Quickstart USB.MADI

This document informs about the driver installation and the basic operation of the DirectOut USB.MADI. For more detailed information please consult the user manual available at https://www.directout.eu/product/usb-madi/

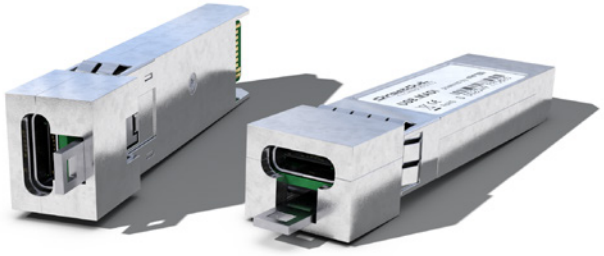


Table of content

Essentials

Compatibility

USB.MADI is a compact USB audio interface designed in an SFP transceiver form factor, enabling it to be operated directly within the SFP-based MADI port of a compatible host device.

Compatible devices:

- PRODIGY Series (A Slot, B Slot)
- MAVEN.A
- ACE
- ANDIAMO 3
- EXBOX.MD / EXBOX.RAV

or the MADI modules:

- Slot A: MADI2.SRC.IO / MADI4.IO / MADI4.SRC.IO
- Slot B: SFP.IO

Constraints

- USB.MADI uses the native MADI frame format to detect and switch its sample-rate multiplier. Therefore, the following conditions have to be met for proper operation:
  - Operation at 4 FS (192 kHz) is only available if the host device supports 'MADI high-speed mode'*.
  - In legacy mode 96k Frame needs to be set to switch USB.MADI into 2 FS.
  - If the MADI port is configured to use S/MUX format USB.MADI will always remain at 1 FS.

  The settings are accessible in the tab 'Output Formats' of globcon
- USB.MADI operates only in a compatible MADI SFP cage of a DirectOut device. It cannot be used in other MADI or network SFP cages.
- The host device requires firmware support for USB.MADI. Ensure the DirectOut device firmware is up to date.
- Although the driver supports up to three devices, the USB 2.0 interface is already fully utilized with 64 audio channels. Therefore it is recommended to only use one USB.MADI per computer.

* PRODIGY, MAVEN.A, ANDIAMO, ACE

Installation macOS - Driver

This chapter informs about the installation of the USB driver for the USB.MADI on macOS.

There are two methods to install the driver:

- Driver Extension (DEXT) aka DriverKit (DK)
- Kernel Extension (KEXT)

The use of Driver Extensions is recommended by Apple since macOS 10.15 and higher. The installation of Kernel Extensions requires additional steps on M processors during installation due to the strict system security policy of macOS. By design kernel extensions may be more performant.

It's beyond the scope of this document to list the differences between DriverKit and Kernel Extension.

Both methods are supposed to offer best user experience. However it might happen depending on the circumstances that one is superior to the other.

For more information please refer to:
https://rme-audio.de/driverkit-vs-kernel-extension.html

TIP

If you encounter any issues, please refer to the following page for additional guidance: https://rme-audio.de/installation-guide.html

Installation macOS - DriverKit

This chapter informs about the installation of the USB driver (DriverKit) for the USB.MADI on macOS.

System Requirements

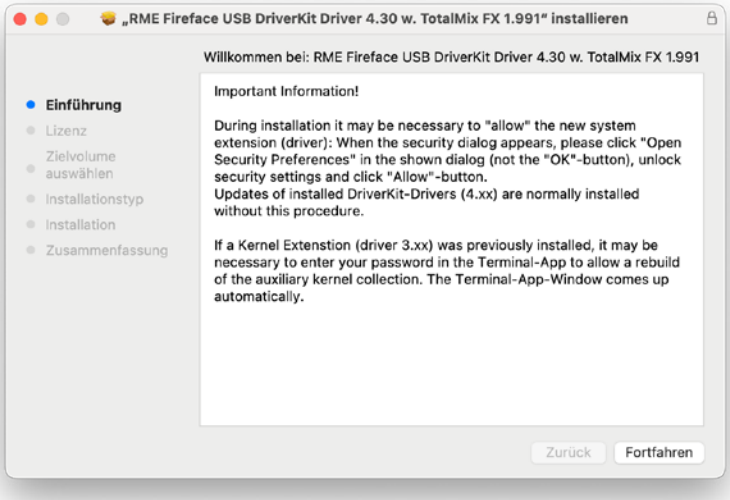
- macOS 11 or higher, Apple Silicon (M processor), Intel
- USB 3.0 or 2.0 port
- USB-C cable
- Administrative privileges

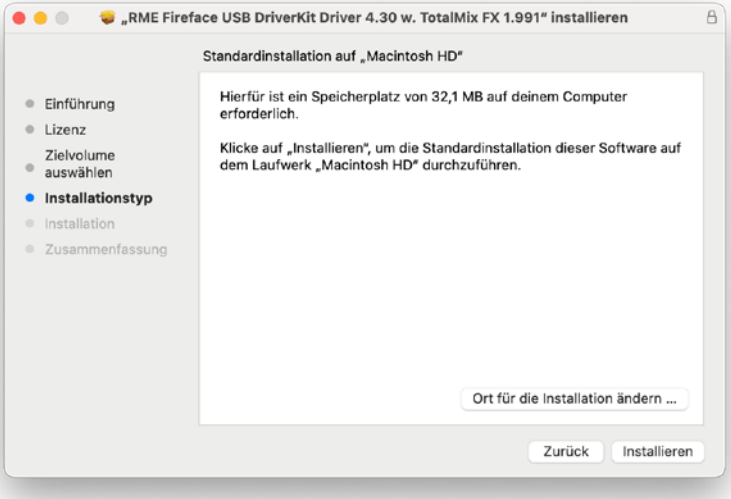
The DriverKit installs the driver extension (DEXT) to the operating system.

1. Download the driver from https://rme-audio.de/downloads.html
   Select product 'USB.MADI', specify the operating system, select 'Driver', select file 'driver_usbdk_mac_<xx>.zip'

2. Connect the USB.MADI with your computer

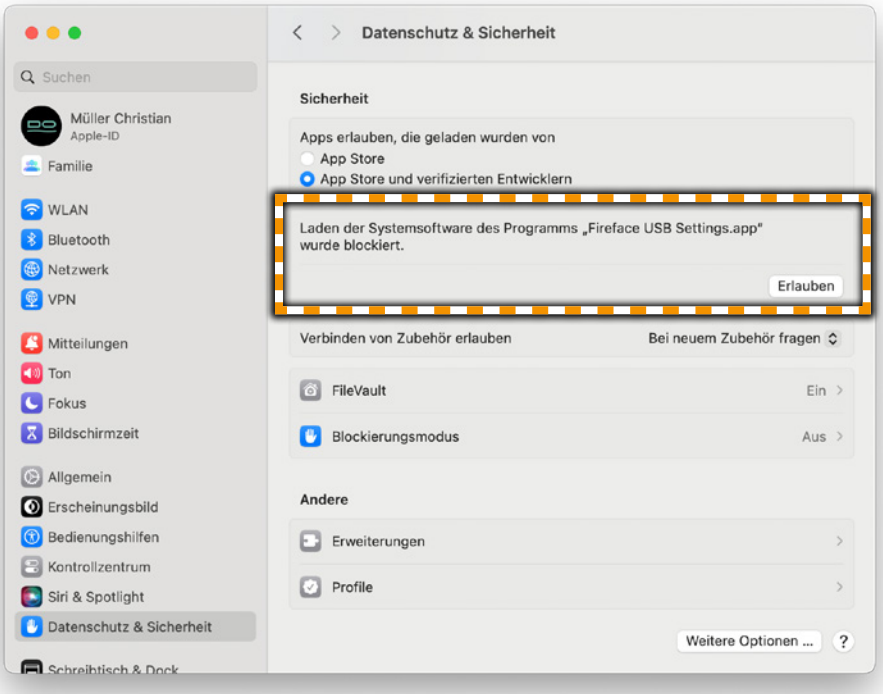
3. Launch the installer package

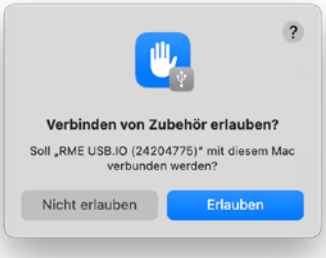




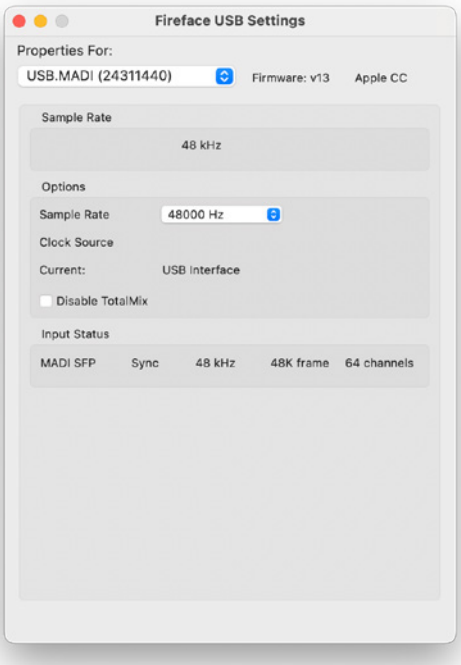
4. After the installation of the DriverKit package you will be prompted by the system that the new extension has been blocked. Open the System Settings 'Privacy and Security'.

5. Click 'Allow' (E) or 'Erlauben' (D) both times





6. The driver dialog will open.



Installation macOS - Kernel Extension

This document informs about the installation of the USB driver (Kernel Extension) for the USB.MADI on macOS.

System Requirements

- macOS 11 or higher, Apple Silicon (M processor), Intel
- USB 3.0 or 2.0 port
- USB-C cable
- Administrative privileges

The driver is installed as kernel extension (KEXT) to the operating system.

1. Change System Security Settings using Startup Security Utility

   - Boot the M1 or up computer in Recovery mode (turn it on with the power button pressed until the screen shows the startup options are loaded)
   - Select Options, then your language
   - In the top menu go to Utilities-> Startup Security Utility. Select the system where the RME drivers will be installed
   - Continue with-> Security Policy
   - Select Reduced Security-> Allow user management of kernel extensions from identified developers
   - Reboot you computer

NOTE

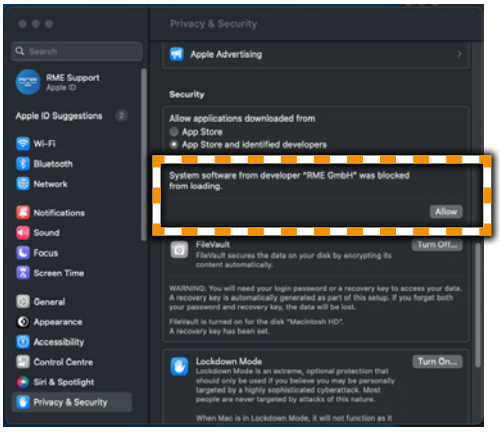
To install the kernel extension on a Mac with Intel processor step 1 is not required.

2. Download the driver from https://rme-audio.de/downloads.html
   Select product 'USB.MADI', specify the operating system, select 'Driver', select file 'driver_usb_mac_<xx>.zip'

3. Connect the USB.MADI with your computer

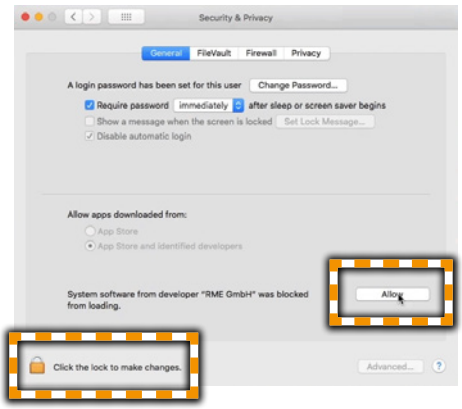
4. Launch the installer package

5. Before the reboot for finishing the driver installation:
   Open 'System Preferences, Security & Privacy', tab General.



macOS Ventura (13)

Click the lock symbol to unlock, then confirm using the RME GmbH kernel extension.



macOS Big Sur (11) & Monterey (12)

6. Reboot the computer to complete the installation.

For more information please refer to:
https://rme-audio.de/rme-macos.html

Installation Windows - Driver

This document informs about the installation of the USB driver for the DirectOut USB.MADI on Windows.

System Requirements

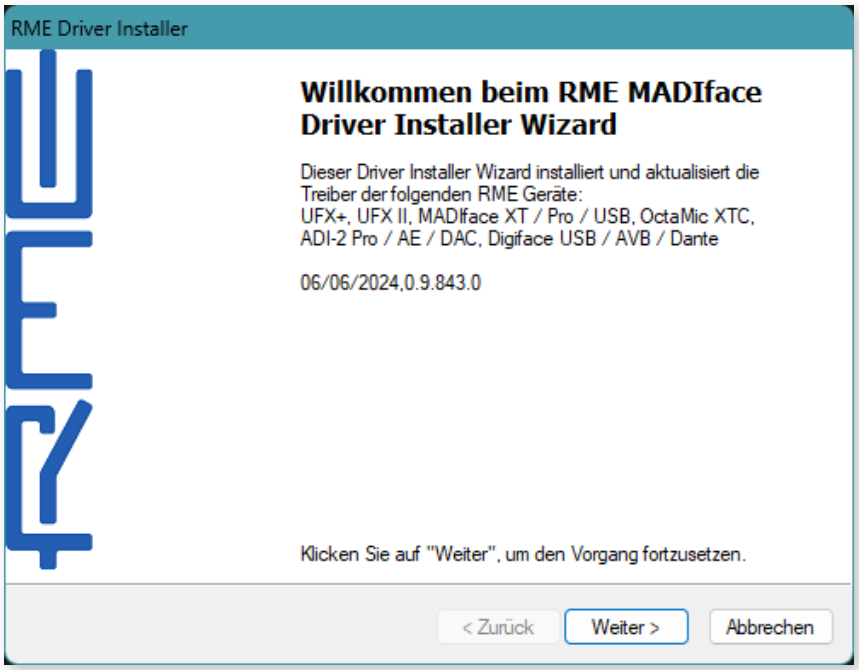
- Windows 10 or higher
- USB 3.0 or 2.0 port
- USB-C cable
- Administrative privileges

The RME MADIface Driver Installer Wizard installs the USB driver to the operating system.

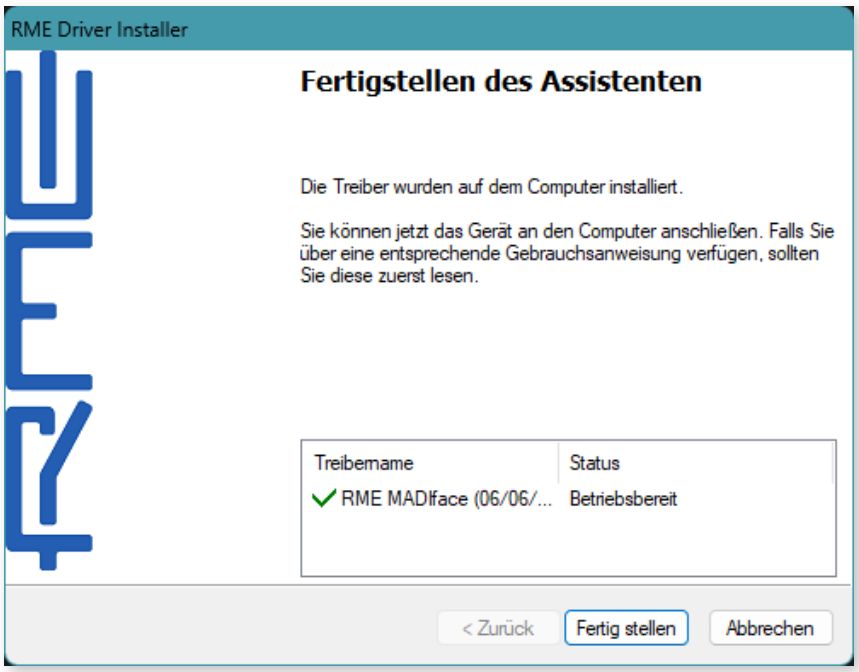
1. Download the driver from https://rme-audio.de/downloads.html
   Select product 'USB.MADI', specify the operating system, select 'Driver', select file 'driver_madiface_win_<xx>.zip'.

2. Connect the USB.MADI with your computer

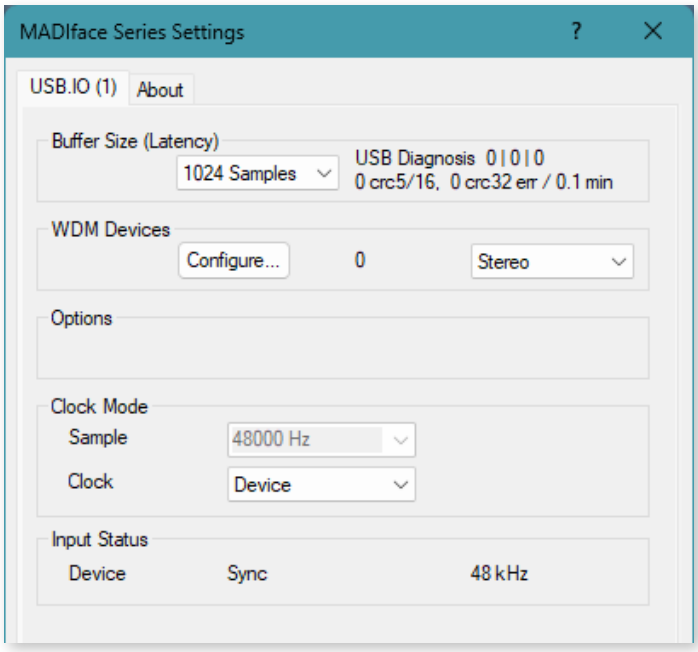
3. Launch the installer package and follow the instructions



4. After the installation of the RME Driver Installer you need to restart the computer.



5. Driver dialog



TIP

If you encounter any issues, please refer to the following page for additional guidance: https://rme-audio.de/installation-guide.html

Class compliant

Operating the USB.MADI in class compliant mode (CC Mode) does not require an installed RME driver.

There are good reasons to use the RME driver:

- TotalMix software is installed with the driver and can not be used in CC Mode (except macOS with latest DriverKit drivers - see NOTE below).
- RME driver is highly tuned to the hardware and offers better performance than the class compliant version of the operating systems.
- On Windows many DAWs require ASIO driver, which is not available for the CC driver.

NOTE

Under macOS, class compliant mode also works with the latest DriverKit drivers. The macOS audio driver is used, but the Settings dialog and TotalMix FX continue to control the USB.MADI.

When to use CC Mode?

Class compliant mode is interesting for systems where the use of the RME driver is not possible - e.g. on Linux or mobile devices (tablets).

How to use CC Mode?

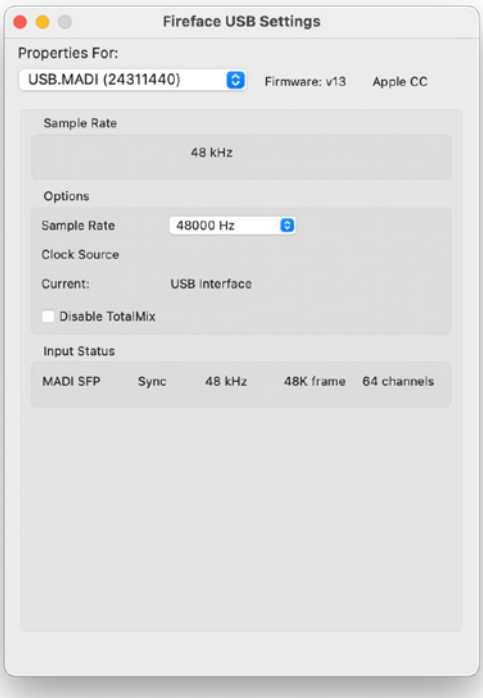
To run CC Mode the USB.MADI transceiver must be flashed with the Class Compliant (CC) firmware. This is a separate firmware from the standard driver-based version. If your transceiver is running the standard (driver-based) firmware, update it to the CC firmware first using the RME Flash Tool.

See “Firmware Update” on page 14.

Clocking

Driver Mode

USB.MADI can be clocked by the host device or internally via the driver settings.



Sample Rate	**Display of currently active sample rate.**
Options Sample Rate	**Sets the current sample rate.** Values: 44.1 / 48 / 88.2 / 96 / 176.4 / 192 kHz Active, when clock source is set to USB Interface.
Options Clock Source	**Sets the clock source.** Device = host device* USB Interface = internal clock of USB.MADI
Options Current Clock	**Display of currently used clock source.** Values: Device Clock / USB Interface
Clock Input Status Device Clock	**Display of current clock state and sample rate.** no lock = no signal at USB.MADI lock = signal present at USB.MADI, but not in sync with host device sync = signal present and in sync with host device

* PRODIGY, MAVEN, ACE, ANDIAMO 3, EXBOX.MD, EXBOX.RAV

NOTE

The driver setting is not available when the transceiver is running in class compliant mode. See “Class Compliant Mode” on page 13.

Class Compliant Mode

The clock source of the transceiver is selected automatically based on the settings of the host device.

Host device clock source set to:	**Clock source USB.MADI**
USB.MADI (NET)	internal clock, sample rate is set via the class compliant USB audio driver
any other clock source	USB.MADI is clocked by host device*

* the sample rates of host device and connected USB device must match.

NOTE

For more detailed information please refer to the user manual available at https://www.directout.eu/product/usb-madi/

NOTE

Windows operating system - current restrictions:
USB 2 Class Compliant mode not fully compatible to Windows 11.

NOTE

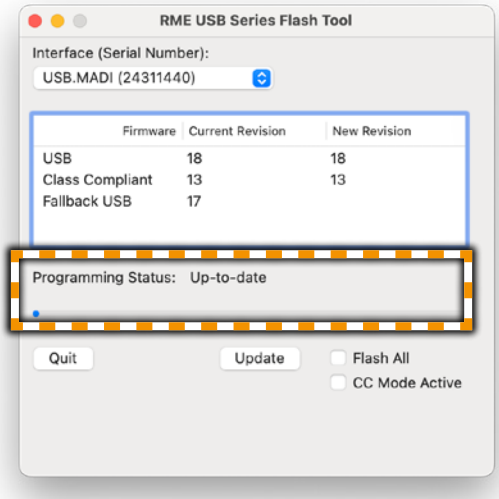
Under macOS, class compliant mode also works with the latest DriverKit drivers. The macOS audio driver is used, but the Settings dialog and TotalMix FX continue to control the USB.MADI.

Firmware Update

The firmware of the transceiver is updated via the Flash Update Tool from RME. It is recommended to operate the transceiver with the latest firmware version.

1. Download the Flash Update Tool from https://rme-audio.de/downloads.html Select product 'USB.MADI', specify the operating system, select 'Flash Update', select file 'fut_madiface_win.zip' (Windows) or 'fut_madiface_mac.zip' (macOS).

2. Start the 'RME USB.MADI Flash Tool'



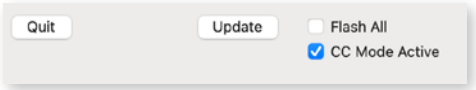
The programming status is displayed:
'Update' if the status is 'Not updated'.
'Quit' if the status is 'Up-to-date'

NOTE

To update the USB.MADI, an installed driver must be present on the operating system.

Class compliant operation

To run CC Mode USB.MADI must be flashed with the Class Compliant (CC) firmware.



Checkbox 'CC Mode Active' checked and start 'Update'.

To flash with the driver mode firmware, uncheck ‚CC Mode Active' and start ‚Update'

Technical Data

Form factor	SFP transceiver
External interface	USB-C (USB 2)
Internal interface	MADI
Channel count	64 ch in / out @ 1 FS 32 ch in / out @ 2 FS 16 ch in / out @ 4 FS
Sample Rate	44.1, 48, 88.2, 96, 176.4, 192 kHz
MADI mode	High Speed
MADI frame format	Native
MADI channel mode	56 / 64 ch
Drivers	Windows (ASIO), macOS (Kernel Extension, DriverKit Core Audio)*
Class Compliant USB	macOS, iOS, Linux, (Windows)**
Supported DirectOut devices	PRODIGY Series (A Slot, B Slot) MAVEN.A ACE ANDIAMO 3 EXBOX.MD EXBOX.RAV Modules: MADI2.SRC.IO MADI4.IO MADI4.SRC.IO SFP.IO

* TotalMix FX (without DSP)

** requires separate class compliant firmware (except macOS with latest DriverKit - see page 11)