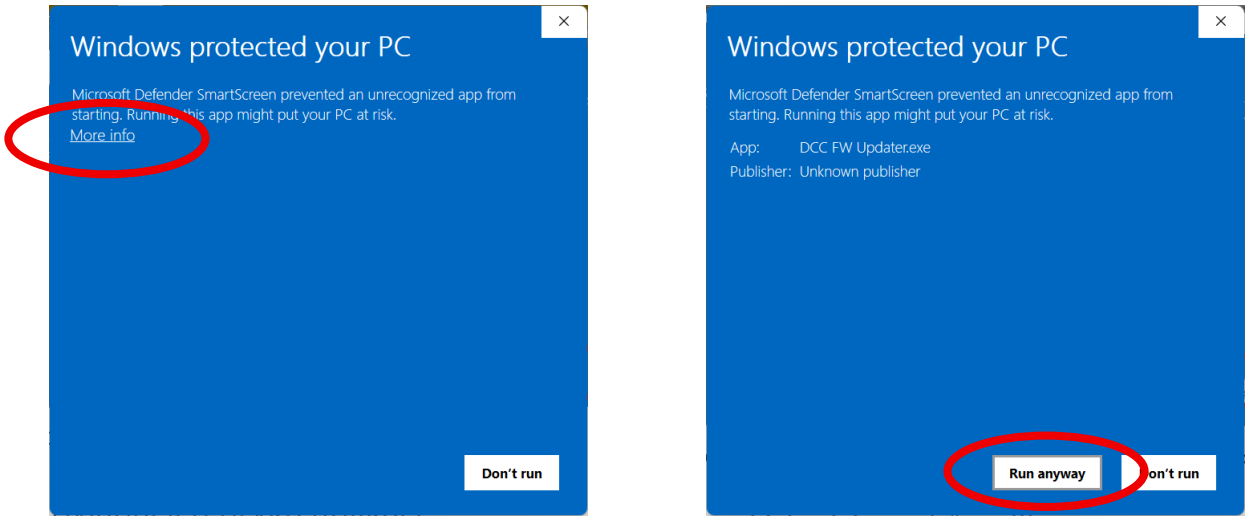


Fig. 4: Allowing application execution with "Mark of the Web" flag

4. Application Controls Description

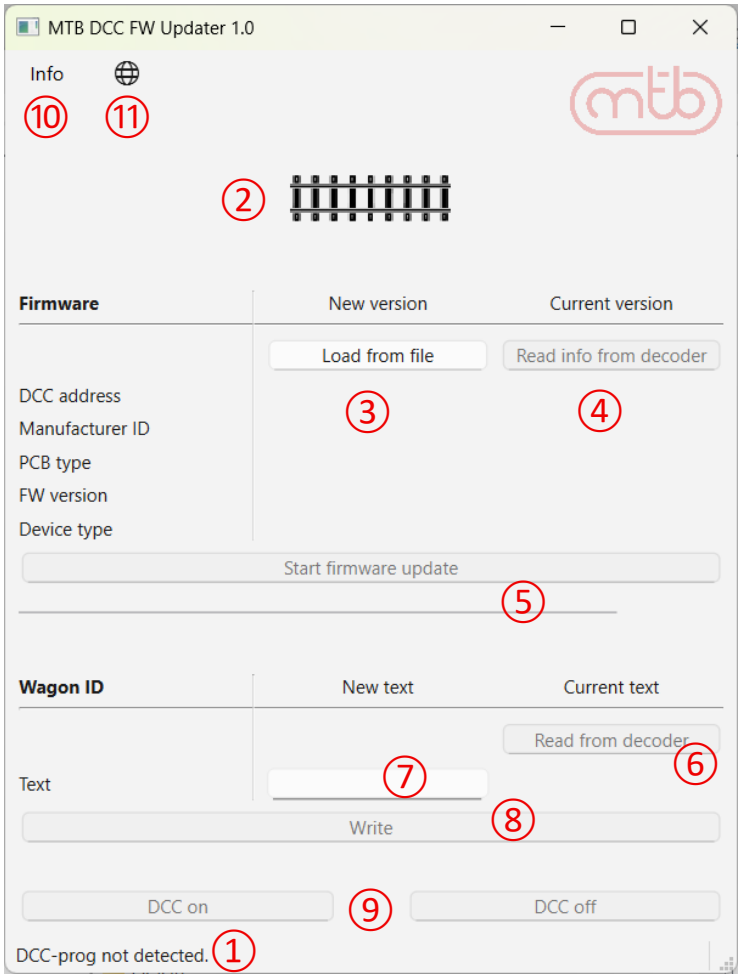


Fig. 5: Application on startup without connected DCC-prog

①	DCC-prog connection status bar For the main functionality of the software, the DCC-prog must be connected, which corresponds to the status description "DCC-prog connected to COMx."
②	DCC decoder presence indicator - Track without symbol: DCC-prog not connected - Track with ❌: DCC-prog detects no DCC decoder - Track with ✅: DCC-prog detects connected DCC decoder (i.e., current pulse response to broadcast DCC command "00 0F")
③	Button for loading new FW from binary file After loading, information and details about the new FW are displayed in the area below the button.
④	Button for loading descriptive data from current FW After loading, basic decoder description data and the current FW version are displayed in the area below the button.
⑤	Button for writing new FW with write progress indicator
⑥	Button for reading current wagon ID
⑦	Text field for entering new wagon ID
⑧	Button for writing new wagon ID
⑨	Buttons for DCC signal on/off DCC signal transmission is indicated by the LED glowing brightly on the DCC-prog. When the DCC signal is off, the LED glows dimly.
⑩	Info menu Displays version information about the application and DCC-prog.
⑪	Language selection menu Allows selection of the application language.

5. “Quick Start” Application Guide

1. Launch the MTB DCC FW Updater application. The window shown in Fig. 5 will open.
2. Connect the DCC-prog to the PC with a USB-C **data** cable. If prompted, confirm the driver installation or DCC-prog firmware update.
3. Verify the application has access to the DCC-prog: Status bar ① shows "DCC-prog connected to COMx." and indicator ② shows symbol ❌ meaning that DCC-prog doesn’t detect any connected DCC decoder. This state corresponds to Fig. 6. The green LED on the DCC-prog glows brightly.
4. Connect the DCC decoder to the DCC-prog output signal. Indicator ② changes from ❌ to ✅.
5. Load decoder information using button ④.
6. Open the dialog with button ③ and select the file with the new FW for the decoder type.
7. Start writing the new FW using button ⑤.
8. After writing completes, information about the new FW is automatically loaded from the DCC decoder into field ④. Verify the FW version matches.[1]

[1] If the new FW write does not complete successfully, the decoder will be left without firmware. The FW version will then display as "BOOTLOADER". In this state, the decoder only allows FW rewriting and will not function in normal operation.

9. In addition to FW operations, use button ⑥ to read or button ⑧ to write a custom wagon identifier[2] (ID) entered into text field ⑦.

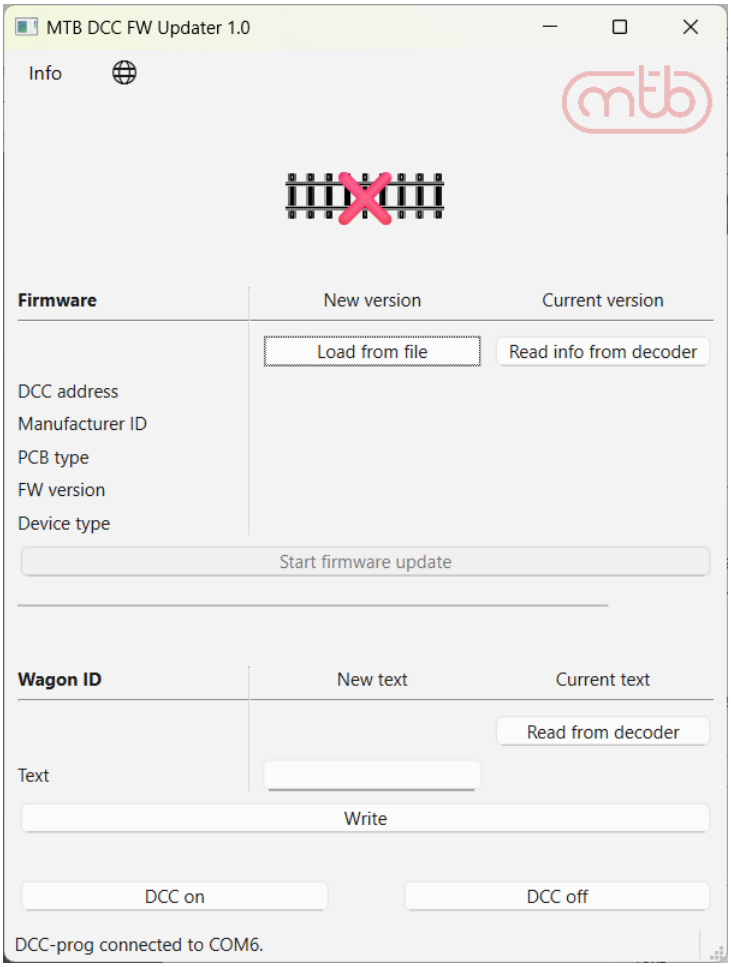


Fig. 6: Application with connected DCC-prog, without connected DCC decoder

[2] Special characters with diacritics are transformed using the system's local encoding (Windows-1250). Transformation occurs when entering the text field – it will be read from the decoder exactly as written. On systems with a different code page, special characters may be read differently!

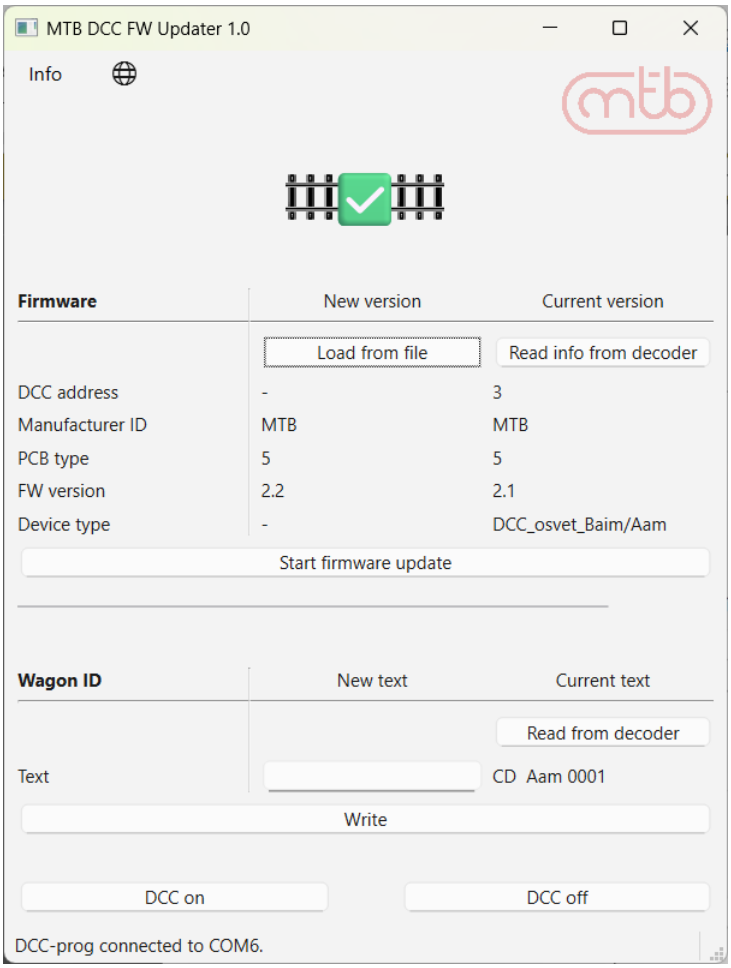
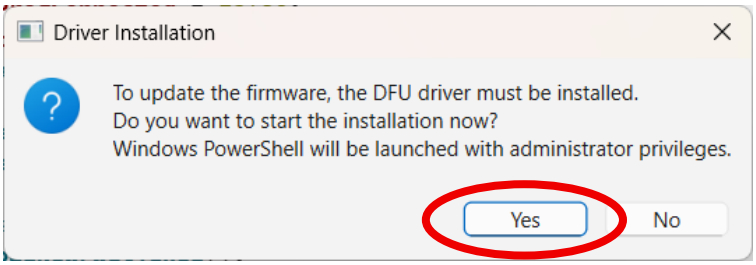


Fig. 7: Application with loaded information about new and current FW version of DCC decoder

6. FW DCC-progu FW Update

If the application detects a connected DCC-prog with outdated firmware, it will automatically start its update. This occurs in so-called DFU mode, which requires the appropriate driver to be available in the system. The driver installation is also automatic. The user only needs to approve running a PowerShell script with administrator privileges.



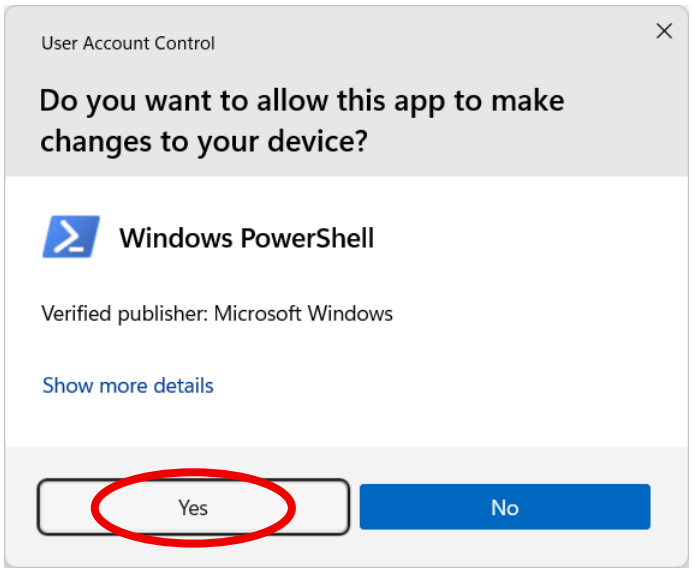


Fig. 8a and 8b: Confirmation of DFU Driver Installation

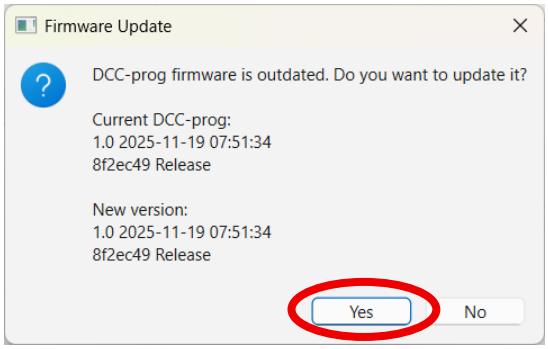


Fig. 9: Confirmation of DCC-prog FW Update

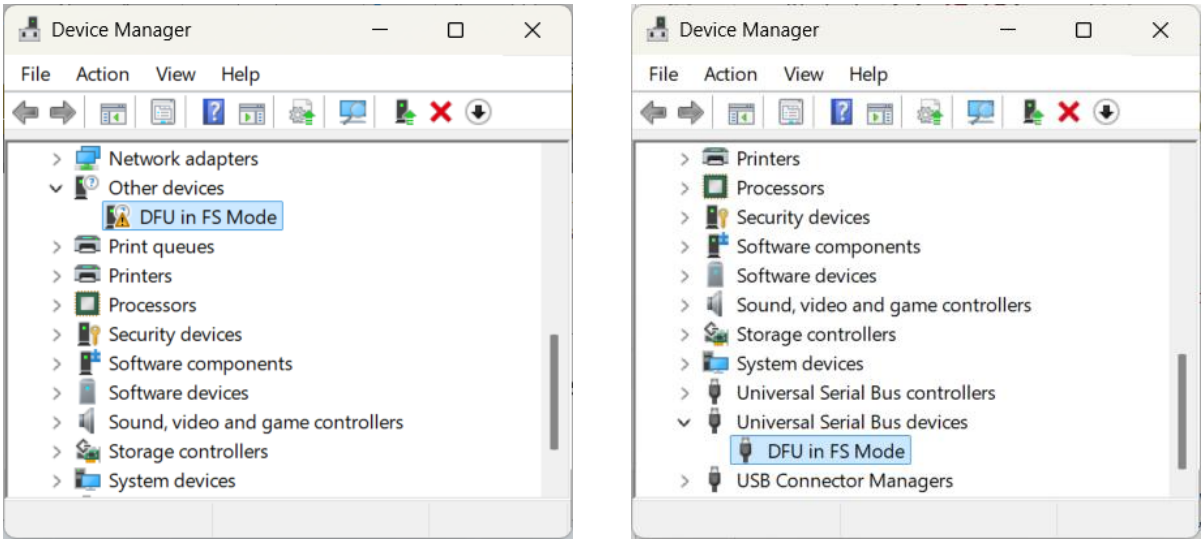


Fig. 10a a 10b: DCC-prog in DFU mode in Device Manager without and with the DFU driver installed

7. Document History

Datum	Revision	Changes
12. 12. 2025	1	Document creation