

*Unico CDDue*



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**Unison Research®** is the registered trade mark of A.R.I.A. Advanced Research In Audio S.r.l..

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# USER MANUAL

Congratulations on your purchase of a *Unison Research® - A.R.I.A. Advanced Research In Audio S.r.l.* audio component.

Every *Unison Research* product is the result of our extensive electronic design experience and of the deep knowledge of vacuum tube technology in audio applications that we have gained over the years.

It also expresses our passion for building unique and valuable pieces of audio equipment in which traditional craftsmanship and advanced electronics join together in harmony.

Our products are built using the finest components and materials. Each one is carefully inspected at various stages of the production process and finally tested to satisfy our own high reliability and quality standards.

Please read and observe all warnings and instructions in this owner's manual and all those marked on the unit to get the best performance from your new *Unico CDDue* for many years to come.

## 1. UNPACKING AND INSTALLATION

Please make sure that the packaging is undamaged and the product has not suffered from rough handling during transportation, otherwise we highly recommend you contact your Authorised Dealer for advice before proceeding with the set-up.

Carefully remove your CD player and all the accessories from the carton.

**IMPORTANT! After unpacking please allow at least two hours before operating the device in order for it to adapt to the room temperature. This time is needed to prevent any possible damage caused by the condensation which can form during transportation. Please note, that condensation can form every time the amplifier is moved from a cold to a warm place.**

Keep all packing materials: every time you will need to transport the *Unico CDDue* player, its original purpose-designed carton will provide the safest packaging.

The *CDDue* should be positioned in a safe place on a plane surface. Adequate clearance must be left above and around the device to guarantee correct ventilation.

We also suggest you leave enough free space behind your *CDDue* to allow the connecting cables sufficient room to bend without crimping or strain, and we strongly recommend not placing the device directly onto a power amplifier or, in general, close to a heat source.

## 2. CONNECTION TO THE MAINS

The *Unico CDDue* is set at the factory to the appropriate mains voltage of the country it will be shipped to.

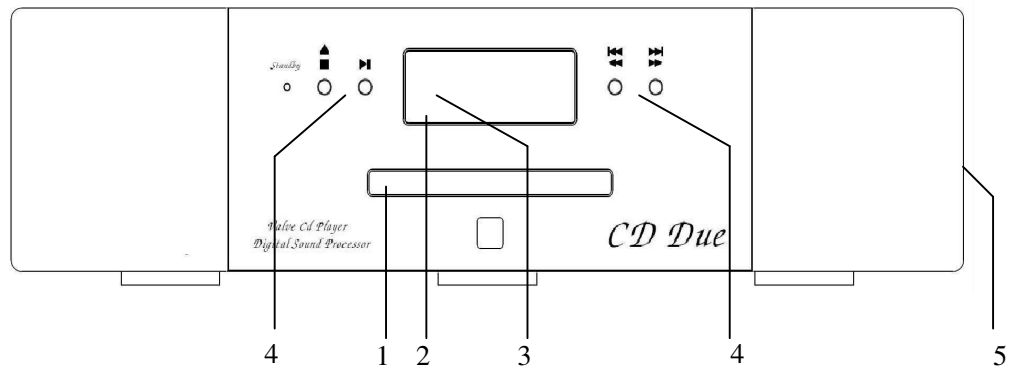
**IMPORTANT! The voltage setting may not be changed by the user. Never connect the CD player to AC mains if the local voltage doesn't match the value indicated on the rear panel!**

The mains fuse is located in the fuse-holder integrated in the IEC mains socket. The correct value of the mains fuse is indicated on the rear panel of the *Unico CDDue* and in the technical specifications listed at the end of this manual.

**IMPORTANT! Always replace fuses with new ones of the same type and value.**

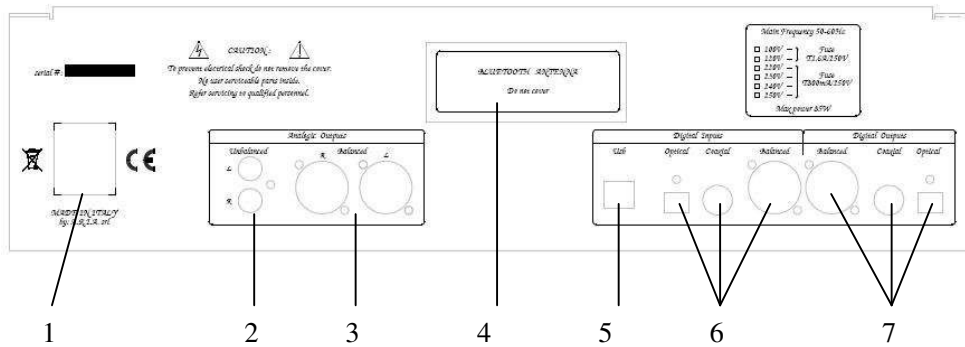
### 3. OPERATION

#### FRONT PANEL



- 1) CD DRAWER
- 2) GRAPHIC LED DISPLAY 128x64
- 3) IR SENSOR
- 4) COMMAND BUTTONS
- 5) MAINS SWITCH (ON THE SIDE)

#### REAR PANEL



- 1) MAINS CONNECTOR
- 2) UNBALANCED OUTPUTS
- 3) BALANCED OUTPUTS
- 4) BLUETOOTH ANTENNA
- 5) USB INPUT
- 6) DIGITAL INPUTS (TOSLINK, S/PDIF, AES/EBU)
- 7) DIGITAL OUTPUTS (AES/EBU, S/PDIF, TOSLINK)

## START-UP

**IMPORTANT!** Switch on the *Unico CDDue* only after all the connections have been checked.

Before switching on the *Unico CDDue*, make sure the amplifier volume is at the minimum, and leave it in this position until the initial warm up of the device has concluded.

The best audio quality is achieved roughly 10 minutes after the device has been activated.

When switched on, the *Unico CDDue* performs a warm up procedure for the valves.

During this process the outputs are disabled, in order to prevent needless strain on the amplifier due to the transient signals that normally occur before the tubes reach their working temperature.

This process takes about 30 seconds: during this time the unit displays the message **VALVE WARM UP** and a time counter.

During the warm up, about 10 seconds after switching on, the symbol ▲ is displayed on the screen beside the counter digits: from this moment on it is possible to command the opening and closing of the drawer mechanism using the ▲ EJECT button on the remote handset or on the front panel.

After the warm up process, the CD that's been loaded is immediately ready to be played.

## LOADING A DISC

When there is no disc in the tray after the warm up countdown ends, the Unison Research® UN logo is displayed on the LCD display.

It is possible to open the CD drawer at any time by pushing the ▲ EJECT button on the remote handset or on the front panel, insert a CD, and then close the drawer again using the ▲ EJECT buttons.

When a CD is inserted, a **LOADING** message will appear on the display while the CD content is read. When the *CDDue* is ready to play, the display reads **STOP ■**, and shows the total number of the tracks and the total time of the recording.

If the loaded disc does not contain valid audio information, the display shows the Unison Research® UN logo and the CD player stands by until the disc is changed.

**IMPORTANT!** Even though the *Unico CDDue* drawer mechanism closes by simply pushing it back, we highly recommend that you do not force it. If this is done regularly, it could cause a drive malfunction and damage to the mechanism.

## TRACK SELECTION

- PLAY** Once the CD has been loaded successfully, simply push the ►/■ PLAY/STOP button on the front panel or the ►/|| PLAY/PAUSE button on the remote handset to start the disc spinning and play the music. The display will show the ► symbol, the current track number and the elapsed time.
- NEXT TRACK** If you want to jump to the next track, push the ►► button on the front panel: the symbol ►► is displayed and the audio re-starts from the beginning of the next track.
- SCAN FWD** If you keep the ►► button pushed for one second, the player scans the disc forward from the current position, while providing an audible signal to make it easier to identify the position within the track. The symbol ►► is displayed. When the button is released, the music starts playing from the reached position.
- PREVIOUS TRACK** The Previous Track command works in the same way as the Next Track command. By pushing the ◀◀ button on the front panel, the symbol ◀◀ is displayed and the audio re-starts from the beginning of the current track. Pushing the ◀◀ button again makes the player jump to the beginning of the previous track.
- SCAN REV** If you keep the ◀◀ button pushed for one second, the player scans the disc backward from the current position, while providing an audible signal to make it easier to identify the position within the track. The symbol ◀◀ is displayed. When the button is released, the music starts playing from the reached position.

The same functions are accessible from the remote handset. In this case to select a track use the buttons identified by the symbols ►► and ◀◀, while to scan the disc use the buttons ►► and ◀◀, keeping them pressed until the desired position has been found.

**PAUSE** To pause a playing track, quickly press the ►/■  
PLAY/STOP button on the front panel or the ►/||  
PLAY/PAUSE button on the remote handset: the symbol  
|| is displayed and the player stands by in the  
current position. To resume playback, push the  
►/■ PLAY/STOP or ►/|| PLAY/PAUSE buttons again.

**STOP** To stop the disc entirely, hold the ►/■ PLAY/STOP  
button on the front panel for one second, or use the  
■ STOP button on the remote handset: the message  
**STOP ■** is displayed and the player jumps back to  
the initial position of the current track.

Pushing the ►/■ PLAY/STOP button again for one  
second, or the ■ STOP button on the remote handset,  
causes the *Unico CDDue* to reset to its initial  
condition, in which the message **STOP ■**, the total  
number of the tracks and the total time are  
displayed.



## TIME DISPLAY MODE

The *Unico CDDue* supports three different time display modes:

- A) ELAPSED TIME ON CURRENT TRACK.
- B) ELAPSED TIME ON DISC.
- C) REMAINING TIME ON DISC.

To select the desired mode, use the **Time** button on the remote handset; push it repeatedly to go through the three options in the sequence as listed above.

## REPEAT MODE

The *Unico CDDue* allows for different play modes:

- A) **REPEAT CURRENT TRACK:**  
The message **R\_TRK** is displayed. When the current track ends, the player jumps back to the beginning and starts playing.
- B) **REPEAT DISC:**  
The message **R\_ALL** is displayed. When the last track of the CD ends, the player jumps back to the beginning of the first track and starts playing.
- C) **SHUFFLE REPRODUCTION:**  
The message **SHFL** is displayed. All tracks on a CD are played in random sequence until they've all been read, then the reproduction stops.
- D) **NORMAL REPRODUCTION:**  
CD tracks are played in sequence starting from the one selected. When the last track ends, the reproduction stops and the player resets to the initial condition.

To select the desired mode, use the **Repeat** button on the remote handset and push it repeatedly to go through the four options in sequence as listed above.

## **DIRECT ACCESS TO THE TRACKS**

The *Unico CDDue* allows for direct access to a track by pressing its corresponding number on the remote handset.

When the first digit is selected, it is displayed and will start blinking on the screen. From this moment, the *Unico CDDue* allows roughly two more seconds, during which time it is possible to select a second digit for the track number (if necessary), before starting to play the chosen track.

If the chosen number exceeds the maximum number of the CD tracks, the displayed number disappears and the *Unico CDDue* stands by.

## ADVANCED FUNCTIONS :

Advanced features are only available when using the remote control:

<b>Button</b>	<b>Function</b>
Mode	Turns off the display until you press any button
Source + -	Select the input source: CD = AudioCD TOS = Toslink digital input RCA = SP/Diff digital input XLR = AES/EBU digital input USB = USB digital input BT = Bluetooth
Phase	Change the absolute phase ( $\pm 180^\circ$ ) of the audio signal
Filter	Select the DAC's different digital filters: FLT1 = fast roll-off (linear phase) FLT2 = fast roll-off (minimum phase) FLT3 = slow roll-off (linear phase)
Opt	Insert a solid state buffer on the analogue output

## Using the USB input

The *Unico CDDue* USB input uses a latest generation D/A converter capable of converting PCM signals up to 384kHz and DSD (DoP) up to 5.6448MHz, which includes all audio formats and sampling frequencies available today.

To use the input, the user needs to connect the SH to a computer with Windows, OSX (Mac) or Linux operating system and follow the instructions below. Even some Android-based devices with certain players are able to work with a USB device without the need for an additional driver (user space mode), and some iPads provided with the Camera Connection Kit can also drive this input. If using small portable devices, we recommend checking the current capability of their USB port, as it must fulfil the CD Due input requirement (300mA).

## Managing the USB input by the *Unico CDDue* display

When the *Unico CDDue* USB input is selected, the display shows the connection status. In the absence of a connection, or whenever the computer connected to the USB input is off or its USB port is disabled, the display shows **NO HOST**. Otherwise the display shows the sampling frequency of the incoming data.

## Using the Bluetooth connection

The *Unico CDDue* is provided with a Bluetooth connection which allows for listening to music stored on any suitably specified smart device. Using this feature is quite straightforward, as the *Unico CDDue* is seen by the device as a Bluetooth headphone.

## Connecting a smart device to the *Unico CDDue*

Navigate the *Unico CDDue* to the Bluetooth input using the remote control. The display will show “NO CONNECTION”.

First, activate Bluetooth on your smart device. Then, from the list of available devices, choose the one named “Unison Research” followed by a 4-digit number. The device will now pair with your *Unico CDDue*. The display will then show “CONNECTED”.

Now you can launch the music player on your smart device and listen to your favorite music. While listening, the display will indicate the sampling frequency of the music being sent to the *Unico CDDue* (44.1kHz or 48kHz and the word “STREAMING”).

Once playback is finished, it's possible to terminate the connection by telling the smartphone to "forget" the Unison CD Due device.

### **Using the digital inputs**

External digital sources (like sat receivers, digital recorders, digital mixers) can be connected to the digital inputs on the *Unico CDDue* back panel (coax S/PDIF, balanced AES/EBU, optical Toslink). These inputs accept PCM signals up to 192kHz-24bit (96kHz-24bit with optical). The coax and balanced inputs also accept DoP-coded DSD64 signals.

When a digital input is selected but no device is connected or the connected device is not sending any data the *Unico CDDue* display will indicate "NO LOCK". When a live signal is detected, the display will indicate the sampling frequency of the incoming signal.

### **Digital outputs**

Whichever of the selected inputs you are using, the signal is always sent to the digital outputs on the back panel (coax S/PDIF, balanced AES/EBU, optical Toslink), providing the sampling frequency is within 192kHz (within 96kHz for the optical output). If a signal above 192kHz is detected, the digital outputs are shut off. This is so the *Unico CDDue* complies with the S/PDIF-AES/EBU standard, which only handles signals up to 192kHz.

## **4 .Using the *Unico CDDue* USB input with a Windows-based computer**

Supported versions are Windows 7 and later. When using the *Unico CDDue* with a computer that has a Windows operating system, it is necessary to install a driver, which can be downloaded from [www.unisonresearch.com](http://www.unisonresearch.com)

Please note that the driver is the same as that used for the USB input on the Triode 25 amplifier and other Unison Research products. If your computer has already been connected to one of these products, then the driver is already installed and you can skip this procedure.

## Installing Windows driver

Before proceeding with the installation, switch the *Unico CDDue* on and connect it to the computer using a USB cable.

To start the driver installation, double-click on the executable (.exe) file downloaded from Unison Research website. Once started, depending on the operating system version, the user could be asked to confirm the permission for the program to modify the system. Give confirmation. Once this operation, when required, is performed, the window in Figure 1 will appear.

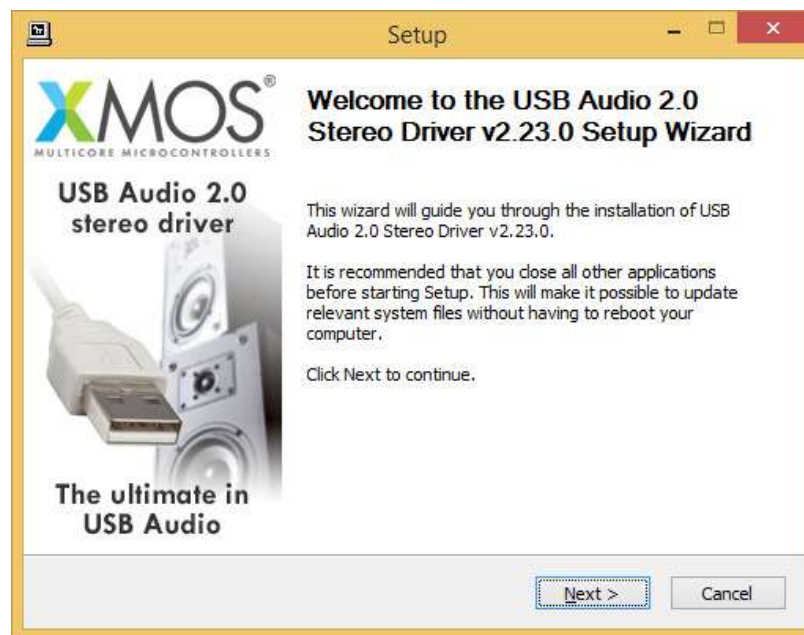


Figure 1

Follow the instructions shown in the window and click the “Next” button to launch installation. At first, the installation program will check that the *Unico CDDue* USB input is connected to the computer. Whenever the connection is not made or when the computer doesn’t recognize the *Unico CDDue* input, the window shown in Figure 2 will appear.

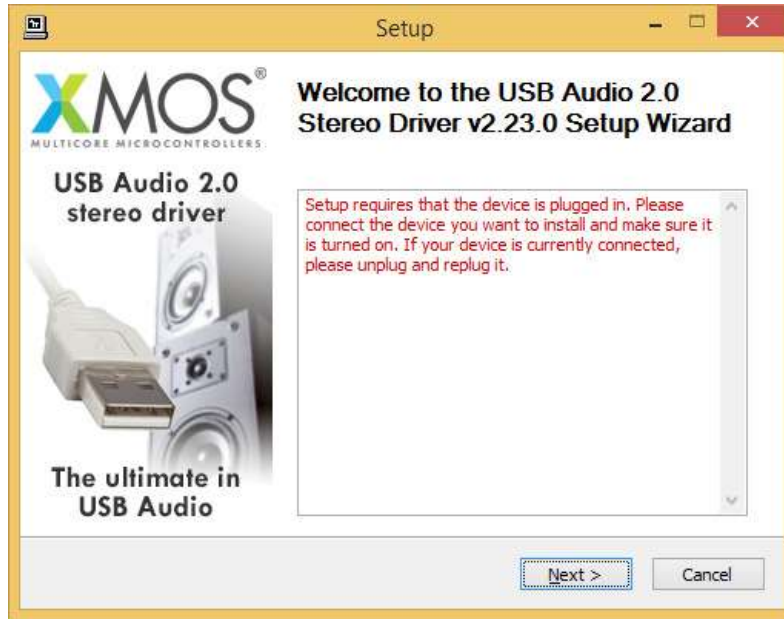


Figure 2

Should this happen, connect the *Unico CDDue* input to the computer or disconnect and reconnect it to allow the USB controller to properly recognize it. Then, click the “Next” button.

Once the installation program has confirmed the presence of the *Unico CDDue* input on the USB bus, the window shown in Figure 3 appears.

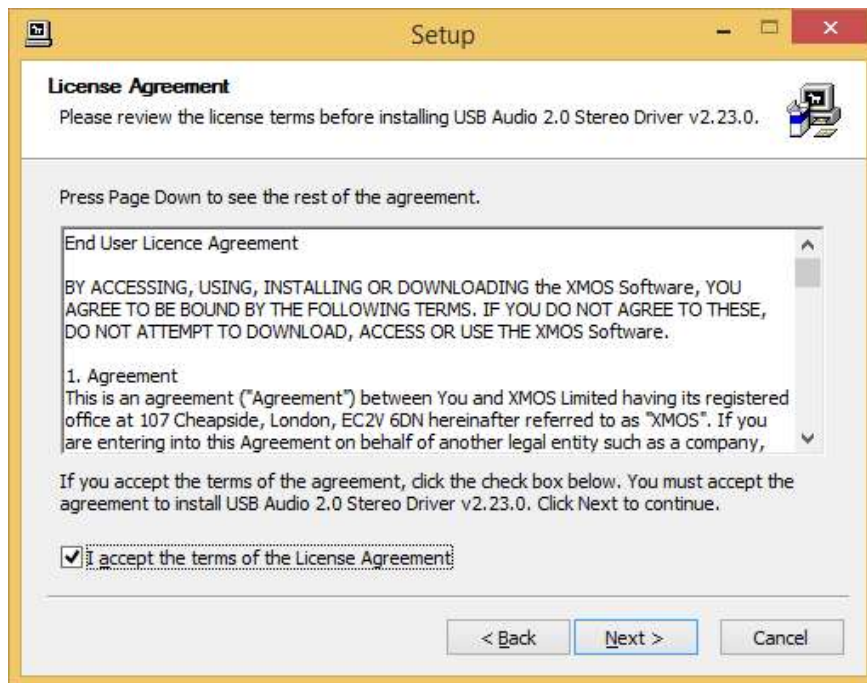




Figure 3

The user must accept the license agreement terms by clicking on the checkbox in the lower left of the window, as shown in Figure 3, then click the “Next” button. The window shown in Figure 4 will appear, in which the user may, if necessary, indicate a path for driver installation.

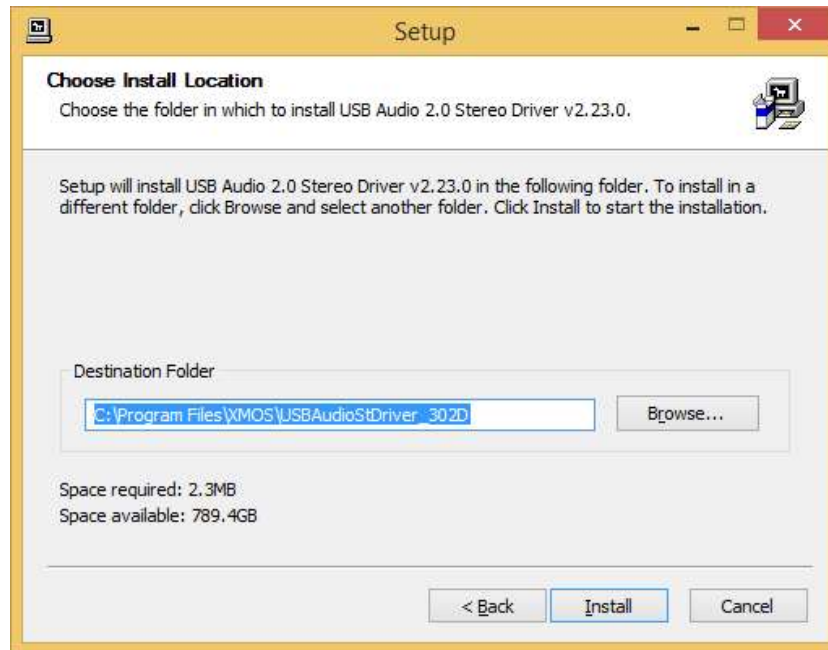


Figure 4

Once the installation path is chosen or confirmed, the user needs to click the “Install” button to proceed with the driver and ancillary components installation. The window shown in Figure 5 will appear, in which a progress bar will show the installation’s progress.

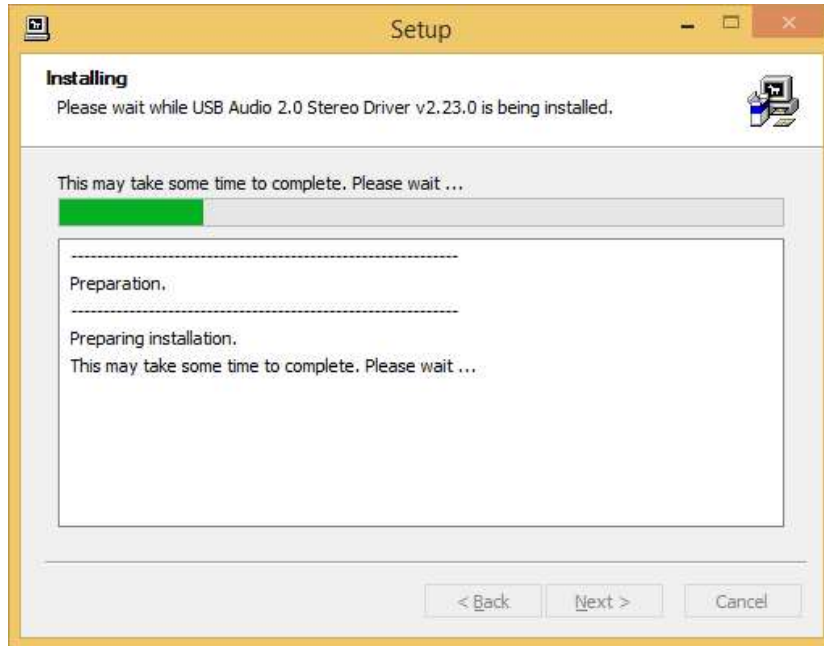


Figure 5

When the process has finished the window will announce the installation has completed, as shown in Figure 6.

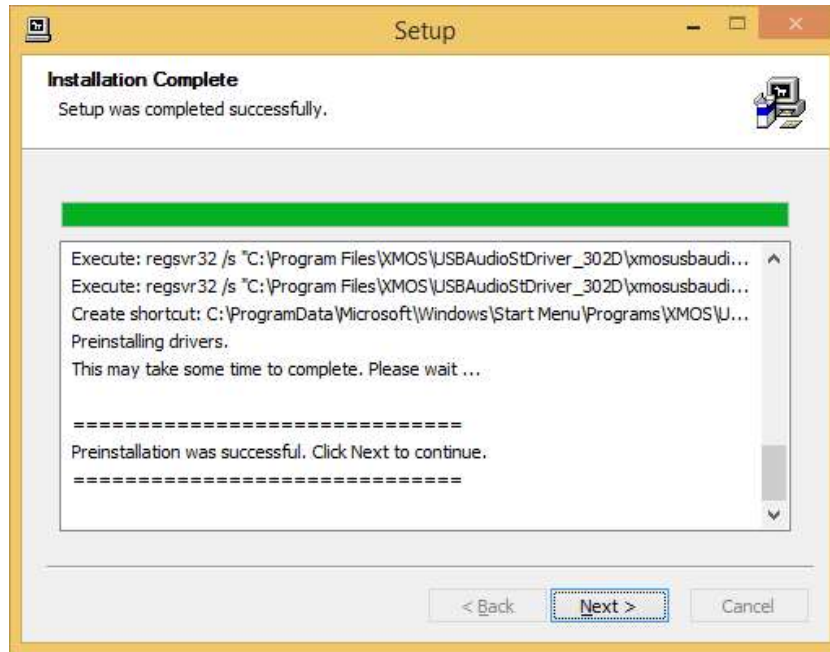


Figure 6

Click the “Next” button to proceed. The window shown in Figure 7 will appear. Click “Finish” to terminate the installation program.

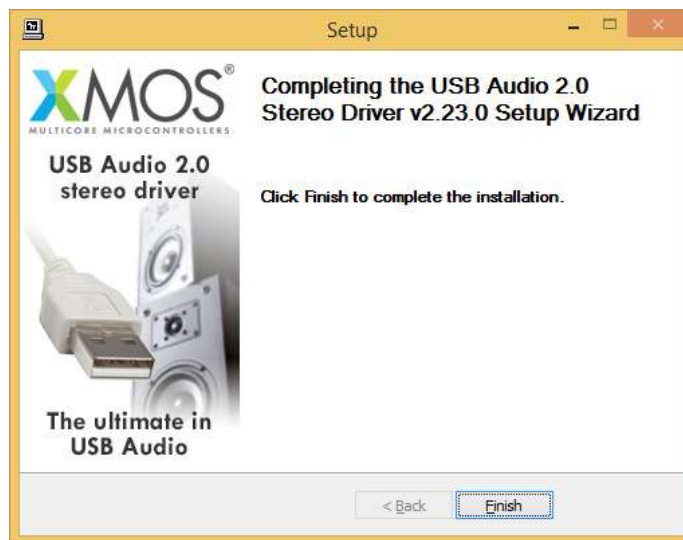


Figure 7

### Uninstalling the Windows driver

It may be necessary, for certain reasons, to uninstall the driver. The uninstall process can be started in two ways: by opening the applications installation utility and selecting the driver for uninstall, or by accessing the driver folder and starting the uninstall program. Either way, the window shown in figure 8 will appear.

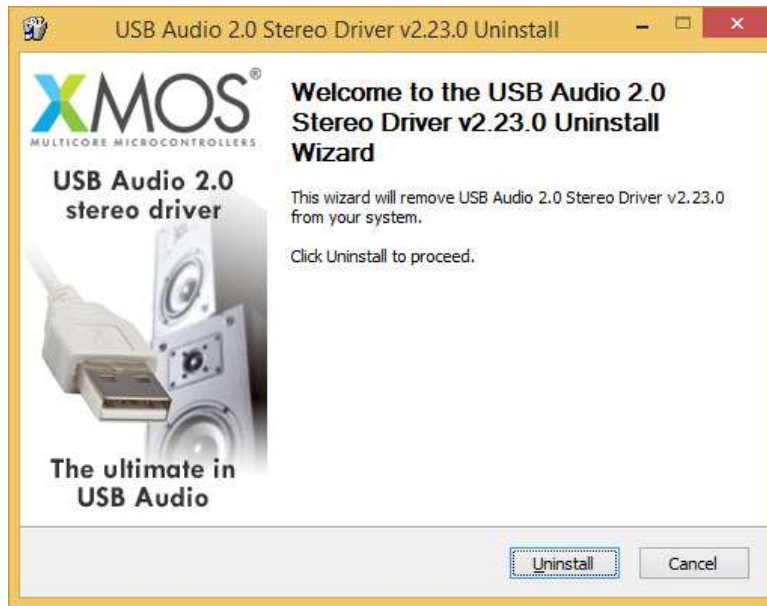


Figure 8

Click the “Uninstall” button to launch the driver uninstall process. The window shown in Figure 9 will appear, in which a progress bar will show the uninstall progress.



Figure 9

Once completed, the window shown in Figure 10 will announce the successful uninstall.

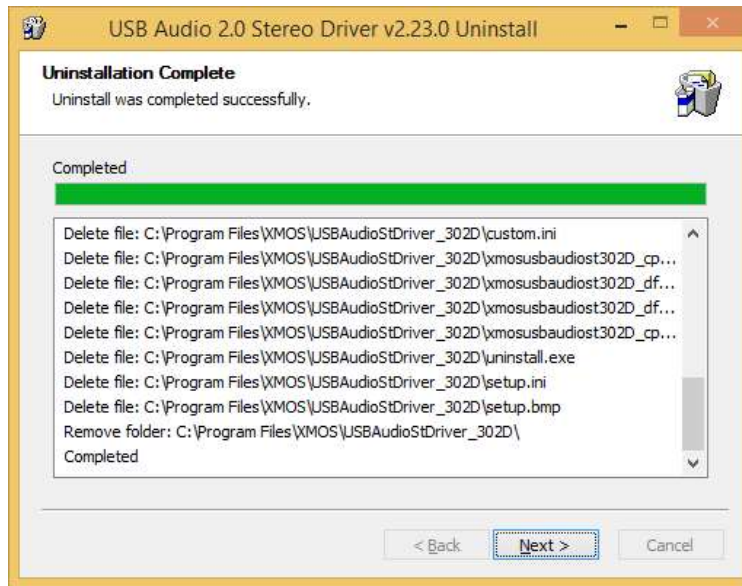


Figure 10

Click the “Next” button to proceed. The window shown in Figure 11 will appear. Click “Finish” to terminate the uninstall program.

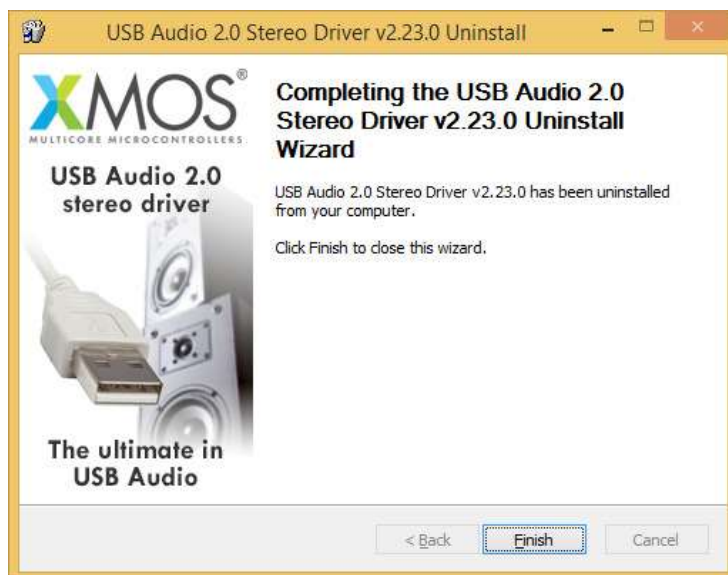


Figure 11

## Configuring Windows to use the *Unico CDDue* as the predefined output peripheral

Some players, such as Windows Media Player, use the system predefined audio peripheral to playback audio. Some streaming services (which rely on a web browser) also do the same. In these cases, it is necessary to choose the *Unico CDDue* as your predefined audio peripheral. To do that, you need to access the Sound configuration utility in the Control Panel. A window with various tabs will appear. Select the “Playback” tab to access the list of available output peripherals. Select “XMOS USB Audio” as the predefined device, as shown in Figure 12. From that moment on all sounds made or handled by Windows (including the ones from the browser and from players relying on the system to deliver audio) will be sent to the *Unico CDDue*.

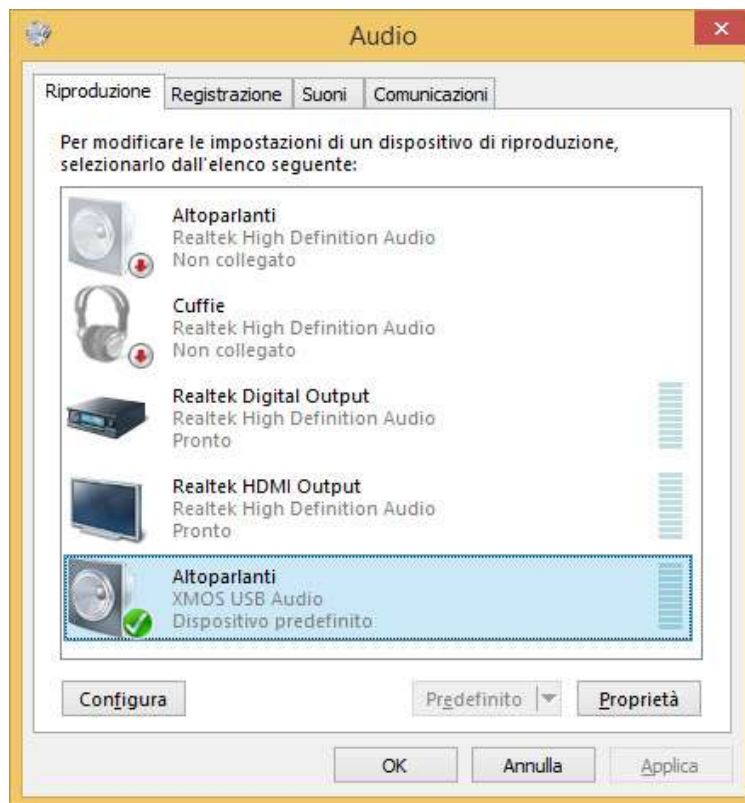


Figure 12

Windows systems, in a similar way to OSX (see later section), resample all signals to make their sampling frequency the same as the value chosen in the Audio utility. To choose the output sampling frequency, access the properties of the selected peripheral (in this case, the *Unico CDDue*) and show the advanced properties, as shown in Figure 13.

A drop-down menu will allow for choosing the desired sampling frequency between 44.1kHz and 192kHz (the latter being the highest sampling frequency which Windows can handle). Please note that an ASIO-compatible player is needed when the user wants to use the Unico CD Due USB input with sampling frequencies higher than 192kHz, as Windows is unable to handle such high sampling frequencies.

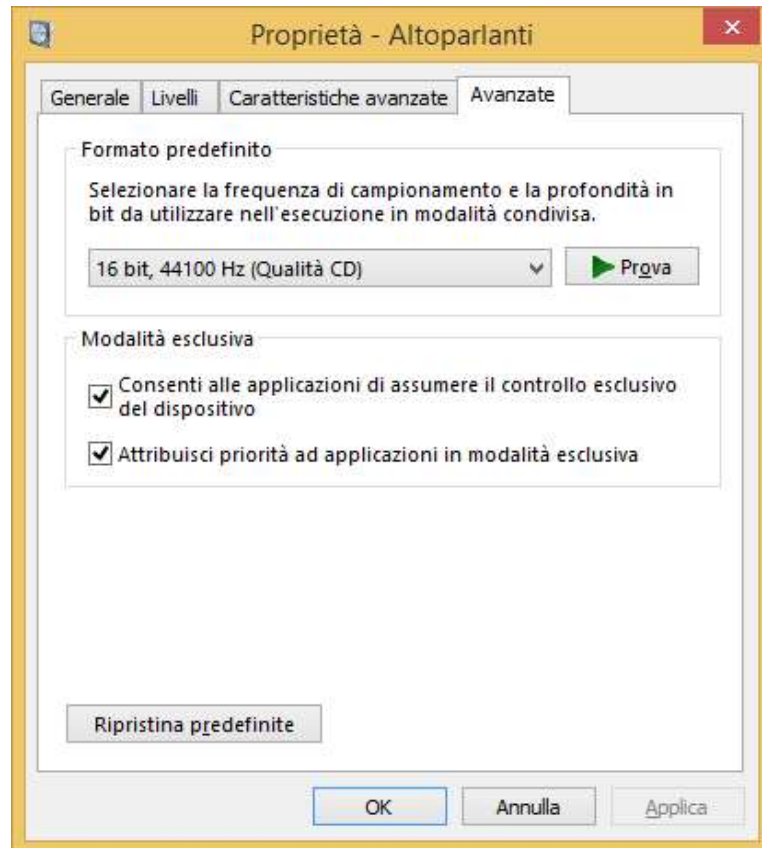


Figure 13

### Configuring a player in Windows: FooBar 2000

FooBar ([www.foobar2000.org](http://www.foobar2000.org)) is a free software that's able to operate with all the modes that are compatible with the *Unico CDDue* USB input: Direct Sound, Kernel Streaming, WASAPI and ASIO. The installation of the program is beyond this manual's scope: we'll explain how to configure it to operate in ASIO mode, which is the optimum solution to use with the Unico CD Due USB input.

FooBar offers ASIO support through the installation of a specific DLL. It must be downloaded from the "Components" section of FooBar, website, from the following link:

[http://www.foobar2000.org/components/view/foo\\_out\\_asio](http://www.foobar2000.org/components/view/foo_out_asio).

**NOTE: unlike many other FooBar DLL's, which are contained in a zip file and therefore must be manually extracted and copied into the "Components" subfolder inside the FooBar main folder, the ASIO file which is downloaded from FooBar website is an auto-installing program which automatically installs the DLL in the correct folder, without any user action. You just need to double-click on the downloaded file.**

Once this operation is done, the user can launch FooBar and access the Preferences window by clicking the CTRL+P keys combination, or by the specific "File" menu item. Then, select the "output" item, which will show an "ASIO" sub-item: the windows shown in figure 14 will appear.

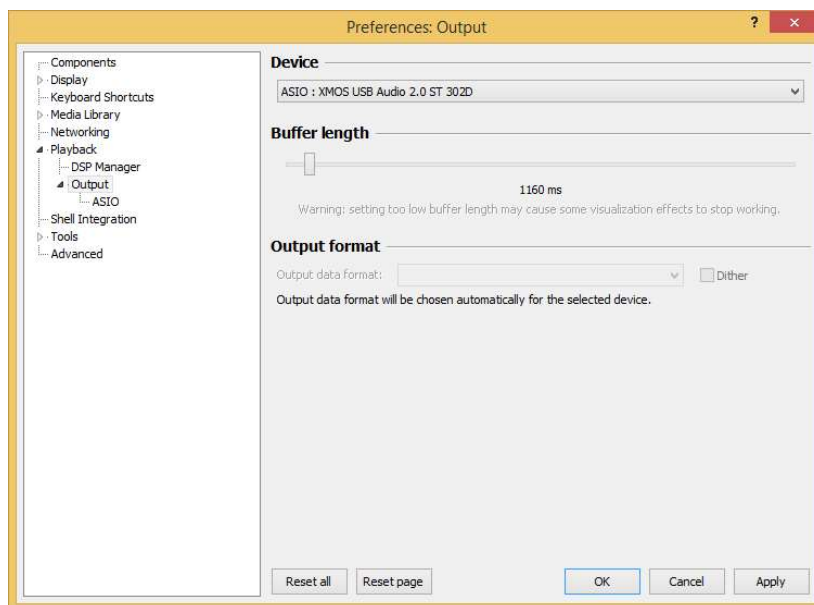


Figure 14

Select "ASIO: XMOS USB ASIO 2.0 ST302D" in the drop-down menu called "Device". FooBar is already capable of using the *Unico CDDue* USB input as an output device in ASIO mode to playback bit-perfect PCM audio up to 384kHz and 32 bits.

It's now necessary to setup FooBar to playback DSD files. For this you need to install another DL for SACD compatibility, which can be downloaded from the Sourceforge website at the following link: <http://sourceforge.net/projects/sacddecoder/files/latest/download>.

The zip archive contains two executable files, both to be used: one to install the component for SACD ISO files compatibility and one proxy file to send



DSD to compatible audio devices through their ASIO compatible driver. One such device is the *Unico CDDue* USB input.

After manually installing the DLL and the proxy, two ASIO objects will appear in the “ASIO” section of “Output” (Figure 15): the Unison driver and the proxy (“foo\_dsd\_asio”). Double-click on “foo\_dsd\_asio” to make the configuration window appear. Set the parameters as shown in Figure 15. FooBar is now ready to send DSD streams from DSD files to the *Unico CDDue* USB input.

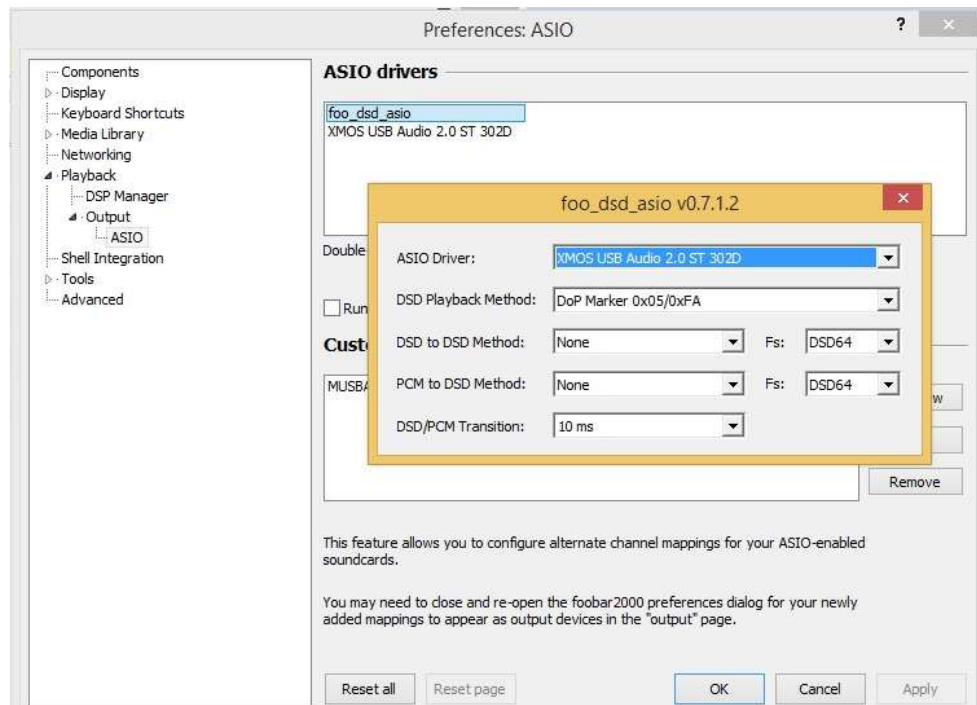


Figure 15

For best operation of the player with DSD files, it is advisable to setup the SACD tool as shown in figure 16.

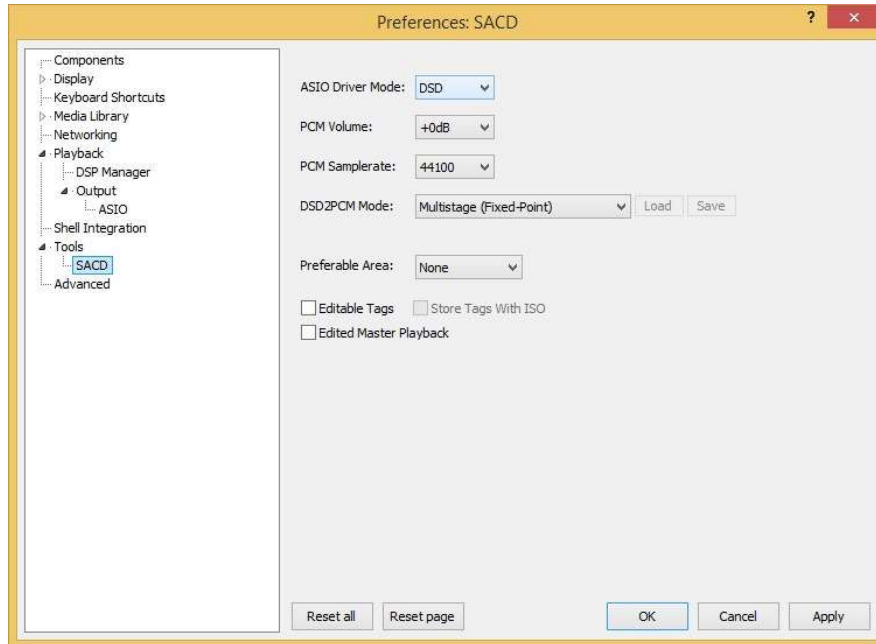


Figure 16

It is necessary to select the DSD proxy as the output device to listen to DSD files, as indicated in Figure 17.

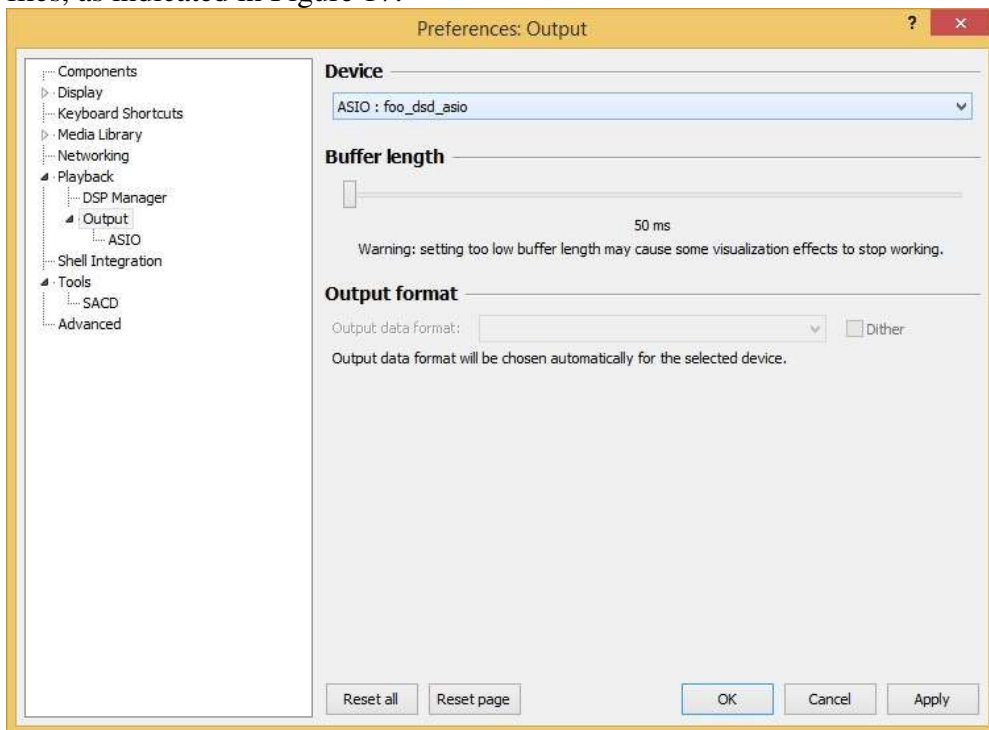


Figure 17

## Configuring a player in Windows: JRiver Media Center

JRiver Media Center ([www.jriver.com](http://www.jriver.com)) is a commercial player, therefore is a closed solution and is provided with all necessary features to support the various audio transfer modes and audio formats.

As with FooBar, we won't go through the program installation. Access JRiver options window and select "ASIO" as "Output mode" in "Audio" (figure 18).

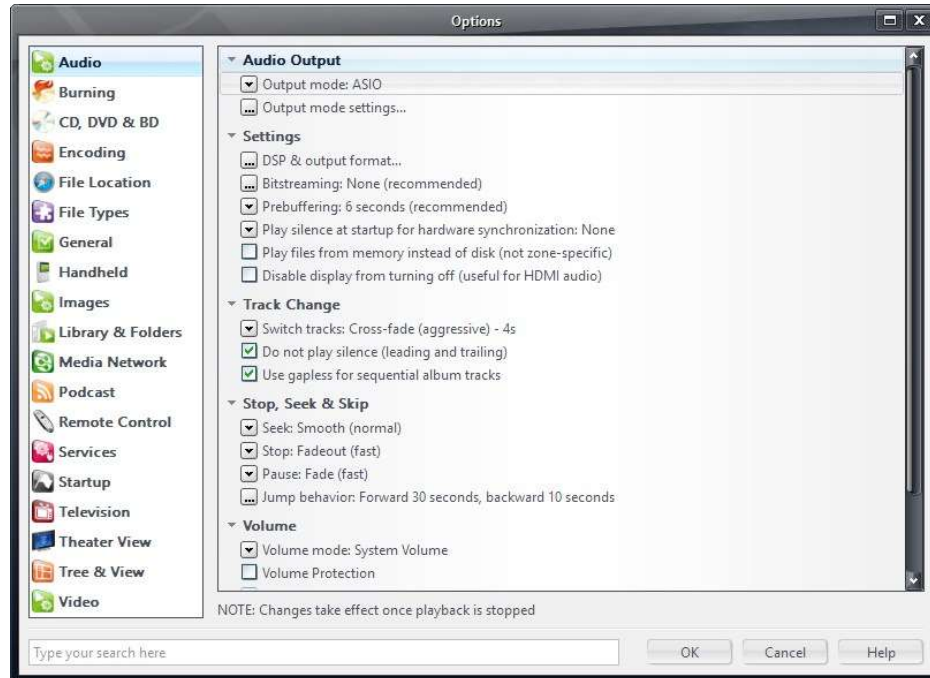


Figure 18



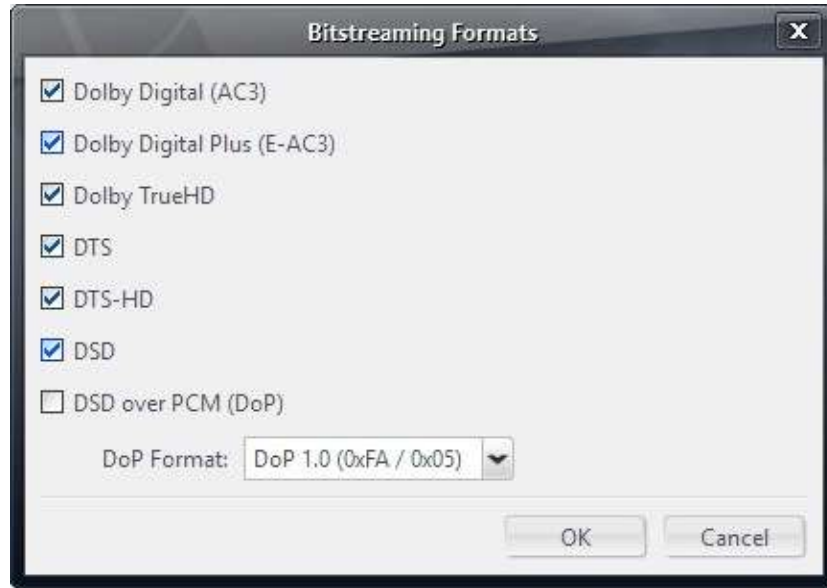


Figure 21

The configuration procedure is almost done, but it's still necessary to tell JRiver not to down-sample data that's streamed with a sampling frequency higher than 192kHz. This feature is usually enabled to correctly drive other DAC's with a lower specification than the *Unico CDDue*. Access the "DSP and output" menu item and set the parameter about handling of files with sampling frequency more than 192kHz, as shown in Figure 22.

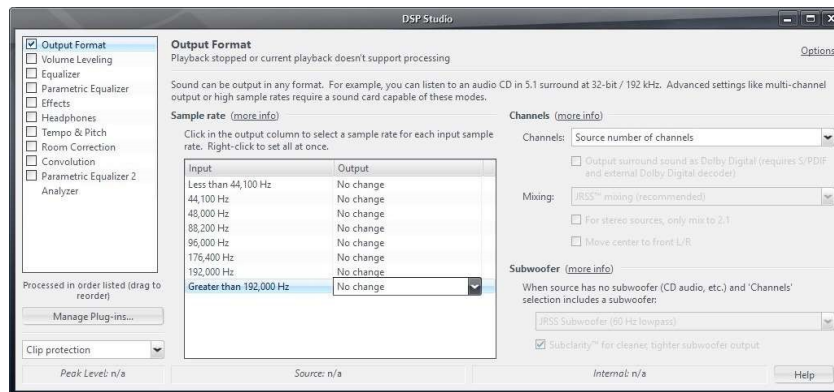


Figure 22

JRiver configuration is done and you can now listen to PCM files up to 384kHz and DSD files up to DSD128.

## 5. Using the Unico CD Due USB input with an Apple computer

The *Unico CDDue* USB input complies with USB Audio Class 2.0 specifications; therefore it's natively supported by OSX operating systems since version 10.6.8 and doesn't need any drivers. The Unico CD Due USB input is recognized by any Apple computer as soon as it's connected to one of its USB ports and is listed amongst the output audio devices as shown in figure 23.



Figure 23

The user must select the “Unison USB DAC 1” peripheral to send her/his computer's audio to the *Unico CDDue* USB input. The OSX operating system allows users to choose the sampling frequency of the audio signal sent to the *Unico CDDue* USB input. This can be done through the MIDI Control Panel, as shown in Figure 24. Whichever sample rate you choose will define the exact output to the *Unico CDDue*, regardless of whether the file can play at a higher resolution.

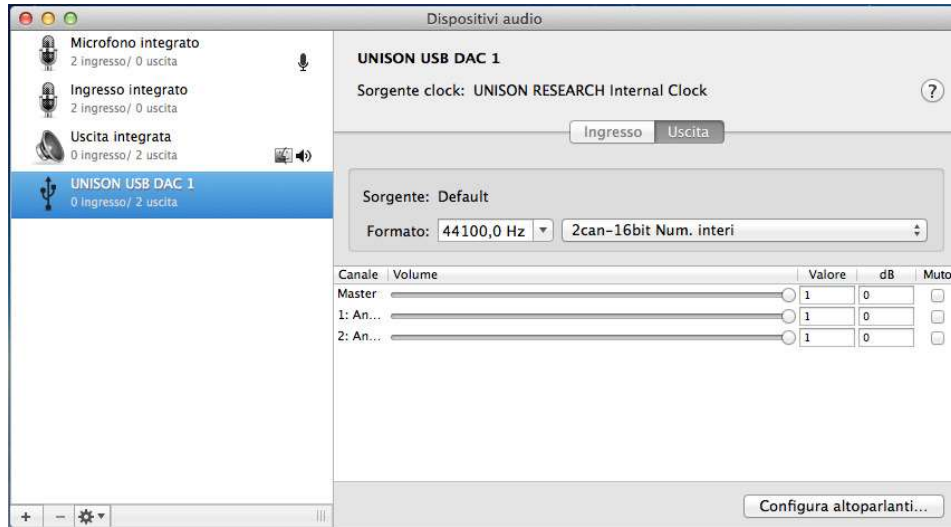


Figure 24

A fixed output may not be desirable when listening to a playlist made of files with different sampling frequencies. In this case, a player capable of disabling this system feature must be used. Many such players are available, both free and commercial.

### Configuring a player in Apple OSX: Audirvana

Audirvana is a latest generation player which allows for listening to DSD files with DSD-compatible devices, such as the *Unico CDDue* USB input. To use Audirvana at its best, set the various options as shown in Figure 25.

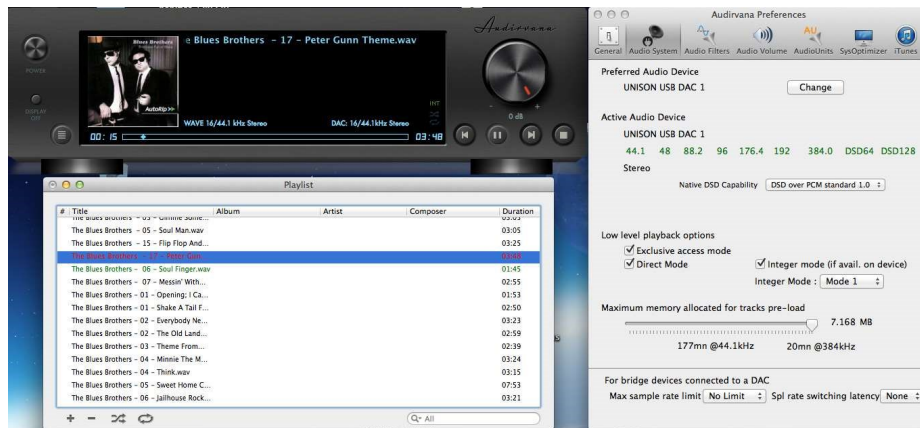


Figure 25.

## 6. Connecting to a Linux computer

No driver is needed for a computer provided with the Linux operating system and an ALSA module, as ALSA natively supports USB Audio Class 2.0.

To use the *Unico CDDue* USB input with a computer provided with Linux operating system, it is sufficient to access the audio configuration panel and select the “UNISON USB DAC 1” peripheral in the “Output” section, as shown in figure 26.

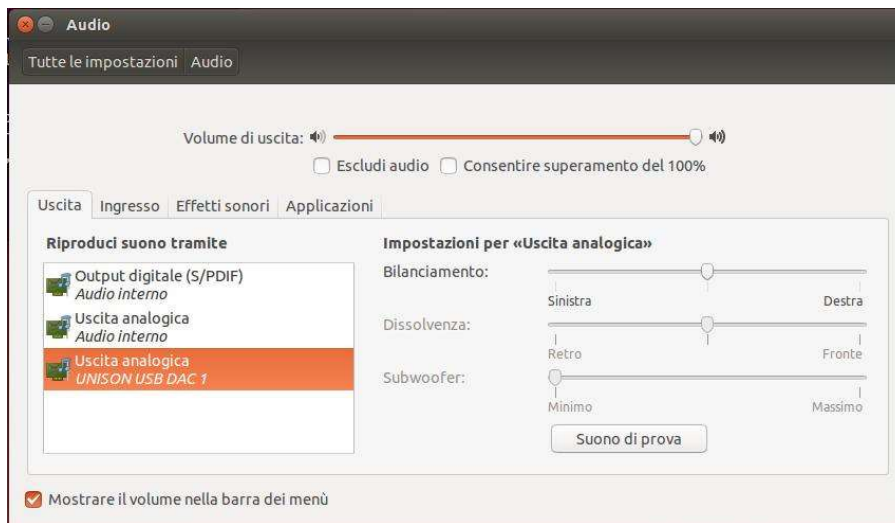


Figure 26

### Configuring a player under Linux: Audacious

Of course, even with Linux, it could be necessary to select the *Unico CDDue* USB input as predefined audio output peripheral. As an example, the recommended configuration for Audacious, which is widely used under Linux, is shown. As displayed in Figure 27, the user needs to access Audacious' preferences and select “ALSA output”. Then, the user must click on “Preferences”, right below the drop-down menu for output selection: the window shown in the lower portion of Figure 27 will appear. Set its various parameters as shown in Figure.



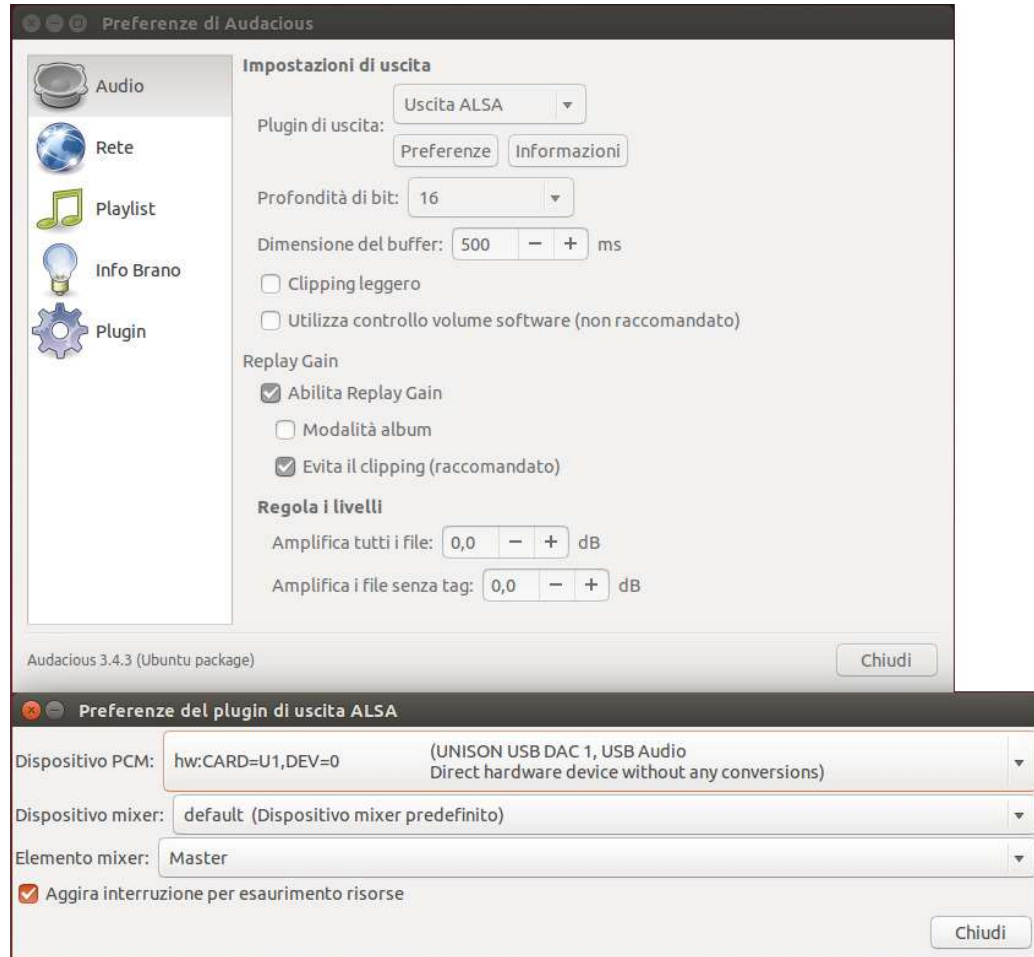


Figure 27

## **7. SAFETY AND MAINTENANCE PRECAUTIONS**

**Never operate the player with either the bottom or top covers removed.**

### **Do not open the amplifier!**

There are no user serviceable parts inside. For technical assistance or product service please refer to your Authorised Dealer or to a Unison Research<sup>®</sup> authorised Service Centre.

### **Do not spill liquid into the amplifier!**

If liquid should be accidentally spilled into the amplifier remove the mains plug from the wall socket immediately and seek assistance from an authorised Service Centre before attempting to operate it again.

**Before inserting the mains plug into the wall socket, ensure that the switch on the *Unico CDDue* is in the “OFF” position.**

**If you do not intend to use the *Unico CDDue* for a long period of time we strongly recommend you unplug from the mains at the wall socket.**

**Valve replacement should be carried out using only valves of the same type and matched in pairs.**

The *Unico CDDue* uses four ECC83 (12AX7) valves. The device has been designed to maximise the valves' life-span: in laboratory tests, 1500 hours of usable life have been exceeded.

### **IMPORTANT!**

**Before attempting a valve replacement make sure that the *UnicoCDDue* is switched off and allow sufficient time for the valves to cool. Remove the mains power cord from the amplifier. If in doubt, your Authorised Dealer or Service Centre will be able to assist with this operation.**

### **Cleaning the *Unico CDDue*.**

Cleaning has to be done after switching off the device and allowing the amplifier to cool down.

Use a soft dry cloth.

Do not use solvents or alcohol-based detergents.

Do not rub hard on the screen-printed legends.

**Never operate the *Unico CDDue* when covered! Adequate ventilation is essential at all times!**

## 8. TECHNICAL SPECIFICATIONS

### Digital Inputs

#### 1 x USB

Standard: USB 2.0 Audio Class  
frequencies: 44.1, 48, 88.2, 96, 176.4, 192, 352.8, 384,  
DSD64(DoP), DSD128(DoP), DSD256(DoP) Ready  
Resolution: 16 to 32 bits

#### 1 x S/PDIF

Sensitivity: 0.5Vpp on 75 Ohms  
Sampling frequencies: 44.1, 48, 88.2, 96, 176.4, 192  
DSD64 (DoP)  
Resolution: 16 to 24 bits

#### 1x AES/EBU

Sensitivity: 2Vpp on 110 Ohms  
Sampling frequencies: 44.1, 48, 88.2, 96, 176.4, 192  
DSD64 (DoP)  
Resolution: 16 to 24 bits

#### 1x Toslink™

Sampling frequencies: 44.1, 48, 88.2, 96 (176.4 and DSD64-  
DoP with high efficiency transmitters)  
Resolution: 16 to 24 bits

#### 1 x Bluetooth™ Receiver

Standard: BT 3.0  
Profiles: A2DP, SSP (HID supported with Android  
Smartphones through SPP)  
Sampling frequencies: 44.1kHz, 48kHz  
Resolution: 16 bits

## **Digital Output**

### **1x S/PDIF**

Output voltage: 0.5Vpp on 75 Ohms

### **1x AES/EBU**

Output voltage: 2Vpp on 110 Ohms

### **1x Toslink™**

## **Transport**

8829CD-KHM DVD-Loader , Only audio CD

## **Display**

128 X 64 White OLED graphic display , (can be turned off)

## **Digital to Analogue Stage**

### **DAC:**

ESS Sabre ES9018K2M with jitter eliminator  
SNR: 128dB (0dBFS, 1kHz, 192kHz, “A”  
weighted)  
THD+N: 0.0003% (0dBFS, 1kHz, 20Hz-20kHz)  
Timing: low phase noise, high precision crystal  
oscillators

### **IV converter:**

AD8597/AD8599 ultralow distortion, ultralow  
noise, use high-quality components like wima  
capacitor and wishay resistor

## Output Audio Stage

**Number of channels:**

2

**Output stage:**

Duble Triode, pure class A differential Totem-pole

**Valve complement:**

4 x 12AX7/ECC83

**Output audio connectors:**

1 x RCA stereo

1 x XLR stereo

**Optional buffer:**

AD8597/AD8599 output buffer can be activated  
by remote control normally bypassed by relay

## General Specification

**Remote control:**

1 x Infrared in wood and metal

**Disc Formats:**

CD Audio

## Weights & Dimensions

**Power consumption:** 100W max

**Dimension:** 45cm x 38cm x 13cm

**Net weight:** 10Kg