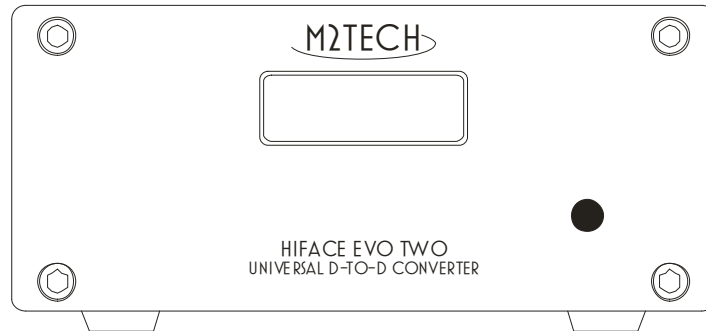# M2TECH
HIFACE EVO TWO
UNIVERSAL D-TO-D CONVERTER

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.

$$C\,E$$

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 hiFace Evo Two.

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 HIFACE EVO TWO. You're the owner of a very high quality D-to-D converter with a wealth of unique features, conceived to deliver the best performance in conjunction with your computer and digital audio devices.

HIFACE EVO TWO implements a set of technological and functional solutions, from the low jitter, high precision crystal oscillators, to the versatile external clock input for higher quality clocks like those delivered by the EVO CLOCK TWO, to the I^{2}S output in PS Audio format, to the S/PDIF input with sample rate converter for digital audio signals acquisition on the computer, to the low noise supply which can also use the USB bus 5V.

HIFACE EVO TWO is provided with a wide range of outputs in all the most used formats, therefore it's able to interface with virtually every device accepting digital audio signals on its input. The special optical output for communicating information about the sampling frequency being selected allows for automatic external clock generator reconfiguration when used with the EVO CLOCK TWO.

The remote control provided with the HIFACE EVO TWO 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 HIFACE EVO TWO: 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 HIFACE EVO TWO 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

TABLE OF CONTENTS

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 HIFACE EVO TWO;
- one 9V wall adaptor;
- one remote control.

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

Remove the HIFACE EVO TWO 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.
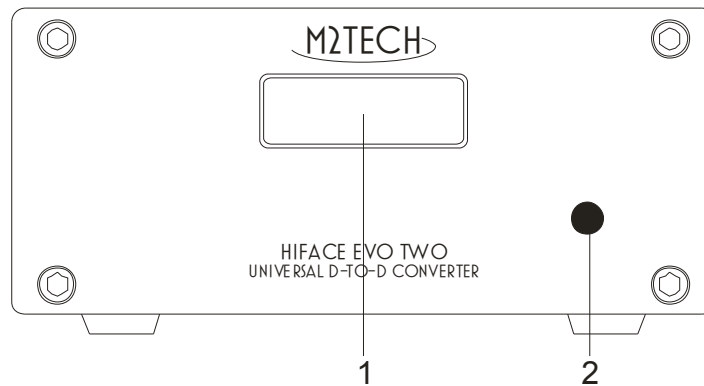
2. Front Panel

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.

NOTE: the remote control provided with the HIFACE EVO TWO is the same used for the JOPLIN and JOPLIN MKII. For this reason, whenever the user owns both units, it may happen that a command sent to one of them will also affect the other. To avoid interferences, place the two units apart each other or keep the unused unit off.
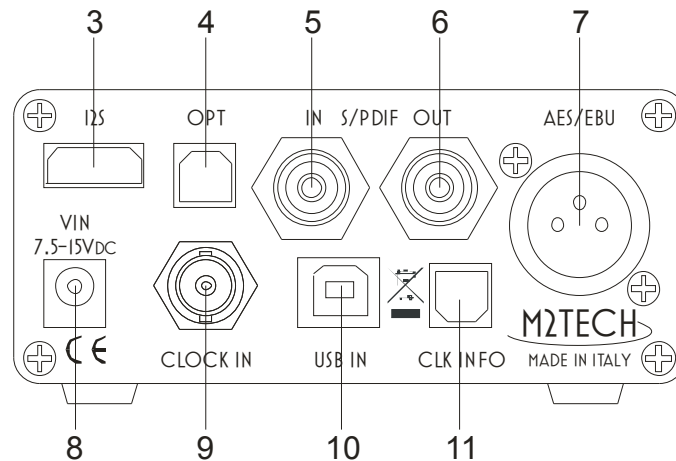
3. Rear Panel

Figure 2

3) I^{2}S output. Delivers the straight I^{2}S signal in PS Audio format. Connect to the I^{2}S input of a DAC or other digital audio device which uses the same format. HDMI connector.

WARNING: this connector does not deliver HDMI signals, do not connect to any HDMI input.

4) Optical output. Connect to the Toslink™ receiver of a digital audio device using an optical interconnect terminated with Toslink™ plugs. Toslink™ transmitter.

5) S/PDIF input. Connect to the S/PDIF output of a digital audio device. It may be used to record digital audio on a computer. Female RCA connector.

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

7) AES/EBU output. Connect to the AES/EBU input of a digital audio device. Male XLR connector.

8) Supply input. Connect the stock 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.

9) External clock input. Connect to the output of a clock generator, like the EVO CLOCK TWO using a 75 Ohms BNC terminated cable. This input works at its best when connected to the EVO CLOCK TWO master clock output, anyway it also accepts standard word clocks and even the reference 10MHz clock. Female BNC connector.

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

11) Optical output for clock information. Connect to the clock info input of the EVO CLOCK TWO using a Toslink™ fibre cable. Toslink™ transmitter.
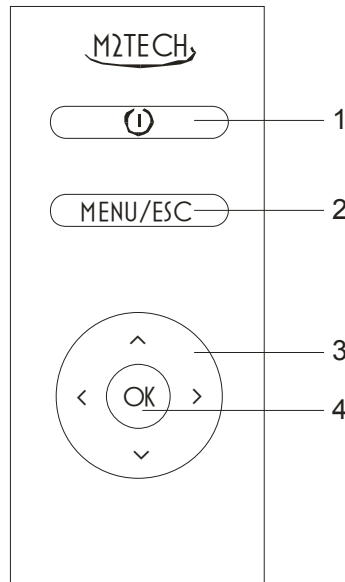
4. remote control

Figure 3

1) Standby. This button has no effect on the HIFACE EVO TWO.

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 HIFACE EVO TWO 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 HIFACE EVO TWO and/or other units.

Please refer to chapter 3, "Back Panel".

Connect the HIFACE EVO TWO to a computer with a 2.0 A-B USB cable connected to the USB port (Fig. 2,10). We recommend the cable be no longer than 3m.

If you also own the EVO CLOCK TWO, connect its master clock output to the HIFACE EVO TWO external clock input (Fig. 2, 9) with a 75 Ohms BNC-terminated cable (not in stock). It is also possible to use other clock generators, whereas their output is able to drive 75 Ohms matched lines.

If the EVO CLOCK TWO is used, connect its clock info optical input to the HIFACE EVO TWO clock info output (Fig. 2, 11) using a Toslink™ fibre interconnect (not in stock) to make the EVO CLOCK TWO clock switching automatic.

Connect one or more digital audio devices (DAC's, A/V receivers digital inputs, digital mixers) to the HIFACE EVO TWO outputs (Fig. 2, 3,4,6 and 7) using the appropriate digital interconnects (not in stock).

Connect the output of a digital audio device which signal should be acquired (e.g. a CD player) to the HIFACE EVO TWO S/PDIF input (Fig. 2, 5).

Connect the stock +9V wall wart or one of the EVO SUPPLY TWO outputs to the supply input of the HIFACE EVO TWO (Fig. 2, 8). Please note the HIFACE EVO TWO 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.

WARNING: the maximum voltage allowed by the HIFACE EVO TWO at its supply connector is 15V. Whenever a power supply delivering more than 15V is used, the HIFACE EVO TWO 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 HIFACE EVO TWO 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 HIFACE EVO TWO 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 HIFACE EVO TWO

7.1. Input selection

The HIFACE EVO TWO is provided with two inputs: one is the USB port (Fig. 2, 10) and the other is the S/PDIF input (Fig. 2, 5). They are selected using the navigation buttons on the remote control: press the "arrow up" button to select the USB input, press the "arrow down" button to select the S/PDIF input.

7.2. HID with the USB input

The HIFACE EVO TWO 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.

7.3. Sampling frequency conversion with the S/PDIF input

The HIFACE EVO TWO is provided with an asynchronous sampling rate converter (ASRC). It is mandatory for the acquisition of a digital audio signal by the S/PDIF input (Fig. 2, 5), as both the device connected to it and the HIFACE EVO TWO are clock master, and it's necessary to place in between something compensating the small frequency drift of the two devices' clocks.

The ASRC may also be used to deliver the signal on the S/PDIF input to the HIFACE EVO TWO outputs with a different sampling frequency. For example: if the user owns a DAC which is known to deliver best performance when driven by a 192kHz signal, she/he can set the HIFACE EVO TWO ASRC to perform the upsampling of the signal coming from a CD player connected to the S/PDIF input (as everybody knows, the CD signal is sampled at 44.1kHz).

When the ASRC is enabled, the user can choose the output sampling frequency using the "arrow left" and "arrow right" buttons on the remote control.

NOTE: the ASRC is only effective on signals applied to the S/PDIF input. This feature would be useless for the USB input as the sampling rate conversion can be more easily performed by the player or by the computer's operating system itself.

NOTE: When the S/PDIF input is selected and the ASRC is disabled, the I^{2}S is also disabled.

7.4. External clock

The HIFACE EVO TWO is provided with an input for an external clock. This input is very versatile, as it's able to recognize the frequency of the clock applied and, when needed, synthesize the needed master clock.

The external clock input accepts all most common word clocks and the so-called "super clock" plus, of course the master clocks generated by the EVO CLOCK TWO. Moreover, it accepts the 10MHz standard reference clock.

The external clock input can be disabled, or enabled in automatic mode: in this mode, when a valid clock is detected on the external clock input, it is used to clock the unit, otherwise the HIFACE EVO TWO automatically reverts to the internal oscillators.

Together with the external clock input, the HIFACE EVO TWO is provided with an optical output by means of which it sends the EVO CLOCK TWO information about the needed sampling frequency. This way, the EVO CLOCK TWO is able to automatically switch the clock based on the HIFACE EVO TWO requirements, without the use being asked to manually operate it.

7.5. DSD and DXD

The S/PDIF, AES/EBU and Toslink™ output the HIFACE EVO TWO is provided with can only deliver PCM signals with sampling frequency up to 192kHz, as stated by the standard.

Anyway, the HIFACE EVO TWO is also provided with an I^2S output in PS Audio format, through which it is possible to transfer PCM signals up to 384kHz (DXD) and DSD signals up to DSD256.

When a DXD or DSD signal is transferred, only the I^2S output is enabled, while the other output are disabled as they're not able to handle this signal.

7.6. S/PDIF output level

Sometimes it's useful to have a higher output voltage on the S/PDIF output than the standard, (which is 0.5Vpp on 75 Ohms), for example when long cable runs must be driven (more than 2 meters). The HIFACE EVO TWO allows for doubling the output voltage on the S/PDIF connector, to 1Vpp on 75 Ohms.

8. Configuring the HIFACE EVO TWO

The HIFACE EVO TWO 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. External clock (EXT CLK)

This item relates to 3 values:

- BACK: go to level 1;
- NO: forces the HIFACE EVO TWO to always use the internal oscillators;
- AUTO: sets the HIFACE EVO TWO to use any valid external clock present on the external clock input, otherwise the internal oscillators are used.

8.2. S/PDIF output level (OUT. LEVEL)

This item relates to 3 values:

- BACK: go to level 1;
- STANDARD: sets the HIFACE EVO TWO S/PDIF output to deliver the standard $0.5V_{pp}$ voltage;
- HIGH: sets the HIFACE EVO TWO S/PDIF output to deliver the non-standard $1V_{pp}$ voltage.

8.3. Sample rate converter (SRC)

This item also relates to 3 values:

- BACK: go to level 1;
- ON: the sample rate converter is enabled on the S/PDIF input: on all HIFACE EVO TWO outputs, the audio signal applied to the S/PDIF input (when this input is selected) will be delivered with the sampling rate chosen by the "arrow left" e "arrow right" buttons of the remote;
- BYPASS: the sample rate converter is not active: on all HIFACE EVO TWO digital audio outputs the audio signal applied to the S/PDIF input (when this input is selected) will be delivered with its original sampling rate.

8.4. 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 HIFACE EVO TWO to a computer via its USB ports needs a few configuration operations by the user.

Fortunately, the HIFACE EVO TWO 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 HIFACE EVO TWO, that is they do not need a driver and immediately recognize the DDC 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 HIFACE EVO TWO 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 HIFACE EVO TWO 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 HIFACE EVO TWO 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 a bidirectional audio device, the HIFACE EVO TWO is listed in both input (M2Tech USB 2.0 Audio In) and output (M2Tech USB 2.0 Audio Out) devices list.
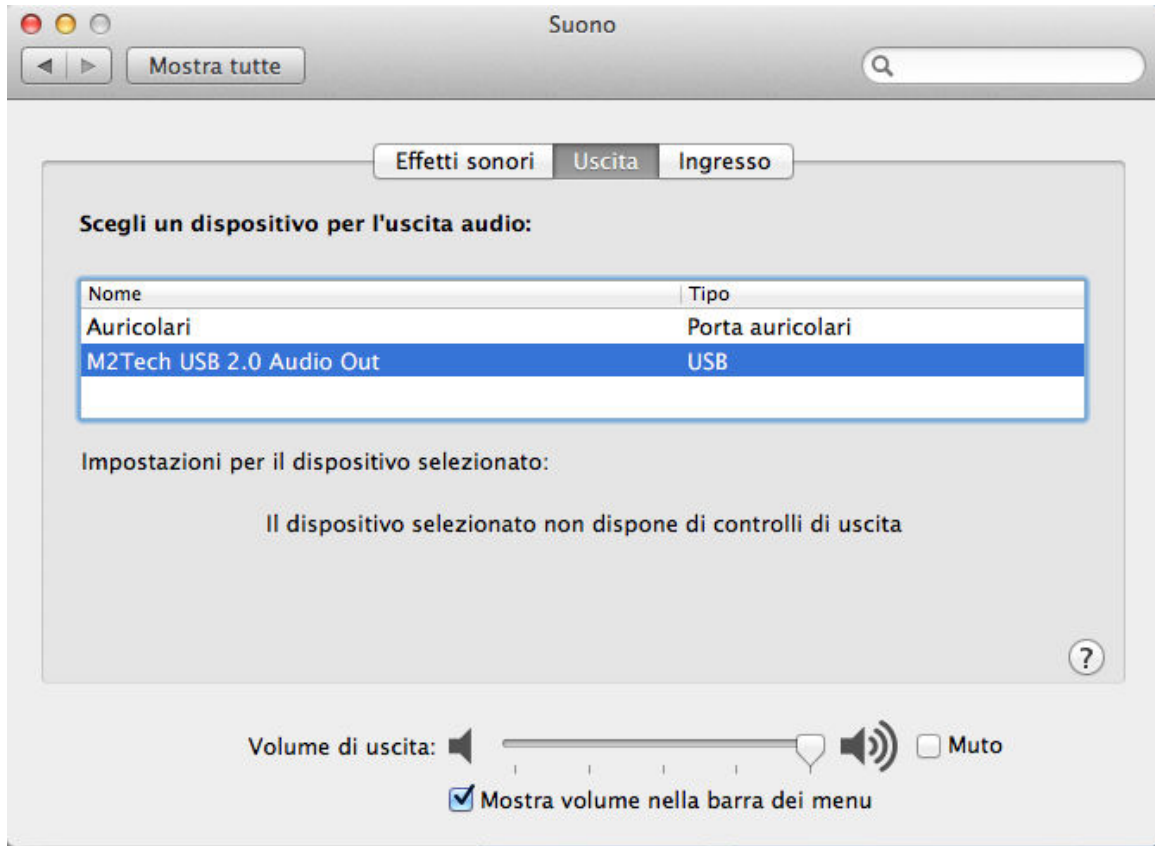
Figure 4

To send the computer audio to the HIFACE EVO TWO it is necessary to select it in the "Sound" window as shown in Fig. 4.
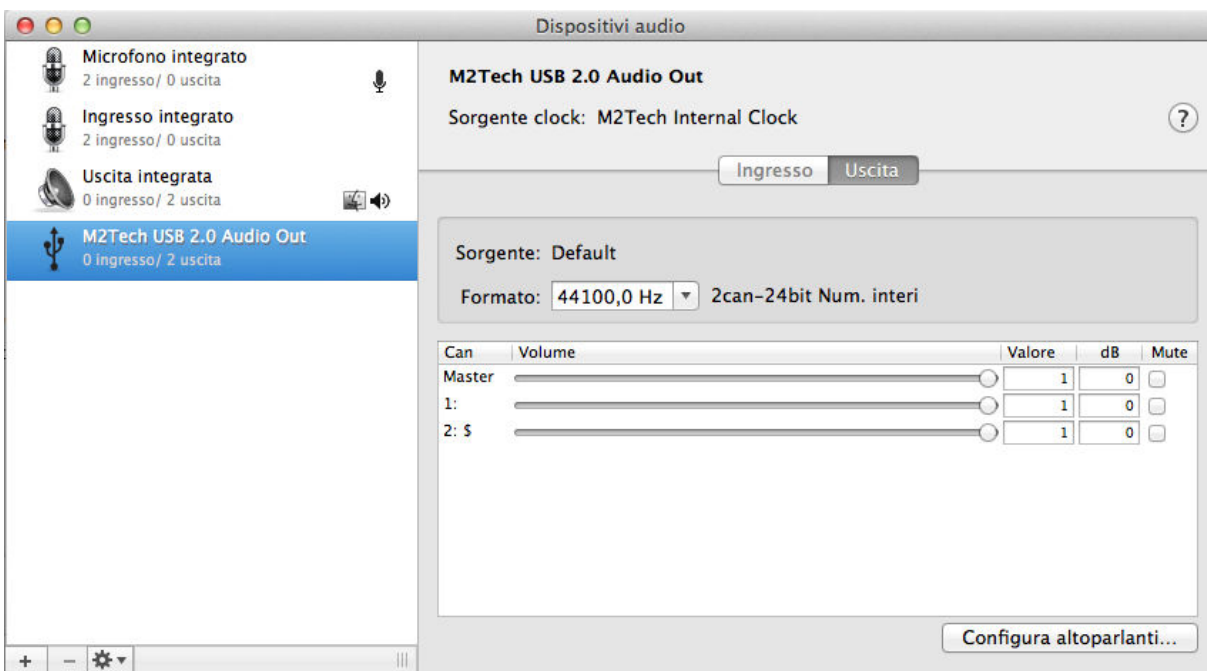

Figure 5

It's possible to set some parameters related to the HIFACE EVO TWO 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 HIFACE EVO TWO and using iTunes. Please note that even when the chosen playlist includes tracks with different sampling frequencies, the HIFACE EVO TWO 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 HIFACE EVO TWO as output device. As an example, Fig. 6 shows the configuration window of Audirvana. Please note it is necessary to choose the HIFACE EVO TWO as Active Audio Device.
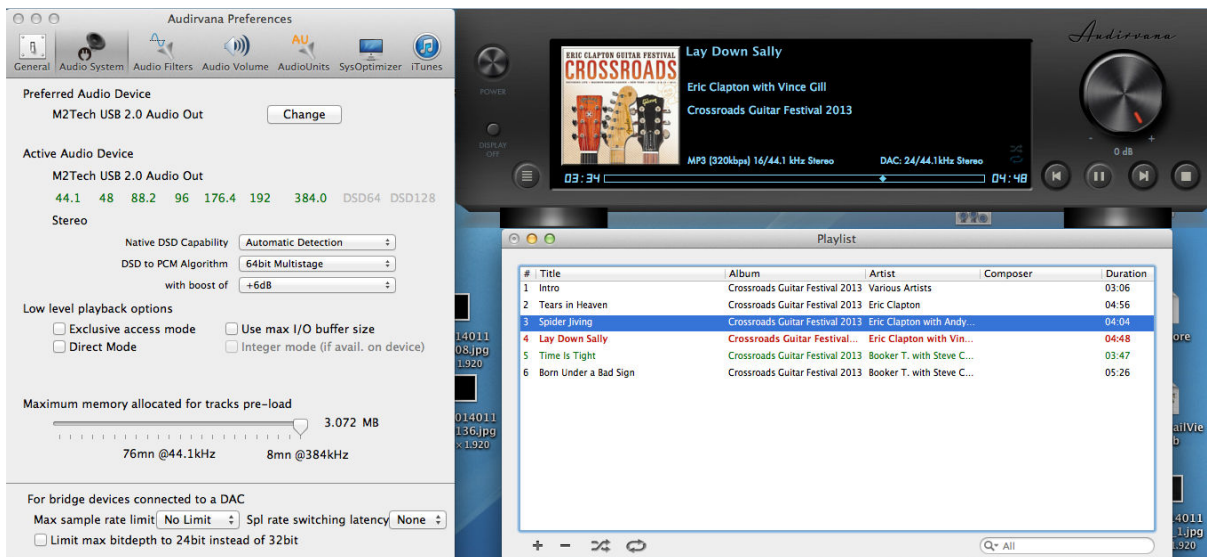
Figure 6

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 HIFACE EVO TWO. Therefore, we suggest using them whenever possible.

8.1.1. DSD files playback with Mac

The HIFACE EVO TWO is able to transfer music files recorded with the DSD format. A player able to send DSD data to the HIFACE EVO TWO 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.
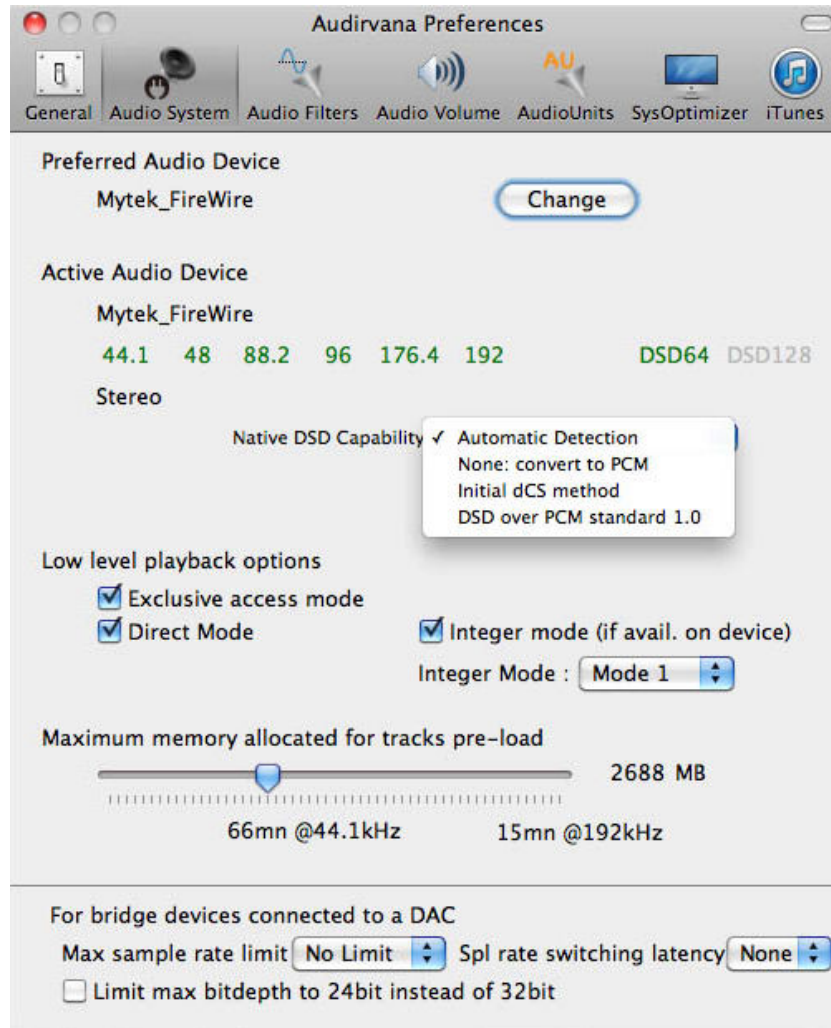
Figure 7

9.2. Plug'n'Play Operation with Linux

As explained in the introductory paragraph to the present chapter, the HIFACE EVO TWO 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 HIFACE EVO TWO as the output device. This can be done accessing the audio management window and setting the various parameters as shown in Fig. 18 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 HIFACE EVO TWO, it is therefore sufficient to select any one to choose the HIFACE EVO TWO as the output audio device.

By setting the HIFACE EVO TWO 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).
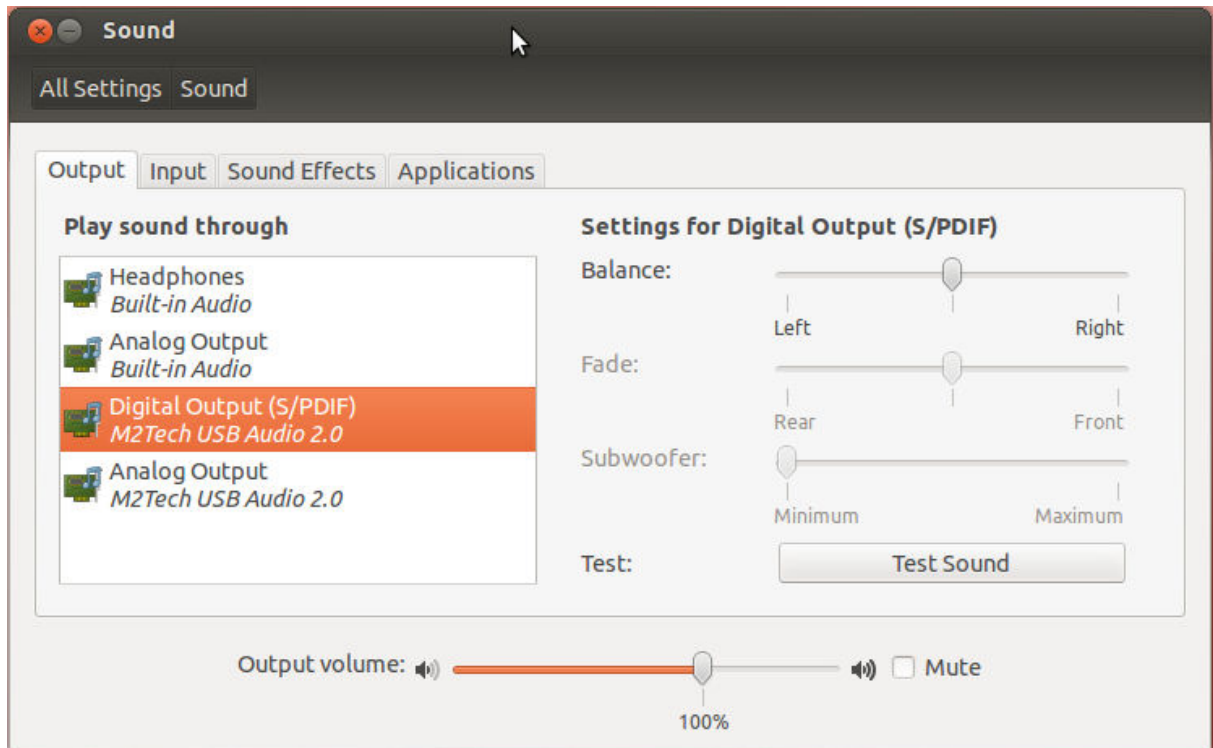
Figure 8

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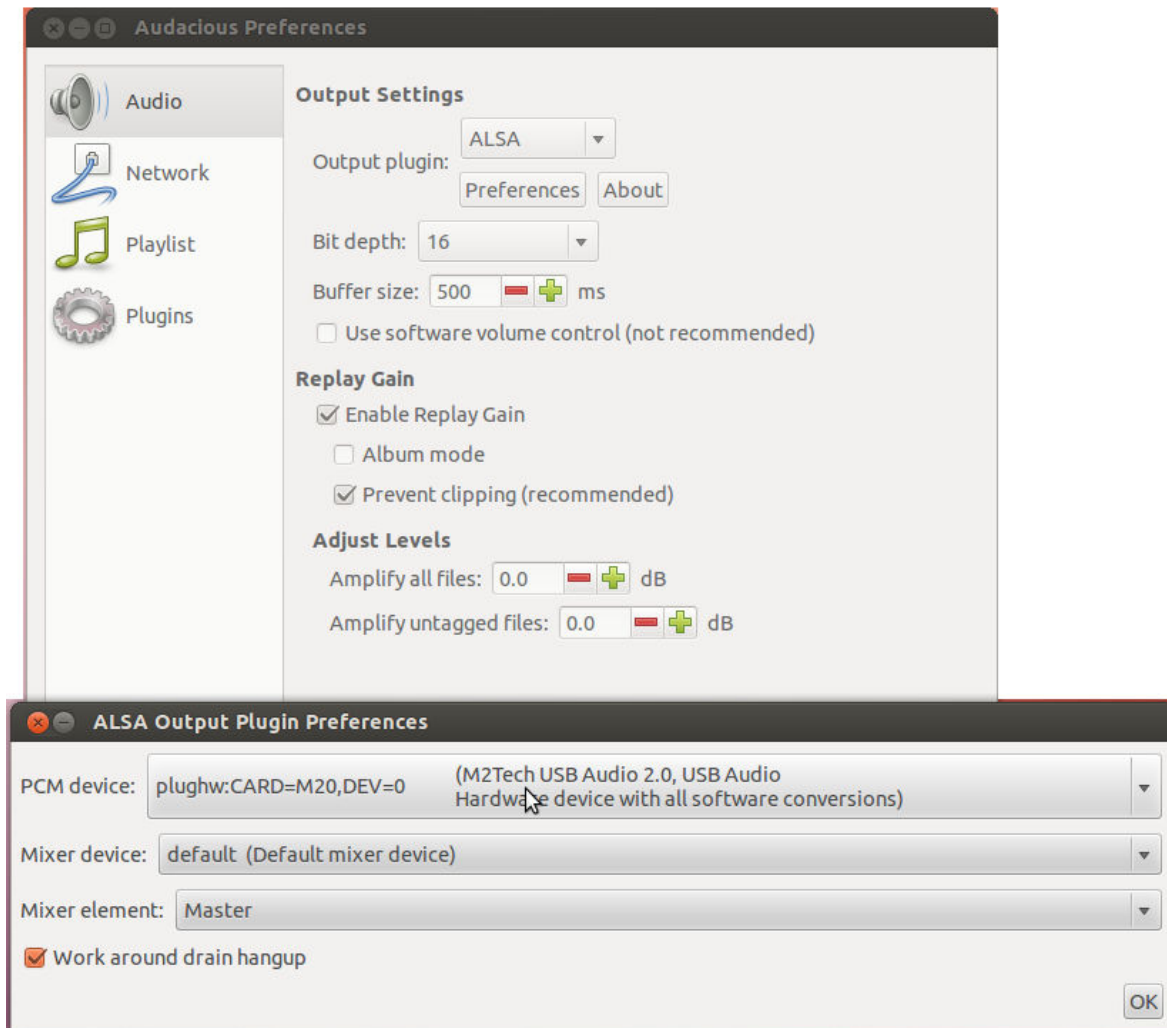
Figure 9

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 HIFACE EVO TWO 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 HIFACE EVO TWO 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 HIFACE EVO TWO 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-clocking on its icon, as shown in Fig. 10.
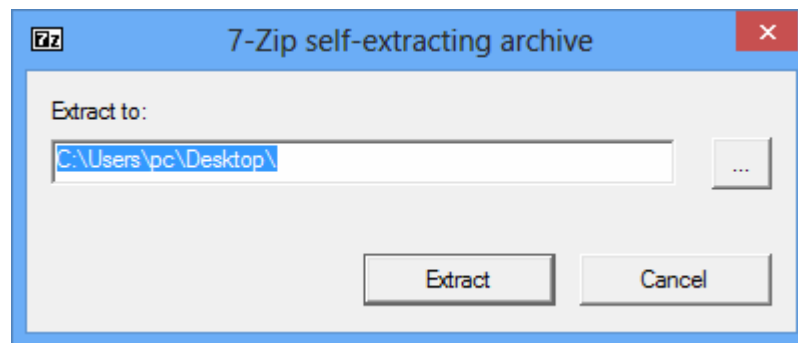
Figure 10

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".
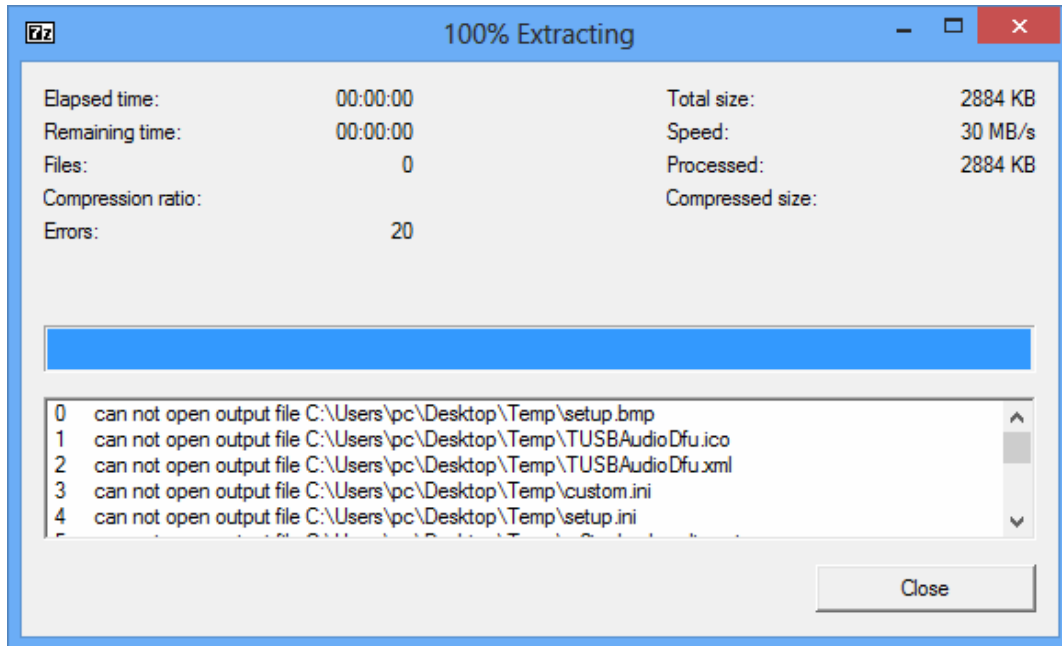
Figure 11

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).
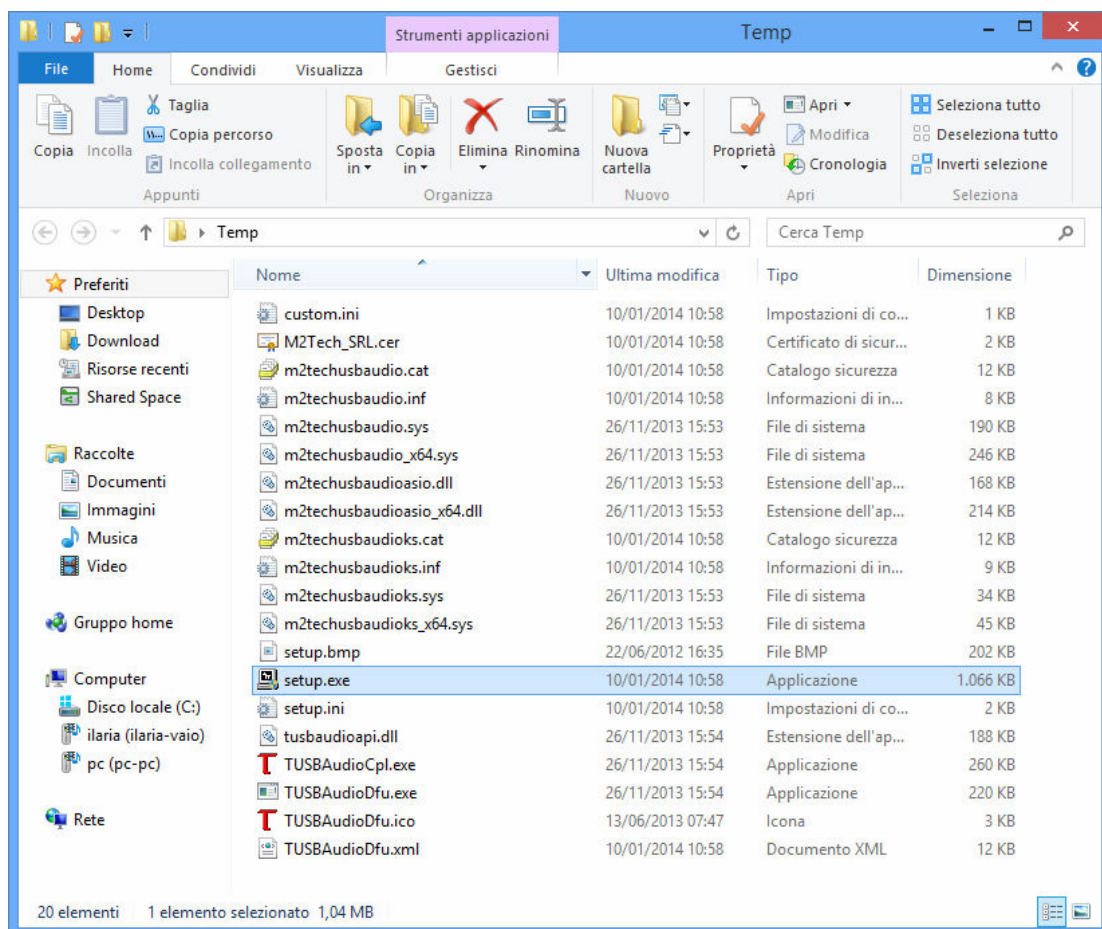

Figure 12

30

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 clocking on the "OK" button to let the setup program free to proceed.

Connect the HIFACE EVO TWO 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.
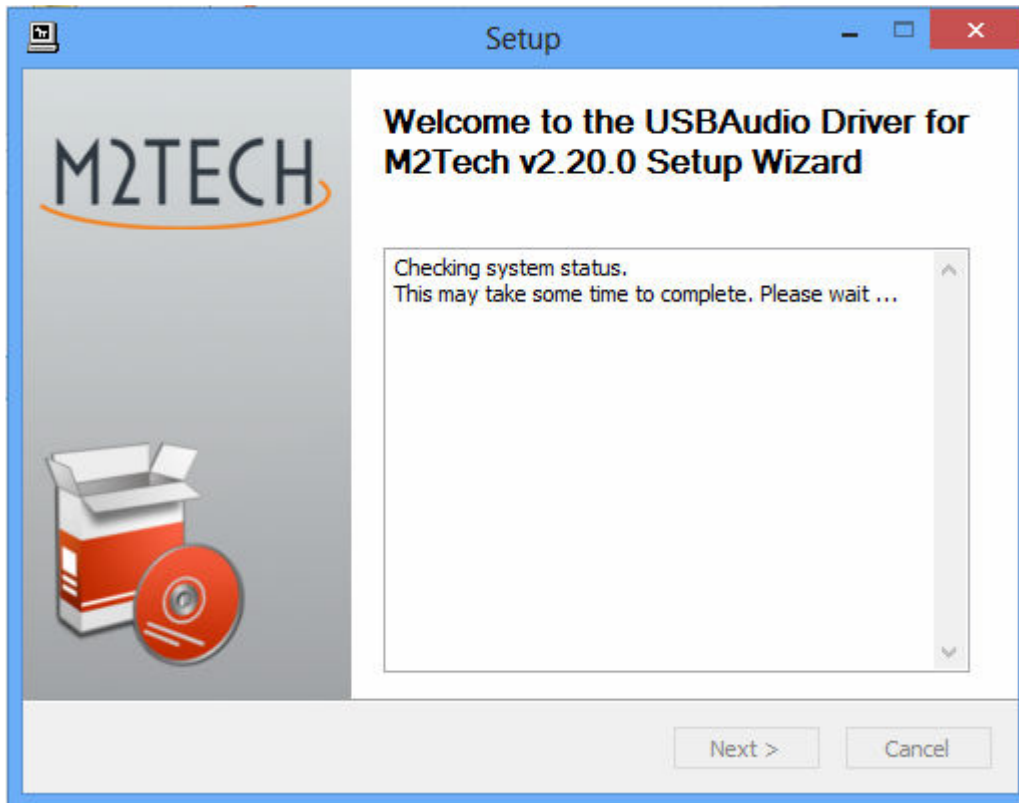
Figure 14

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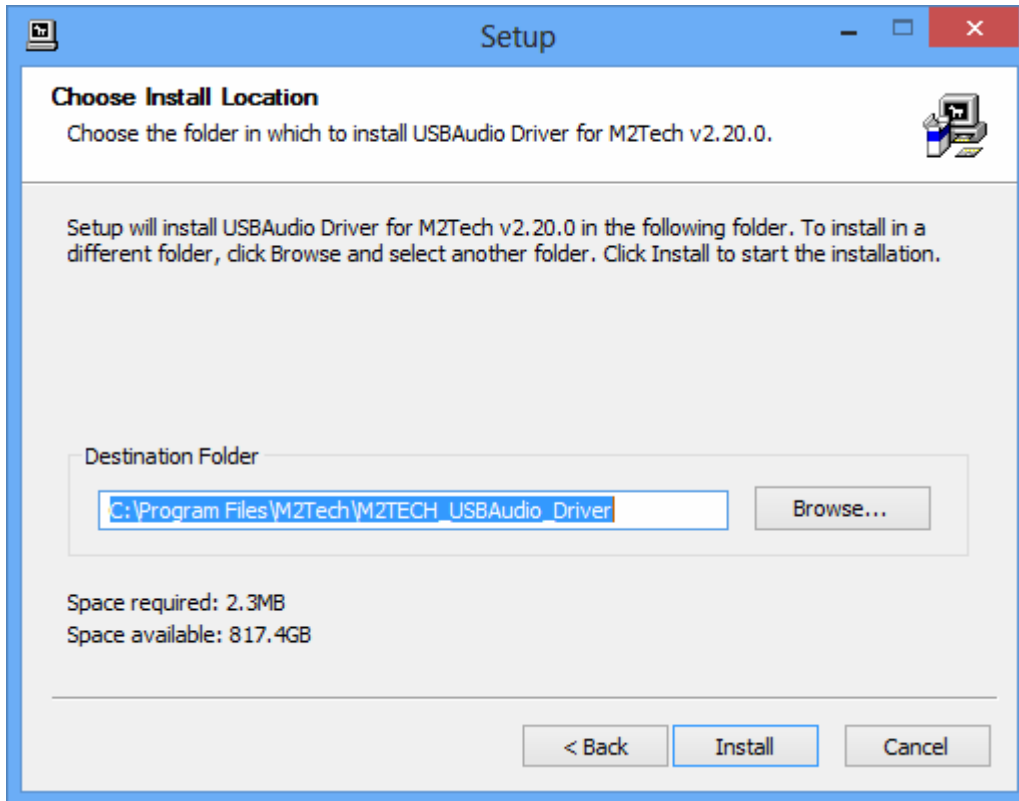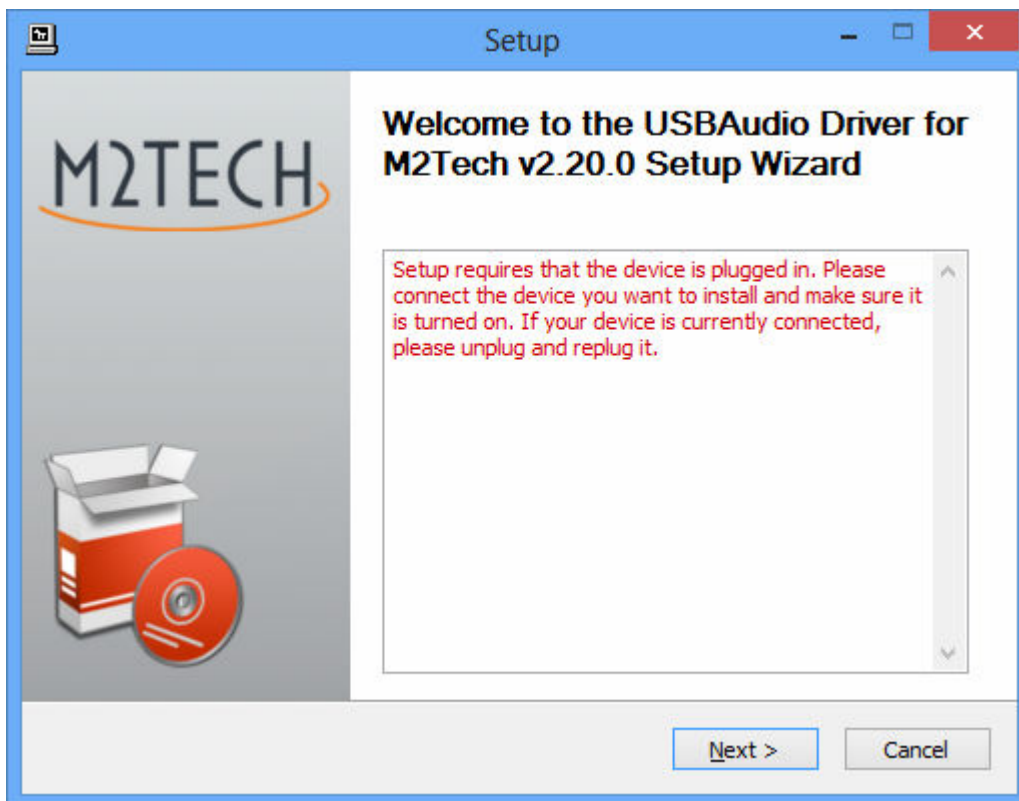
Figure 15a

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.
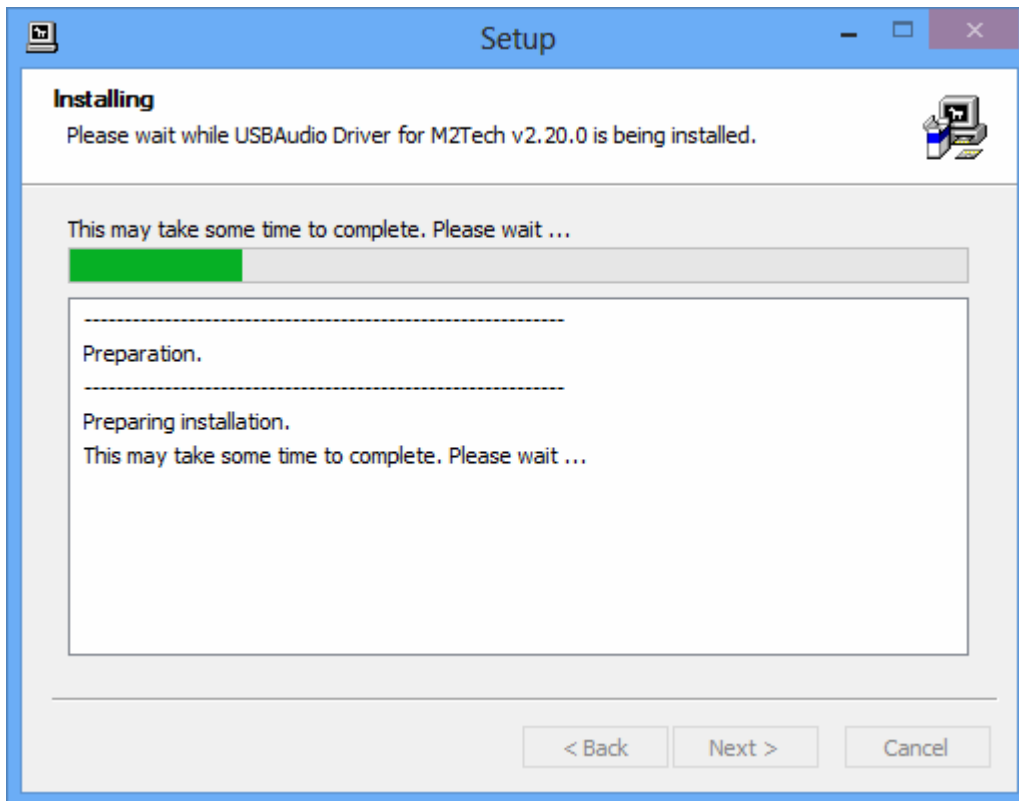

Figure 16

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.
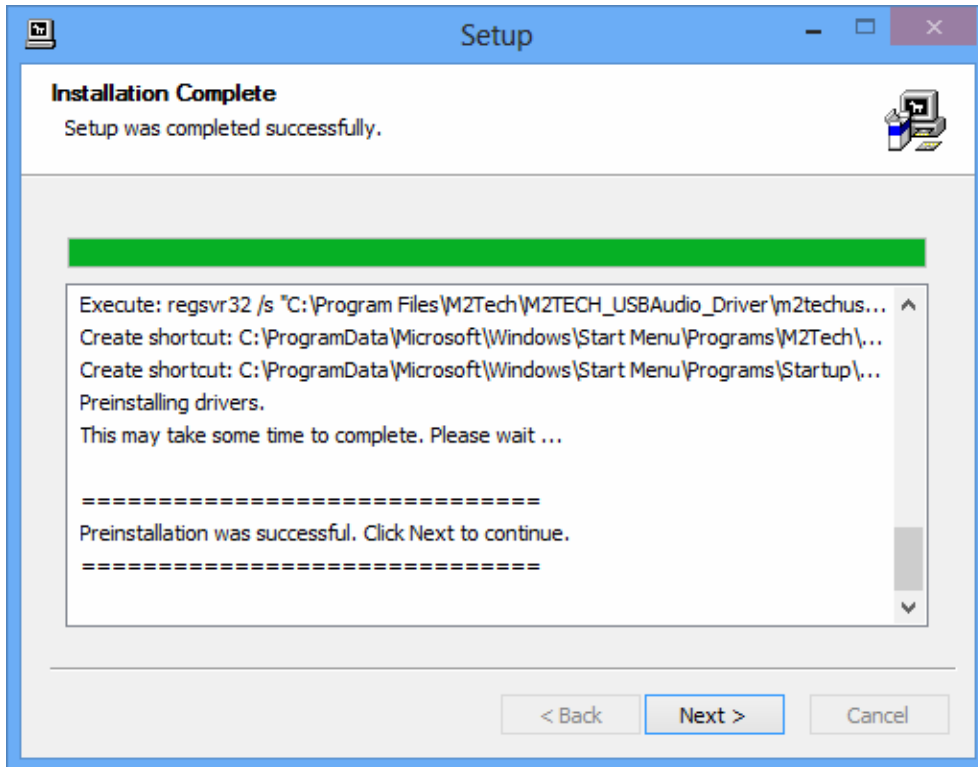
Figure 17

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.
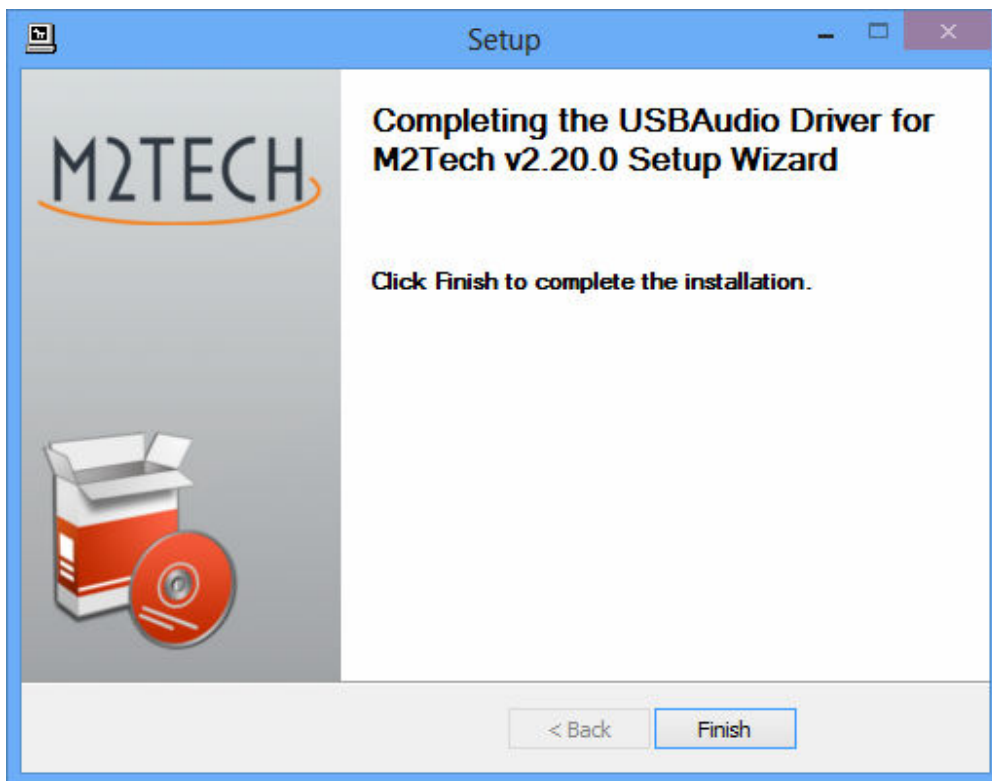

Figure 18

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 HIFACE EVO TWO, 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 HIFACE EVO TWO be correctly recognized and can be used to listen to music files.

9.3.2. Windows driver uninstall

The HIFACE EVO TWO 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 HIFACE EVO TWO driver.
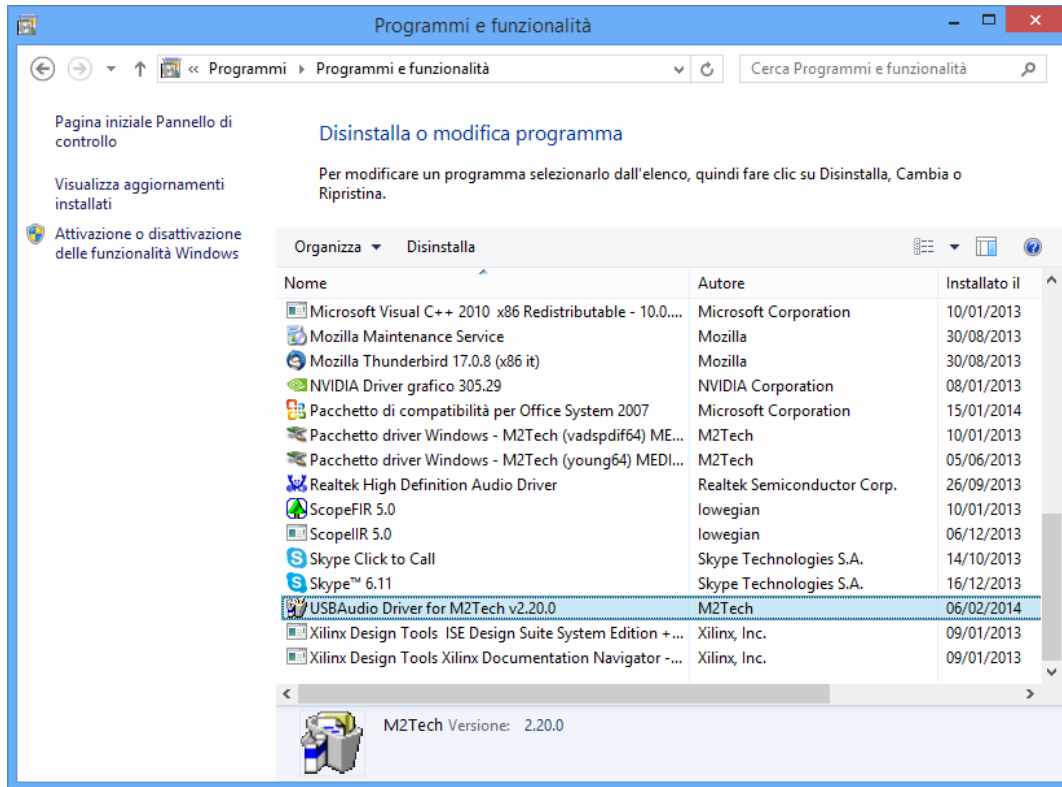
Figure 20

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.
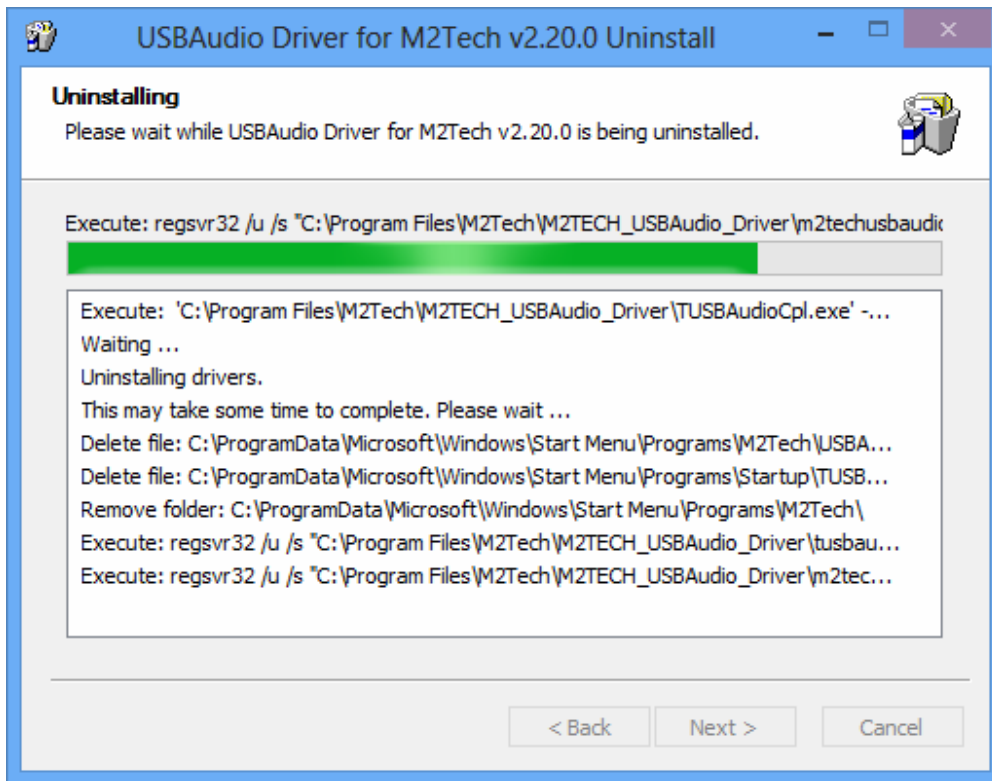

Figure 22

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.
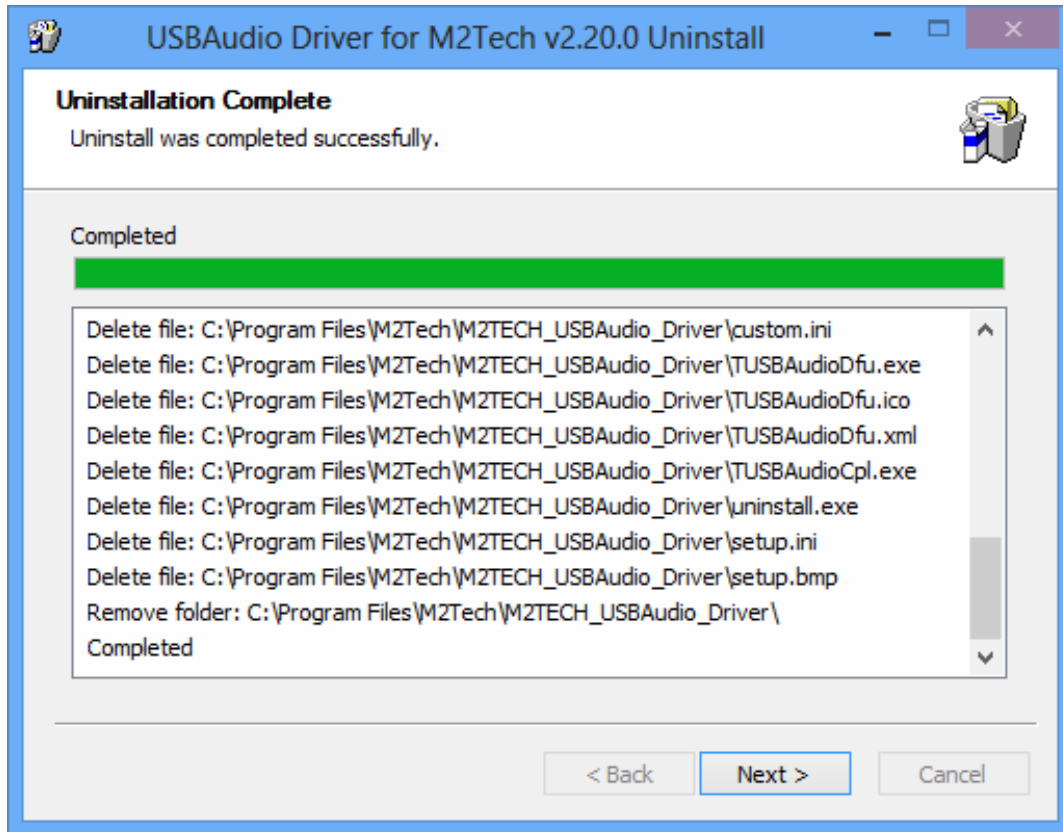
Figure 23

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

Clock 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.
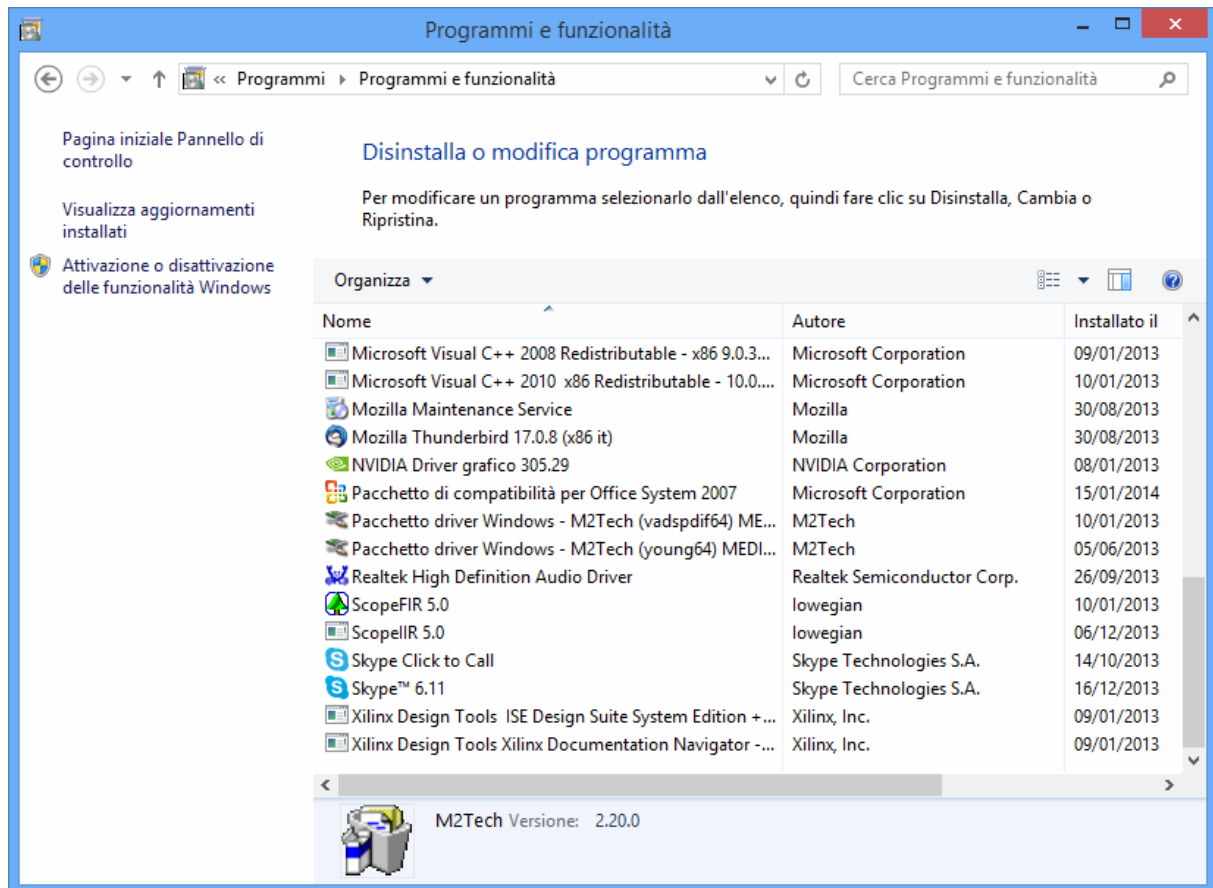
Figure 25

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

Conversely, when the HIFACE EVO TWO is connected, then the panel will show some general information about the driver and will exhibit a tree menu as shown in Fig. 27.
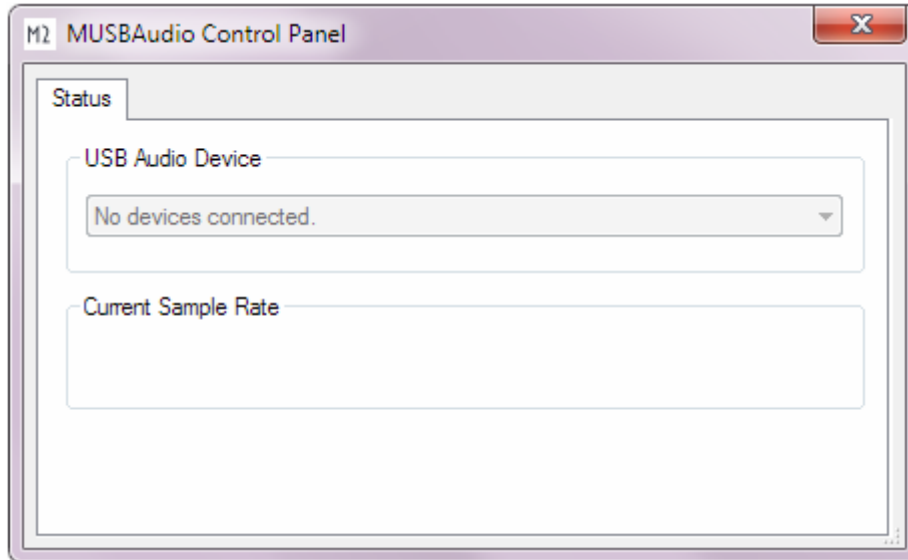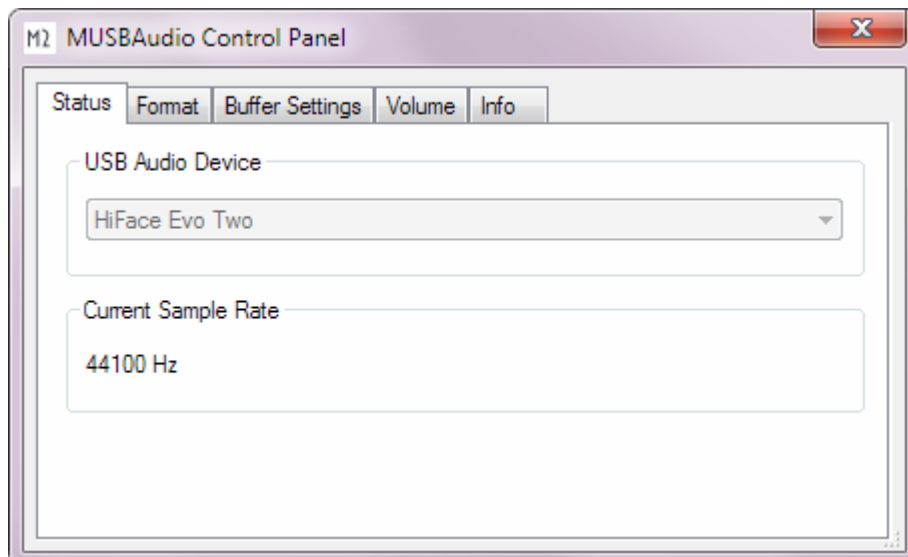
Figure 26

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 HIFACE EVO TWO 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.
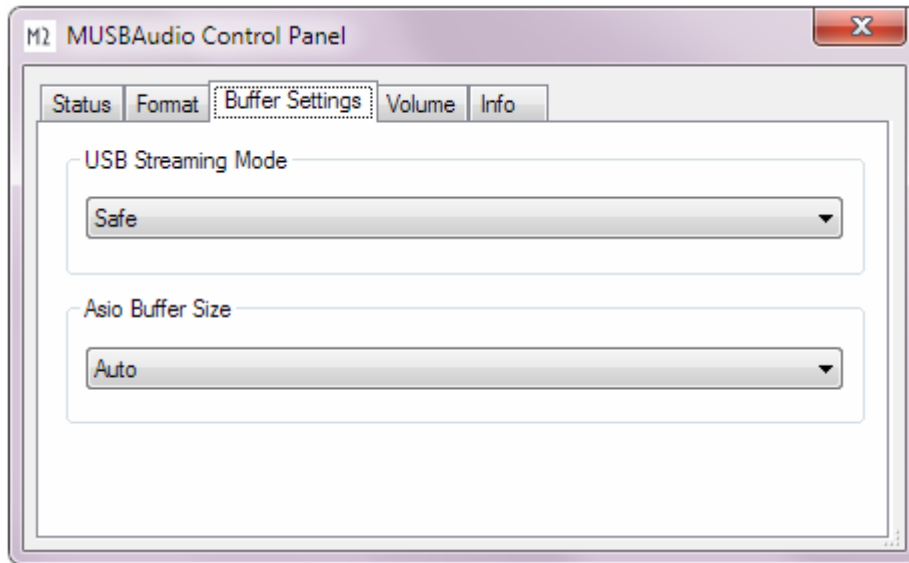
Figure 28

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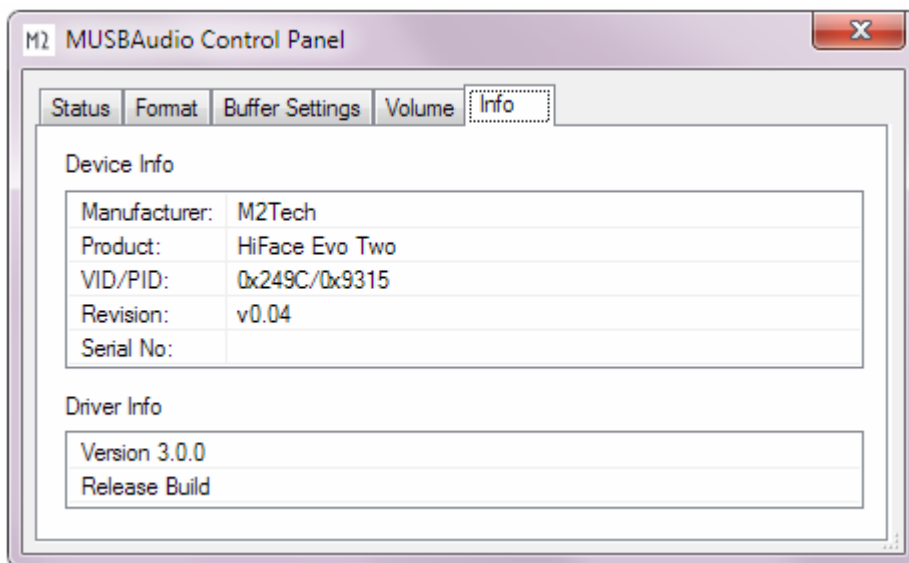

Figure 29

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 HIFACE EVO TWO 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).
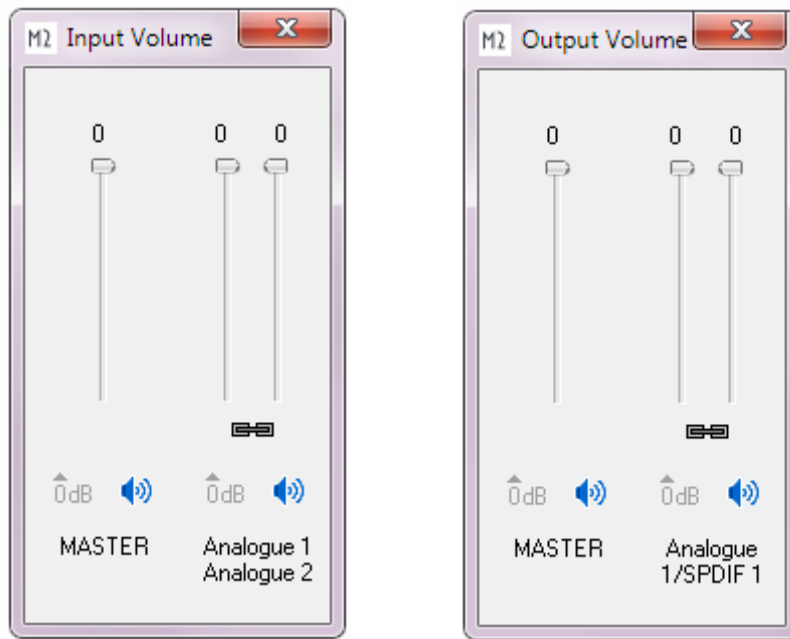
Figure 30

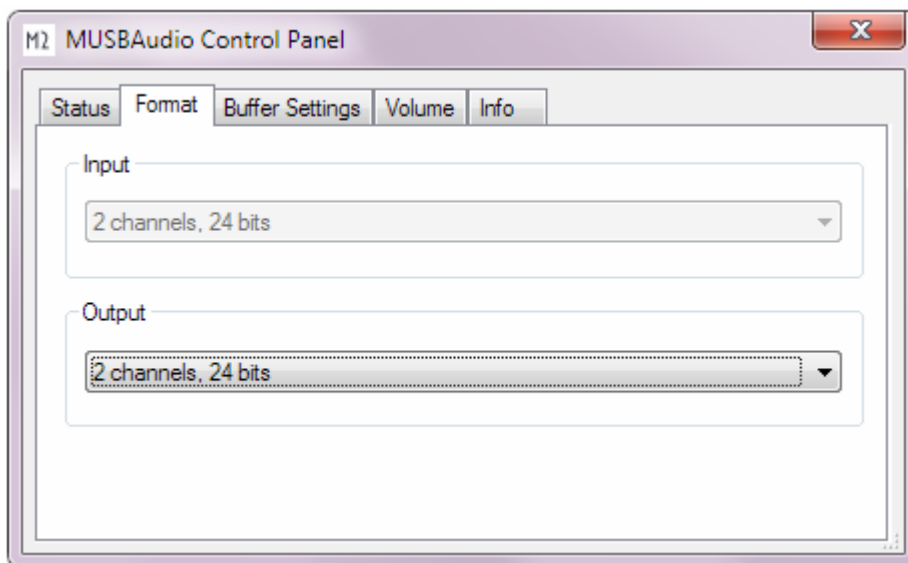To end up, the panel allows for setting the default format for data samples (Fig. 31).

Figure 31

9.3.4. Using the HIFACE EVO TWO 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 HIFACE EVO TWO 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).
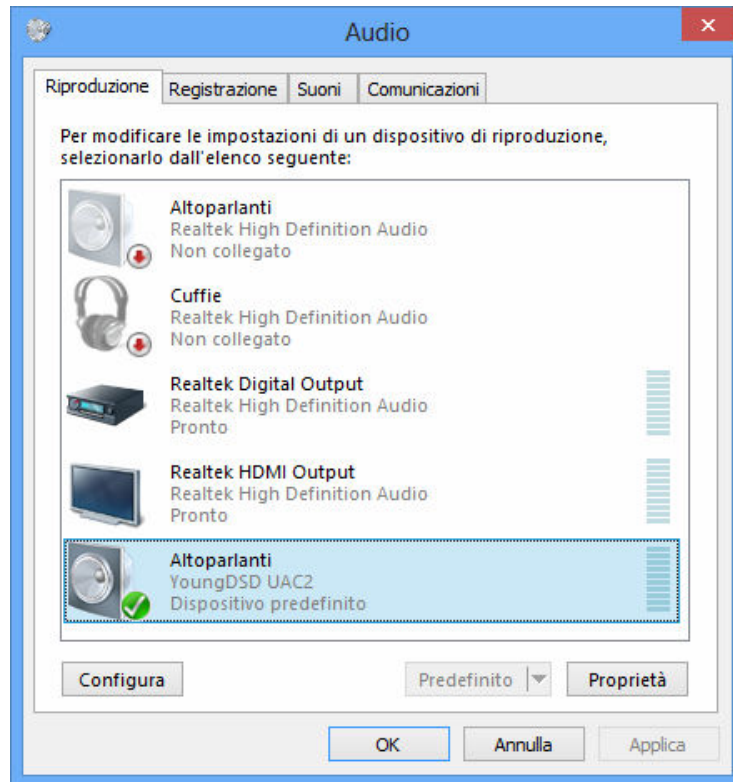

Figura 32

Here the user must select "hiFace Evo Two 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 HIFACE EVO TWO.

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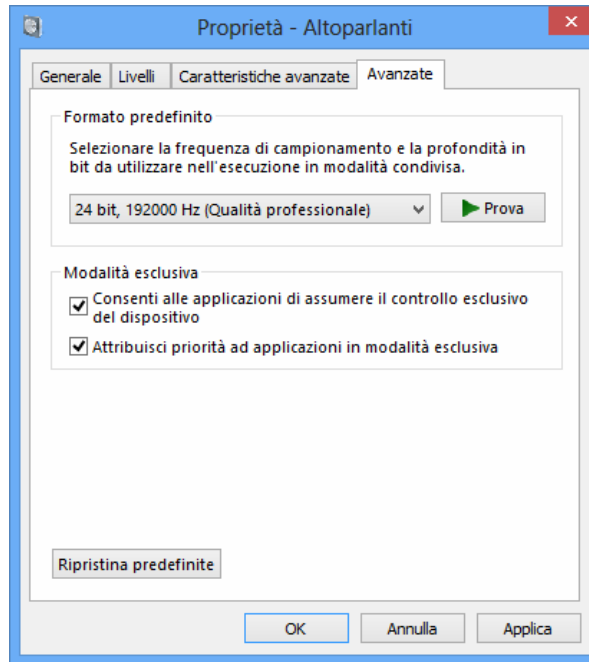
Figure 33

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 HIFACE EVO TWO 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 HIFACE EVO TWO, 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 HIFACE EVO TWO.

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 HIFACE EVO TWO 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 HIFACE EVO TWO: 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 HIFACE EVO TWO.

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-clocking 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 HIFACE EVO TWO 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.
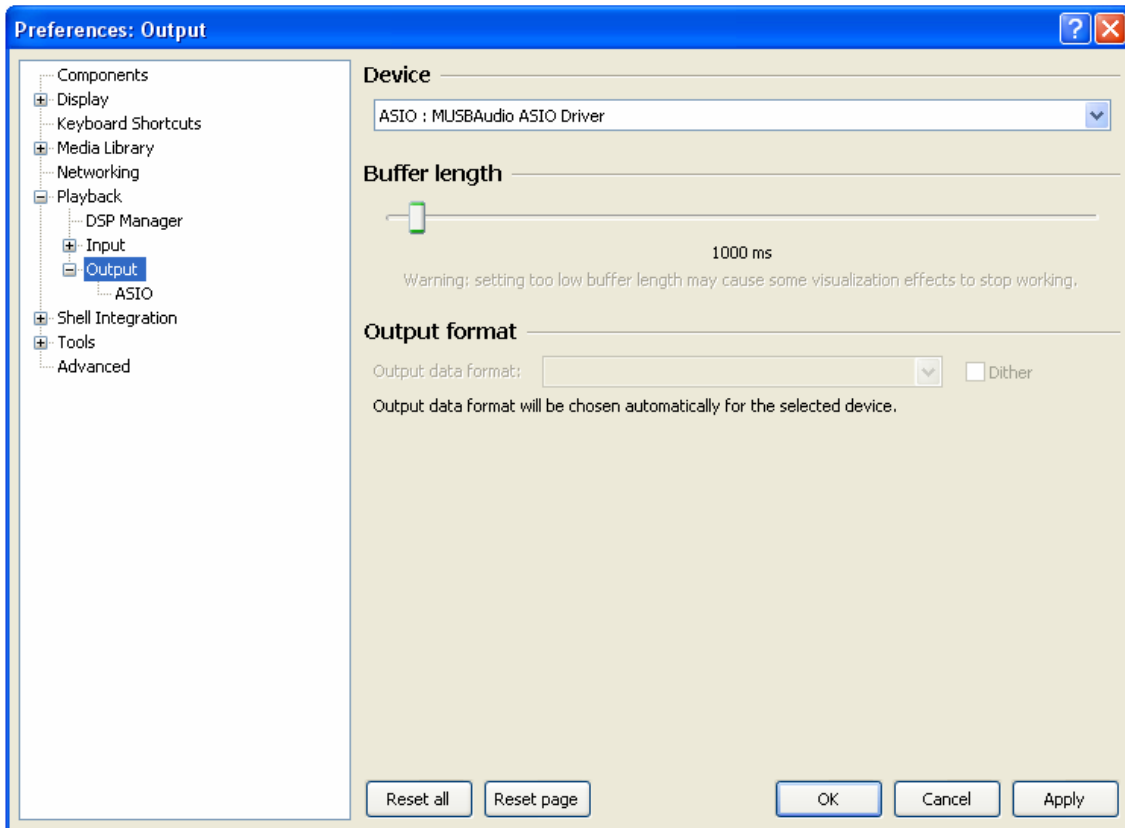
Figure 34

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 HIFACE EVO TWO.

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").
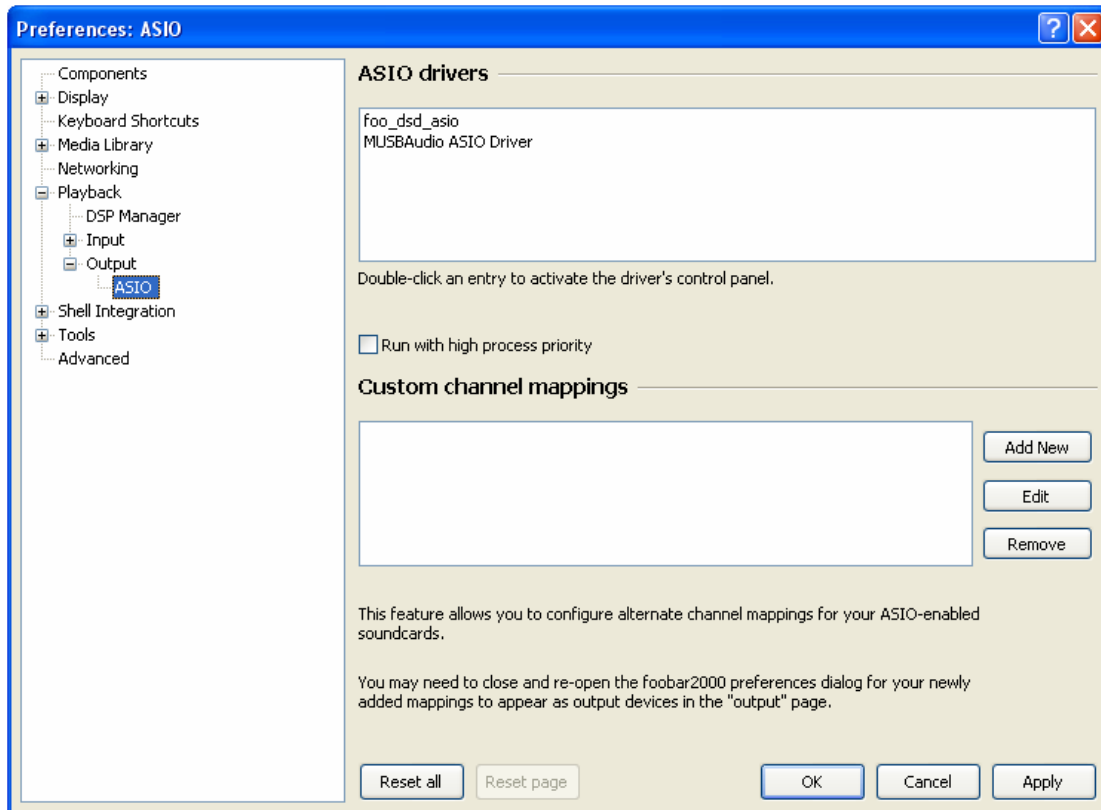
Figure 35

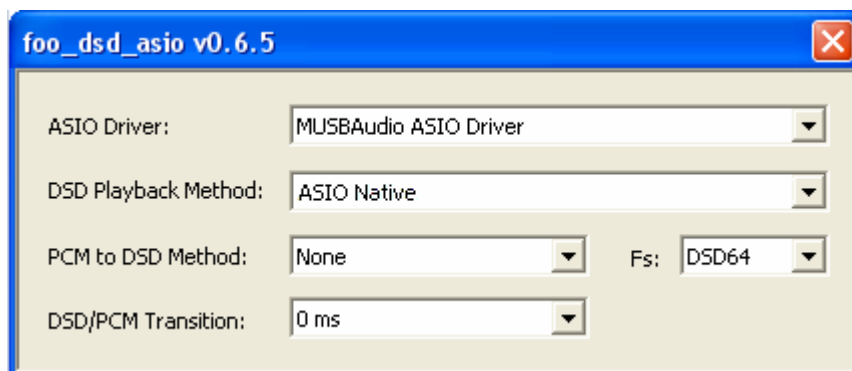Double-click on "foo_dsd_asio" to open the configuration window as shown in Fig. 36.

Figure 36

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

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).
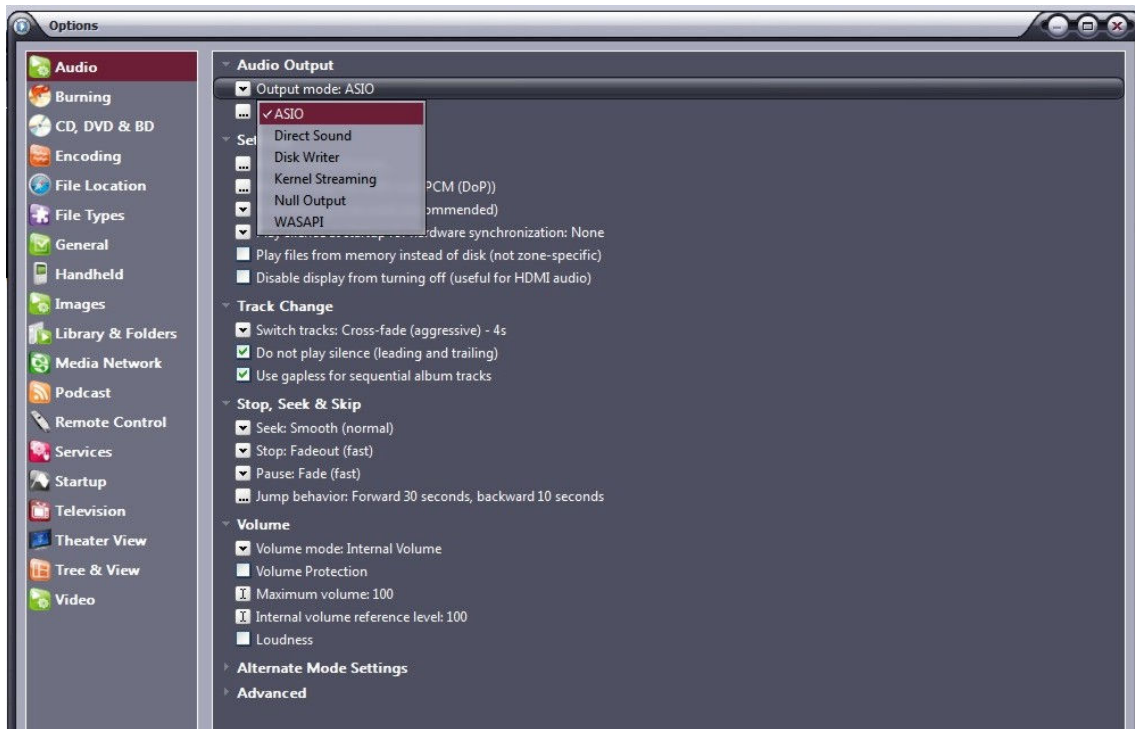
Figure 37

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.
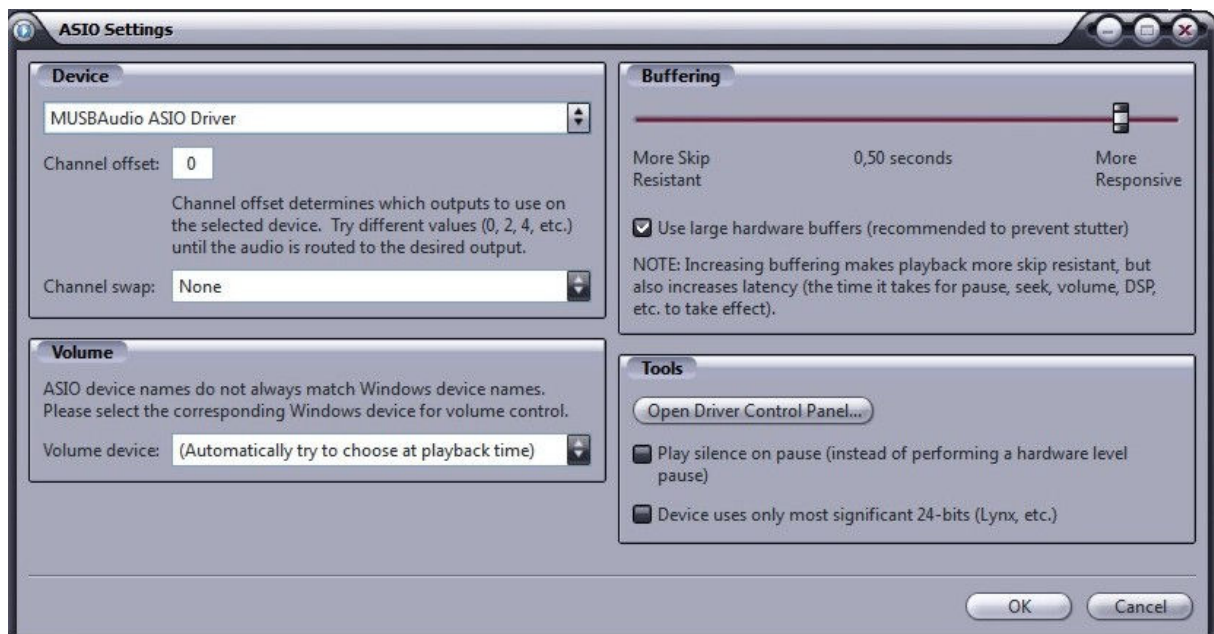

Figure 38

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
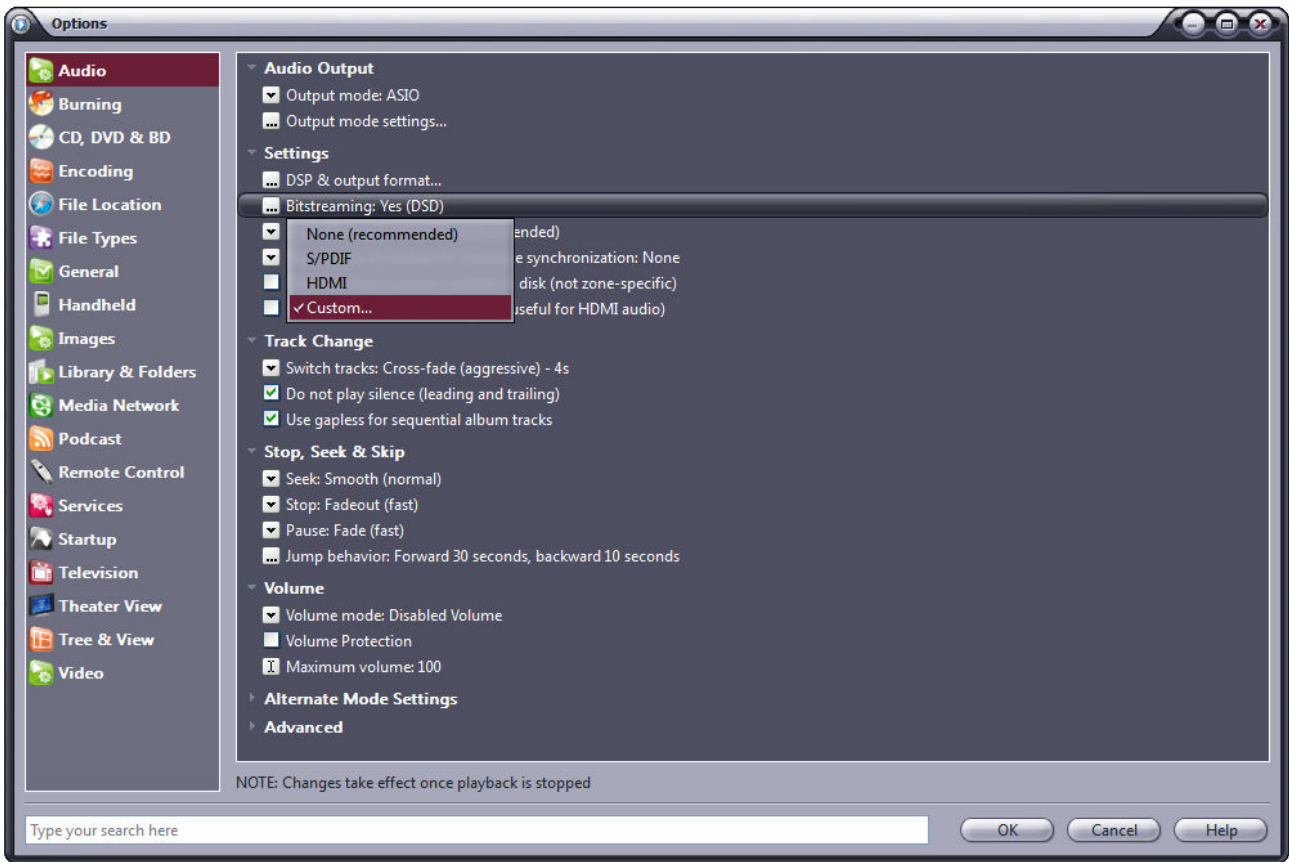
Figure 39

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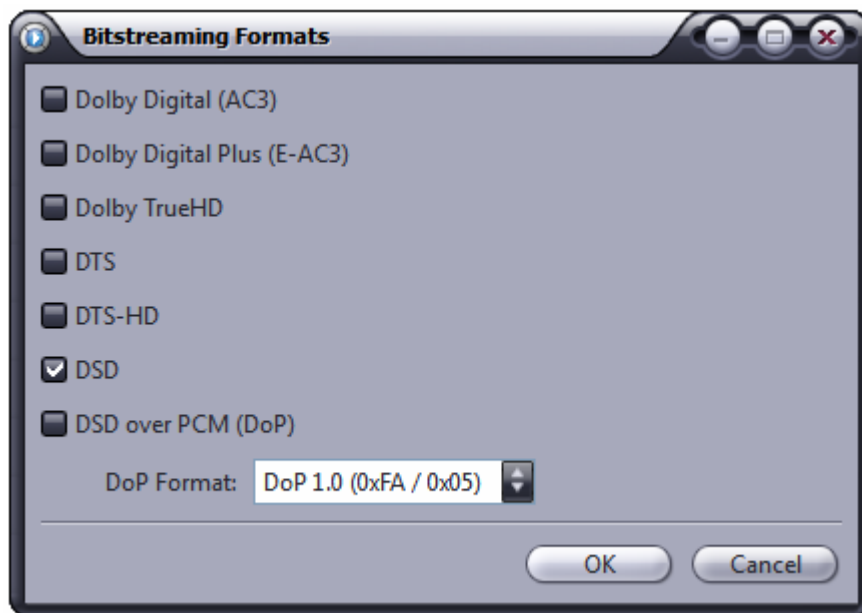

Figure 40

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.
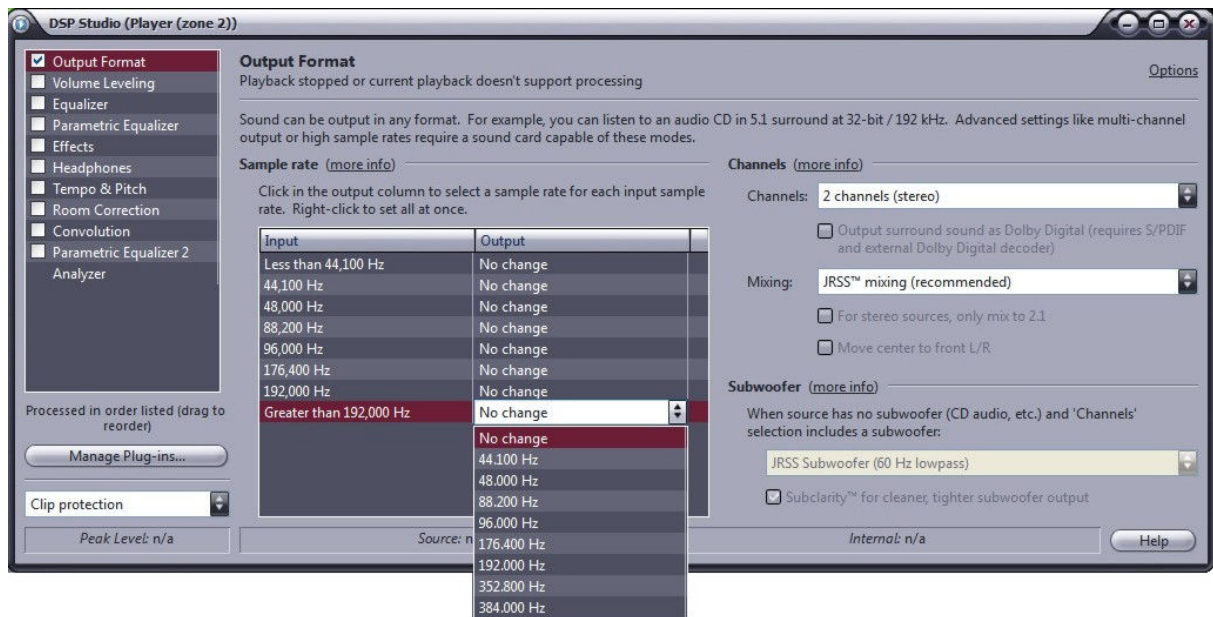
Figure 41

JRiver configuration is complete and the user can now listen to PCM files up to 384kHz and DSD files up to DSD128.
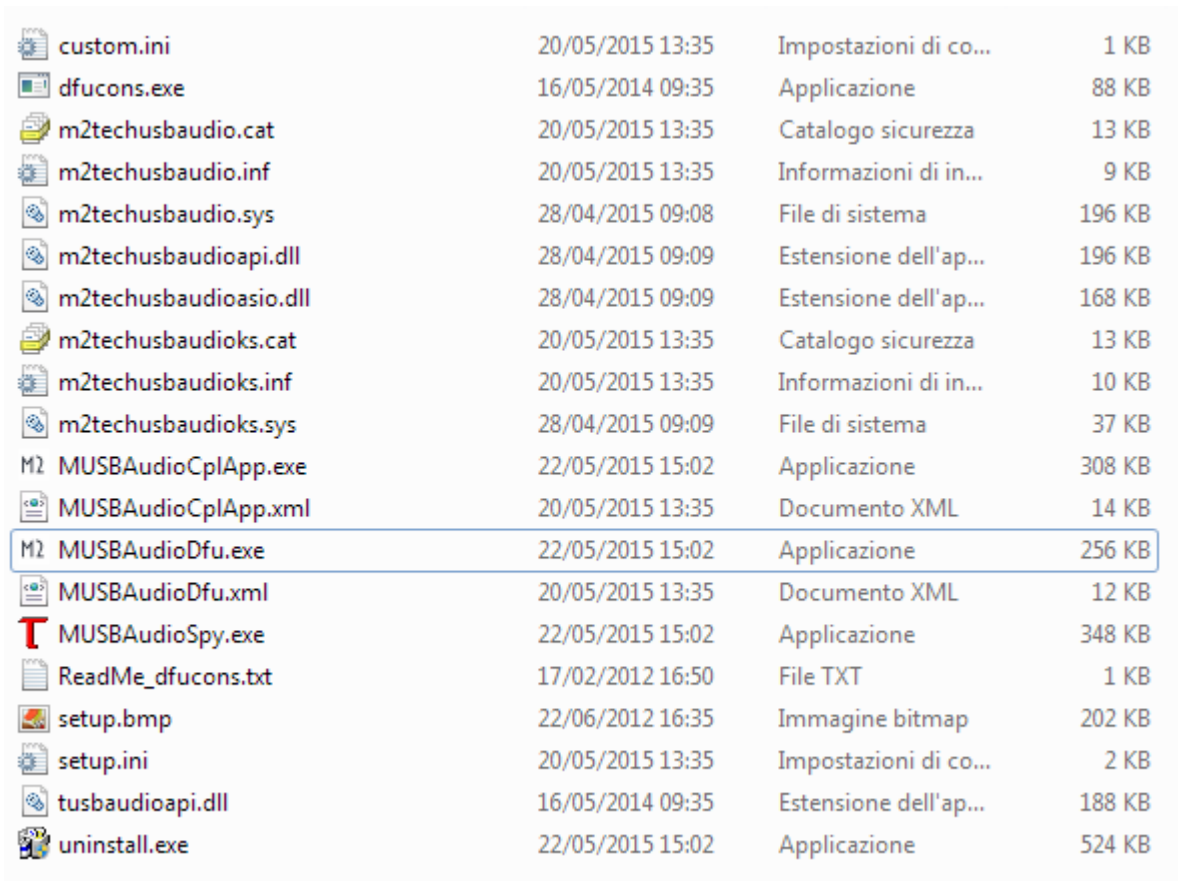
9.3.6. Connecting the HIFACE EVO TWO to an USB 1.1 port

It is possible to connect the HIFACE EVO TWO 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 "hiFace Evo Two UAC1" will appear.

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

10. Updating the HIFACE EVO TWO **firmware**

The user can update the firmware of the HIFACE EVO TWO 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
MUSBAudioCplApp.exe	22/05/2015 15:02	Applicazione	308 KB
MUSBAudioCplApp.xml	20/05/2015 13:35	Documento XML	14 KB
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.

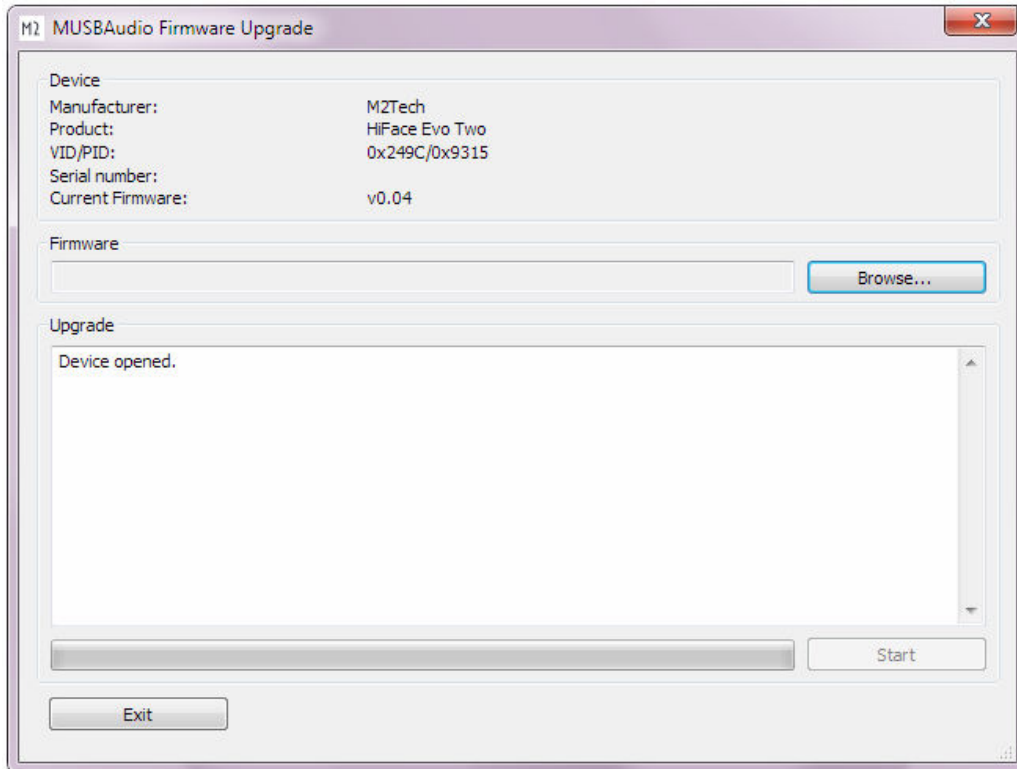Once the app is launched, the window in Fig. 43 appears.

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*
S/PDIF output level: .... $0.5V_{pp}$ or $1V_{pp}$ (on 75 Ohms load)
S/PDIF output impedance: .... 75 Ohms
AES/EBU output level: .... $2V_{pp}$ (on 110 Ohm load)
AES/EBU output level: .... 110 Ohms
I²S output level: .... compliant to LVDS standard
I²S output impedance: .... 120 Ohms
S/PDIF input sensitivity: .... $0.5V_{pp}$
S/PDIF input impedance: .... 75 Ohms
Supply voltage: .... $7.5\text{-}15V_{DC}$
Current requirement: 250mA
Size: .... 110x55x100mm (w x h x d)
Weight .... 0.5kg (device only)
0.8kg (packaging)

* on I²S output only