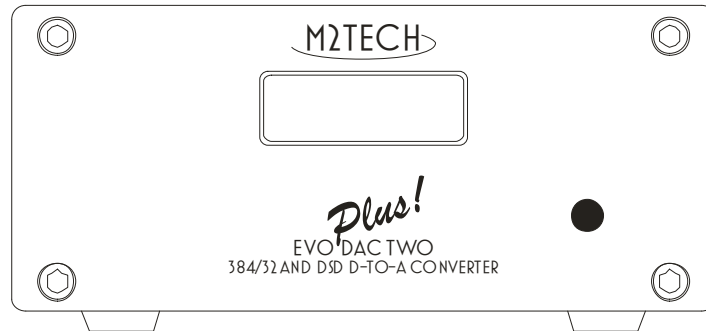


M2TECH

EVO DAC TWO PLUS

DXD-DSD D-TO-A CONVERTER

USER MANUAL



Warning!

Changes or modifications not authorized by the manufacturer can invalidate the compliance to CE regulations and cause the unit to be no more suitable to use. The manufacturer refuses every responsibility regarding damages to people or things due to the use of a unit which has been subject to unauthorized modifications or to misuse or to malfunction of a unit which has been subject to unauthorized modifications.



This unit is compliant with the following CE regulations: CEI EN 55022:2009 Class B (Radiated Emissions), CEI EN 55024:1999, CEI EN 55024:A2/2003, CEI EN 55024:IS1/2008 (Radio Frequency Electromagnetic Fields, 50Hz Magnetic Field Immunity Test and Electrostatic Discharges – ESD).

For a proper operation of this unit, all connections to other equipment in the system must be done when all equipment are off. Failing to comply with this advice may lead to damage to the Evo DAC Two Plus.



The label above, printed on the product case, indicates that the product, when no more usable, can't be treated as generic garbage, but must be disposed of at a collection point for recycling of electrical and electronic equipment, in compliance with the WEEE regulation (Waste of Electrical and Electronic Equipment).

By making sure that this unit is correctly recycled, you will help preventing potential damages to environment and human health, which could be caused by a wrong treatment of this product as generic garbage. Materials' recycling helps saving natural resources. For more in-depth information about recycling this product, please contact M2Tech Srl.

WARNING: the information contained in this manual are considered to be reliable and accurate. M2Tech reserves the right to change or modify the information any time, without prior advice. It's up to the customer to ensure that the manual being consulted is the latest version.

Dear customer,

Thank you for purchasing EVO DAC TWO PLUS. You're the owner of a very high quality D-to-A converter with a wealth of unique features, conceived to deliver the best performance in conjunction with your computer and hifi system.

EVO DAC TWO PLUS implements a set of technological and functional solutions, from the low jitter, high precision crystal oscillators, to the special reclocking feature that virtually removes jitter from any input, to the ability of receiving a high precision clock from a dedicated generator, to the low noise supply which can also use the USB bus 5V.

EVO DAC TWO PLUS is provided with a wide range of inputs in the most used formats, therefore it's able to interface with virtually every source delivering digital audio signals on its output.

The remote control provided with the EVO DAC TWO PLUS grants complete access to all its features, while the LCD display clearly shows all the operation information.

We're sure that your expectations will be fulfilled by purchasing EVO DAC TWO PLUS: your system will exhibit an incredible sonic performance, so you can now prepare for a whole new listening experience!

Nadia Marino, CEO

Please note here your EVO DAC TWO PLUS serial number and purchase info for future reference:

S/N: _____ Date of Purchase: _____

Place of Purchase _____

Note: Proof of retail purchase, such as your purchase receipt, will be required in the unlikely event that any warranty service will be required

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1. Unpacking and Placing the Unit

Lay the box on a table and open it by separating it from the external paperwork and removing or cutting the adhesive tape seal. The following items are included:

- one EVO DAC TWO PLUS;
- one wall adaptor;
- one remote control.

Should one or more item be missing, please contact your retail dealer. Please note no interconnect cable is provided; the user is free to choose her/his favourite.

Remove the EVO DAC TWO PLUS from the foam enclosure and place it onto a stable base, far from heat sources. Avoid full sunlight on the unit. Allow for ample room around the unit for venting.

Avoid smoke, moisture, dirt and liquids from reaching the unit. Please note that any signs of abuse will void warranty coverage.

Do not place the unit on thick carpets or inside a box or piece of furniture, not even close to curtains.

2. Front Panel

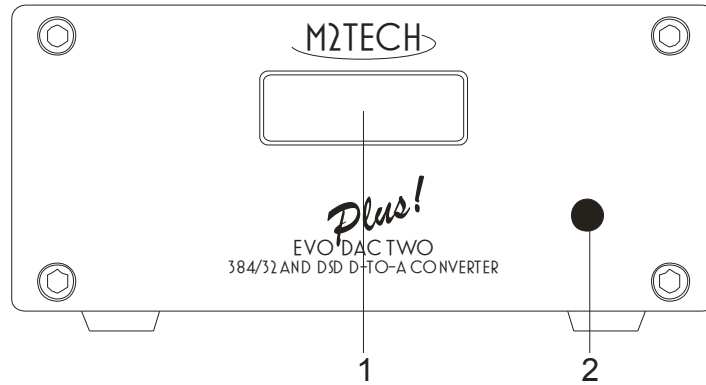


Figure 1

1) Display. It shows the operation information (sampling frequency, selected input, etc.). Moreover, it shows all active options (See Chap. 7).

2) Remote control IR receiver. Aim the remote at this point to send command to the device.

3. Rear Panel

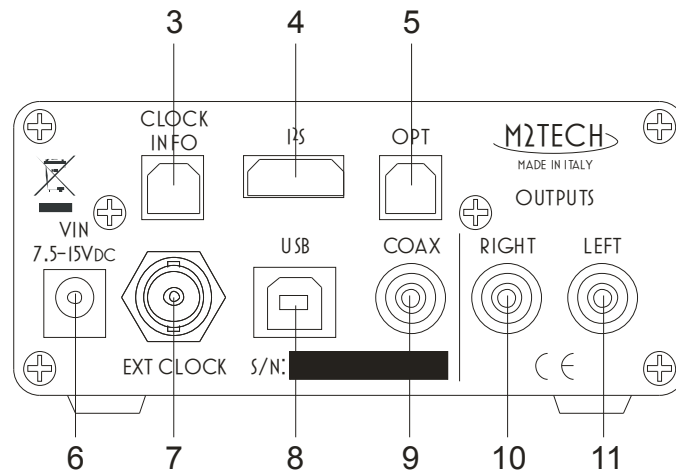


Figure 2

3) Clock information output. Connect to the EVO CLOCK TWO Toslink™ optical input using a Toslink™ terminated fiber cable. Toslink™ transmitter.

4) I²S input in PS Audio standard. Connect to the I²S output of a digital audio source using an HDMI cable. HDMI connector.

5) Optical input. Connect to the Toslink™ transmitter of a digital audio source using an optical interconnect terminated with Toslink™ plugs. Toslink™ receiver.

6) Supply input. Connect a wall wart or one of the outputs of the EVO SUPPLY TWO using one of the cables provided with the latter. 5.5/2.1mm jack.

7) External clock input. Connect to the output of a clock generator like the EVO CLOCK TWO. female BNC connector.

8) USB port. Connect to a 2.0 or 3.0 USB port of a computer. The EVO DAC TWO PLUS exchanges audio data with a computer through this connection.

9) S/PDIF input. Connect to the S/PDIF output of a digital audio device. Female RCA connector.

10/11) Left and right analog outputs. Connect to the analog input of an integrated amplifier or preamplifier or power amplifier. Female RCA connectors.

4. remote control

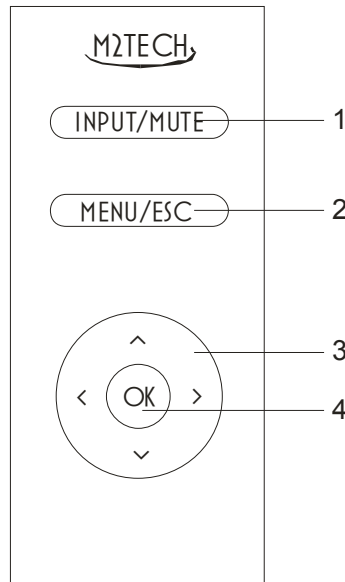


Figure 3

1) Input/Menu. Press to select the next input. Double-press to select the previous input. Press and keep to toggle muting.

2) Menu/Esc. Press this button to access the menu and to exit the menu without affecting the current settings.

3) Navigation buttons. They have various functions, both during menu navigation and when the menu is not active, as explained in detail in the following chapters.

4) OK. IT selects the menu option shown on the display. When the menu is not active and the USB input is selected, this button allows to send the player running on the computer the play/pause command or, with a long press, the stop command.

5. Connecting and Powering the Unit

WARNING: All connections between the EVO DAC TWO PLUS and other equipment must be made when all units are turned off and completely powered down or unplugged. Failing to do so may cause damage to the EVO DAC TWO PLUS and/or other units.

Please refer to chapter 3, “Back Panel”.

Connect the EVO DAC TWO PLUS to a computer with a 2.0 A-B USB cable connected to the USB port (Fig. 2, 8). We recommend the cable be no longer than 3m.

Connect one or more digital audio sources (CD player or DVD player, sat receiver) to the EVO DAC TWO PLUS inputs (Fig. 2, 4, 5 and 9) using suitable digital interconnects (not in stock).

Optionally, connect the stock +9V wall wart or one of the EVO SUPPLY TWO outputs to the supply input of the EVO DAC TWO PLUS (Fig. 2, 6). Please note the EVO DAC TWO PLUS may also be powered by the USB bus 5V supply. This happens every time that the device is connected to an USB bus and no power supply is connected to its supply input. Obviously, in such a scenario its performance will be sub-optimal.

Connect the analog output (Fig. 2, 10/11) to one input of an integrated amplifier, or a preamplifier or a power amplifier, using suitable interconnects (not in stock)

WARNING: the maximum voltage allowed by the EVO DAC TWO PLUS at its supply connector is 15V. Whenever a power supply delivering more than 15V is used, the EVO DAC TWO PLUS may be damaged. Should this be the case, the warranty is void and servicing or replacement of the faulty unit will be charged to the user.

Please note that the EVO DAC TWO PLUS is not provided with a power switch, therefore it will power on as soon as a power supply is connected to it, lighting the display (Fig. 1, 1) and showing the operation status info.

6. Cleaning the Unit

The EVO DAC TWO PLUS should be cleaned with a soft, slightly damp cloth. Do not use alcohol or any other types of cleaning fluids as they could damage the unit.

Avoid fluids from dropping or leaking inside the unit. Fluids of any type poured into the unit will void your warranty.

Do not apply excessive force to the display, to avoid damaging it.

7. Using the EVO DAC TWO PLUS

7.1. Input selection

The EVO DAC TWO PLUS is provided with four inputs: I²S (Fig. 2, 4), optical Toslink™ (Fig. 2, 5), USB (Fig. 2, 8) and S/PDIF (Fig. 2, 9). They are selected using the INPUT/MUTE on the remote control: press the button to select the next input, double-press the button to select the previous input.

7.2. Muting

The EVO DAC TWO PLUS is provided with a muting feature which allows to attenuate the listening level by 20dB. This feature is useful when a momentary reduction of the listening level is required (e.g. to answer to a phone call), after which the level needs to be restored. The muting can be toggled by a long press of the “INPUT/MUTE” button on the remote control.

7.3. Volume control

The EVO DAC TWO PLUS is provided with a volume control with a 99 steps range. The volume can be set using the “arrow up” and “arrow down” buttons on the remote control. Whenever no volume control is required, it is sufficient to leave the volume at maximum level.

7.4. HID with the USB input

The EVO DAC TWO PLUS allows the user to control the player on the computer when the USB input is selected. The following commands are available:

- Play/Pause (“OK” button);
- Stop (“OK” button, long press);
- Previous track (“arrow left” button);
- Next track (“arrow right” button).

To use the HID feature, it is necessary to use a compliant player.

7.5. DSD and DXD

The S/PDIF, and Toslink™ inputs of the EVO DAC TWO PLUS only accept PCM signals with sampling frequency up to 192kHz, as stated by the standard.

On the other hand, the EVO DAC TWO PLUS is also provided with an USB input and an I²S input which accept PCM signals up to 384kHz (DXD) and DSD signal up to DSD256.

7.6. Output signal phase

Sometimes it's useful to invert the signal's absolute phase. The EVO DAC TWO PLUS allows for that, by a specific menu feature.

7.7. Channel swap

Sometimes it's useful to swap the two channels, sending left signal to the right output and the right signal to the left output of the DAC. The EVO DAC TWO PLUS allows for that, by a specific menu feature.

7.8. Balance control

Sometimes it's useful to slightly attenuate a channel with respect to the other one, for example to compensate for an uneven room response or a forced, asymmetrical speakers placement. The EVO DAC TWO PLUS allows for that, by a specific menu feature.

7.9. External clock

It's possible to driver the EVO DAC TWO PLUS with a clock with higher purity and less jitter than the ones used inside the DAC. To this purpose, a dedicated input is provided which accepts every audio standard clock, a "super clock" or a "master clock". A unique PLL-based input circuit allows for recovering the right clock from any of the allowed values. It is possible to apply the clock delivered by any clock generator outputting 3.3Vpp on 75 Ohms load. Anyway, when the EVO CLOCK TWO is used, various side advantages are available, the most notable of which is the availability of an auxiliary optical connection (Fig. 2, 3) which enables the EVO DAC TWO PLUS to tell the EVO CLOCK TWO which sampling clock must to be generated by the latter for an optimal DAC operation. Given the fact that, in a playlist, the sampling frequency may change with each track, making the sampling frequency selection automatic allows the user to concentrate on the listening experience for a more complete enjoyment.

8. Configuring the EVO DAC TWO PLUS

The EVO DAC TWO PLUS offers various operation options which can be chosen by a menu navigated with the remote control.

To access the menu, the user must press the MENU/ESC button once (Fig. 3, 2). Once in the menu, a second press of the same button will cause the menu to exit.

The menu is two-level: the first level is the list of available options, in the second level are the lists of available value of each option. In the second level the item “BACK” is always available which allows to go back to first level. Alternatively, it is possible to go back to first level by pressing the “arrow left” button on the remote. In the first level, the “EXIT” item allows for exiting the menu.

In each level, it’s possible to scroll the available items using the “arrow up” and “arrow down” buttons. To confirm the displayed value, press the “OK” button. To go back to higher level, just press the “arrow left” button.

NOTE: after a few seconds idle, the menu automatically exits.

Below, the various menu items and related values are described in detail.

8.1. Channels balance (BALANCE)

This item allows for set the channels balance within a +/-8dB range, in 0.5dB steps.

8.2. External clock (EXT CLK)

This item has three values:

- BACK: go back to first level;
- NO: the EVO DAC TWO PLUS will always use the internal oscillators;
- AUTO: the EVO DAC TWO PLUS uses the internal oscillators when no valid clock is applied to the external clock input. Otherwise the external clock is used.

8.3. Power-on volume (PWR ON VOL)

This item has three values:

- BACK: go back to first level;
- LAST: at power on, the volume will be set to the last value chosen before the previous DAC power off;
- MUTED: at power on, the volume will be set to zero.

8.4. Phase (PHASE)

This item, too, has three values:

- BACK: go back to first level;
- NORMAL: the DAC will deliver the audio signal with the original phase;
- INVERTED: the DAC will deliver the audio signal with inverted phase.

8.5. Channels swap (CH SWAP)

This item, too, has three values:

- BACK: go back to first level;
- NO: the DAC will send the left signal to the left output and the right signal to the right output;
- YES: the DAC will send the left signal to the right output and the right signal to the left output.

8.6. Factory settings retrieve (DEFAULT)

This is useful to set the DAC as it was programmed in factory. This item, too, has three values:

- BACK: go back to first level;
- NO: factory settings will not be retrieved;
- YES: the DAC will be set with factory settings.

8.7. Menu exit (EXIT)

The menu is terminated when this item is selected. As already stated, the menu automatically exits after a few seconds idle.

9. Using a Computer as Digital Source

Connecting the EVO DAC TWO PLUS to a computer via its USB ports needs a few configuration operations by the user.

Fortunately, the EVO DAC TWO PLUS is provided with an USB 2.0 interface which is compatible with USB Audio Device Class 2. Therefore, Apple and Linux computers natively support the EVO DAC TWO PLUS, that is they do not need a driver and immediately recognizes the DAC in a plug'n'play fashion. Conversely, a computer provided with a Microsoft operating system require a suitable driver which can be downloaded from M2Tech website (www.m2tech.biz).

Below, the procedures to set a computer for music playback by the EVO DAC TWO PLUS are described. Reader are advised that some details in the described procedures may differ depending on the operating system version installed on your computer and the player chosen by the user; the following descriptions are general guidelines to the configuration of computer and player.

9.1. Plug'n'Play Operation with Apple OSX

As explained in the introductory paragraph to the present chapter, the EVO DAC TWO PLUS is provided with an USB interface compatible with USB Audio Device Class 2 which is natively supported by Apple OSX since the 10.6.4 release, without the need for any driver: It is sufficient to connect the EVO DAC TWO PLUS to own Mac with an USB cable (not in stock) to have it recognized by the Mac, which will then include it in the audio devices list, as shown in Fig. 4. Being an output-only audio device, the EVO DAC TWO PLUS is listed in the output (M2Tech USB 2.0 Audio Out) devices list.

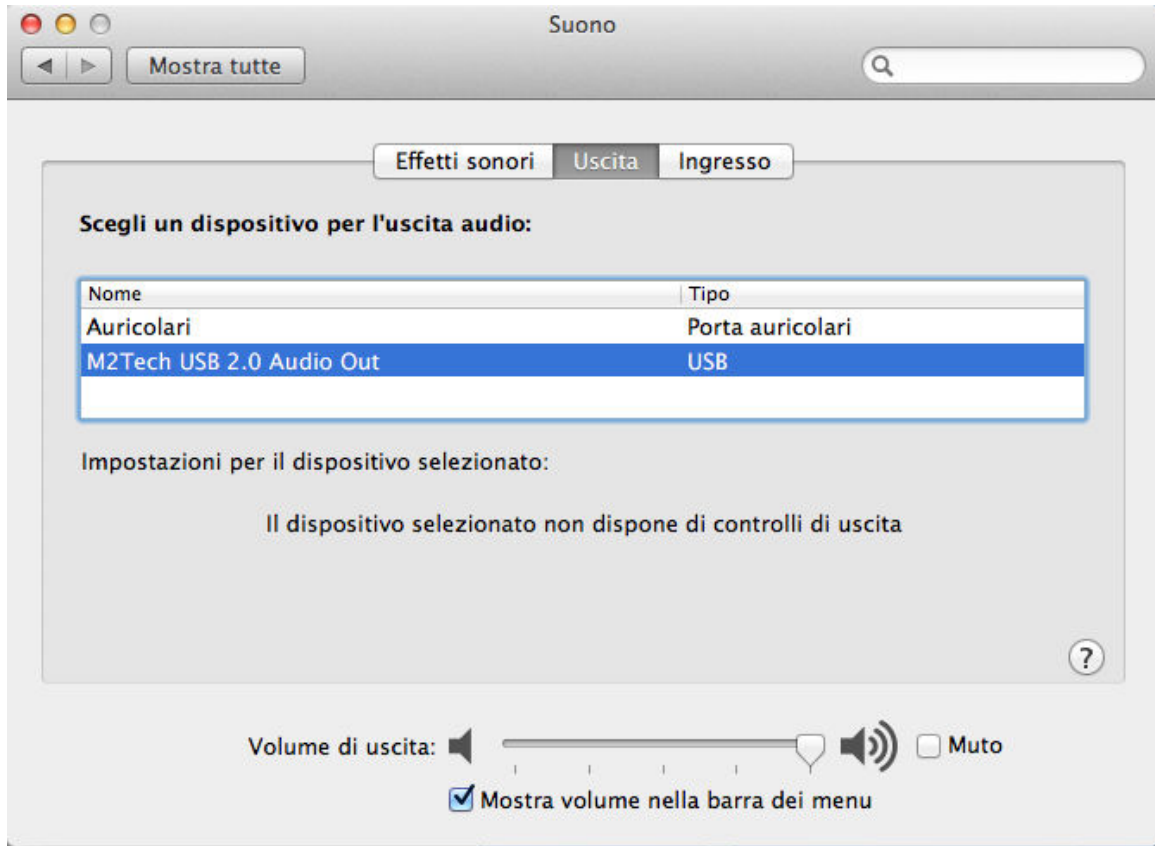


Figure 4

To send the computer audio to the EVO DAC TWO PLUS it is necessary to select it in the “Sound” window as shown in Fig. 4.

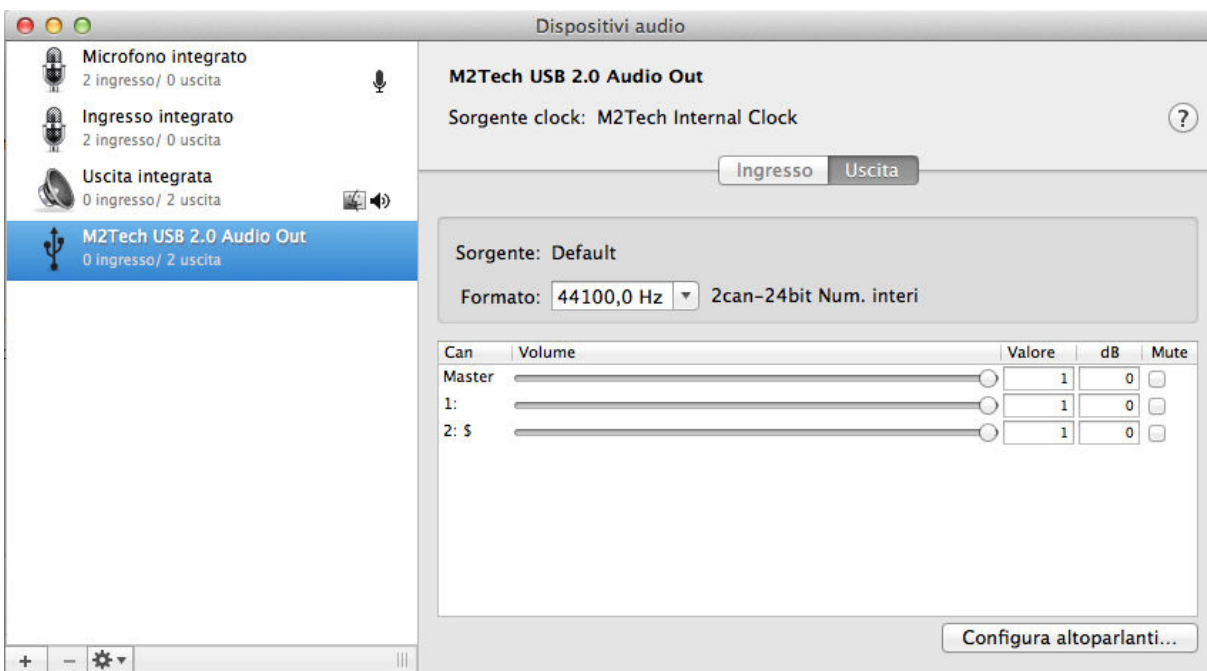


Figure 5

It's possible to set some parameters related to the EVO DAC TWO PLUS operation (specifically, the sampling frequency at which the Mac will send audio samples to the DAC) by the MIDI Audio window, as shown in Fig. 5.

It is now possible to listen to music by simply selecting the USB input on the EVO DAC TWO PLUS and using iTunes. Please note that even when the chosen playlist includes tracks with different sampling frequencies, the EVO DAC TWO PLUS will always display one sampling frequency that is the one selected in the MIDI Audio panel (Fig. 15). This implies a real-time resampling feature by the Mac's operating system which is seldom welcome by the user. In this case, another player should be used which is able to automatically change the above setting, like Amarra, PureMusic and Audirvana. Unlike iTunes, other players need to be properly configured to use the EVO DAC TWO PLUS as output device. As an example, Fig. 6 shows the configuration window of Audirvana. Please note it is necessary to choose the EVO DAC TWO PLUS as Active Audio Device.

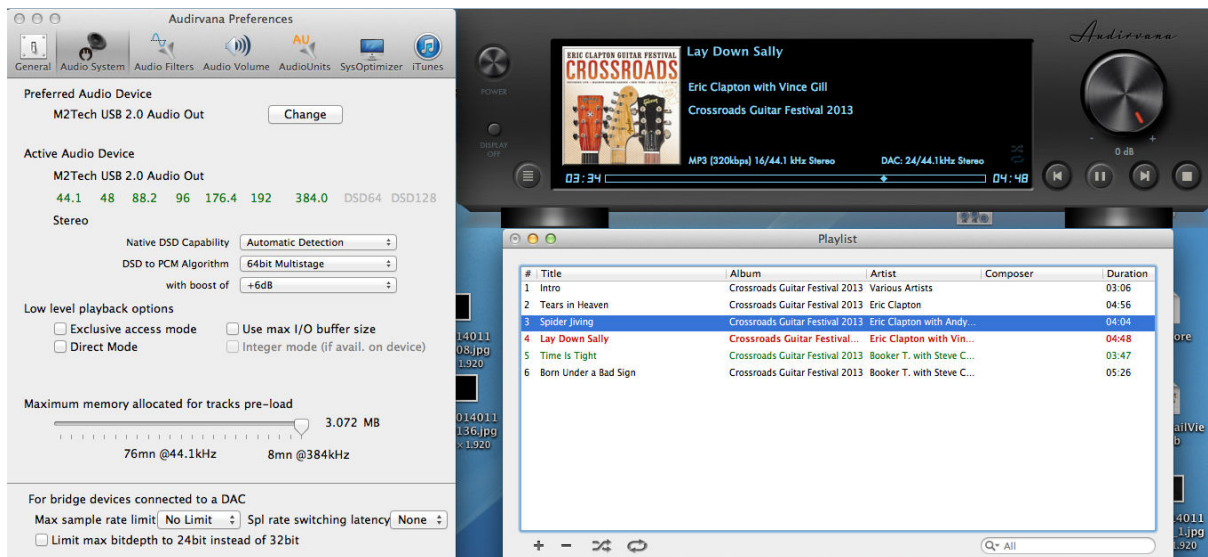


Figure 6

Also please note that amongst the available options are those related to Direct Mode and exclusive access to the resource (“Exclusive Access Mode”). They are peripheral access modes which provide a higher listening quality and which are supported by the EVO DAC TWO PLUS. Therefore, we suggest using them whenever possible.

8.1.1. DSD files playback with Mac

The EVO DAC TWO PLUS is able to transfer music files recorded with the DSD format. A player able to send DSD data to the EVO DAC TWO PLUS in a standard format handled by the DAC must be used. As an example, the configuration of Audirvana necessary for DSD files playback is shown in Fig. 7.

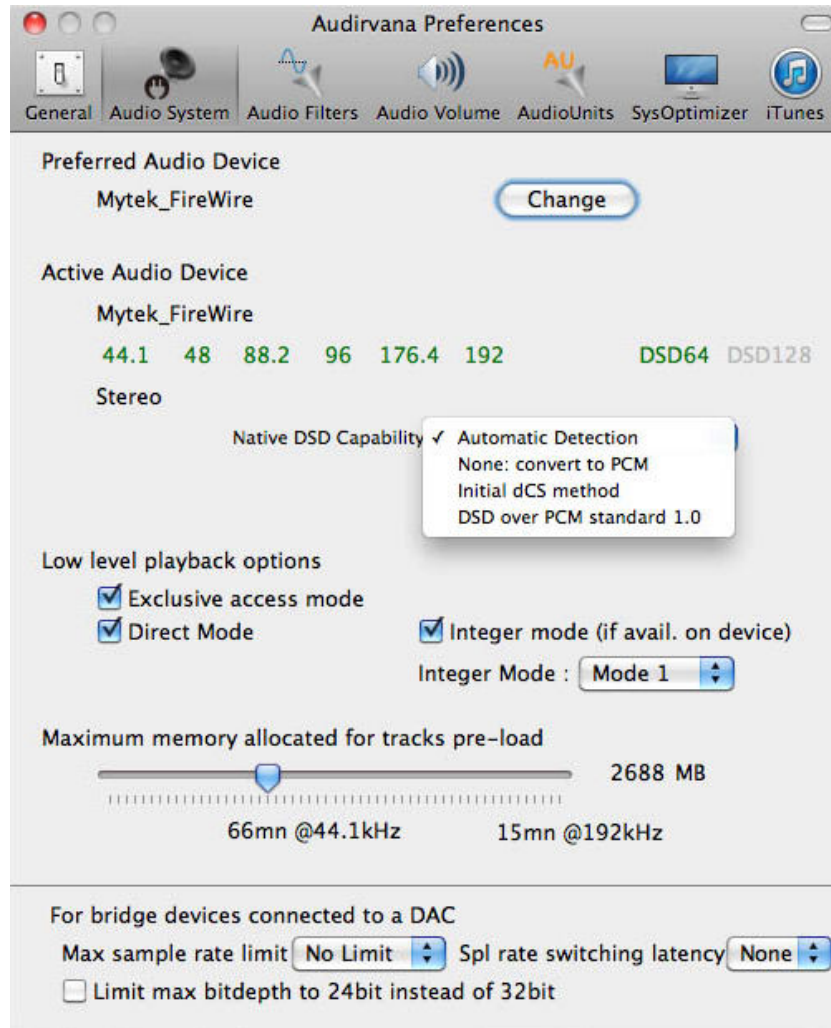


Figure 7

9.2. Plug'n'Play Operation with Linux

As explained in the introductory paragraph to the present chapter, the EVO DAC TWO PLUS is provided with an USB interface compatible with USB Audio device Class 2 which is natively supported by Linux with ALSA since its 1.0.24 release.

NOTE: given the vast availability of different Linux distributions, often heavily customized, it may be necessary to check that both kernel and ALSA versions are suitable for native USB Audio Device Class support. When in doubt, ask the creator of your Linux distribution for more information.

As with Apple OSX, with Linux it is necessary to choose the EVO DAC TWO PLUS as the output device. This can be done accessing the audio management window and setting the various parameters as shown in Fig. 8 which shows Ubuntu's audio configuration windows. Ubuntu is one of the most successful Linux distributions. Other distributions may differ in the number and kind of available parameters. The window displayed in the figure lists two M2Tech audio devices: they are actually the same device that is the EVO DAC TWO PLUS, it is therefore sufficient to select any one to choose the EVO DAC TWO PLUS as the output audio device.

By setting the EVO DAC TWO PLUS as predefined audio output device, we make it available to all those apps which rely on the operating system to transport audio. This is mandatory to listen to streaming music by a browser, for example. This operation mode already allows for high quality playback (sampling frequency up to 192kHz). It also could be desirable to use a player which doesn't rely on the operating system to transport audio, in order to overcome its limits (for example, to listen to audio file samples at 352.8kHz or DSD audio files).

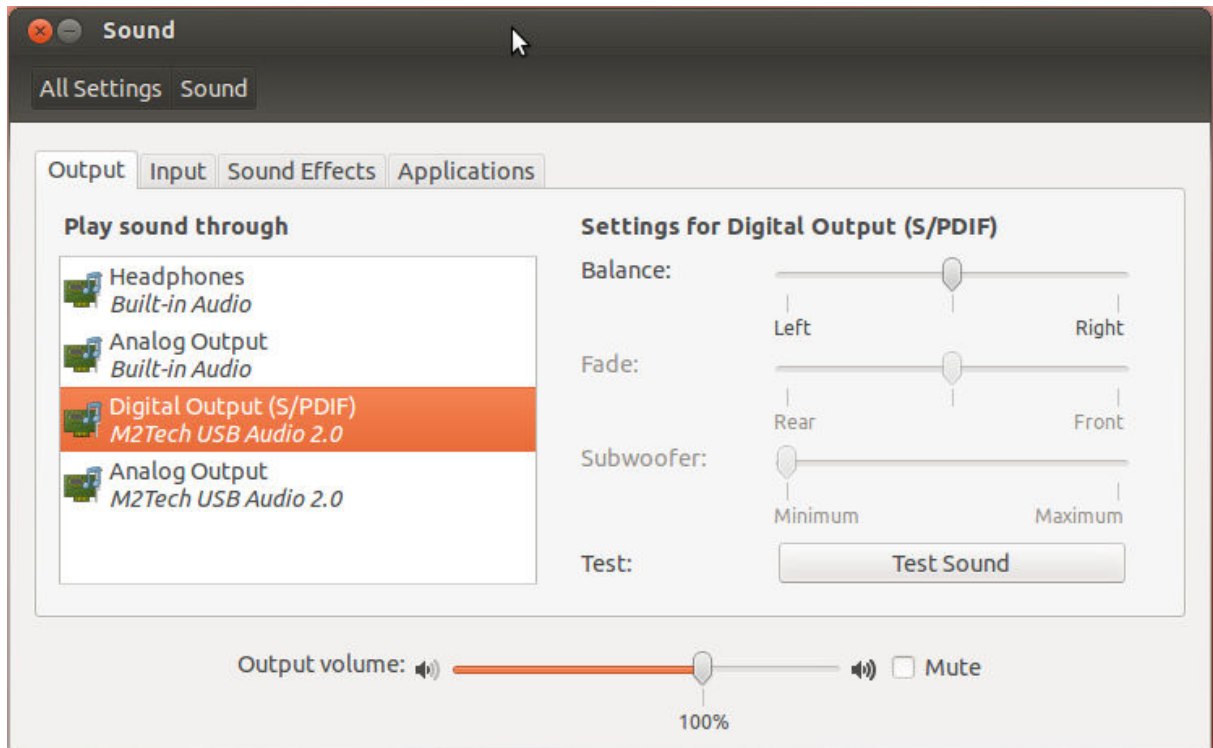


Figure 8

Depending on the chosen player, it is necessary to configure it to use the EVO DAC TWO PLUS. Obviously, each player has its configuration parameters. As an example, the configuration panel of Audacious, a widely used player, is shown in Fig. 9.

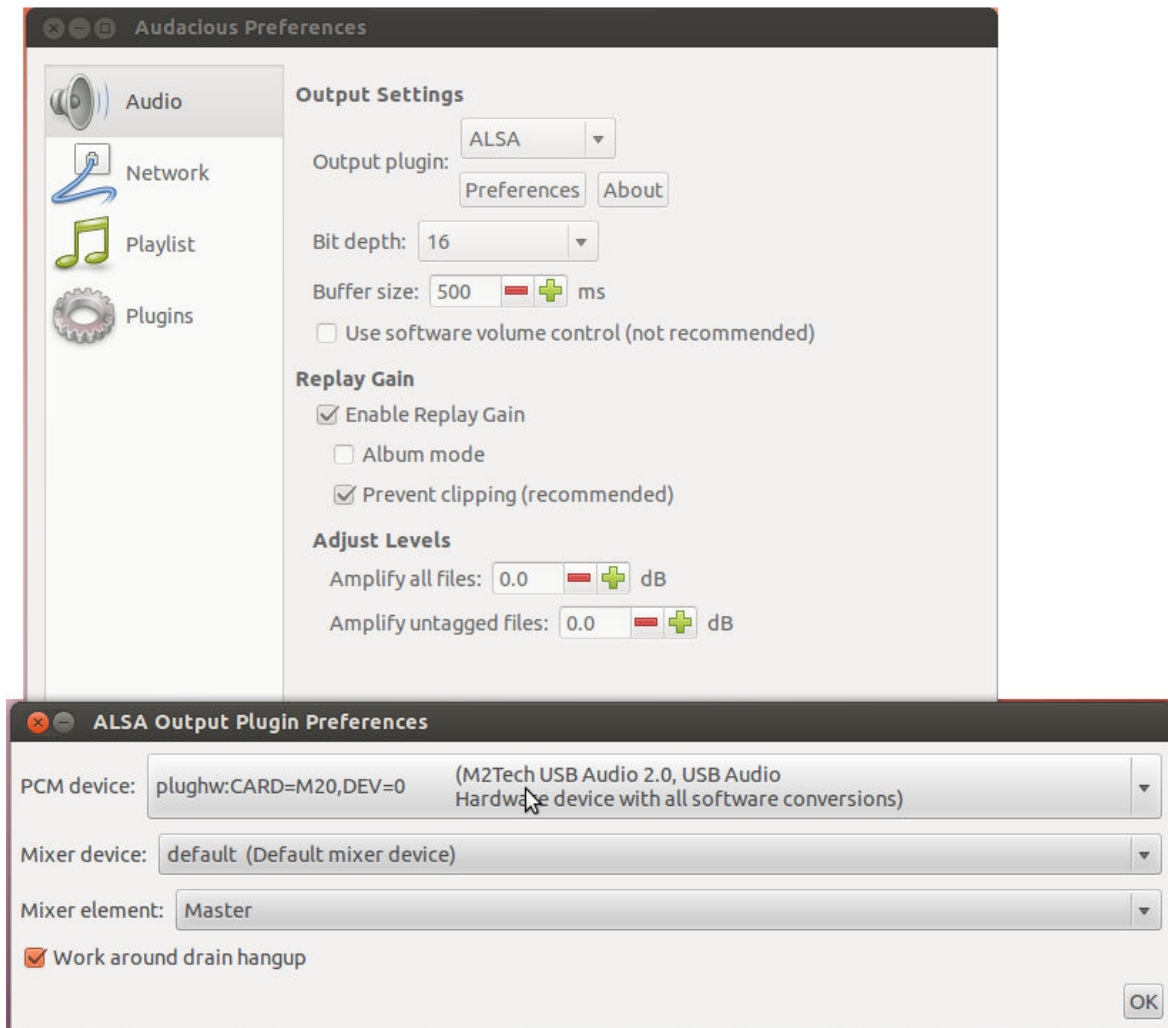


Figure 9

9.2.1. DSD files playback with Linux

The availability of DSD audio files is quite recent, therefore it's possible that your player is not able to play DSD files, or maybe its most current release it is, but not the one you have installed on your computer. For example, MPD player, by far the most used under Linux, only supports DSD since its 0.17 release. Be sure that your player supports DSD and refer to the instructions provided by the player creator, or install a player which you're sure supports DSD.

9.3. Using the EVO DAC TWO PLUS with Windows

As explained in the introductory paragraph to the present chapter, no Microsoft operating system natively supports USB Audio Device Class 2. To listen to music files with the EVO DAC TWO PLUS connected to a computer running Windows it is therefore necessary to install a driver. The following paragraph describes the driver installation procedure.

NOTE: Installation procedure's details may vary depending on the version of the operating system installed on your computer. This description is meant to be

accurate with regards to the fundamental steps necessary to its successful completion.

NOTE: The EVO DAC TWO PLUS is designed to implement the HID interface for remote control of the player running on a computer attached by USB (see chapter 9). This could lead to compatibility problems with Windows XP. We strongly suggest updating the operating system to a more recent version than Windows XP before installing the driver.

9.3.1. Installing the Windows driver

First, it is necessary to download the driver from the M2Tech website at (www.m2tech.biz/it/hifaceevotwo.html) Here you'll find the compressed folder containing all installation files. It's a self-extracting file: automatic extraction is launched by double-clicking on its icon, as shown in Fig. 10.

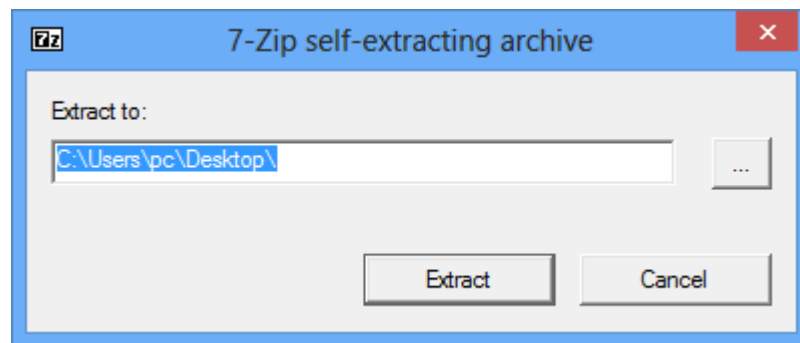


Figure 10

NOTE: files are extracted in the folder displayed in the window, usually the desktop. For a better handling of the installation operation, we suggest to create a temporary folder and extract files into it, or into a folder you may want to keep. In this case, just designate a new folder and direct the extraction process to that folder.

A window showing the extraction process appears for a while. When extraction is complete, the application finishes automatically. In case of errors during extraction, a diagnostic window is shown instead (Fig. 11), which remains open to show error messages. After reading messages, close the application by clicking on the “close button”.

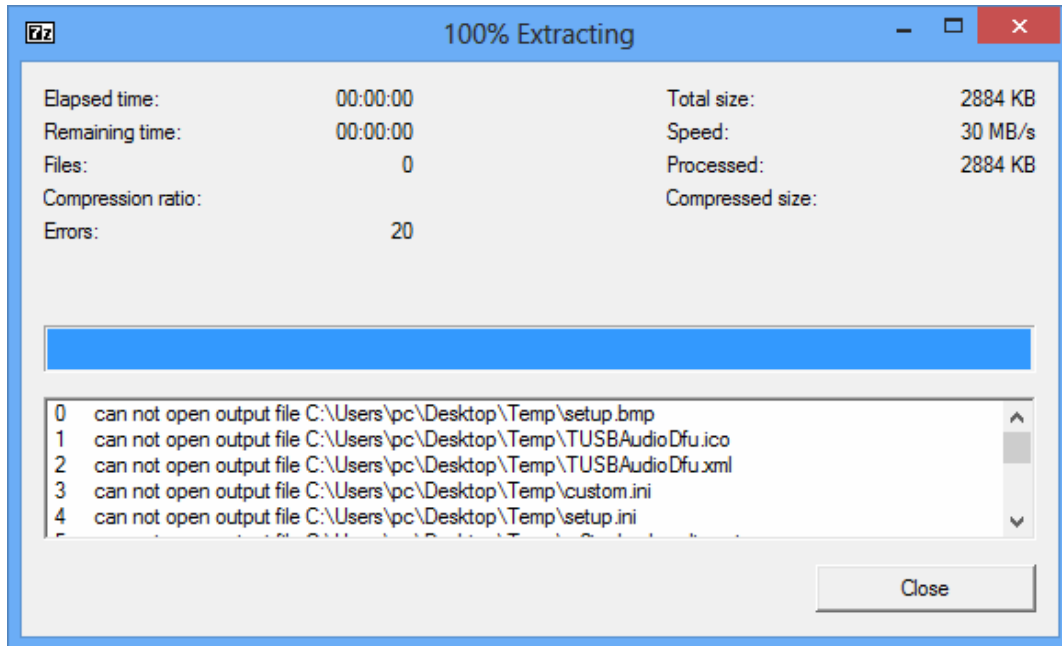


Figure 11

Once the files are extracted, open the temporary folder or the folder you have designated and run the setup application by double-clicking on “setup.exe” (Fig. 12).

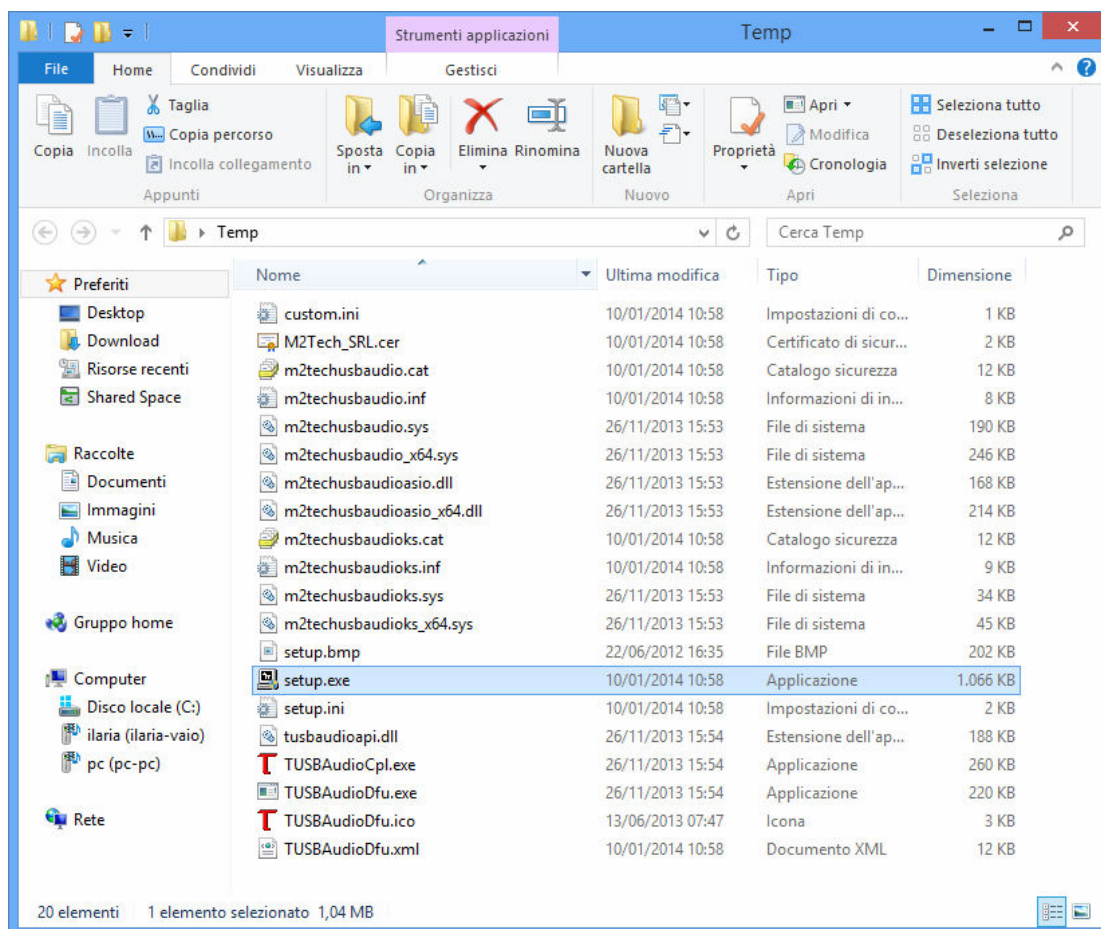


Figure 12

Once setup is launched, the window shown in Fig. 13 appears.



Figure 13

NOTE: It may happen that the operating systems shows a warning window first, stating that the setup application will modify the operating system. Close the warning window by clicking on the “OK” button to let the setup program free to proceed.

Connect the EVO DAC TWO PLUS to the computer and switch it on. Then, click on the “Next” button to proceed with installation. The window shown in Fig. 14 will appear.

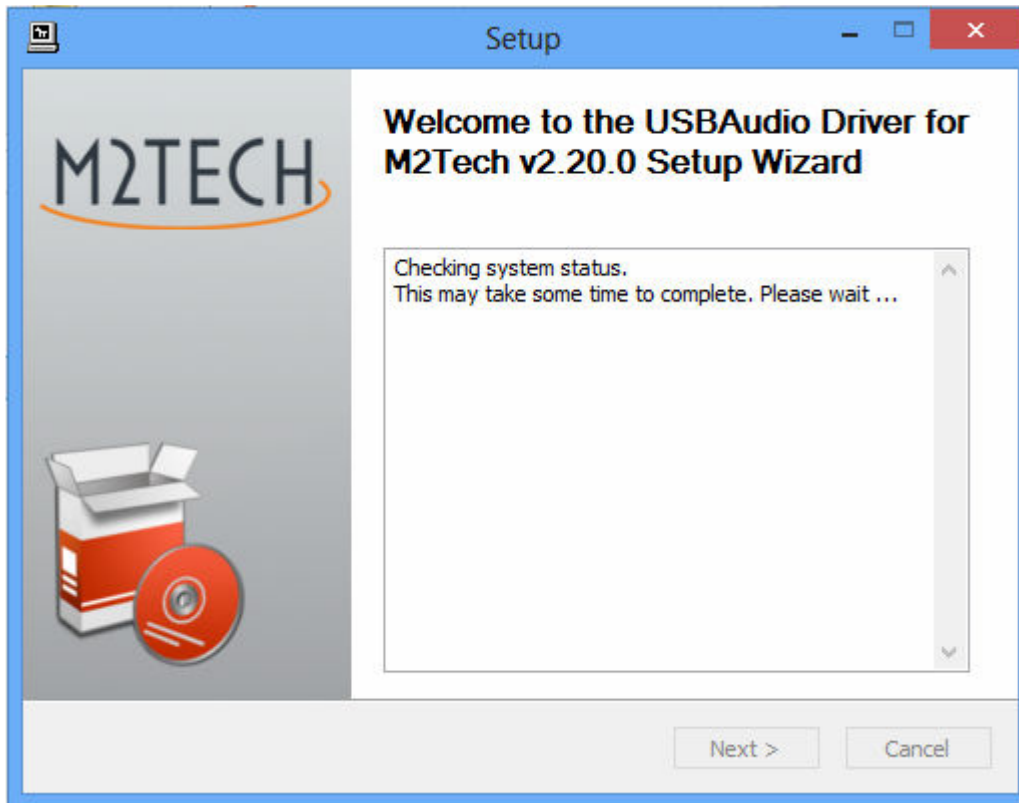


Figure 14

If the DAC is correctly connected to the computer, after a few seconds the window shown in Fig. 15a will appear. If necessary, indicate a folder of your choice, otherwise leave the one proposed by the setup. Click on the “Install” button.

When the EVO DAC TWO PLUS is off or when the computer doesn't recognize the connection to the EVO DAC TWO PLUS, then window shown in Fig. 15b may appear. In this case, follow the instructions displayed in red and then click on the “Next” button.

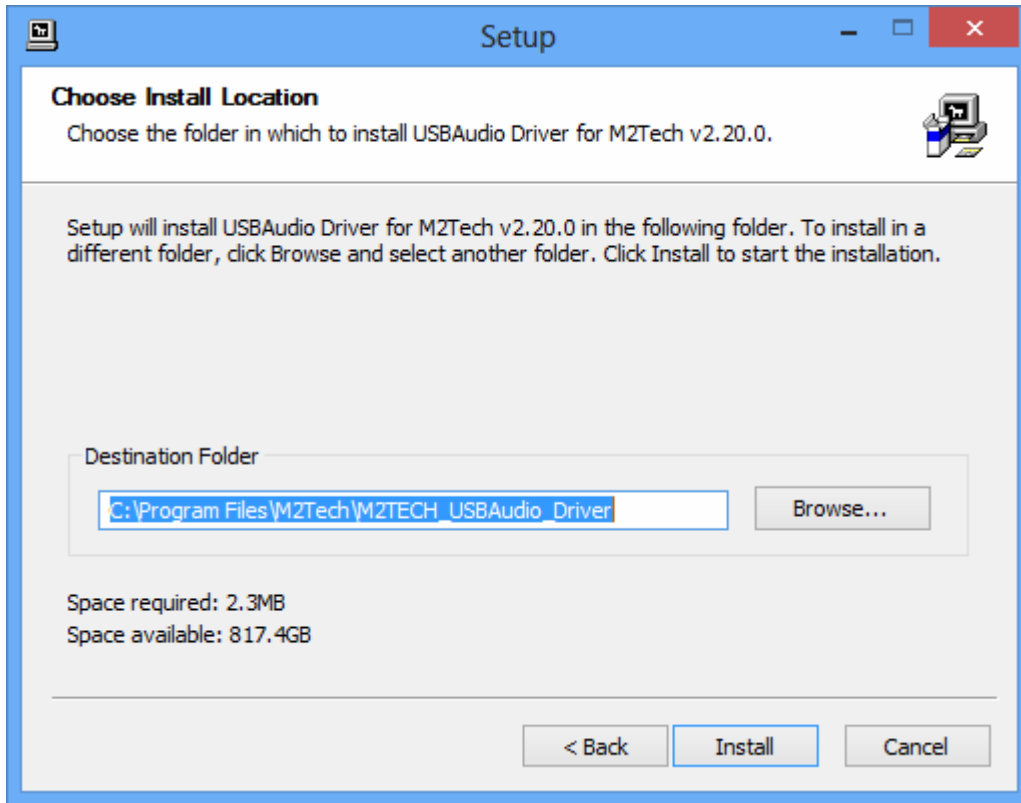


Figure 15a

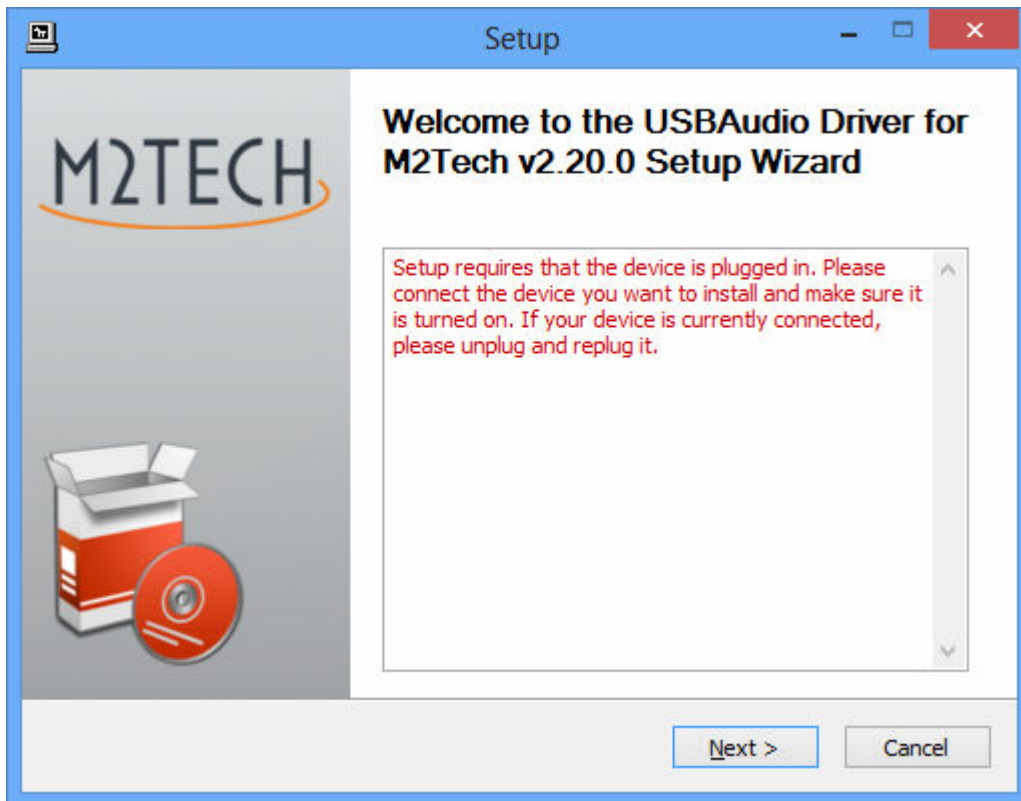


Figure 15b

If the window shown in Fig. 15a has appeared and the user has clicked on the “Install” button, the installation procedure goes on and a new window appears that shows the progress of the installation of the various files which make the driver, as shown in Fig. 16.

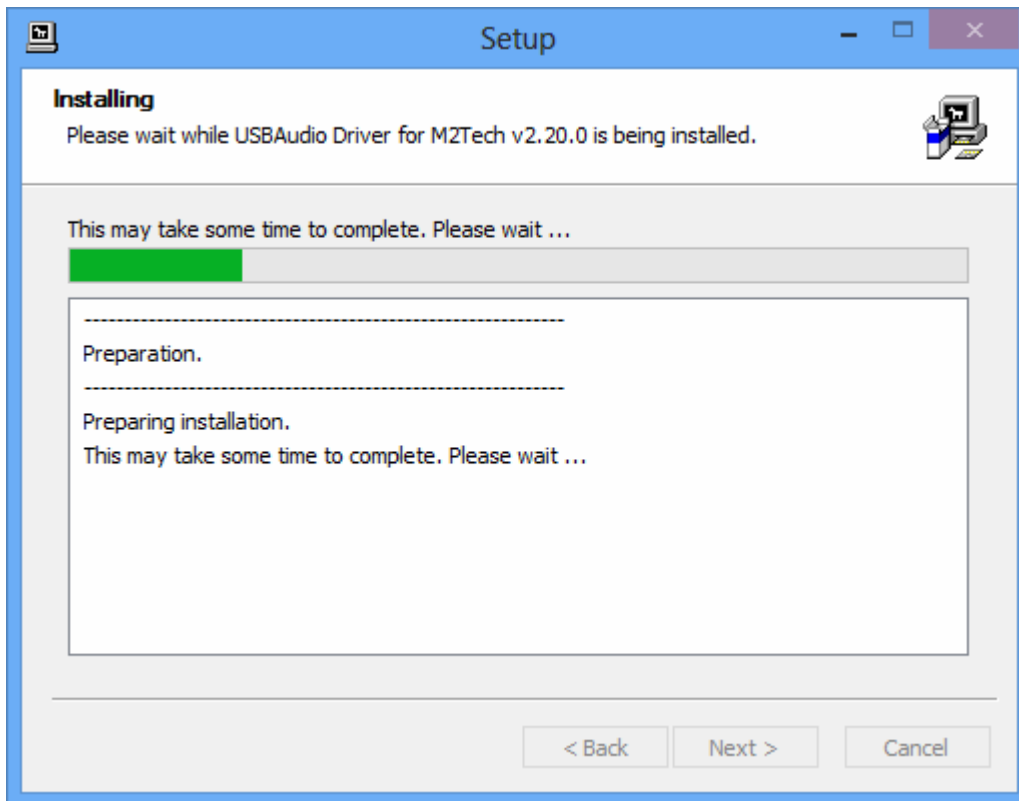


Figure 16

At the end of installation, the windows will show the complete list of installed files and will enable the buttons located in the lower right angle of the window border, as shown in Fig. 17.

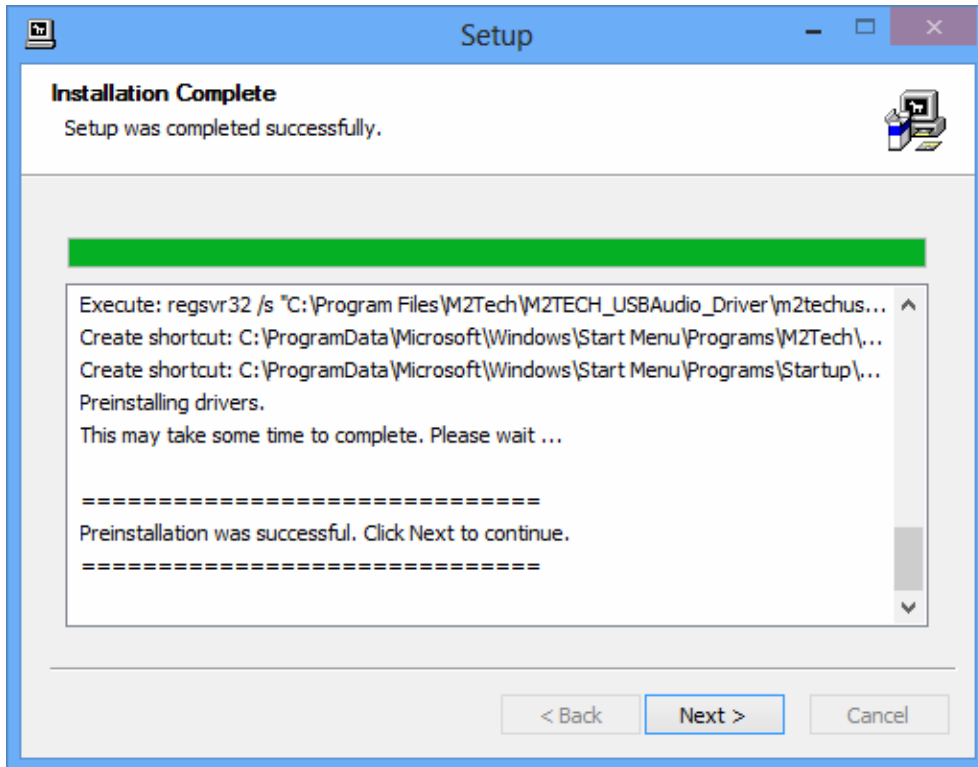


Figure 17

As suggested by the instructions, click on the “Next” button to confirm the installation. The final setup window will appear as shown in Fig. 18.

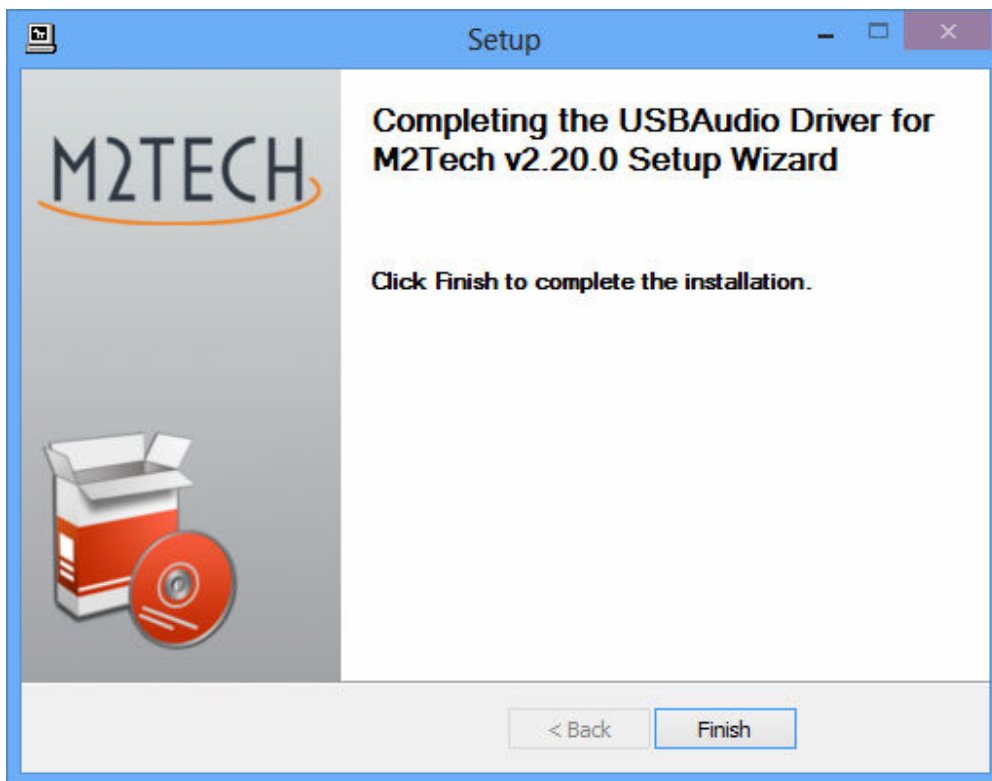


Figure 18

Click on the “Finish” button to close setup: The driver installation is now complete.

NOTE: Some Windows versions require a reboot to enable the driver just installed: Fig. 19 shows the dialog window for Windows 7.

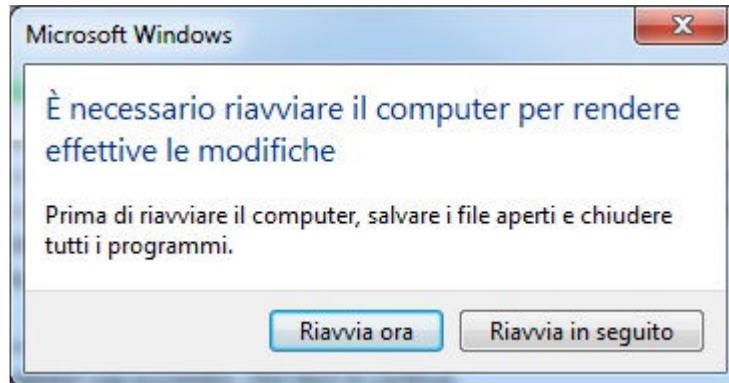


Figure 19

Installation success can be checked by looking for the big “M2” icon in the peripheral section of Windows bar or in the active peripherals window, depending on operating system version.

NOTA: With some Windows versions (e.g. Windows XP, which we strongly suggest that you don't use), the driver installation procedure does NOT complete with setup end. In fact, the operating system will recognize a new USB device (the EVO DAC TWO PLUS, of course) and will begin a search for the best driver (which is the one just installed) to create an instantiation associated to the specific port to which the DAC is attached. Should this happen, reject the option of internet search for the driver files and proceed with automatic installation: the Windows wizard will then search amongst the drivers already installed, will locate the right one and proceed to the end of the association process. At this point only, will the EVO DAC TWO PLUS be correctly recognized and can be used to listen to music files.

9.3.2. Windows driver uninstall

The EVO DAC TWO PLUS driver uninstall may be required for various reasons. For sure, it is mandatory to uninstall any previous driver version before installing the latest one.

It is possible to start uninstall in two different ways: Using the applications installation utility from the Control Panel or directly launching the uninstaller that can be found in the driver folder on the hard disk. The same application is actually used in both cases; the choice is up to user's preference.

When launching the Windows' applications installation utility from the Control Panel, the window shown in Fig. 20 appears, this also lists EVO DAC TWO PLUS driver.

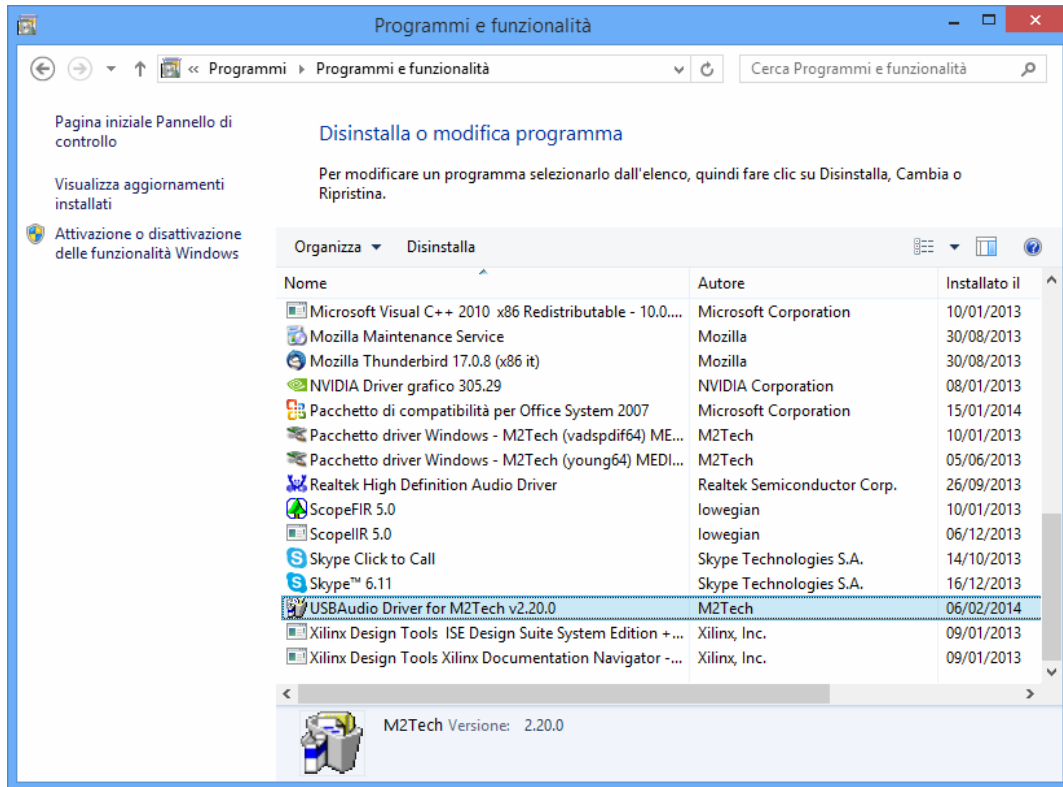


Figure 20

By double-clicking “USB Audio Driver for M2Tech...” the uninstall application is launched, which shows itself like in Fig. 21.



Figure 21

It's sufficient to click on the "Uninstall" button to start uninstall. A windows appears that shows the uninstall progress, like as shown in Fig. 22.

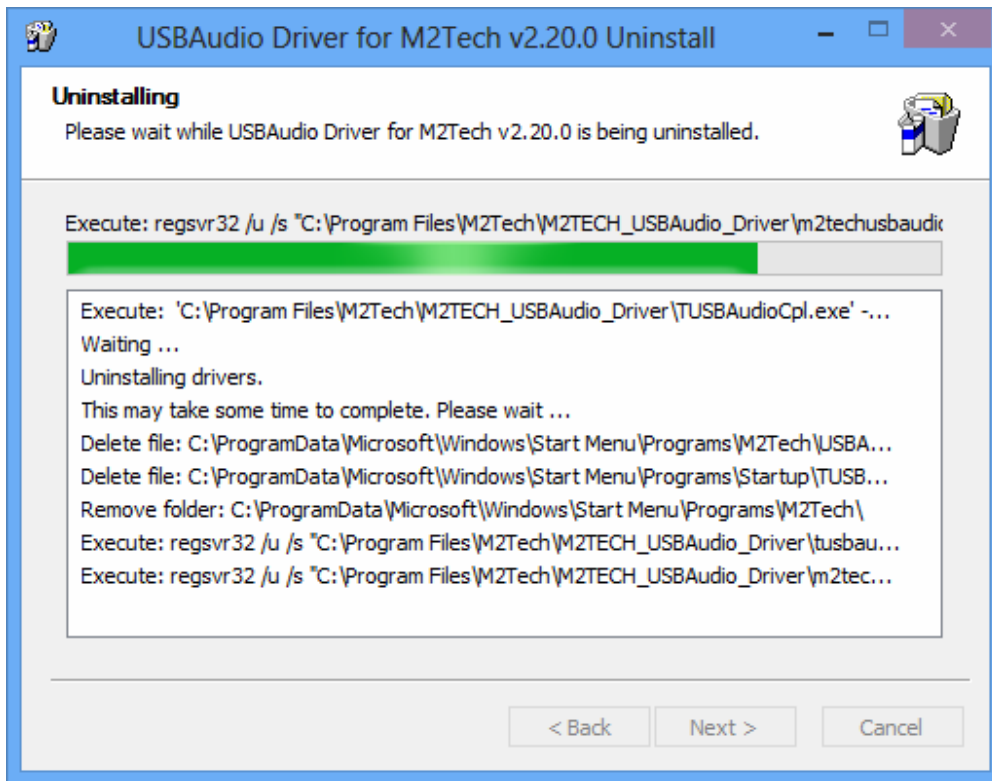


Figure 22

At uninstall completion, the window will show the entire list of deleted files and will enable the buttons located to the lower right corner of the window border, as shown in Fig. 23.

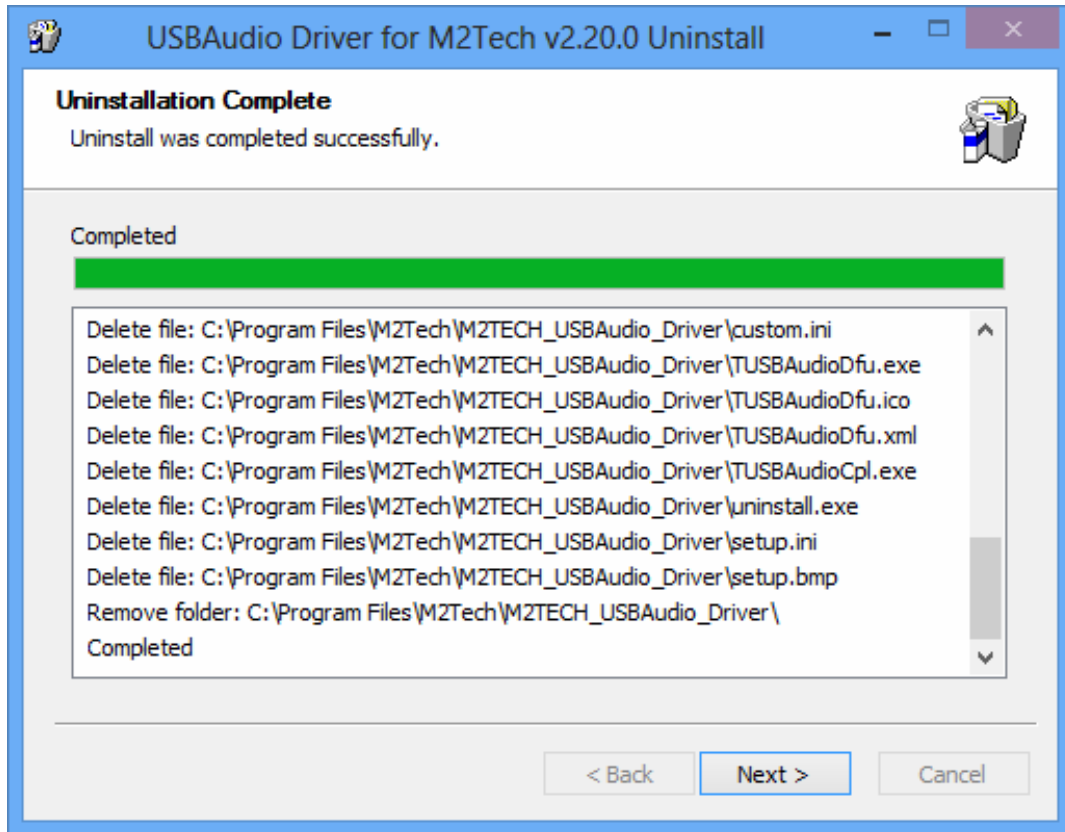


Figure 23

Click on the “Next” button to confirm uninstall completion and to close the uninstall utility. One last window will appear as shown in Fig. 24



Figure 24

Click on the “Finish” button to close the application. At this point if the user launched uninstall from the Control Panel, it is possible to verify that the driver has really been uninstalled by checking for its absence from the applications list, as shown in Fig. 25.

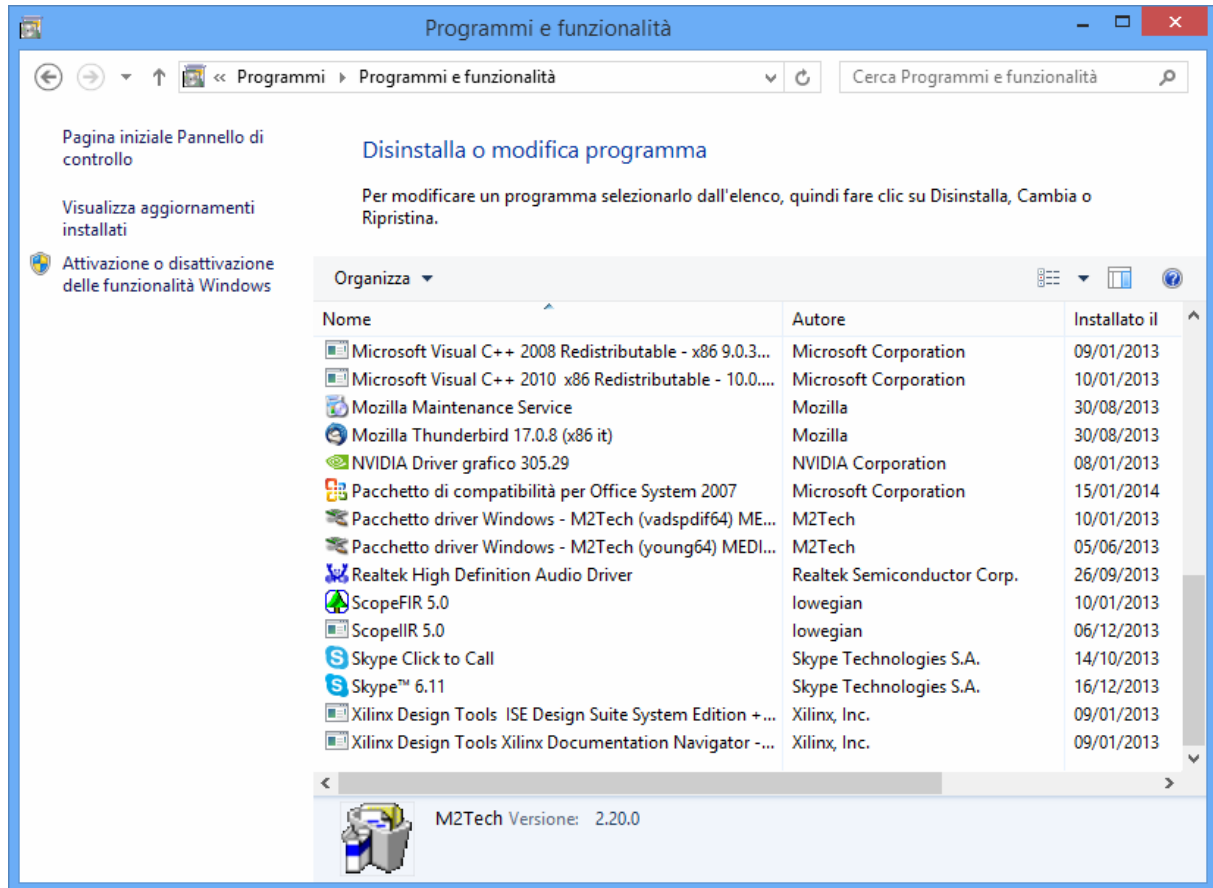


Figure 25

NOTE: Even after uninstall, depending on the Windows version used, it is possible that the system may require a reboot to update its configuration.

9.3.3. Windows Driver Panel

Together with the EVO DAC TWO PLUS driver, a comprehensive management panel is installed, which runs in background and allows user to optimize the driver operation.

The panel can be restored in the foreground by clicking on the big “M2” icon present in the right part of the Windows bar or in the peripherals window, depending on the operating system version installed on your computer.

When the EVO DAC TWO PLUS or any other M2Tech device is not connected to the computer, the window shown in Fig. 26 will appear.

Conversely, when the EVO DAC TWO PLUS is connected, then the panel will show some general information about the driver and will exhibit a tree menu as shown in Fig. 27.

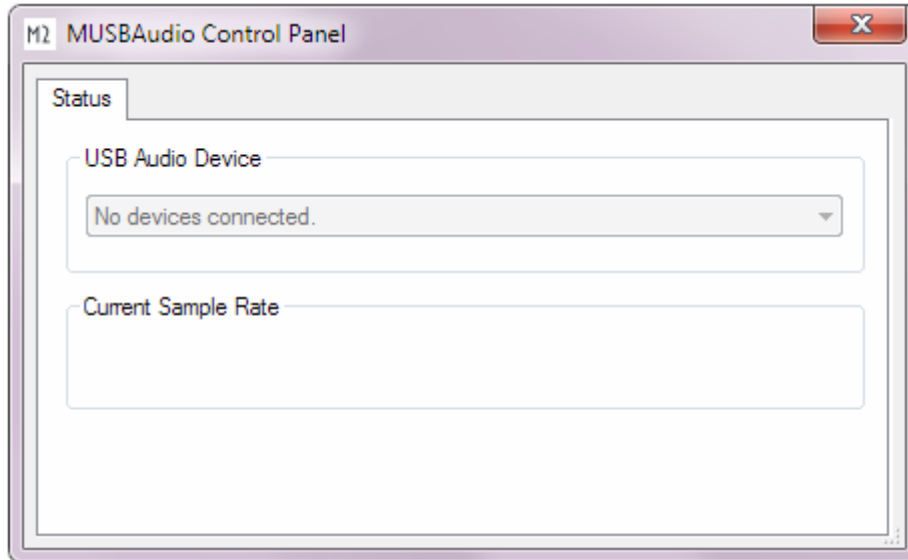


Figure 26

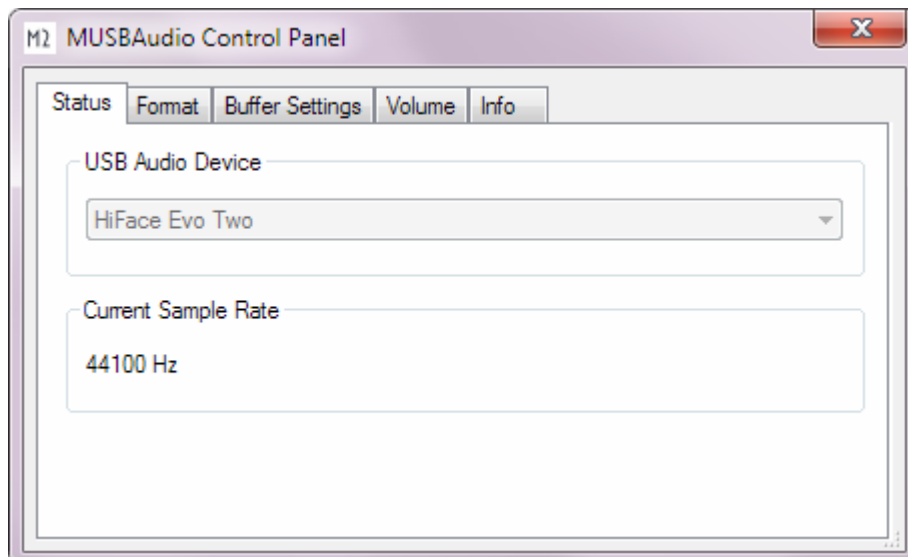


Figure 27

Of main interest is the driver version, as users may visit the M2Tech website from time to time to check for availability of more recent driver versions and eventually go for an update to download and install.

By clicking on “Buffer Settings” the user accesses the window to set the buffers through which the driver exchanges data with the operating system or directly with the player (Fig. 39). Two drop boxes are present, one for the buffer shared with the operating system and one for an ASIO buffer (which bypasses the operating system and needs a specific setting). As a general rule, a small buffer is to be preferred when low latency is required (e.g. when the EVO DAC TWO PLUS is used to listen to a movie’s audio). In any event, a small buffer needs frequent data transfers, which may result in “holes” in the audio stream when the CPU is heavily loaded or when one of the active drivers doesn’t comply with the time specification of the system.

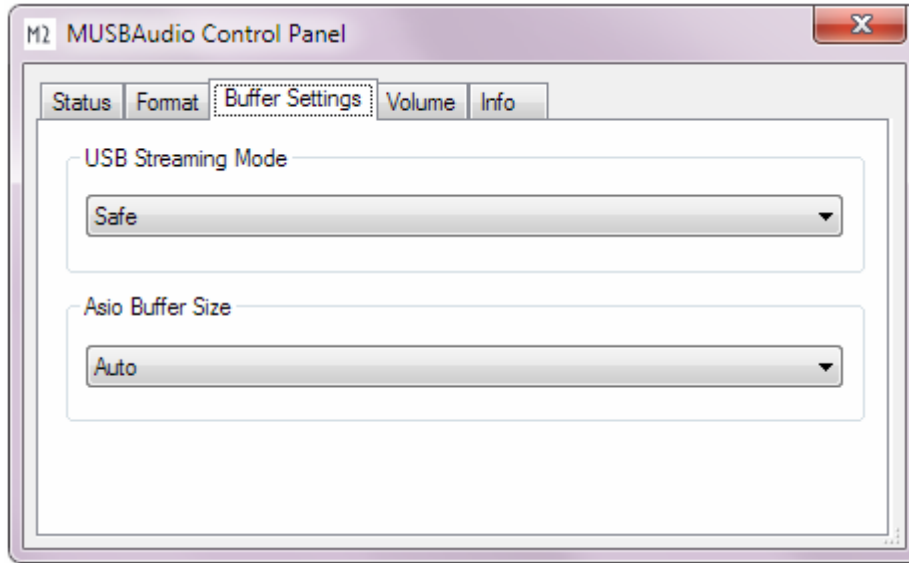


Figure 28

For every device associated to a driver instantiation, a setting window is available. In Fig. 29 the window is shown.

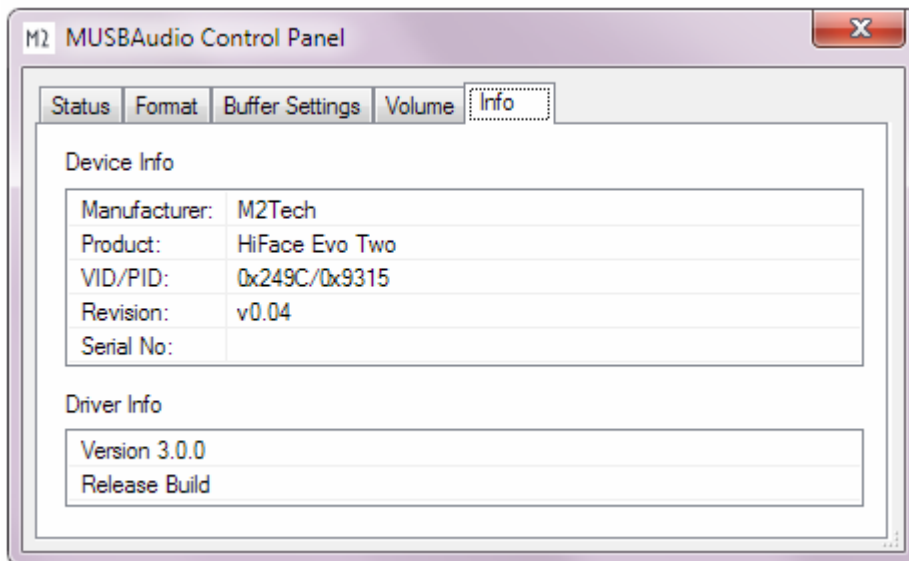


Figure 29

The control panel also sports a volume control, shown in Fig. 30. there are two volume control, one for the computer input and one for the computer output.

The XMOS-based system used in the EVO DAC TWO PLUS allows for digital volume setting. Anyway, we suggest not to use this feature as its operation will reduce the sonic performance, even more so for low volume settings. It's important to be aware that, in case of the absence of sound, the total mute in this window may be enabled (one or both "M" buttons pressed).

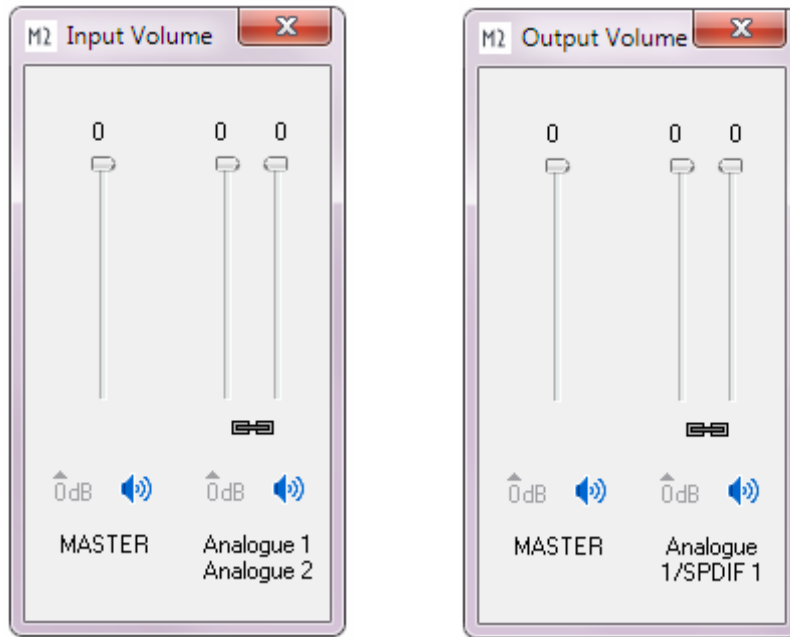


Figure 30

To end up, the panel allows for setting the default format for data samples (Fig. 31).

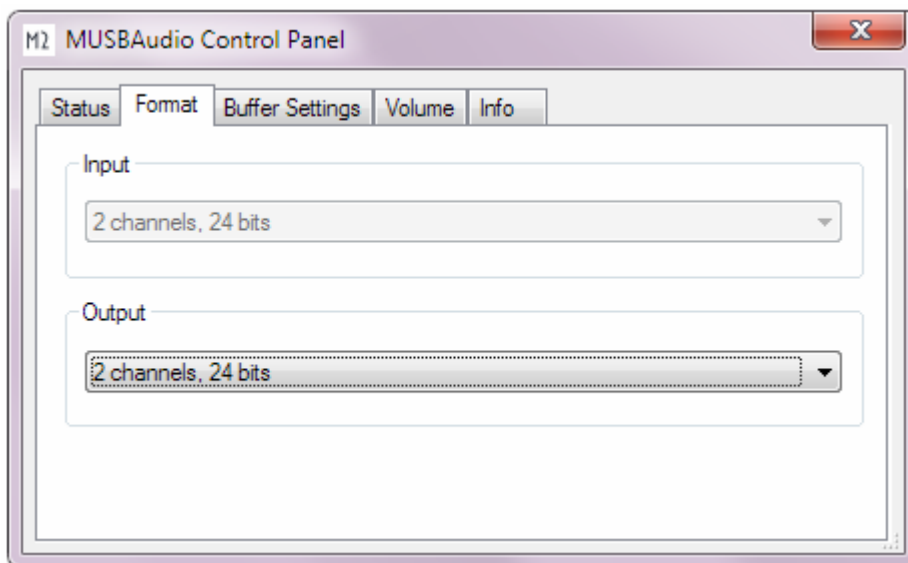


Figure 31

9.3.4. Using the EVO DAC TWO PLUS as Windows predefined audio device

When using certain players, such as Windows Media Player, or when listening to streaming music from the Internet, it is necessary to set the EVO DAC TWO PLUS as the predefined audio output device. To this purpose it is necessary to access the Audio Configuration utility from the Windows Control Panel (Fig. 32).

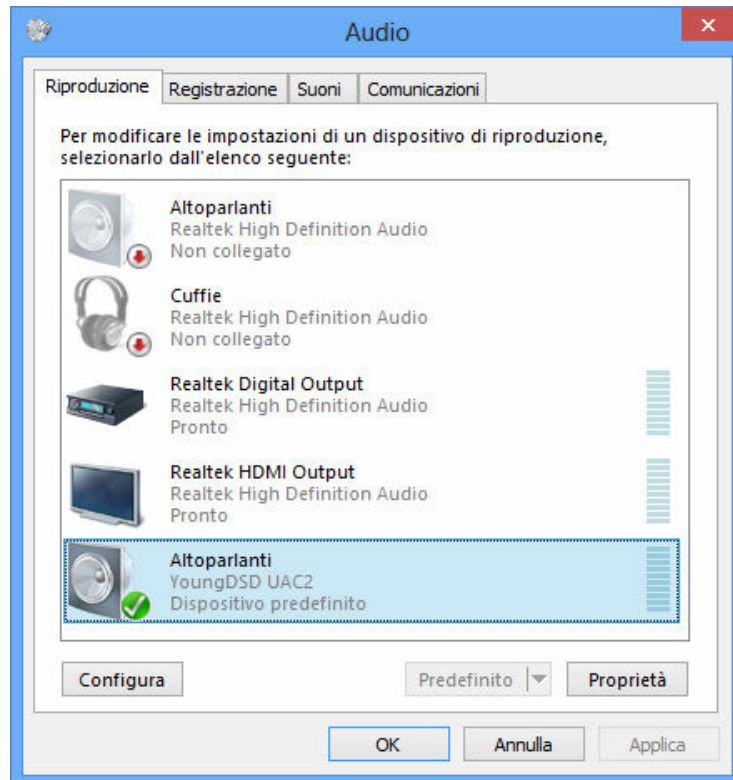


Figura 32

Here the user must select “Evo DAC Two Plus UAC2” as predefined device (as it’s already been done in the case shown in Fig. 32). From that moment on, every sound produced by Windows or any application which relies on Windows to deliver its sound will be sent to the EVO DAC TWO PLUS.

It is also possible to tell the operating system which sampling frequency and resolution are to be used to operate the EVO DAC TWO PLUS. To this purpose, it is sufficient to click on the “Properties” button, thus opening the window shown in Fig. 33.

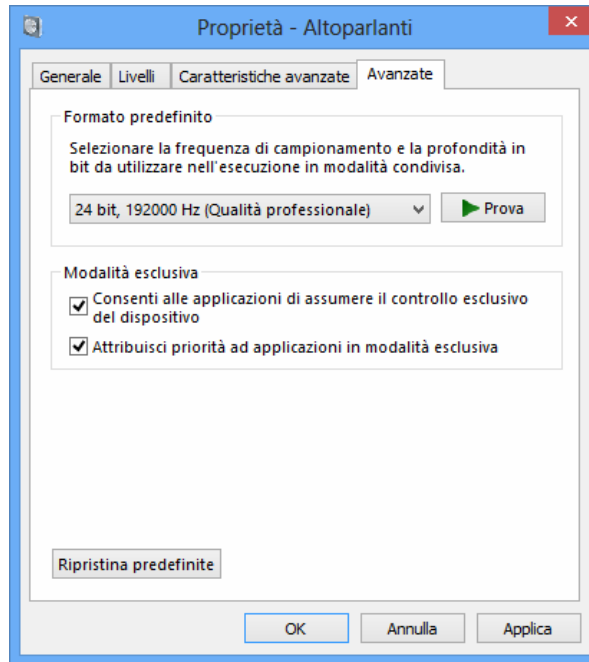


Figure 33

By accessing the drop-down menu available in the “Advanced” tab it will be possible to choose one of the system’s available configurations. Once a configuration is chosen, the system will automatically convert any audio signal with different sampling frequency and resolution so that the EVO DAC TWO PLUS will always work at the sampling frequency and resolution set by the user.

Should the user need the operating system not to process the audio to be sent to the EVO DAC TWO PLUS, or when the limits of system settings need to be overcome, it is necessary to use a player able to directly interface to the driver, using a transfer mode like Kernel Streaming, WASAPI or ASIO, all are “bit-perfect” modes as they ensure that no signal changes occur during the transfer from the player to the EVO DAC TWO PLUS.

9.3.5. Configuring the player: FooBar and JRiver Media Center

A player able to communicate with the driver without using the operating system usually delivers better performance with respect to players which rely on Windows to transport audio.

Amongst the problems or limits more often observed when the latter kind of players is used, is the 192kHz limit, the lack of compatibility with DSD and the fact that all various sampling frequencies are always converted to the sampling frequency chosen by the user in the Control Panel.

As examples, following are some suggestions to use the EVO DAC TWO PLUS with two well-known media players, a free one and a commercial one.

The first one is FooBar (www.foobar2000.org). FooBar is able to work in all modes accepted by the EVO DAC TWO PLUS: Direct Sound, Kernel Streaming, WASAPI and ASIO. Skipping installation instructions, which are beyond this manual's scope, we explain how to configure FooBar in ASIO mode, which is the **optimal choice** for the EVO DAC TWO PLUS.

foobar offers ASIO support through the installation of a specific DLL. It must be downloaded from the "Components" section of the FooBar website, from the page http://www.foobar2000.org/components/view/foo_out_asio.

NOTE: Unlike many other FooBar DLL's, which are contained in a zip file and must be manually extracted and copied into the "Components" folder inside FooBar's root folder, the ASIO file which is downloaded from the FooBar website is an application which automatically installs the DLL in the right folder, without any explicit action by the user. It only needs to be launched by double-clicking its icon.

Once the operation above is done, FooBar can be launched to access the configuration windows by typing CTRL+P, or selecting the menu item "Preferences" from the "File" menu. Then, select the sub-menu item "Output", which should also have a lower menu level called "ASIO": The window shown in Fig. 34 will appear.

Select "ASIO: MUSBAudio ASIO Driver" in the dropdown menu called "Device". FooBar is then ready to use the EVO DAC TWO PLUS as the output device in ASIO mode, to play bit-perfect PCM audio up to 384kHz and 32 bit.

It is now necessary to set FooBar for DSD file playback. To this purpose, it is necessary to install another DLL, the one for SACD compatibility, which can be downloaded from the Sourceforge website: <http://sourceforge.net/projects/sacddecoder/files/latest/download>.

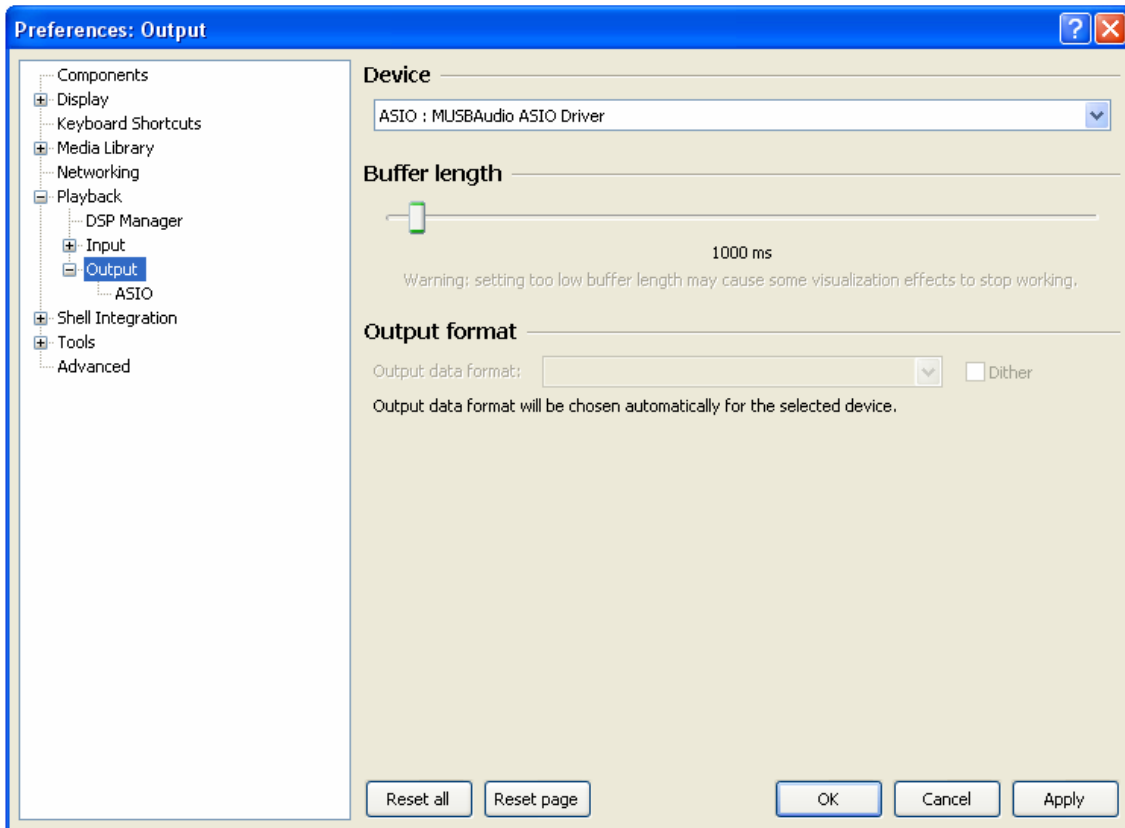


Figure 34

The zip file contains two executables, both to be used: one for the installation of the component for the compatibility with SACD ISO files, plus a proxy file to send DSD to a compatible audio device provided with an ASIO compliant driver, like the EVO DAC TWO PLUS.

After installing DLL and proxy, in the “ASIO” section of “Output” two ASIO objects will appear (Fig. 48): the M2Tech driver and the proxy (“foo_dsd_asio”).

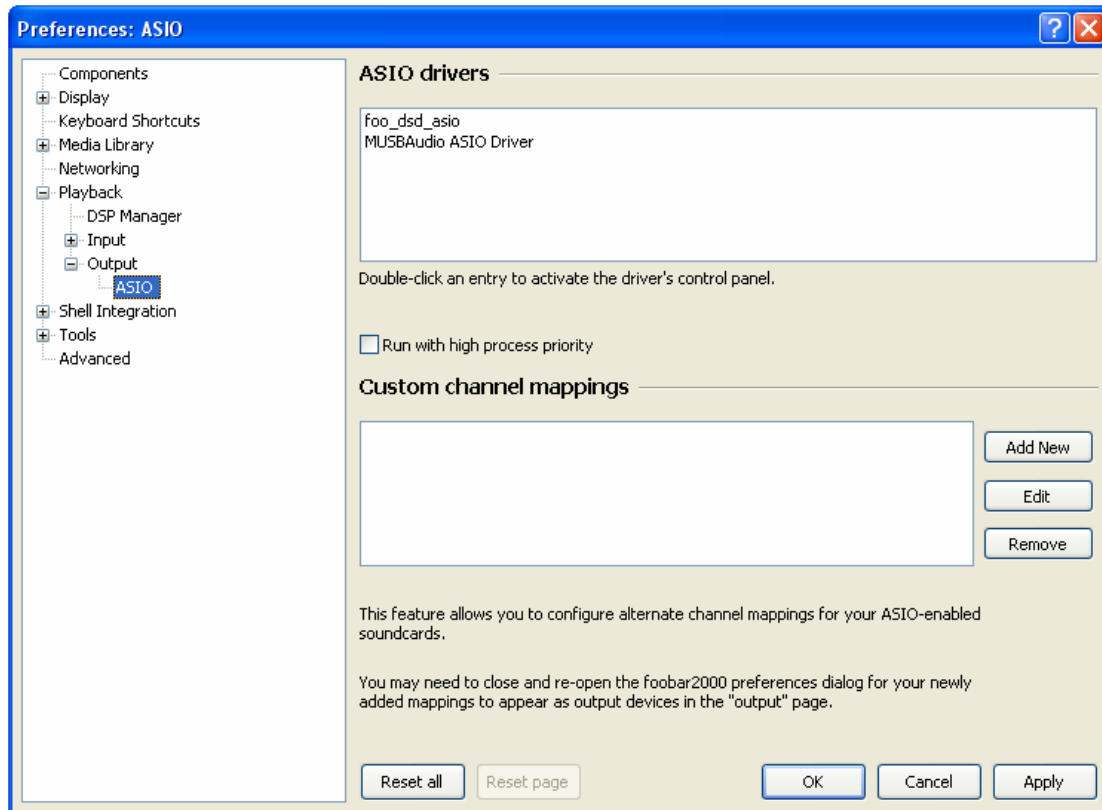


Figure 35

Double-click on “foo_dsd_asio” to open the configuration window as shown in Fig. 36.

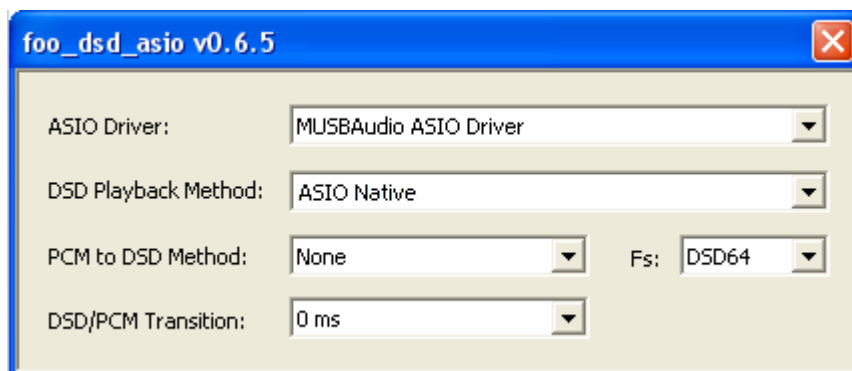


Figure 36

Configure the parameters as in the figure: FooBar is now ready to send DSD streams from DSD files to the EVO DAC TWO PLUS.

The second player used as an example is JRiver Media Center (www.jriver.com). JRiver is a commercial player, a “closet” product which is delivered provided with all the needed features to support various audio transfer modes and the various audio formats.

As with FooBar, we’ll skip the installation instructions for the player. Access JRiver’s option window and set “ASIO” in the “Audio” section as “Output mode” (Fig. 37).

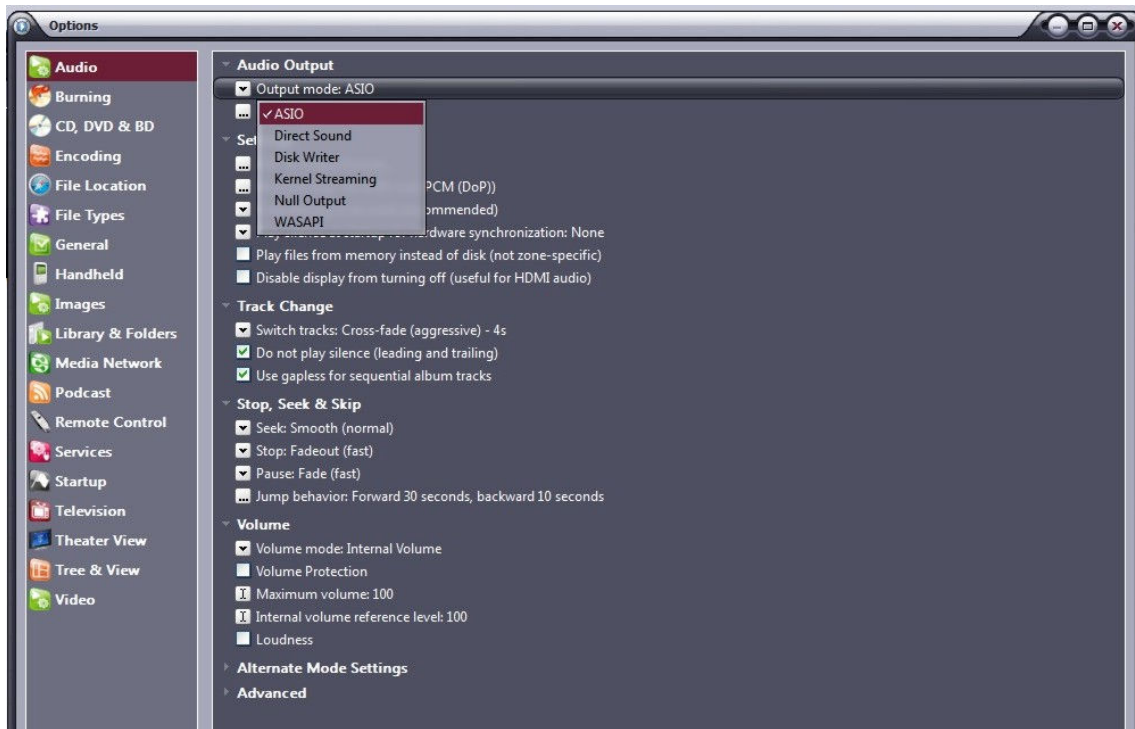


Figure 37

Then, open the window for the configuration of the output mode (“Output mode settings”), which is obviously dedicated to ASIO, and select the “MUSBAudio ASIO Driver”, as shown in Fig. 38.

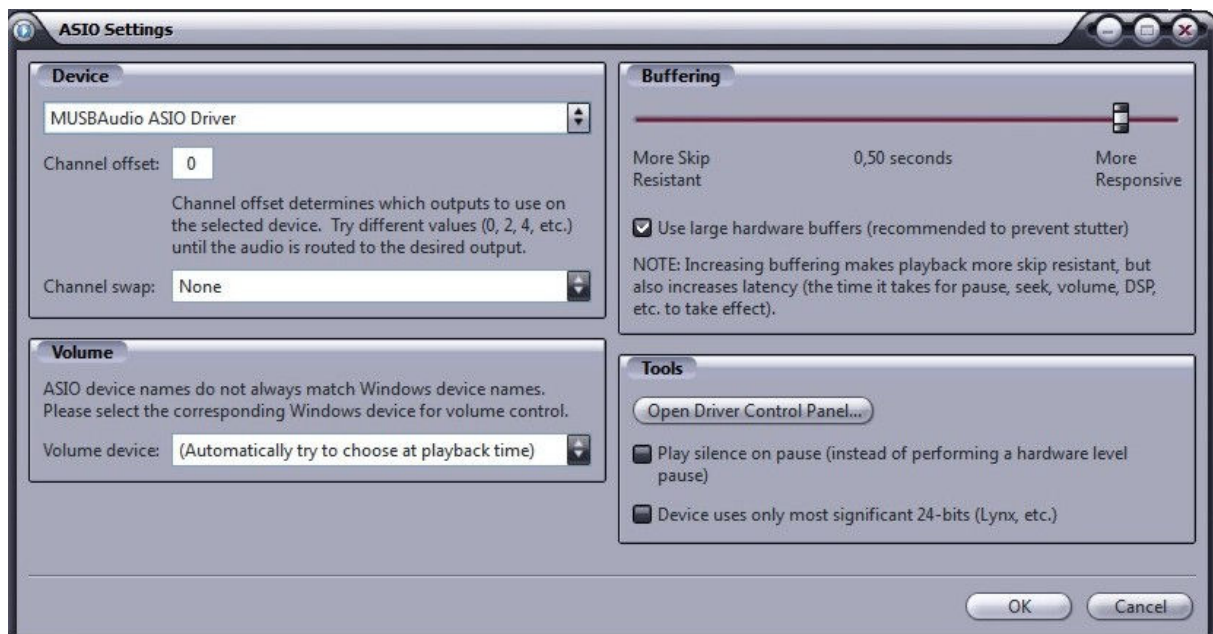


Figure 38

At this point, JRiver recognizes the capability to handle DSD in DoP (DSD over PCM) format. From the dropdown menu which is selected by clicking on “Bitstreaming”, select “Custom...” as shown in Fig. 39

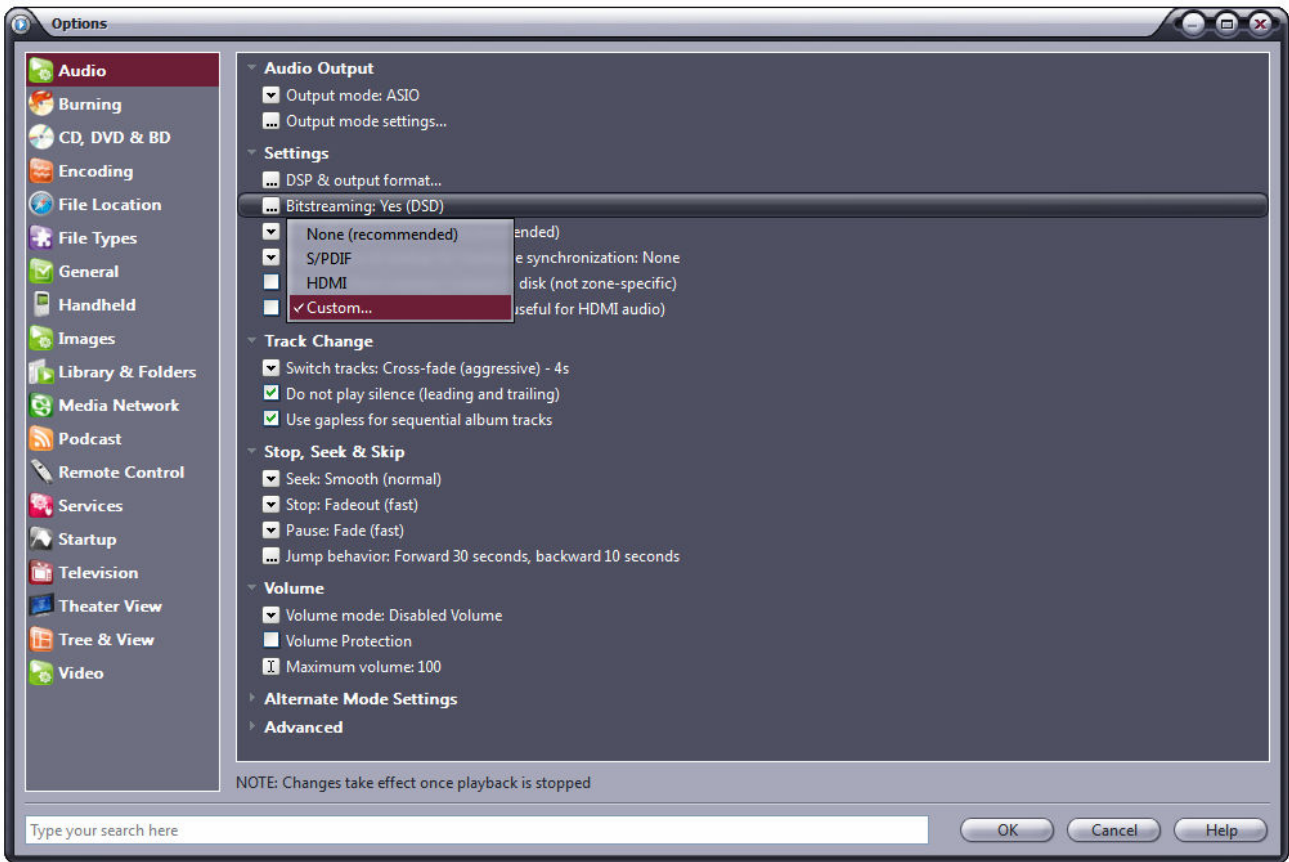


Figure 39

A window will automatically appear in which the user can manually set the bitstream configuration parameters (Fig. 40). Set parameters as shown in figure.

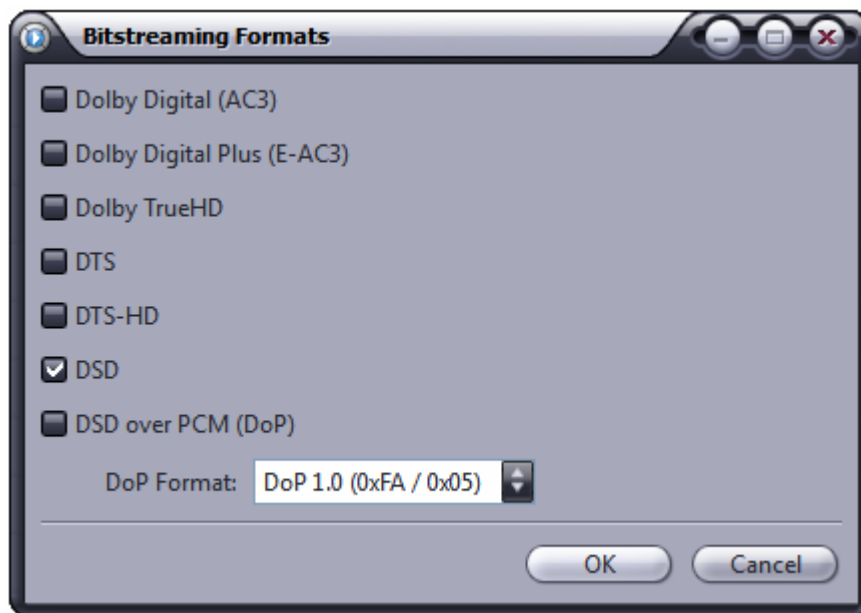


Figure 40

The configuration procedure is almost over: we still need to tell JRiver not to downsample data streams with sampling frequency higher than 192kHz, (An operation which is usually enabled to cope with all those DAC's, still the vast majority, which can only accept sampling frequencies up to 192kHz). Obviously, this would lead to trouble with DSD128, which is same as a 352.8kHz PCM stream. Therefore, access the "DSP and output" menu and set the parameter related to the processing of files with sampling frequency higher than 192kHz as in Fig. 41.

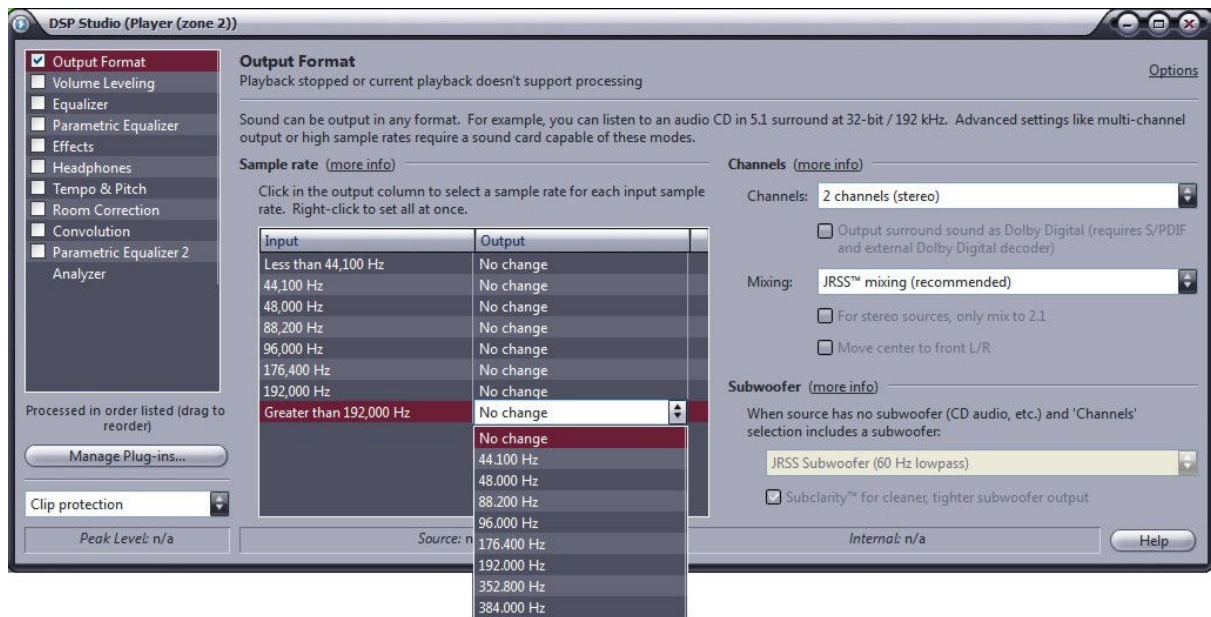


Figure 41

JRiver configuration is complete and the user can now listen to PCM files up to 384kHz and DSD files up to DSD128.

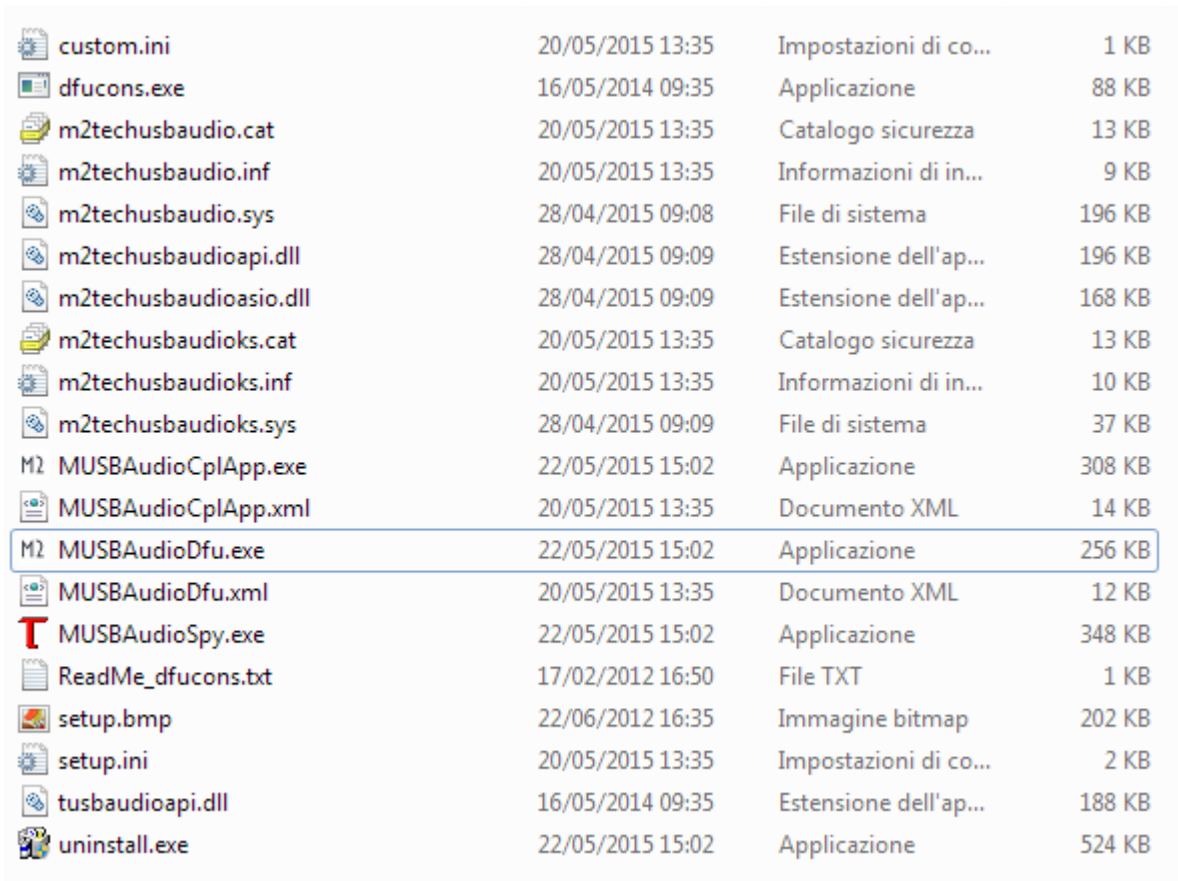
9.3.6. Connecting the EVO DAC TWO PLUS to an USB 1.1 port

It is possible to connect the EVO DAC TWO PLUS to an USB 1.1 port under Windows. In this case, the driver will scale the DAC's performance to comply with USB Audio Device Class 1 specifications. When choosing the predefined output device, the name "Evo DAC Two Plus UAC1" will appear.

In such a scenario, the EVO DAC TWO PLUS will still be usable, however limited to audio PCM files with sampling frequency up to 96kHz and with no DSD playback.

10. Updating the Evo DAC Two Plus firmware

The user can update the firmware of the EVO DAC TWO PLUS straight from her/his Windows PC. To this purpose it is necessary to download the latest firmware from M2Tech website and use the app named "MUSBAudioDfu.exe" which can be found in the "C:\Program Files\M2Tech\M2TECH_USBAudio_Driver" folder (unless the user, during driver installation, has chosen a different destination folder).



custom.ini	20/05/2015 13:35	Impostazioni di co...	1 KB
dfucons.exe	16/05/2014 09:35	Applicazione	88 KB
m2techusbaudio.cat	20/05/2015 13:35	Catalogo sicurezza	13 KB
m2techusbaudio.inf	20/05/2015 13:35	Informazioni di in...	9 KB
m2techusbaudio.sys	28/04/2015 09:08	File di sistema	196 KB
m2techusbaudioapi.dll	28/04/2015 09:09	Estensione dell'ap...	196 KB
m2techusbaudioasio.dll	28/04/2015 09:09	Estensione dell'ap...	168 KB
m2techusbaudioks.cat	20/05/2015 13:35	Catalogo sicurezza	13 KB
m2techusbaudioks.inf	20/05/2015 13:35	Informazioni di in...	10 KB
m2techusbaudioks.sys	28/04/2015 09:09	File di sistema	37 KB
M2 MUSBAudioCplApp.exe	22/05/2015 15:02	Applicazione	308 KB
MUSBAudioCplApp.xml	20/05/2015 13:35	Documento XML	14 KB
M2 MUSBAudioDfu.exe	22/05/2015 15:02	Applicazione	256 KB
MUSBAudioDfu.xml	20/05/2015 13:35	Documento XML	12 KB
MUSBAudioSpy.exe	22/05/2015 15:02	Applicazione	348 KB
ReadMe_dfucons.txt	17/02/2012 16:50	File TXT	1 KB
setup.bmp	22/06/2012 16:35	Immagine bitmap	202 KB
setup.ini	20/05/2015 13:35	Impostazioni di co...	2 KB
tusbaudioapi.dll	16/05/2014 09:35	Estensione dell'ap...	188 KB
uninstall.exe	22/05/2015 15:02	Applicazione	524 KB

Figure 42

Fig. 42 shows the list of files in the folder above, in which the app is highlighted.

Once the app is launched, the window in Fig. 43 appears.

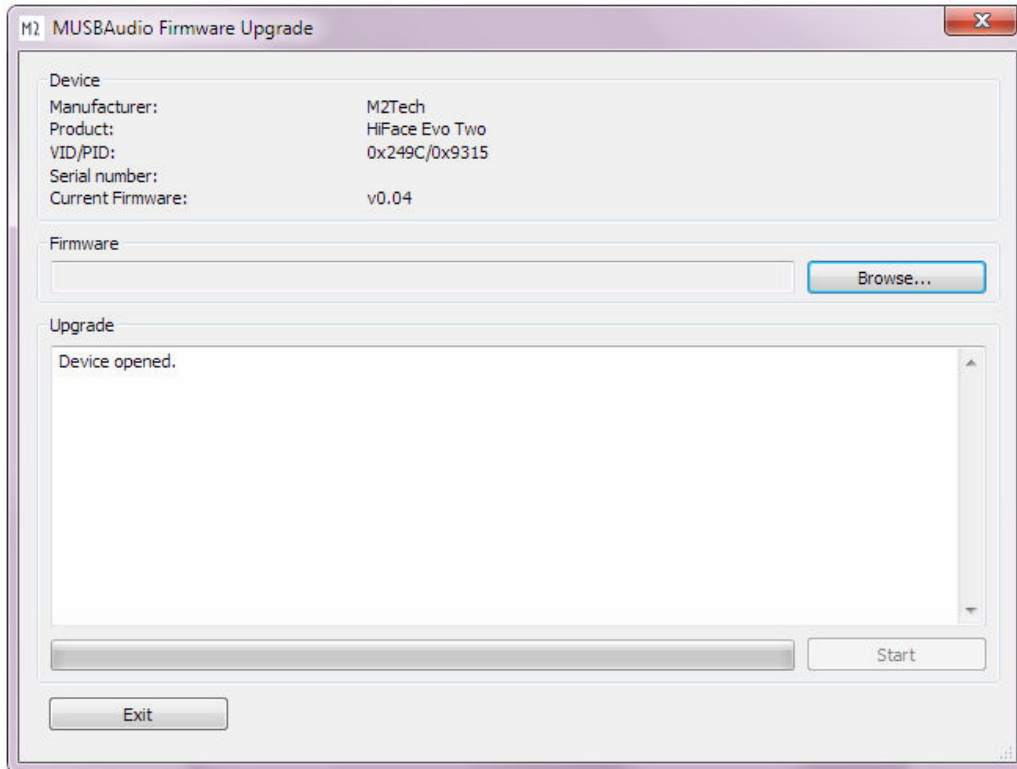


Figure 43

Click on the “Browse” button to select the file previously downloaded from M2Tech website, which contains the new firmware. Then, click on “Start” button to launch the update procedure. Wait for the update completion, which will be indicated by the control panel showing a new firmware version.

11. Specifications

Allowed sampling frequencies:	44.1, 48, 88.2, 96, 176.4, 192, 352.8*, 384kHz*, DSD64*, DSD128*, DSD256*
PCM resolution	16 to 32 bits**
Oscillators precision:.....	10ppm 0°C to 60°C
S/PDIF input level:	0.5V _{pp}
S/PDIF input impedance:.....	75 Ohms
I ² S input voltage:.....	350mV _{pp}
I ² S input impedance:.....	100 Ohm
External clock sensitivity:.....	3,3V _{pp}
External clock input impedance:	75 Ohm
Analog output level:	2.5V _{rms}
Analog output impedance:	220 Ohms
Frequency response:	3-22kHz (+0/-3dB, fs=44.1kHz) 3-90kHz (+0/-3dB, fs=384kHz)
SNR:	120dB (0dBFS, 1kHz, 20Hz-20kHz, A-weighted)
THD+N:.....	0,0003% (0dBFS, 1kHz)
Supply voltage:	7.5-15V _{DC}
Current requirement:.....	250mA
Size:.....	110x55x100mm (w x h x d)
Weight.....	0.5kg (device only) 0.8kg (packaging)

* on USB and I²S input only

** 16 to 24 bits on S/PDIF and optical