

GUSTARD

U16

High-performance USB digital audio interface

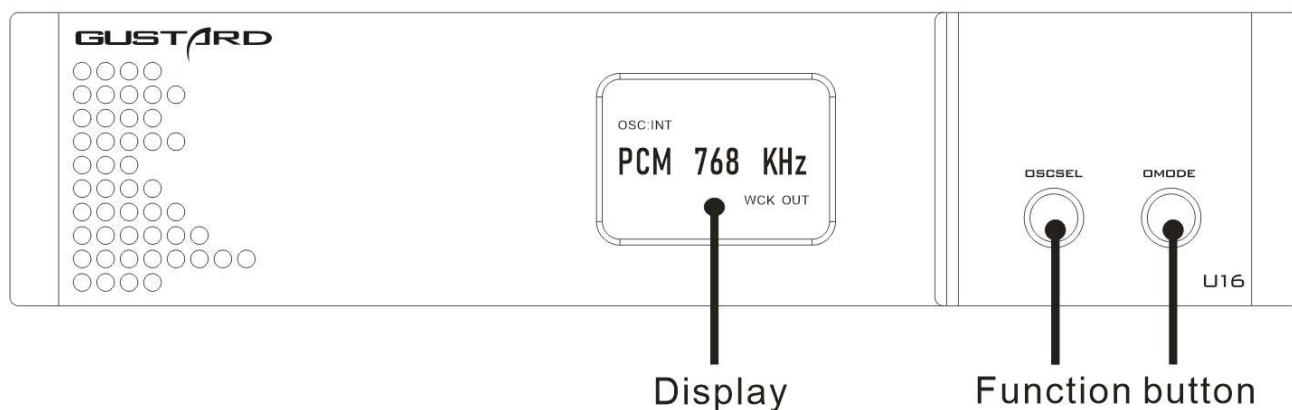
User's manual



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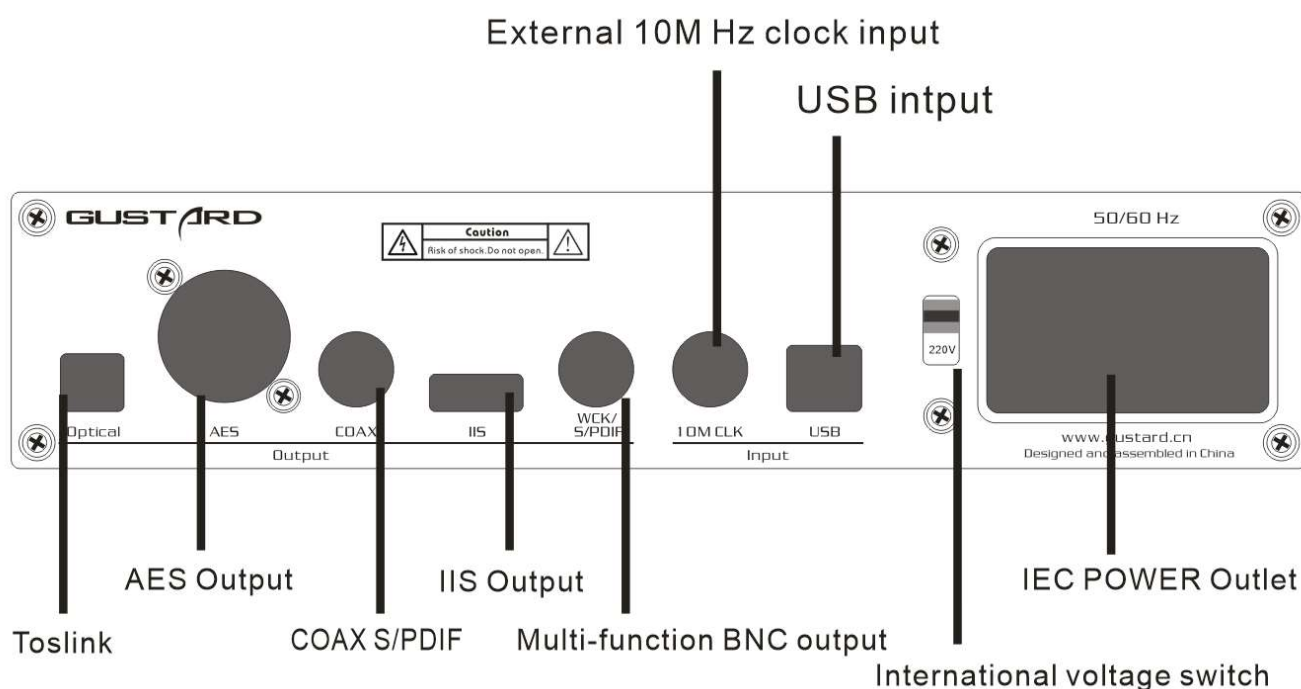
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Front panel



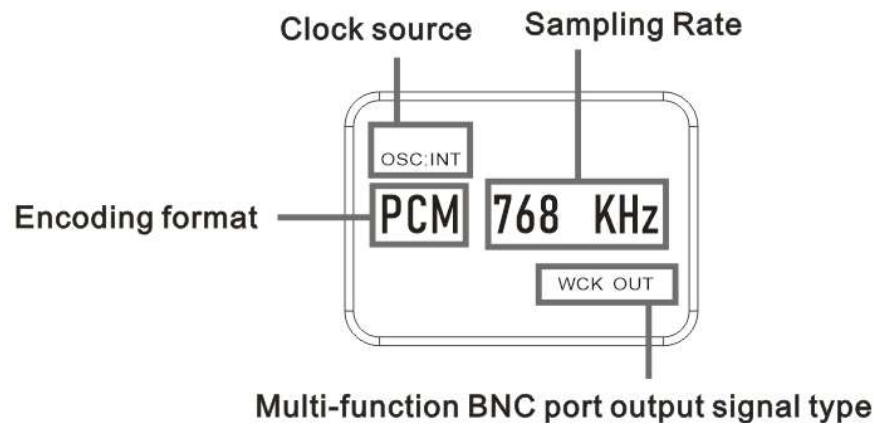
1. The display shows the current working sample rate, clock source status, and signal type status of the multi-function BNC output.
 2. OSCSEL - clock source selection function. This function is used to select the audio clock source of U16, INT is the local audio clock, and EXT means to synthesize the audio clock with the external 10MHz clock as the reference.。
 3. OMODE - Mode selection for multi-function BNC output, switching between WORD Clock output or S/PDIF output.。
- *This feature is only available for the rear panel BNC output. Does not affect other output ports. ***

Rear panel



Display and operation menu

1. U16 high-performance USB digital audio interface uses OLED display, real-time status display and function operation. The following graphic shows the status of the main page of the screen.



2. Clock source input selection (OSCSEL):

Thanks to the FPGA-based audio clock synthesizer, the U16 high-performance USB digital audio interface can use an external 10M clock reference source to further improve sound quality. Pressing the OSCSEL button to the left of the function button area selects between the local audio clock (shown as INT) and the external 10M clock reference source (displayed as EXT). The U16's local audio clock uses two ACCUSILICON AS318-B ultra-low phase noise femtosecond clock sources.

* For security reasons, after the U16 is connected to the external 10M clock, the unit will not automatically switch the audio clock source. The internal and external audio clock sources must be manually selected.

* This function can be operated when the unit detects that the external 10M clock source is a stable and accurate clock signal. Otherwise, after pressing this button, the U16's audio clock source will remain as the local audio clock.

3. BNC output signal mode (OMODE):

The U16 includes a BNC output with a variable output signal mode. Press the OMODE button on the right side of the function button area to select whether the signal output from this BNC is Word Clock or S/PDIF output.

When WCK OUT is displayed in the lower right corner of the screen, this BNC is the Word Clock output; when S/P OUT is displayed, this BNC is the S/PDIF output.。

Windows driver installation

*The unit's accessories contain a CD containing the GUSTARD USB Audio driver. This driver can also be downloaded from our official website <http://www.gustard.cn>

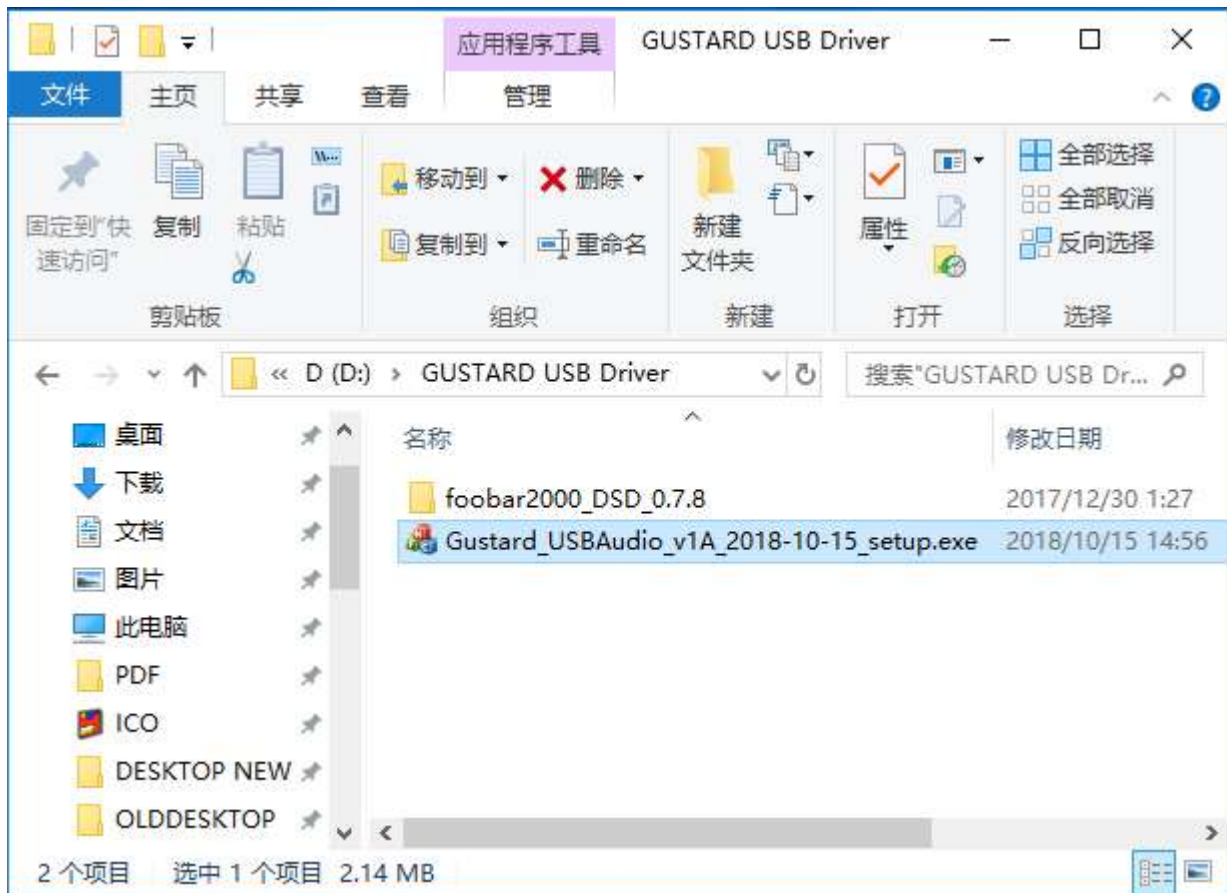
*This driver supports Windows 7 (SP1 and newer); Windows 8; Windows 10

1. For users who use a desktop PC to connect to the U16, it is recommended to use the native USB2.0 interface. It is also highly recommended to use the USB port on the back of the chassis. Because the USB port on the rear panel of the chassis is directly connected to the motherboard. The USB port on the front of the chassis is connected to the motherboard with an extension cable, which has a certain negative effect on high-speed signals.
2. Please connect the U16 to the computer with the USB cable, then turn on the power of the U16. The computer will prompt you to find new hardware and try to set the device. If you don't see this prompt, please try to replace other USB ports or manually restart U16.

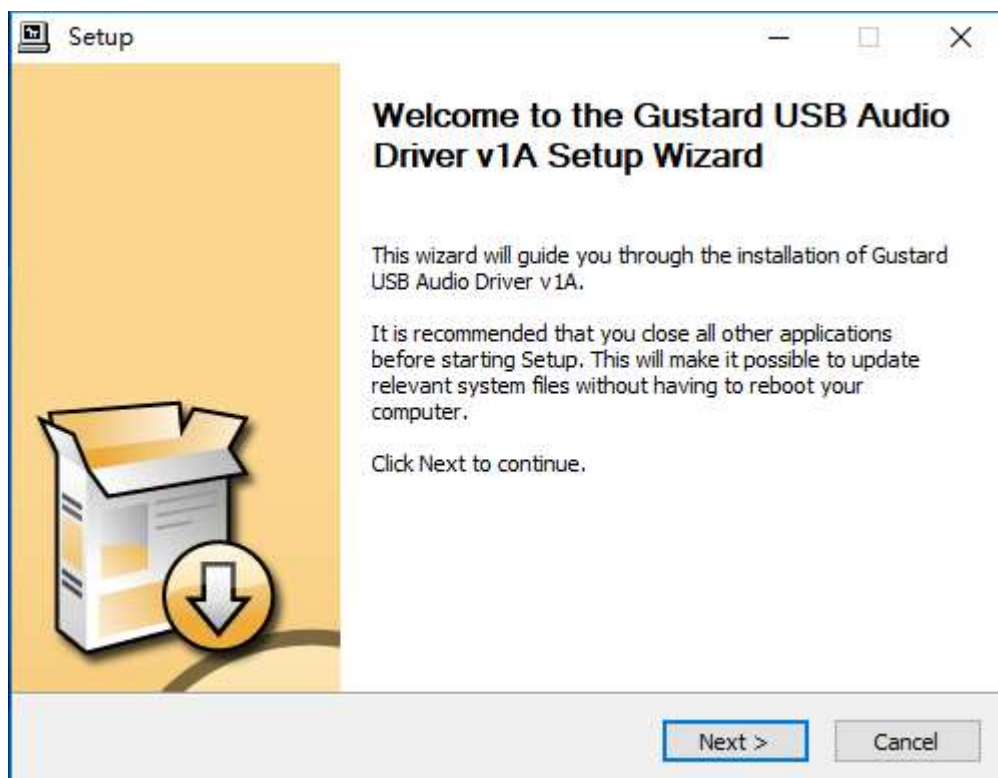


3. Open the CD and double-click to run the Gustard_USBAudio_v1A_2018-10-15_setup.exe program.

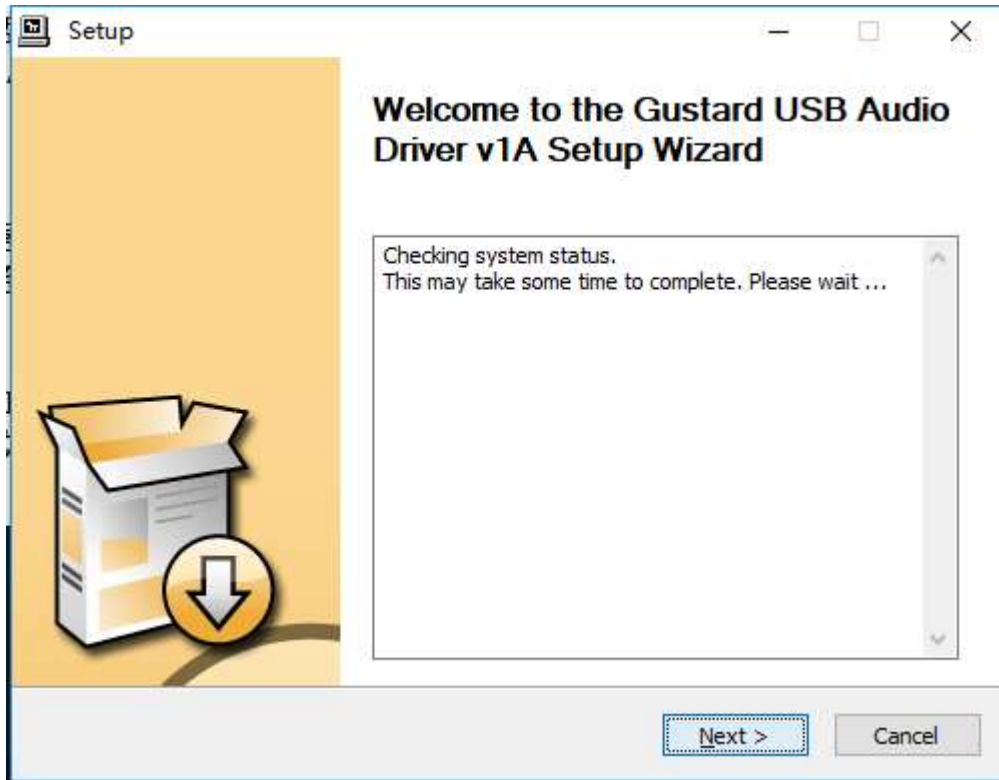
If the "User Account Control" window appears, click "Yes".



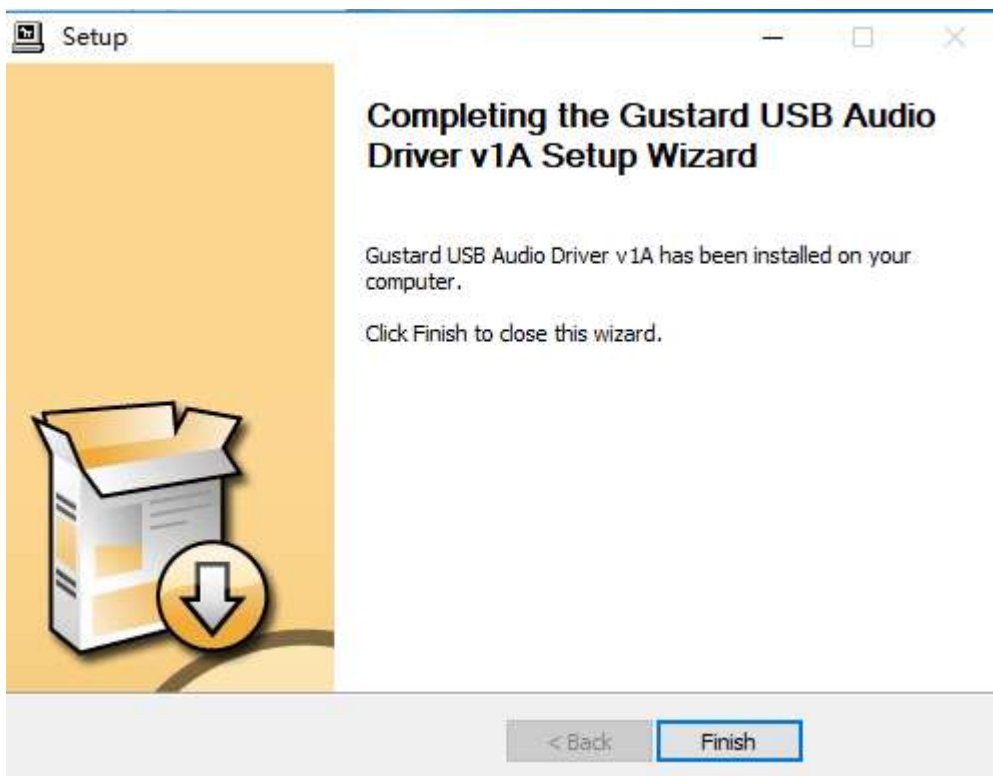
4. Click the next or install button as prompted.



5. When the installer checks the device, if there is a red text prompt: **Setup requires that the device is...**, please restart the GUSTARD U16 or re-plug the USB cable.

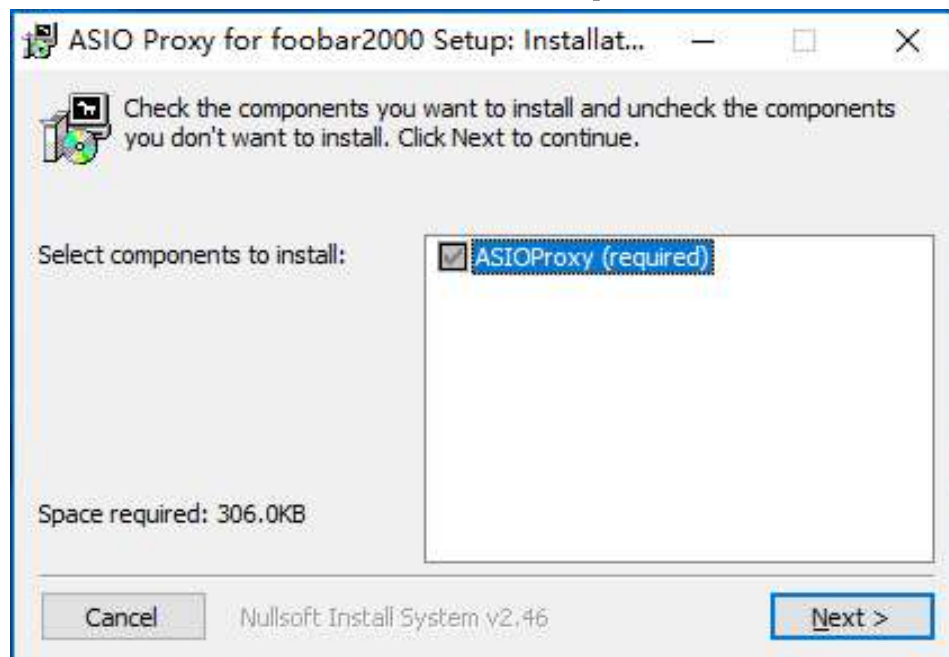


6. The figure below shows the screen for successfully installing the driver. Click Finish to complete the installation.

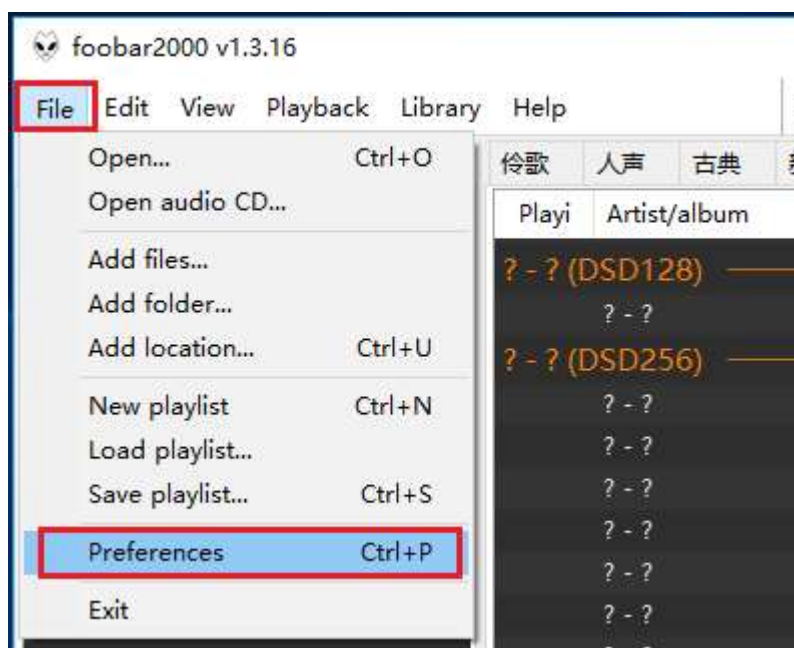


DSD playback settings using foobar2000

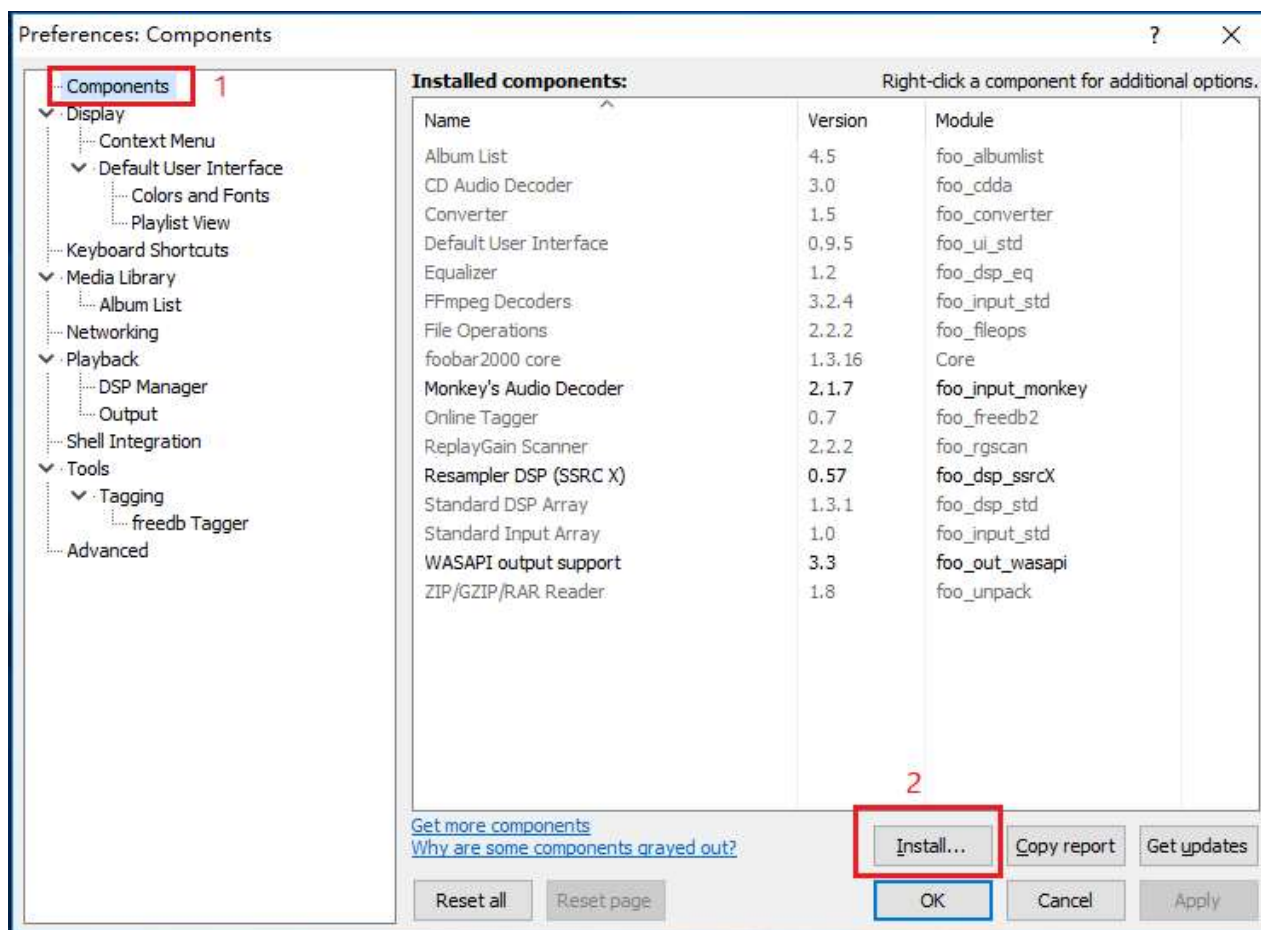
1. Open the folder foobar2000_DSD_0.7.X, double-click to run ASIOProxyInstall-0.7.2.exe, and then click next or install to complete the installation.



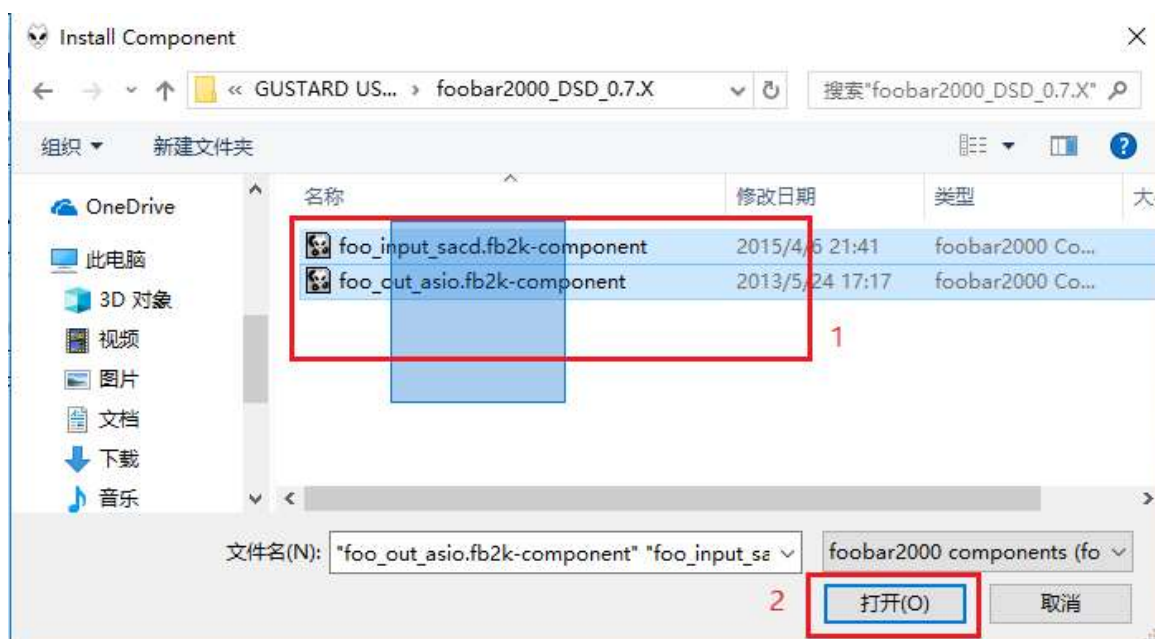
2. Run Foobar2000. Click File -> Preferences.



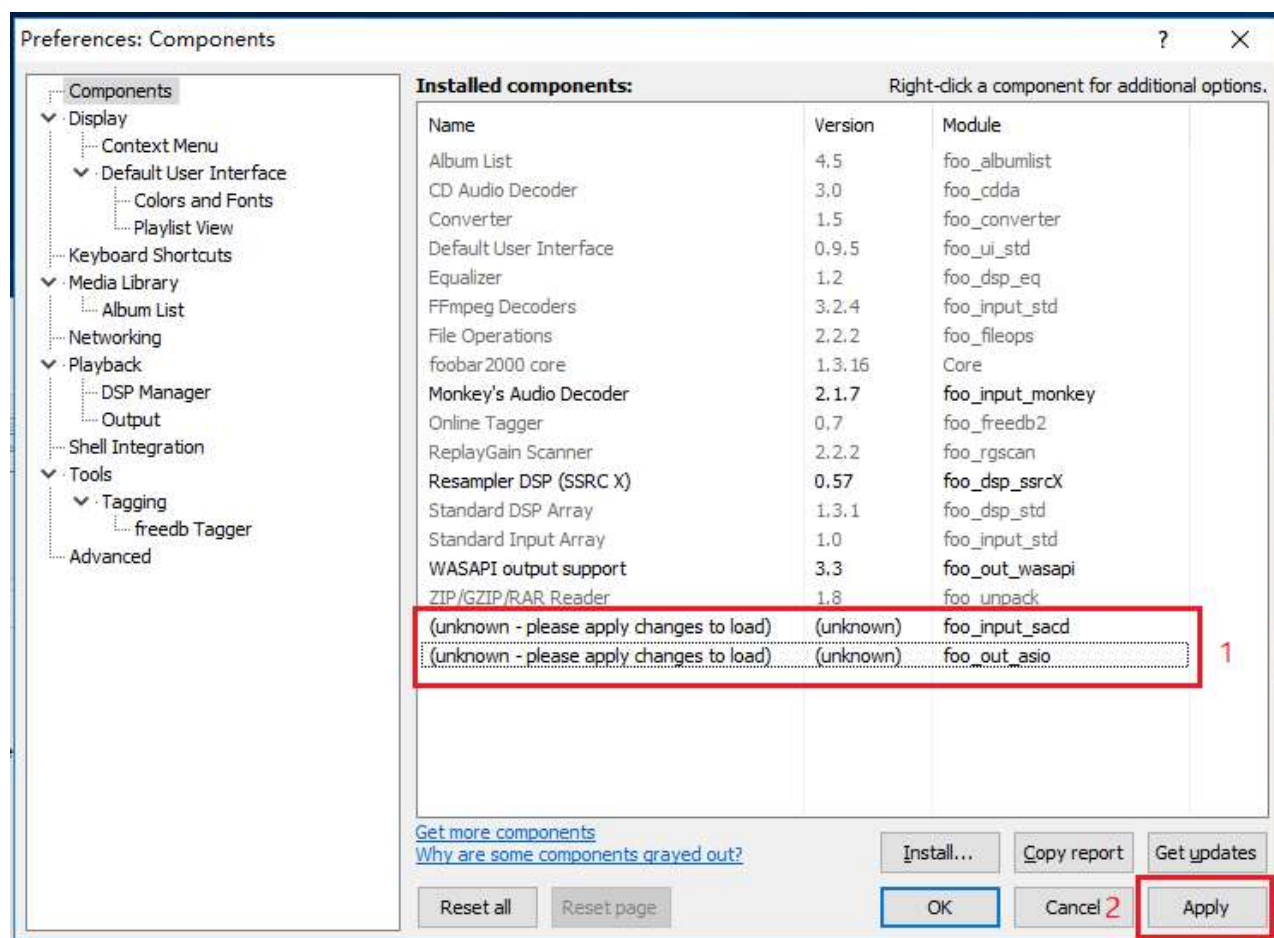
3. Click on "Components" on the left and click on "Install" on the bottom right.



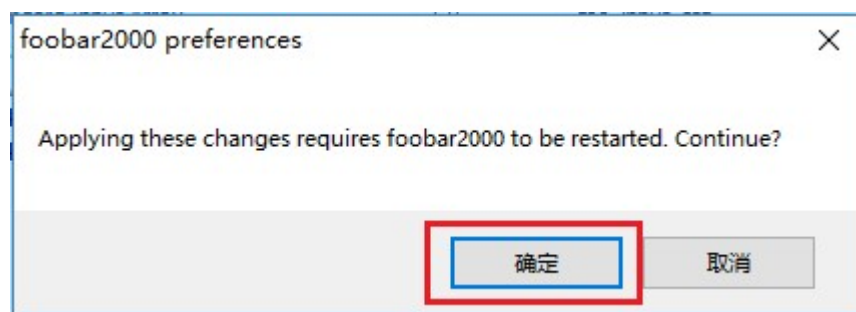
Use the mouse to select two files at the same time, or press Ctrl to select two files at the same time. Then click "Open".



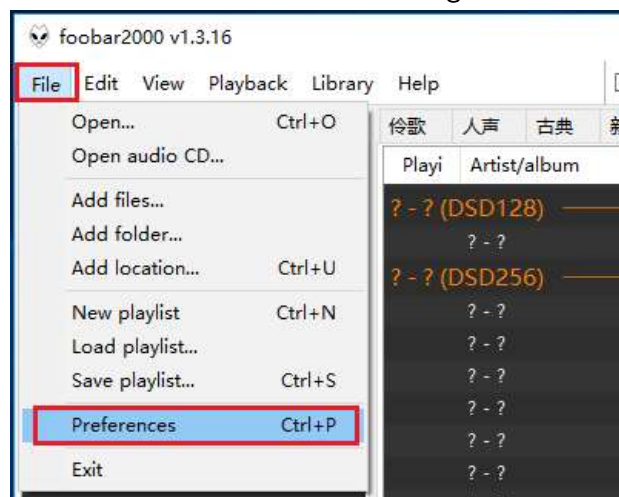
Two rows of component information will be added to the component list, followed by "Apply".



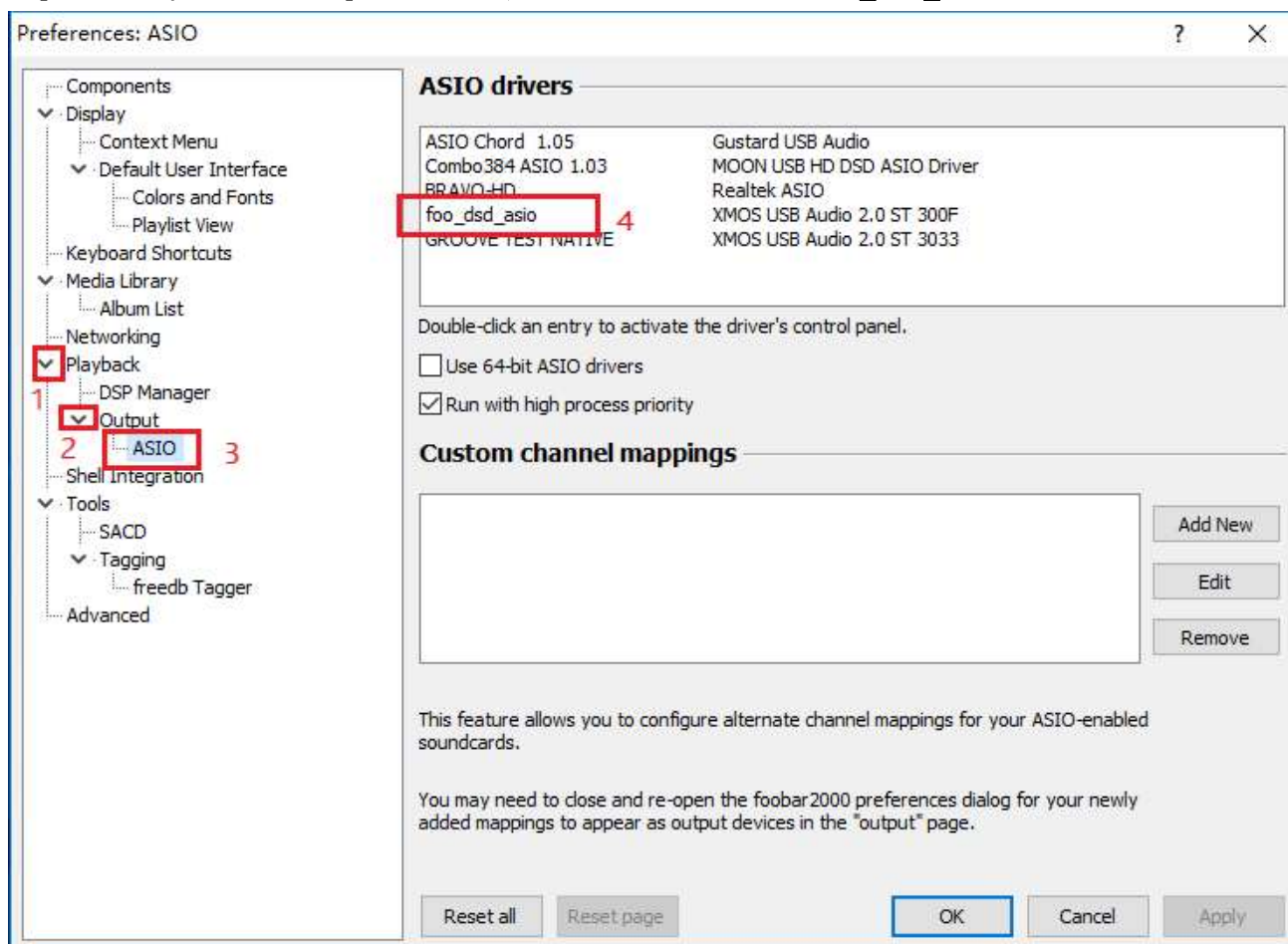
The window shown below will pop up and click "OK". Then Foobar2000 will restart.



4. Click File -> Preferences again.

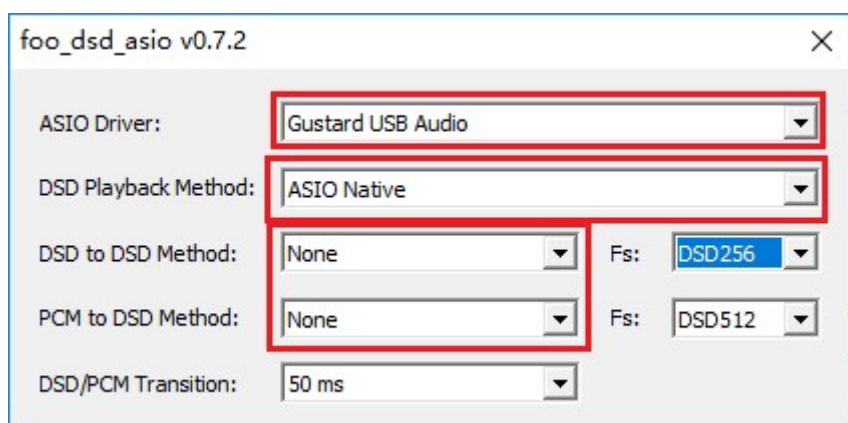


5. Expand Playback - Output - ASIO, and double-click foo_dsd_asio.

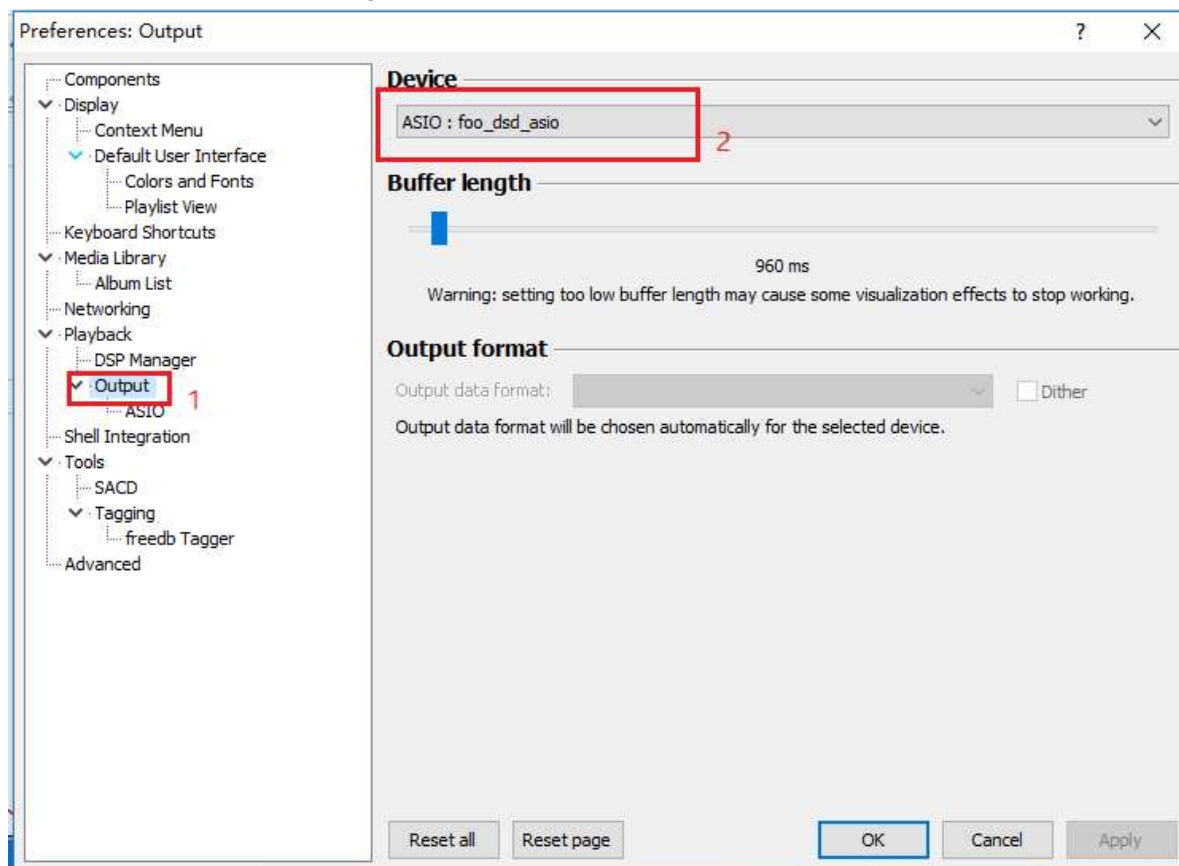


6. In the "foo_dsd_asio v0.7.2" window. Select "Gustard USB Audio" from the drop-down menu of the first line ASIO Driver. Select "ASIO Native" from the drop-down menu in the second line of the DSD Playback Method.

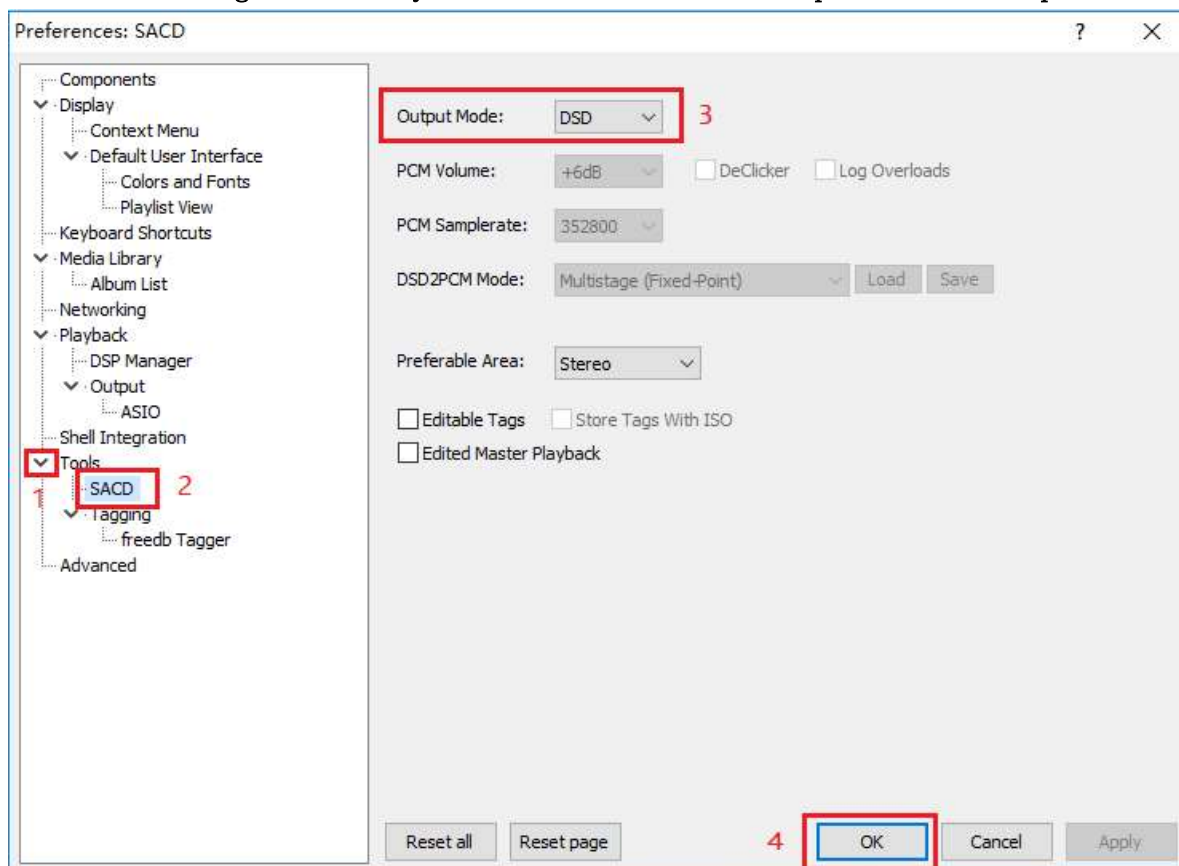
For other settings, please make the same selection according to the red box in the figure. Then click the X in the upper right corner to exit.



7. Click "Output" on the left, then select "ASIO:foo_dsd_asio" from the drop-down menu for "Device" on the right.



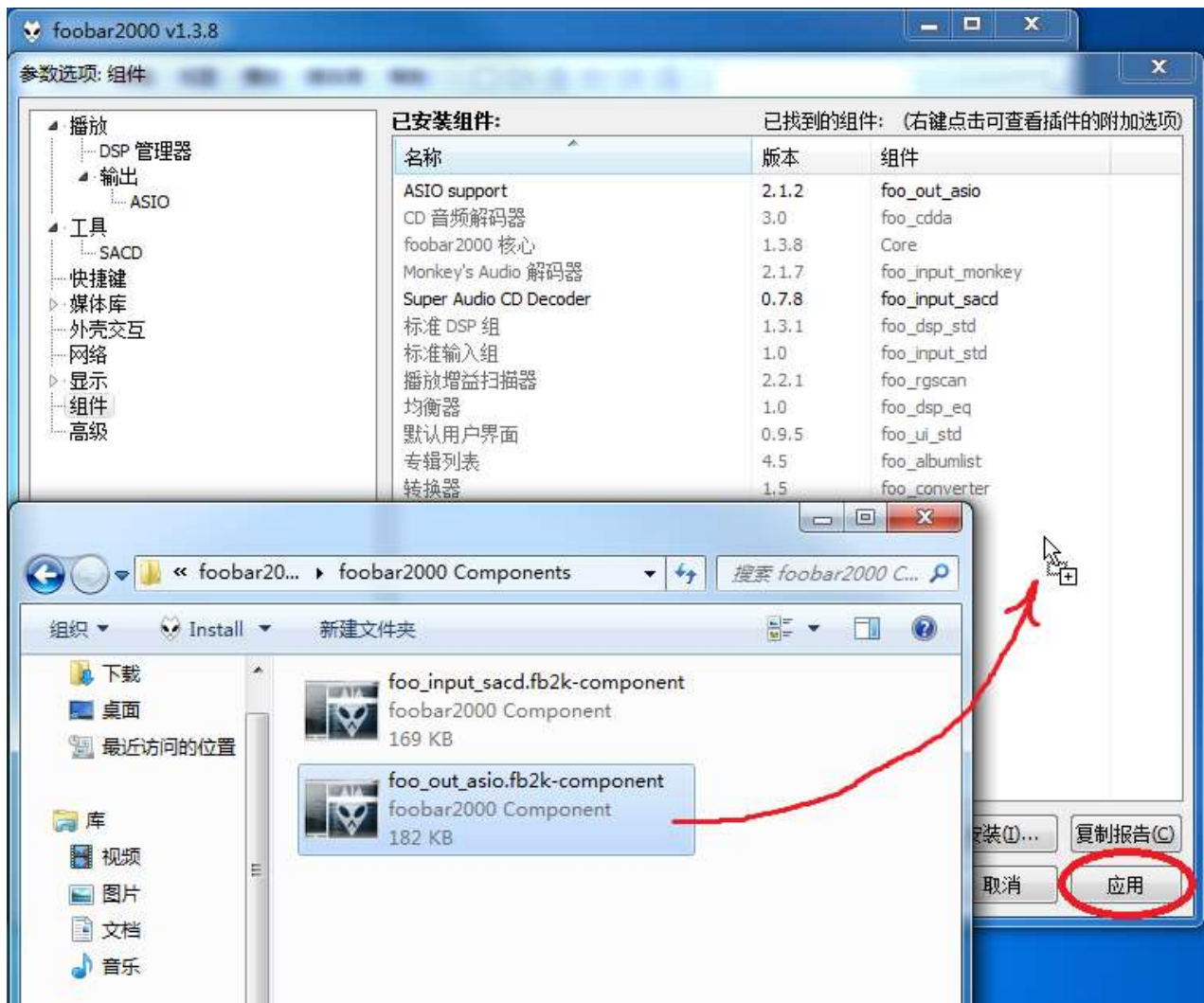
8. Then click on Tools -> SACD and select "DSD" from the drop-down menu in the Output Mode on the right. Finally click "OK" below to complete the setup.



DSD playback troubleshooting for Foobar2000

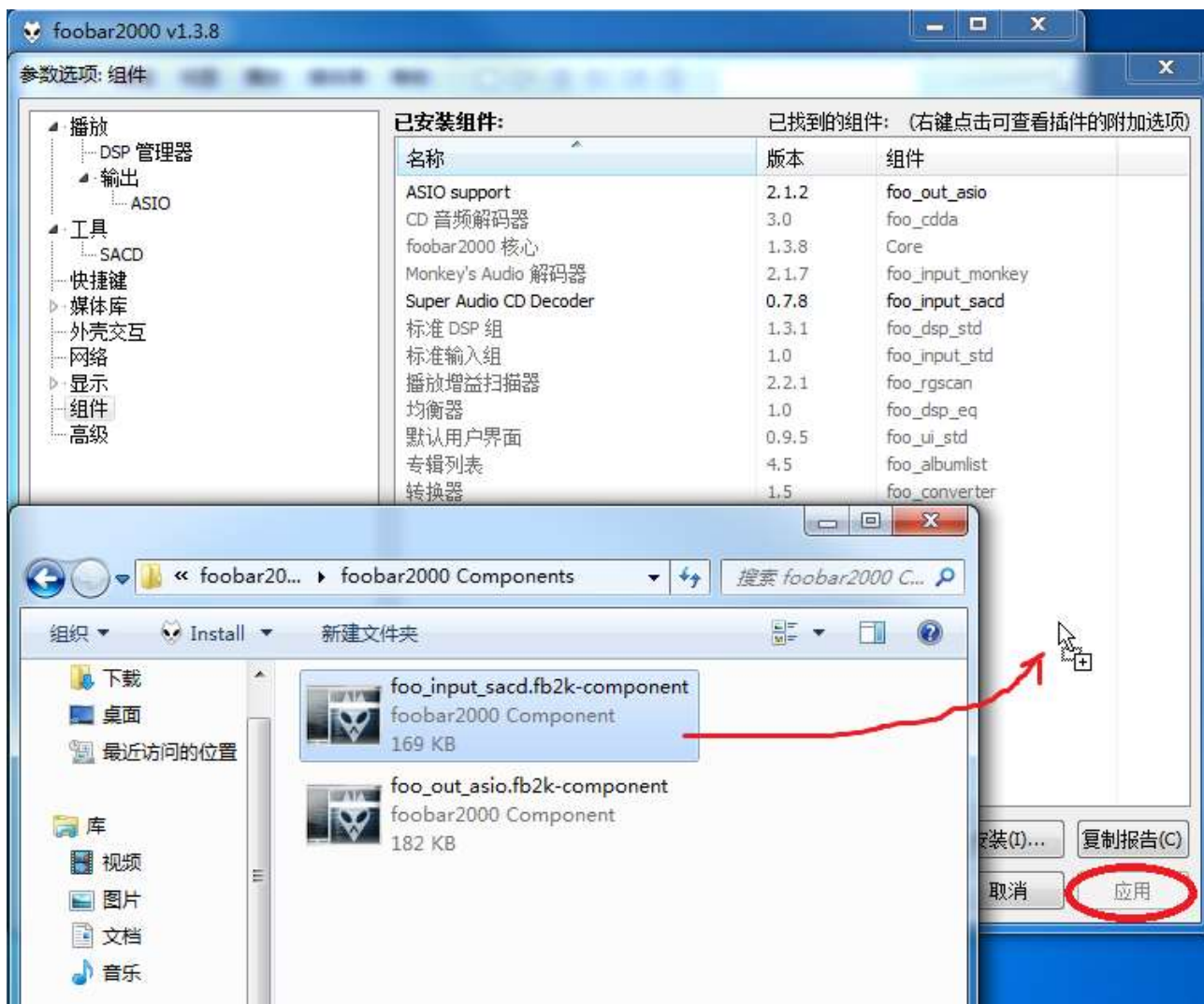
1. Q: Why does my foobar2000 preference window play (Playback) -> Output (Output) does not show ASIO?

A: Because you don't have the ASIO component installed. Drag the foo_out_asio.fb2k-component file from the foobar2000_DSD_0.7.X folder to the space in the box to the right of the component option in the preference window of foobar2000, then click the "Apply" button in the lower right corner. Click OK in the Restart foobar2000 dialog that pops up at this time. After restarting foobar2000, you can find the ASIO option.

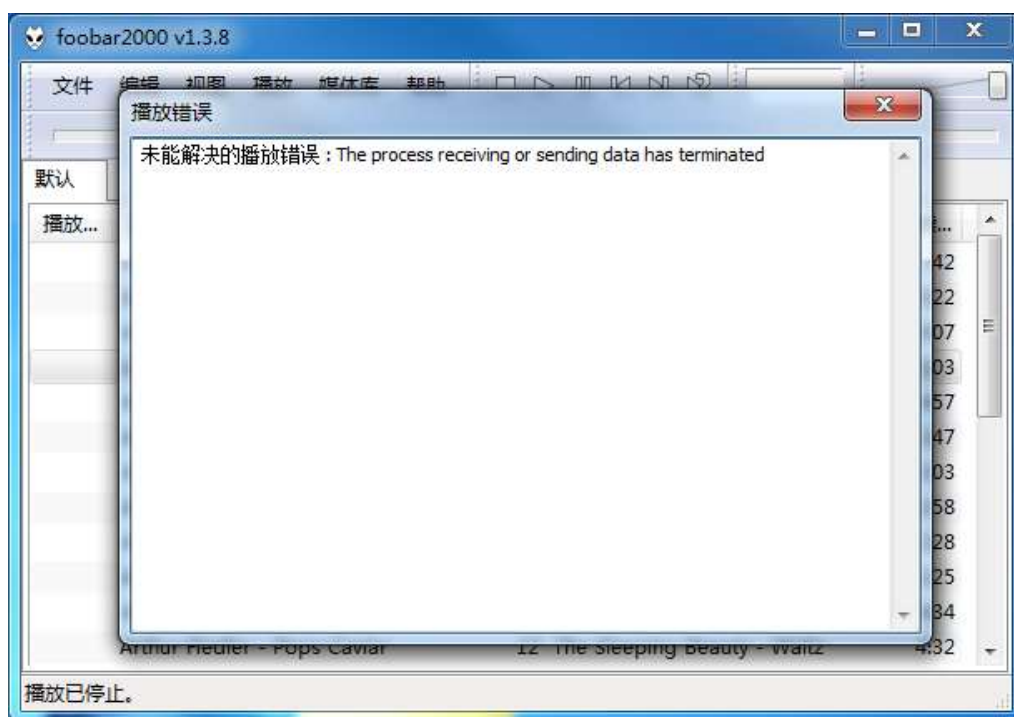


2. Q: Why is there no SACD in the tool options in my foobar2000's preference window?

A: Because you don't have the SACD component installed. Drag the `foo_input_sacd.fb2k-component` file from the `foobar2000_DSD_0.7.X` folder to the space in the box to the right of the component option in the preference window of foobar2000, then click the "Apply" button in the lower right corner. Click OK in the Restart foobar2000 dialog that pops up at this time. After restarting foobar2000, you can find the ASIO option.



3. Q: I have installed the above two Foobar2000 components. Why do I see an error window like the one below when I play the DSD file?



A: Because the version of your ASIOProxy conflicts with the version of the SACD decoding component. The **correct** version is shown below, all of which are 0.7.X.

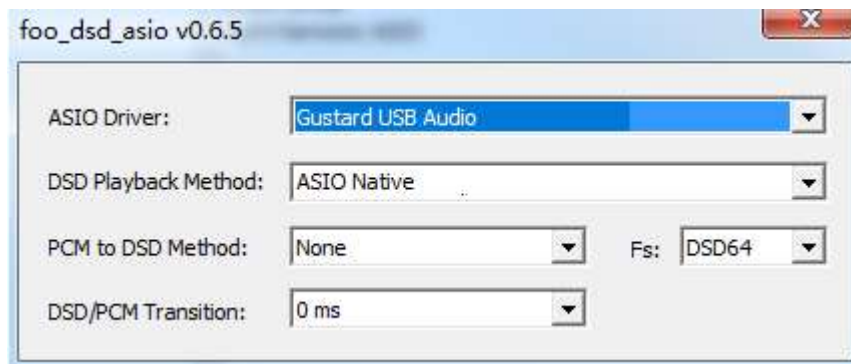


Some users use the old version of foobar2000, and its SACD decoding component stays in the 0.6.X version. If the ASIOProxyInstall-0.7.2.exe program is installed, the version of the foo_dsd_asio window is 0.7.2. This creates a conflict with the SACD decoding component.

There are two solutions.

One is to update the version of the SACD component, and the installation method is consistent with the solution to the second problem. However, some versions of the foobar2000 component are locked and cannot be replaced. Please reinstall the new version of the official original Foobar2000 to solve the problem.

Second, if you are not willing to reinstall foobar2000, you can install the old version of ASIOProxy, such as ASIOProxyInstall-0.6.5.exe. Google search ASIOProxyInstall-0.6.5.exe to find the download link, which can also solve the problem.



Product specifications

Digital input:

USB port: USB Type-B female port, support USB2.0

10M BNC input: input impedance 50 Ohm, maximum input amplitude 16dBm

Digital output:

RCA coaxial S/PDIF port: output impedance 75 Ohm, output level 500mVpp @75 Ohm load
24bit 44.1k-384k/DOP64-128

XLR AES3 port: output impedance 110 Ohm, output level 2.1Vpp @110 Ohm load
24bit 44.1k-384k/DOP64-128

OPTICAL TOSLINK port: 24bit 44.1k-192k /DOP64

Multi-function BNC port:

output impedance 75 Ohm, S/PDIF output level: 750mVpp @75 Ohm load

Word Clock output level: 3.3Vpp MAX @ no load

S/PDIF support specification (when S/P OUT is selected): 24bit 44.1k-384k/DOP64-128

Word Clock output frequency (when WCK OUT is selected): PCM: 44.1k-768k.

DSD: 2.82M-22.57M

IIS over HDMI interface (non-standard HDMI interface):

differential I2S signal with LVDS output level,

PCM: 32bit 44.1k-768k, DSD 2.82M-22.57M (DSD64-DSD512)

Other specifications:

AC power supply: AC 115V/230V 50/60Hz

Power consumption: <15W

Dimensions: width 220mm * height 50mm * depth 170mm (without protruding parts)

Weight: 2.5Kg (including packaging)

Product Warranty:

You will enjoy the 2-year free warranty and lifetime maintenance after the date purchasing GUSTARD' s U16 product.

*The manufacturer bears only the freights from Chinese mainland. Part of the freight and tax generated from overseas will be solved by the user with the dealer negotiation.

Free Warranty Service

GUSTARD U16 from the purchasing date in the free warranty period, the user uses the product in normal, and the product fails due to component quality or manufacturing problems.

Beyond the Warranty Service

Belonging to one of the following circumstances, products are no longer provided warranty service.

- a. Products from the date of purchase has exceeded a predetermined warranty period.
- b. Model, barcodes and purchase date do not match the actual product and warranty card.
- c. Without GUSTARD technician permission, unauthorized modifications to the circuit, components or self-repaired product.
- d. Damaging caused by irresistible natural forces.
- e. Beyond the permitted use of environmental damage.
- f. Damaging due to incorrect use or improper storage. Including but not limited to: the voltage is too high to burn the circuits or components; Bumping and resulting in damaging the shell or internal; damaging due to water, oil, liquid and excessive dust; product oxidation or corrosion, etc.
- g. Beyond the warranty period, such as an individual component damage, appearance due to human damage, firmware modifications lead to unable to work by unauthorized users. GUSTARD commits to take reasonable maintenance fees (except large area components or circuit board burned beyond repair). Freight and maintenance costs, material costs are required the user to bear.