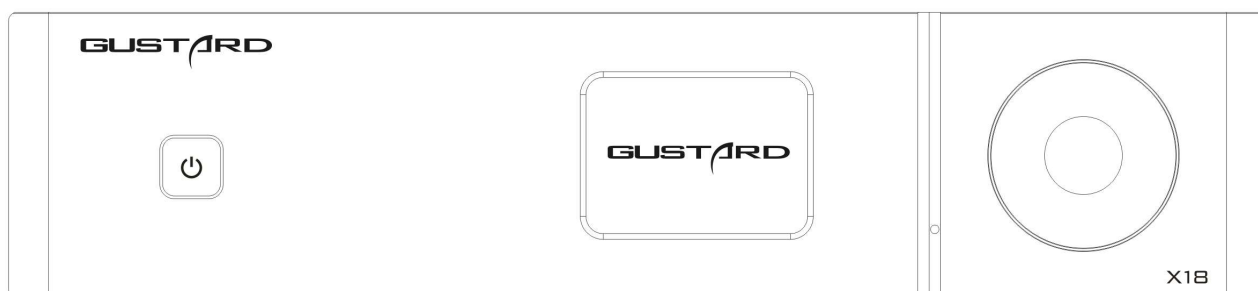# GUSTARD

DAC-X18

High Performance Audio DAC

User's Manual

Features

- *Based on ES9038Pro, the Ultimate IC from ESS*

- *USB interface using XU216— the latest 16 cores processor from XMOS, support native DSD and 32bit PCM*

- *Two crystals with jitter in fs level from ACCUSILICON*

- *Large scale DSP system based on CPLD from ALTERA @Intel*

- *MQA decoding & rendering support on USB/Coaxial/AES/Optical inputs*

- *HD OLED (white light), concise UI, full function remote*

- *Specific toroidal transformer for audio, independent regulators, ultra-low noise LDO in key parts*

- *Analog circuit based on nine high performance DUAL Op-Amp—OPA1612 (one for RCA output)*

- *0.1% precision resistors in key circuits*

About **MQA**

    MQA is an award-winning British technology that delivers the sound of the original master recording. The master MQA file is fully authenticated and is small enough to stream or download.

    When the screen shows 'MQA' or 'MQA.' it indicates that the product is decoding and playing an MQA stream or file, and denotes provenance to ensure that the sound is identical to that of the source material.

    'MQA.' indicates that not only is it playing an MQA Studio file, but the file has also either been approved in the studio by the artist/producer or has been verified by the copyright owner.

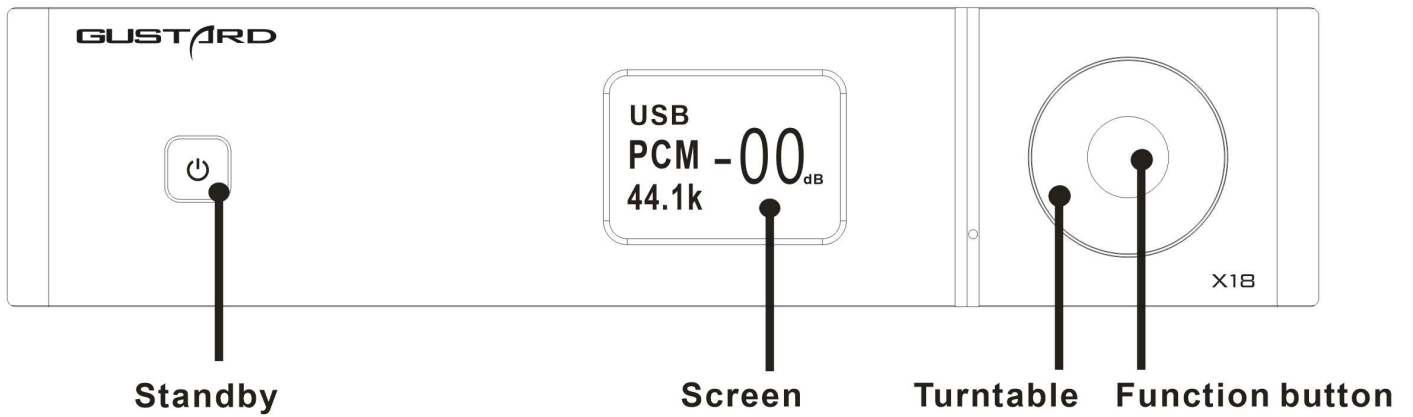   'OFS' or 'OrF' confirms that the product is receiving an MQA stream or file.
This delivers the final unfold of the MQA file and displays the original sample rate.

    MQA is a registered trade mark of MQA Limited © 2018

Table of Contents

Front Panel

**Standby** **Screen** **Turntable** **Function button**

1. The Standby button is to switch between standby and working.
2. The screen shows current input type, stream format, sampling rate and volume.
3. Encoder can adjust the digital attenuator or change the values in menu.
4. Menu button can select the input channel in main page or options in menu by click, enter/exit menu by long-press.

Back Panel
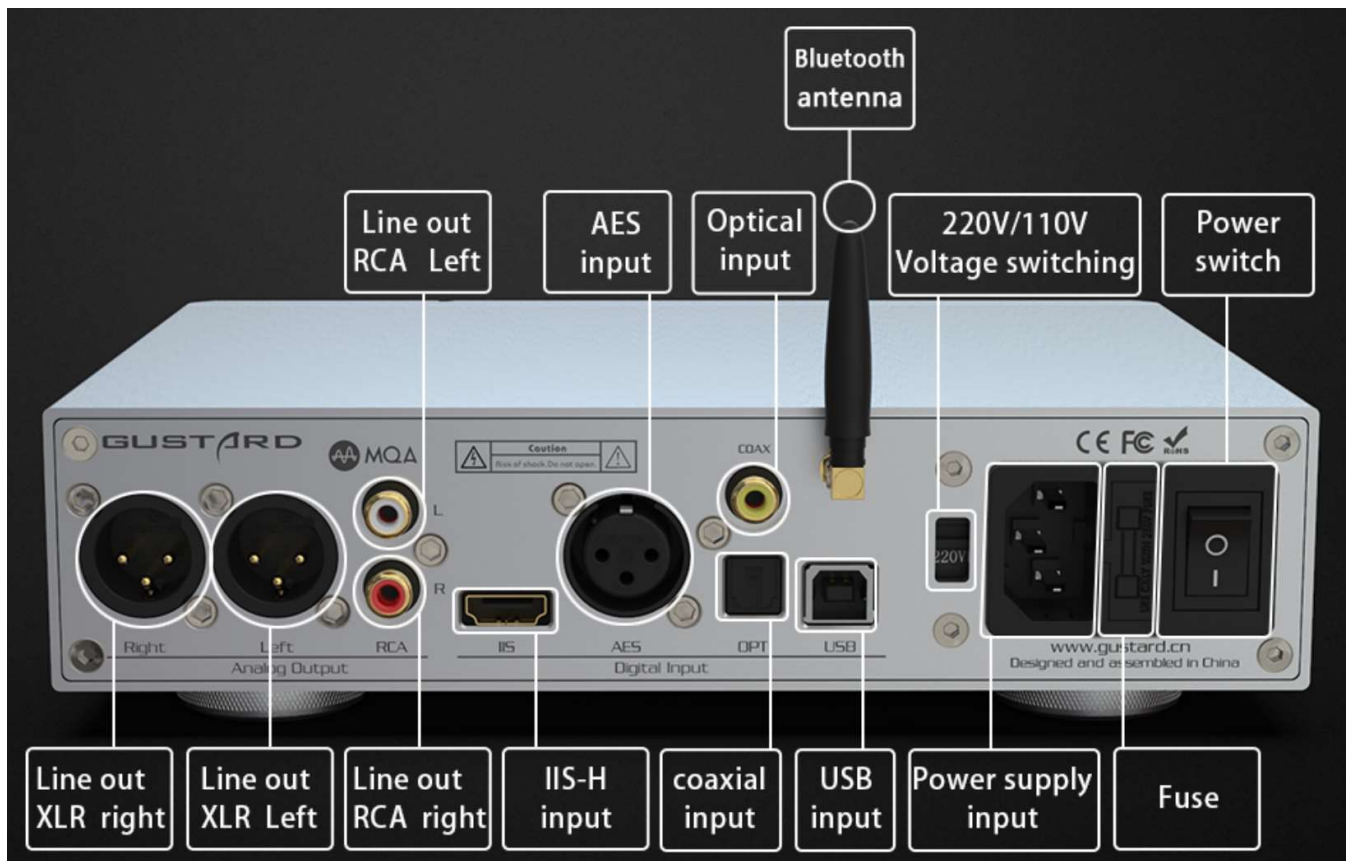
Display

1. DAC-X18 uses a high-resolution OLED screen to display the working situation and functions. The following figure is main page of the display.
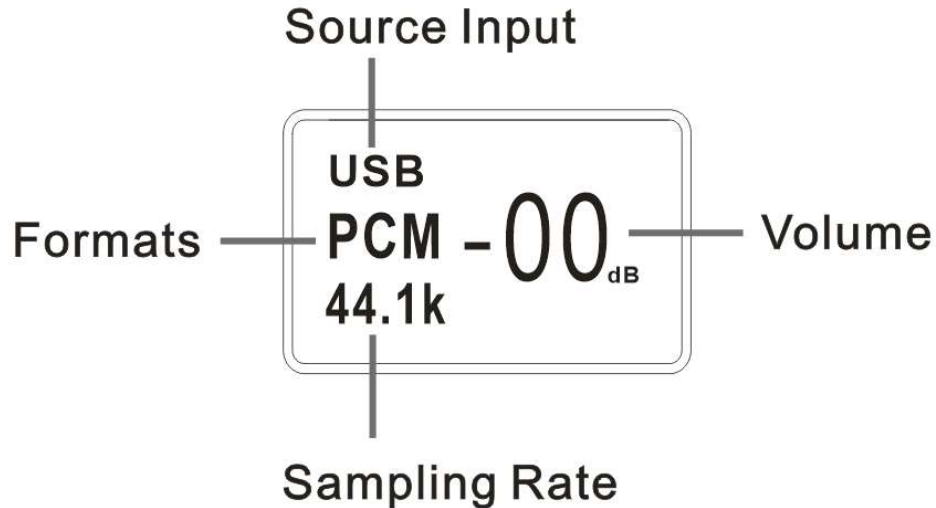

2. Input
   DAC-X18 has 6 types of input. In main page. Click the menu button can select the input port by the order of COAX――AES――OPT――USB――IIS――BT

3. Volume
   On the main page, the encoder can adjust the digital attenuator by rotating clockwise to increase the volume and counterclockwise to decrease the volume. There are 90 steps of digital volume from -90dB to 0dB.

4. Menu
   Long-press the menu button can switch between main page and menu page. On the menu page, click the menu button to choose the option and turn the encoder to change the value.
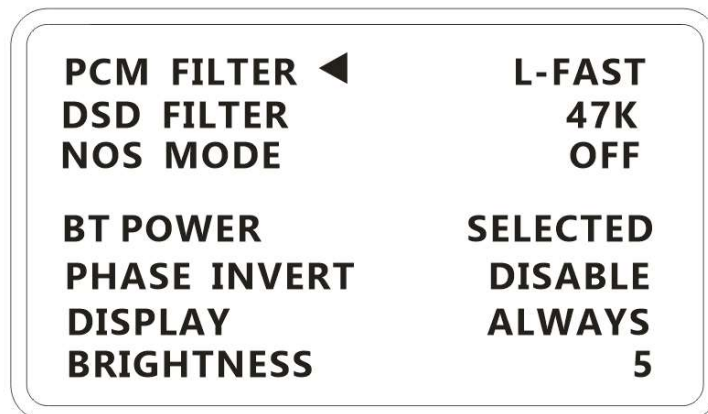
5. Setting Options

a. PCM FILTER:
There 7 types of PCM filters for DAC-X18, by clockwise order are: L-SLOW——L-FAST——M-SLOW——M-FAST——APO-FAST——H-FAST——BRICK.
L-SLOW & L-FAST are linear-phase filters, which provides the most accurate sound.
M-SLOW & M-FAST are minimum-phase filters, with no pre-ringing but long post-ringing, can simulate the lingering sound from true instruments.
H-FAST is hybrid, fast roll-off, minimum phase filter, which has short pre-ringing and long post-ringing
APO is apodizing, fast roll-off, linear phase filter.
BRICK is brickwall filter

*DAC-X18' s default filter is L-FAST.

b. DSD Filter:
There 4 DSD cutoff frequency for DAC-X18, by clockwise order are: 47K——50K——60K——70K, choose the levels by sampling rate.
(eg. 47k for DSD64)

c. NOS MODE:
Turn on to bypassing the internal interpolating FIR filter, sourcing data directly into the IIR filter. This function requires data oversampled by 8x externally or high-spec data.

d. BT POWER:
The power control for Bluetooth. SELECTED means the Bluetooth can only be noticed in this input chosen. ALWAYS means the Bluetooth can always be noticed.
*Bluetooth name is GUSTARD BT.

e. PHASE INVERT:
DISABLE: RCA non-inverted phase
            XLR 1-Ground 2-Hot 3-Cold
ENABLE :   RCA inverted phase
            XLR 1-Ground 2-Cold 3-Hot
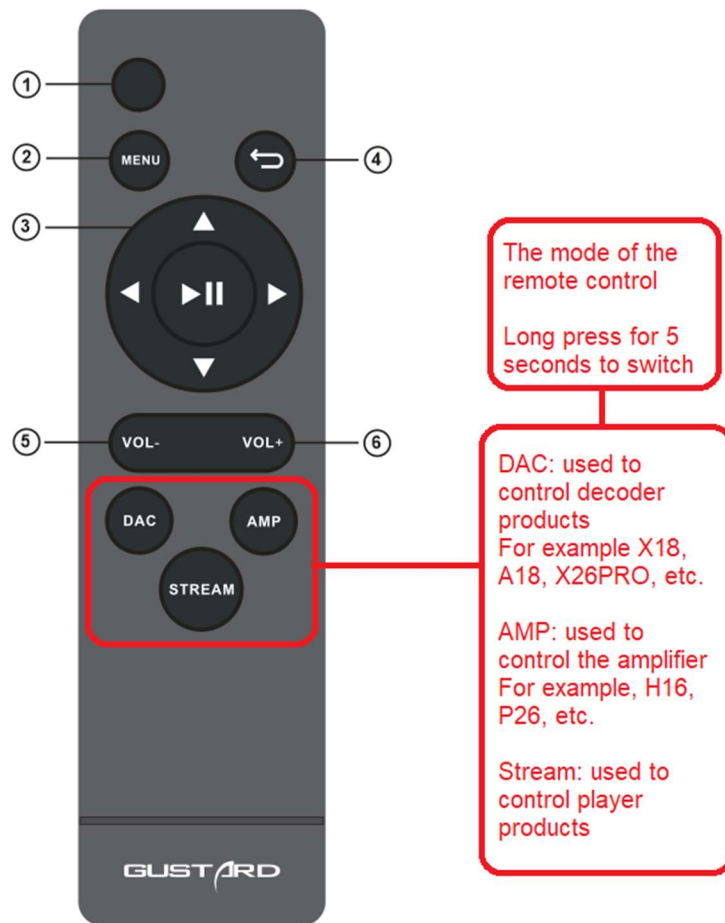
f. DISPLAY:
ALWAYS   : Screen will be always on.
AUTO OFF   : Auto sleep after 10s.
*Any operation or display change will alarm the screen.

g. BRIGHTNESS:
Eight levels for adjustment.

IR Remote

The mode of the remote control

Long press for 5 seconds to switch

DAC: used to control decoder products
For example X18, A18, X26PRO, etc.

AMP: used to control the amplifier
For example, H16, P26, etc.

Stream: used to control player products

*DAC-X18 use the new model of remote, enter DAC mode by long-press the DAC key 3s.

① Standby: Switch between standby and working.

② Menu: Enter menu.

③ Pad with 4 direction keys:On menu page, use up/down to choose the option, left/right to change the value, central key to save and exit.

④ Back: Back to the main page.

⑤ Vol-: On menu page, decrease the volume.

⑥ Vol+: On menu page, increase the volume.

Note：●Care about the distance and angle ● The remote may not work with obstacle in front ●Please take the battery out if you will not use the remote for over one month ●If the battery leaked, please fully clean the battery case and change new batteries ●The remote may not work correctly with other deviecs.

Driver Installation on Windows

*The included CD contains Gustard's USB driver.

*The driver supports Windows 7 with SP1, Windows 8 and Windows 10 or Higher
*The MAC OS integrates a driver, no need to install a driver
1. For tower PC usage, better to use the original USB 2.0 port on the back panel of the tower. The port on front panel will introduce more loss and bugs.

2. Turn X18 on after connecting it to PC, a new hardware will be found. If not, please try another port or turn U18 off on again.

3. Open the disk, double-click Gustard_UsbAudio_v4.82.0_2020-04-17_setup.exe
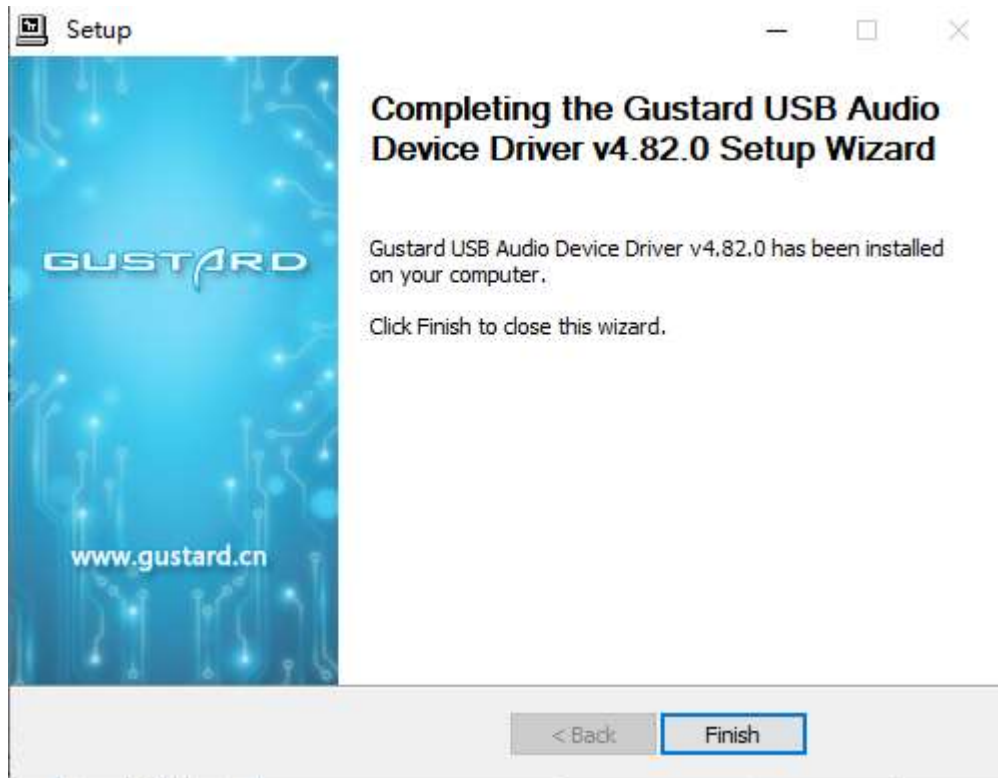   (or newer version)
   When UAC alarming, click yes.
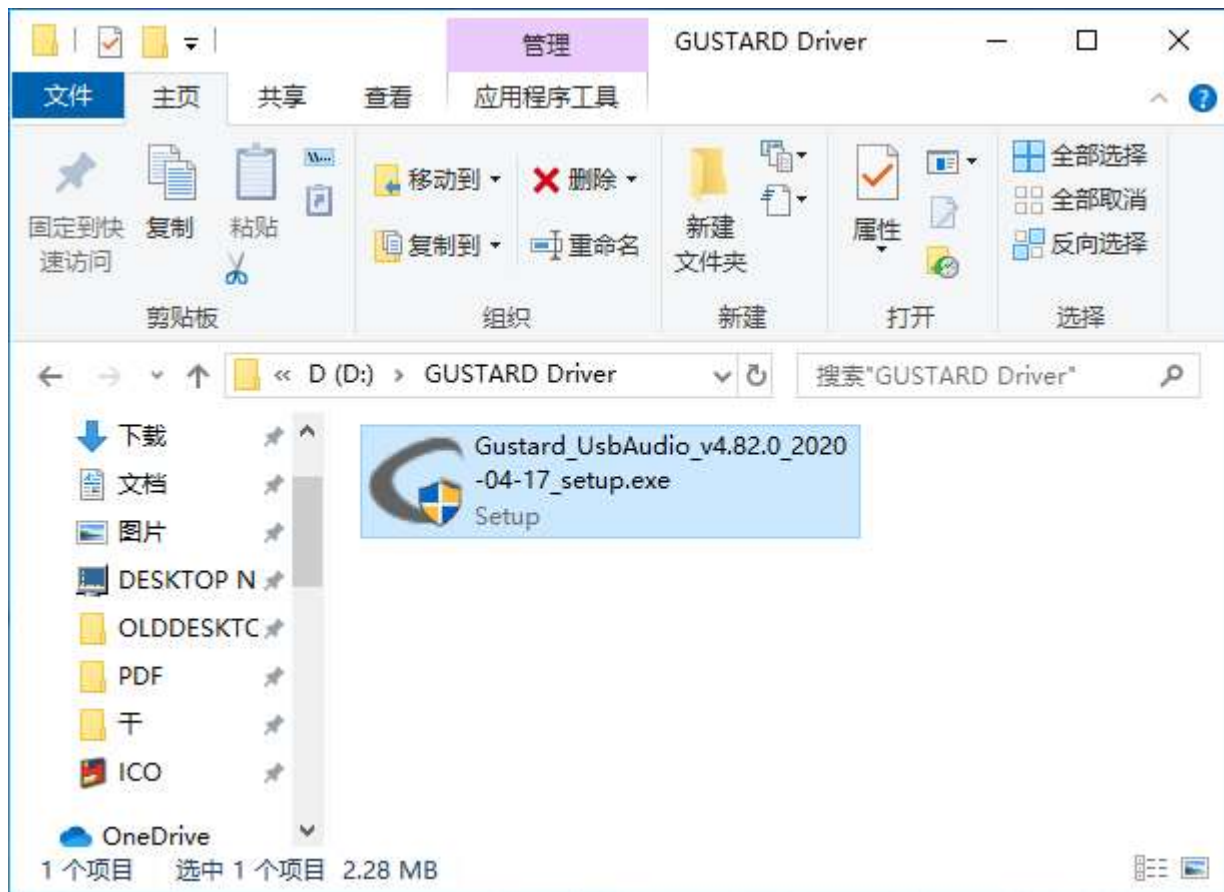
4. Then keep clicking next or install.
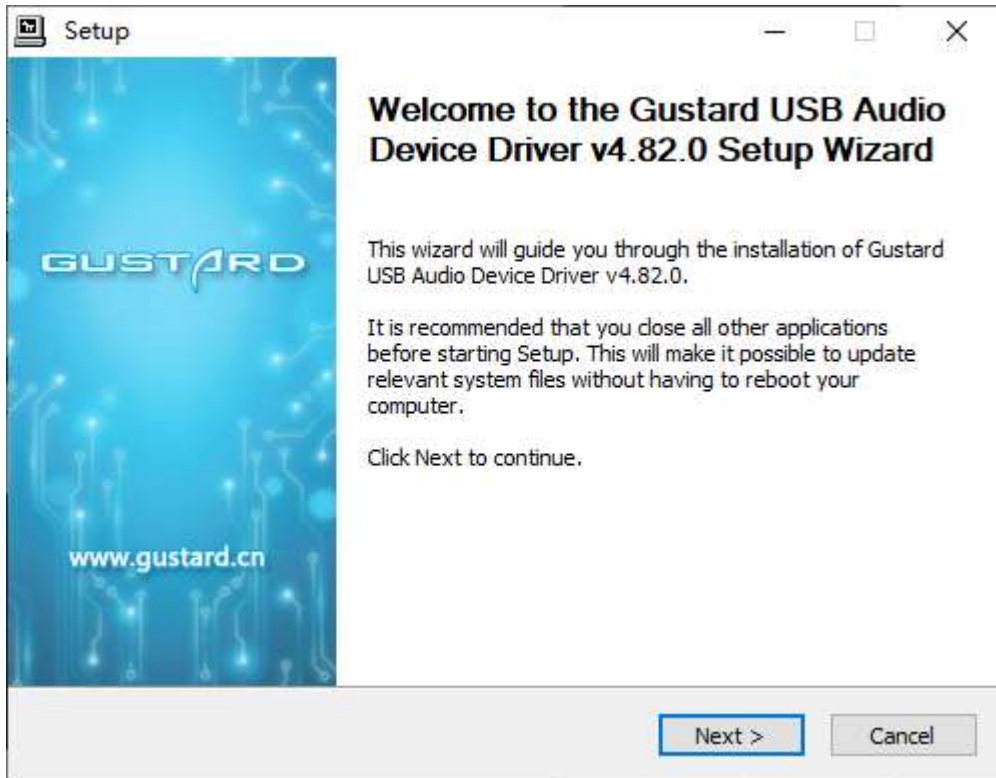
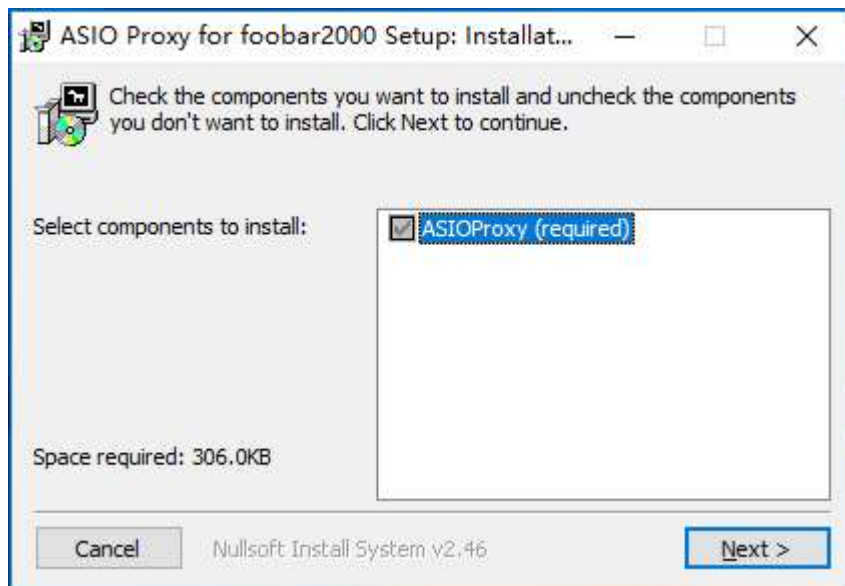5. When showing: Setup requires that the device is..., please reboot U18 or reconnect the USB cable.
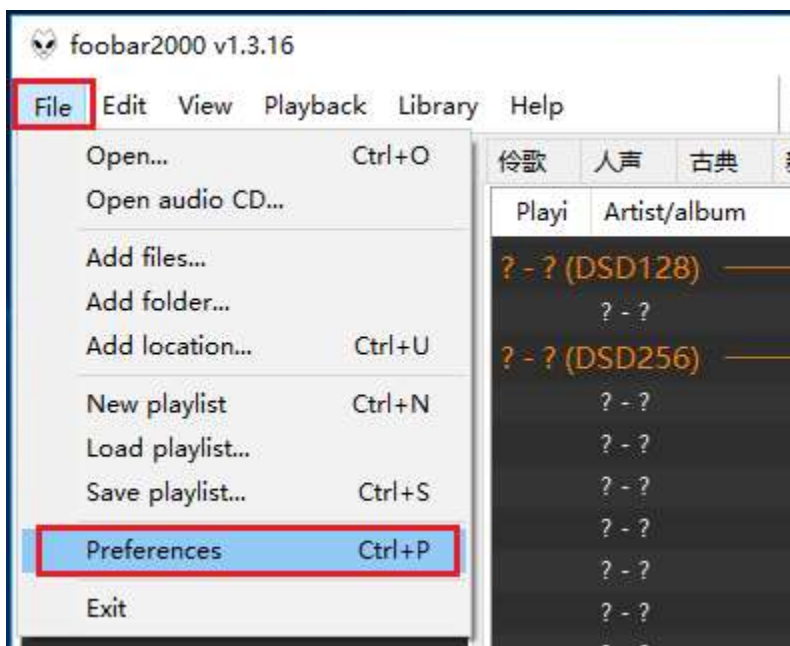
6. Complete. Click Finish.

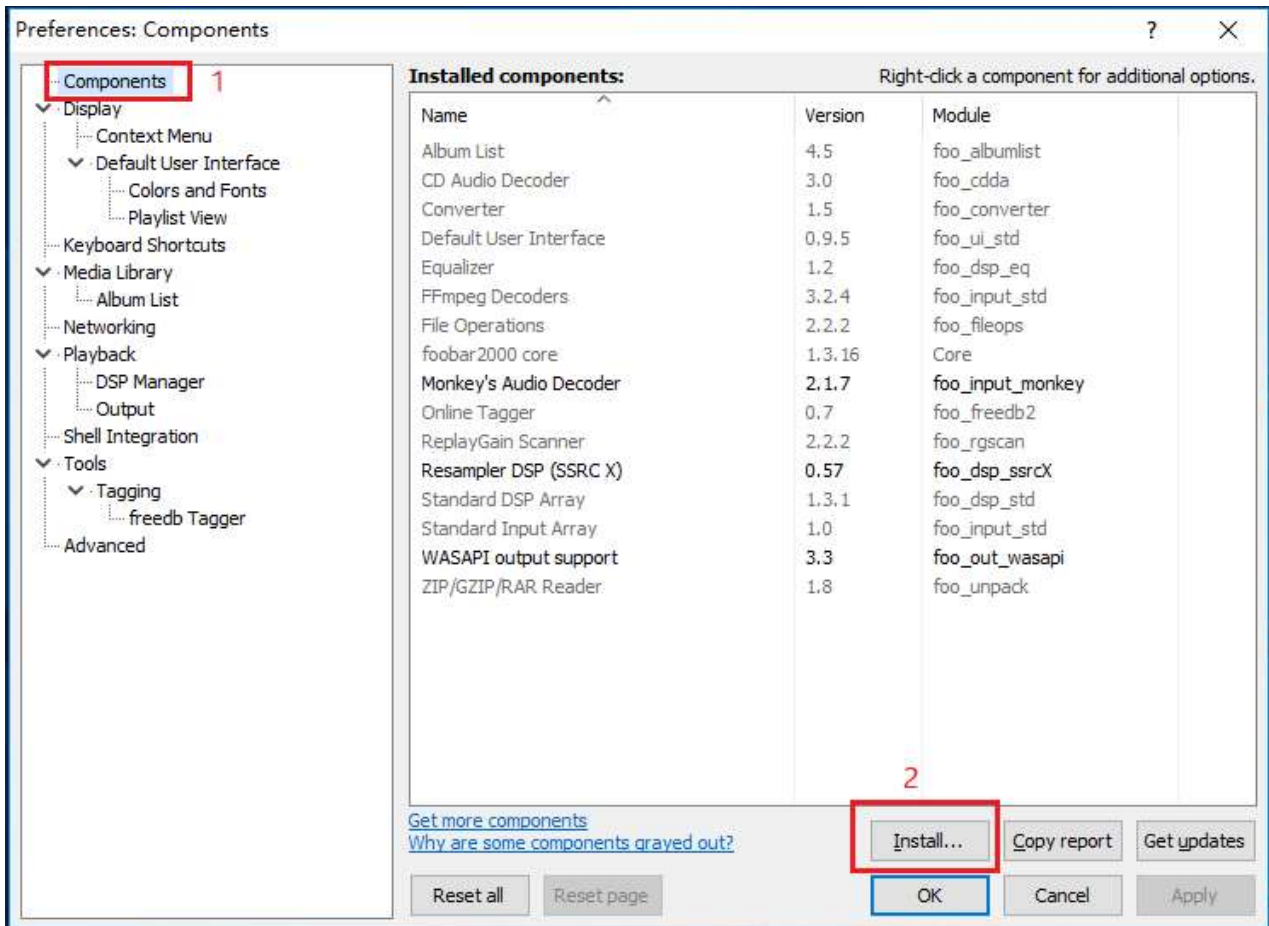## DSD hardware decoding on foobar2000

● foobar2000 configuration

1. Open foobar2000_DSD_0.7.X, double-click ASIOProxyInstall-0.7.2.exe, then keep clicking next or install to finish.
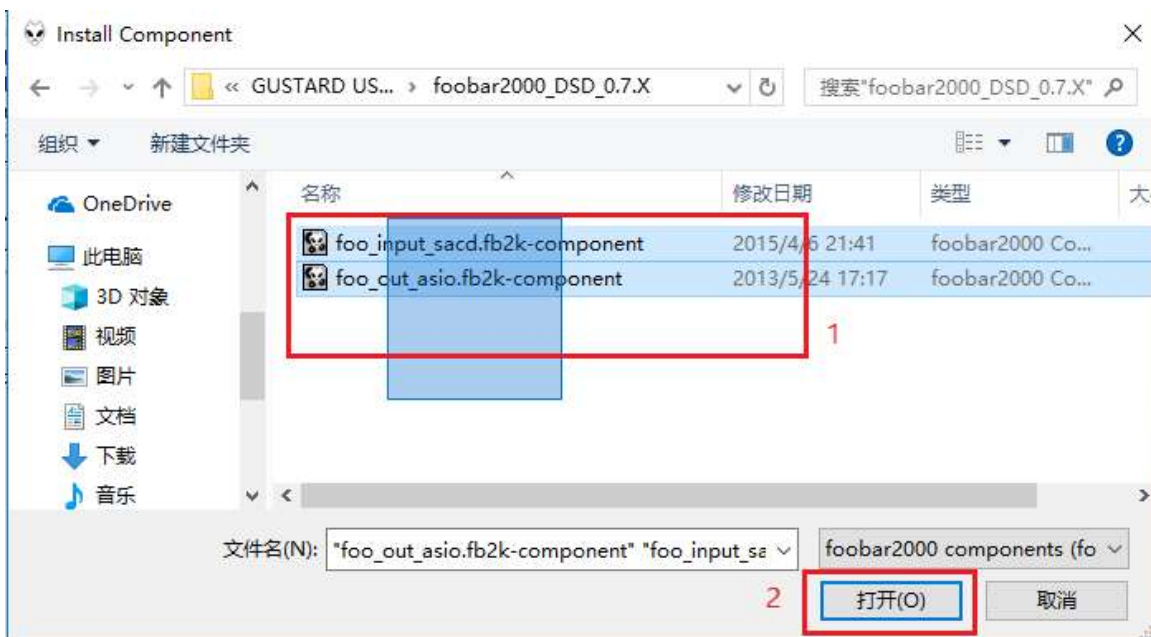

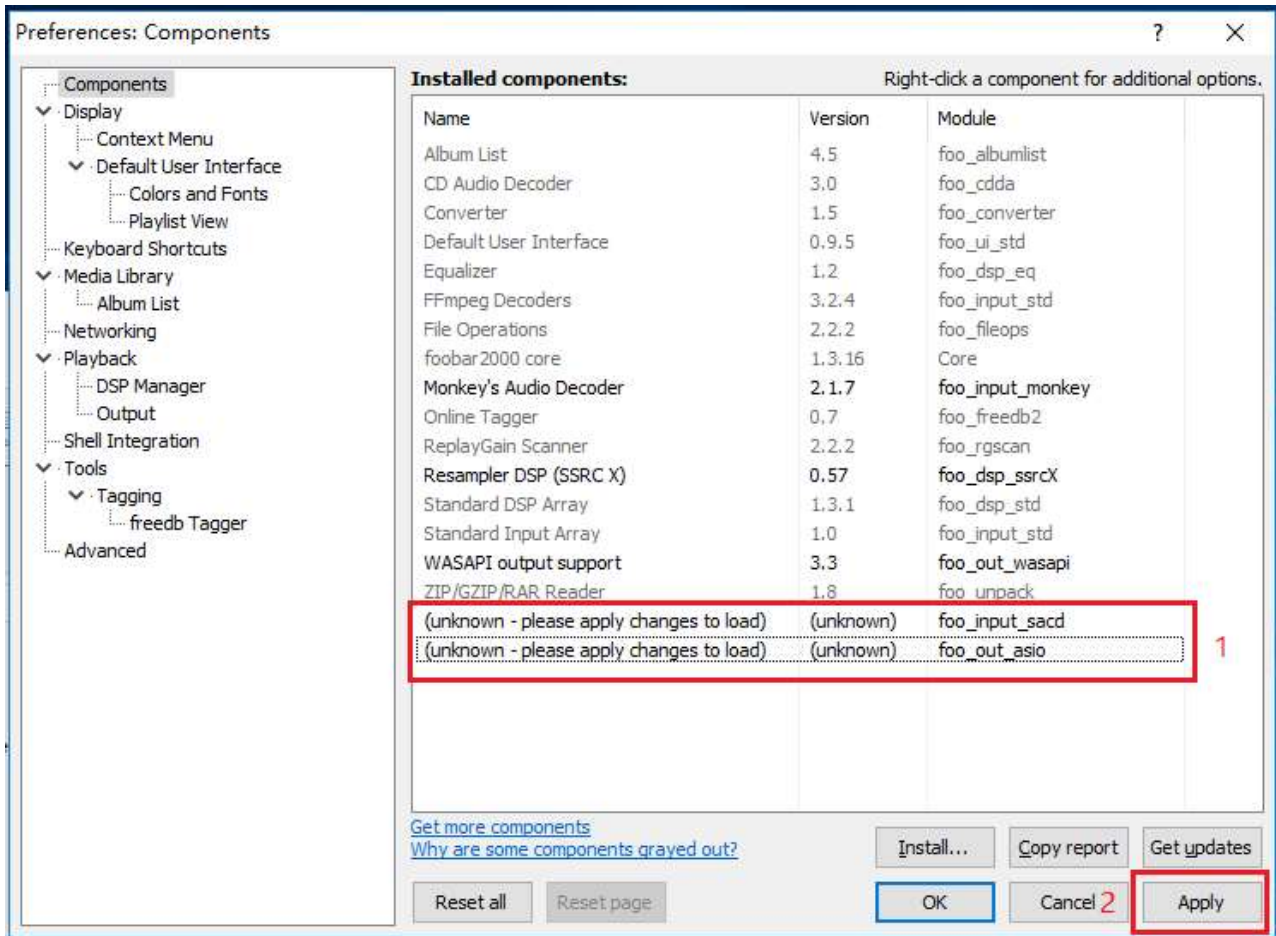2. Run foobar2000, click File—>Preferences.

3. Click 'Components' on left bar, then click 'Install' on bottom-right corner.

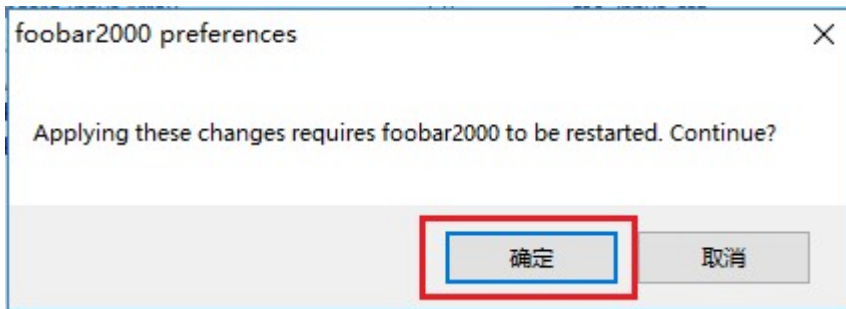

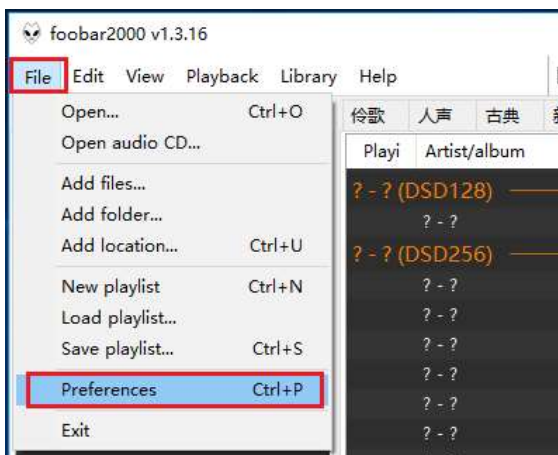Select two files under foobar2000_DSD_0.7.X folder, and click 'Open'.
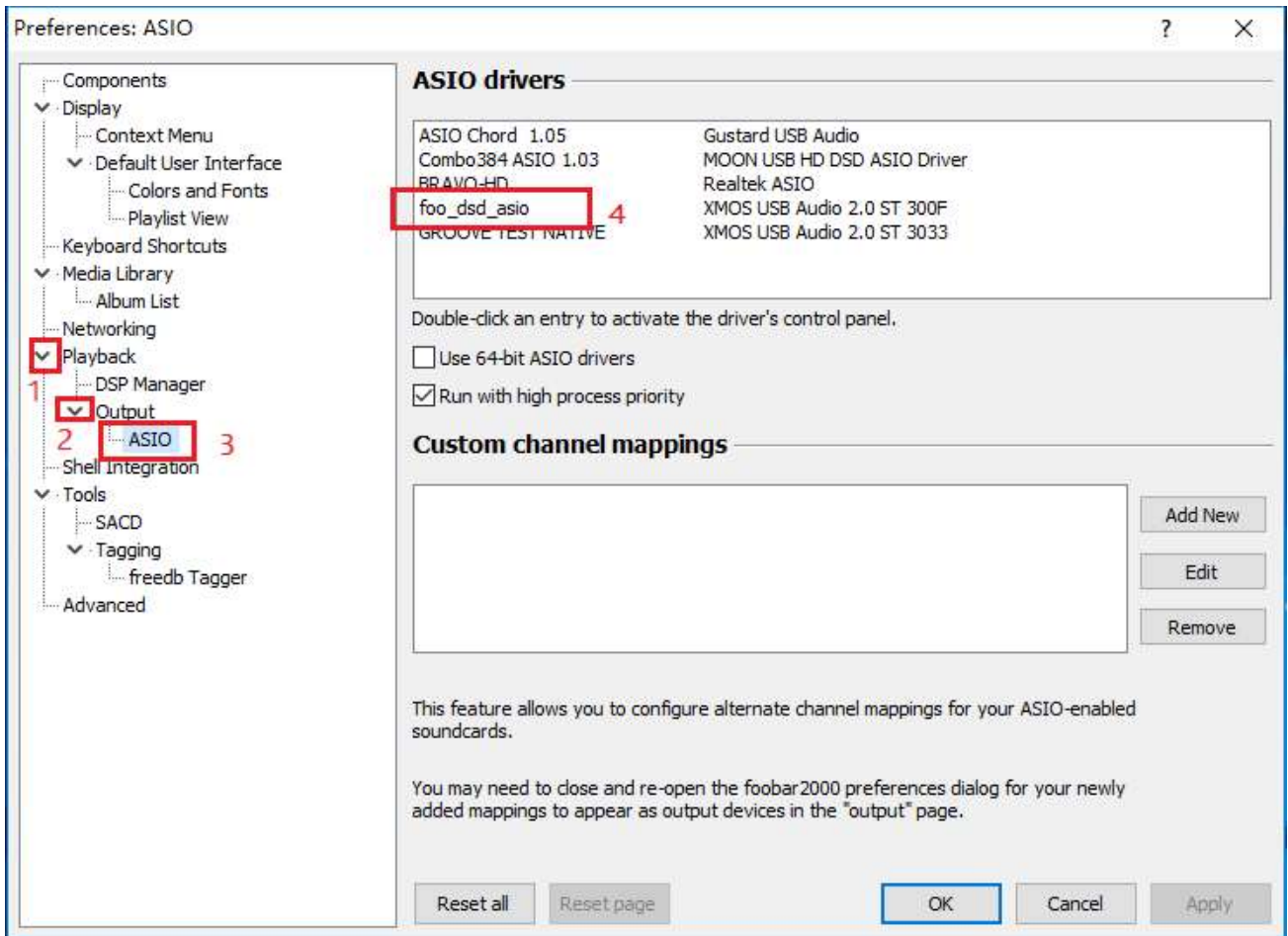
Two new components will appear in the list, click 'Apply'.

Click yes in the message box, foobar2000 will relaunch.
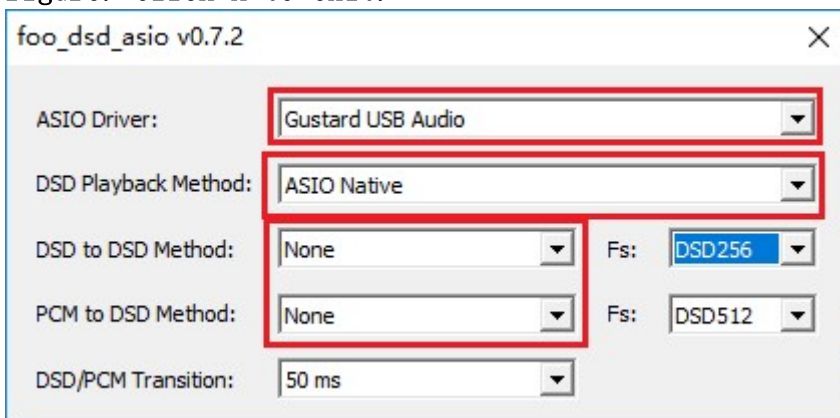

4. Click File—>Preferences.

5. Click 'Playback' —> 'Output' —> 'ASIO', then double-click 'foo_dsd_asio'.
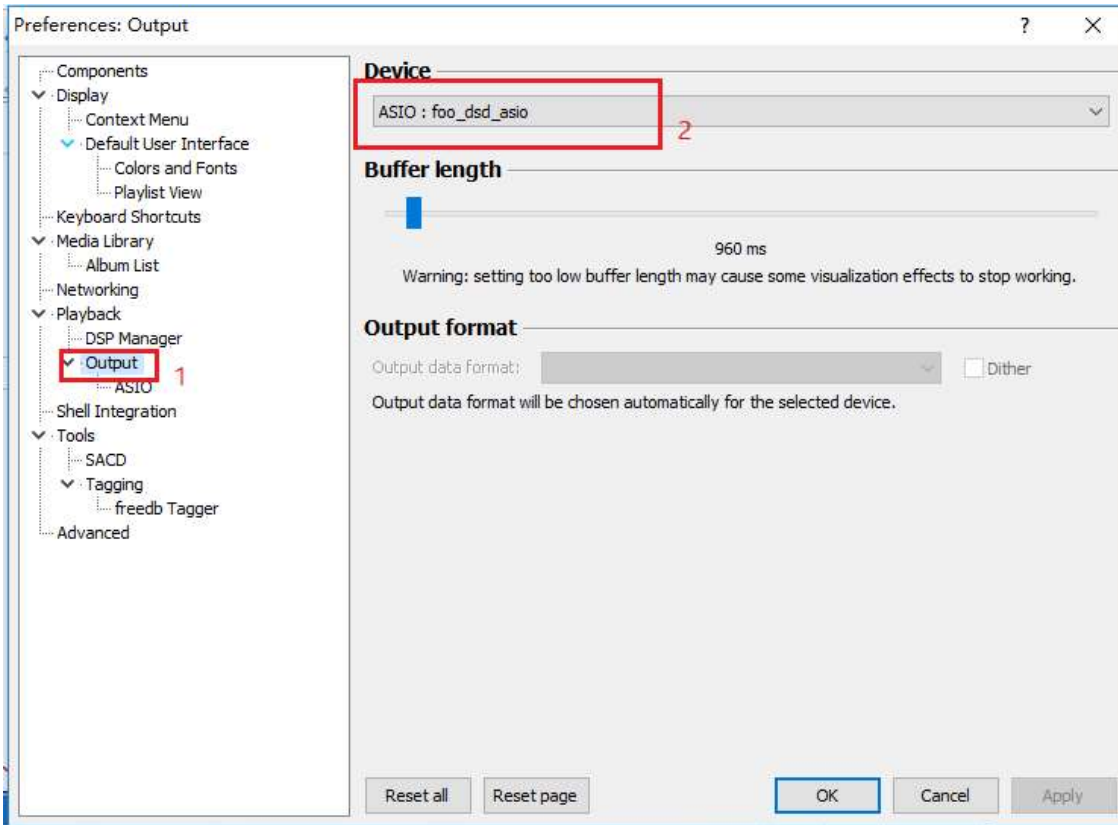

6. In the new window of 'foo_dsd_asio', select 'Gustard USB Audio' in ASIO Driver

Select 'ASIO Native' in DSD Playback Method, other options should be same as the

figure. Click X to exit.

7. Click 'Output' on left bar, then select 'ASIO:foo_dsd_asio' under 'Device'

8. Click 'Tools' —> 'SACD', then select 'DSD' under 'Output Mode'.

   Click 'OK' to complete.
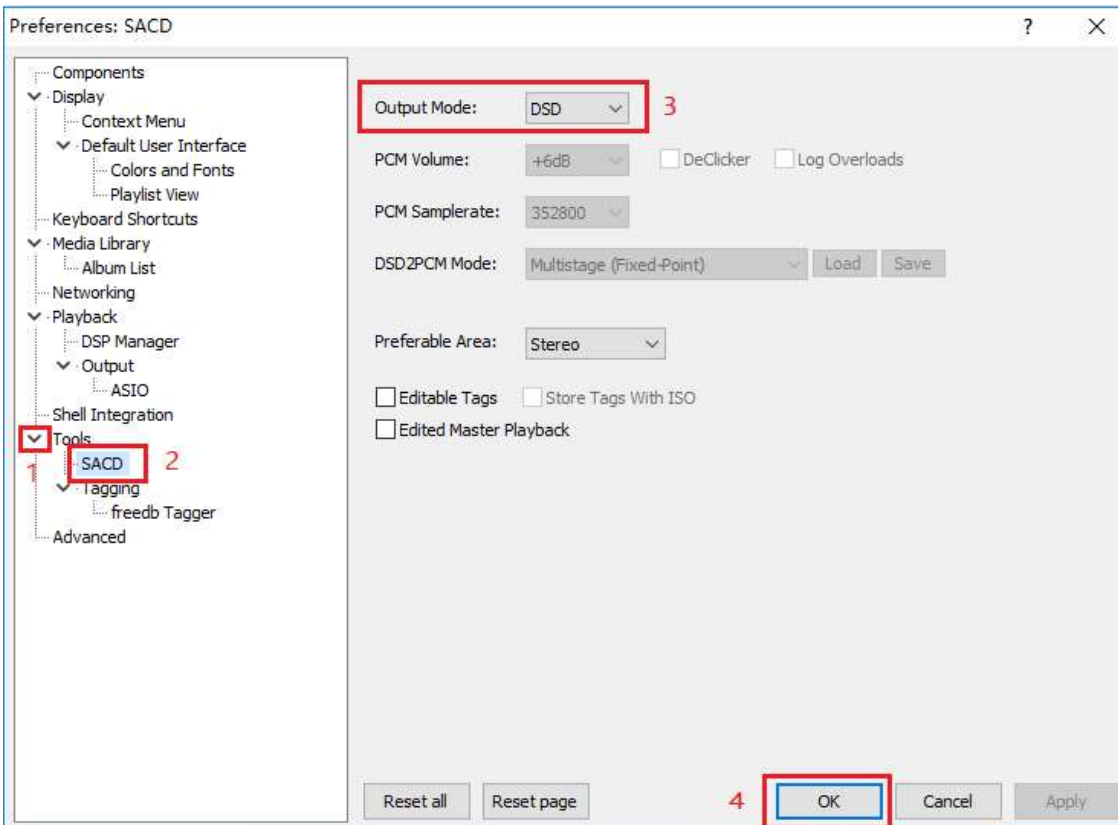
DSD playback issues

● foobar2000

1. Q: Why there is no 'ASIO' option under 'Playback'-> 'Output'?

A: Because the ASIO components is not installed. Drag the 'foo_out_asio.fb2k-component' under 'foobar2000_DSD'into foobar2000's 'components'page. Then click apply and yes to relaunch foobar2000. You can use ASIO now.
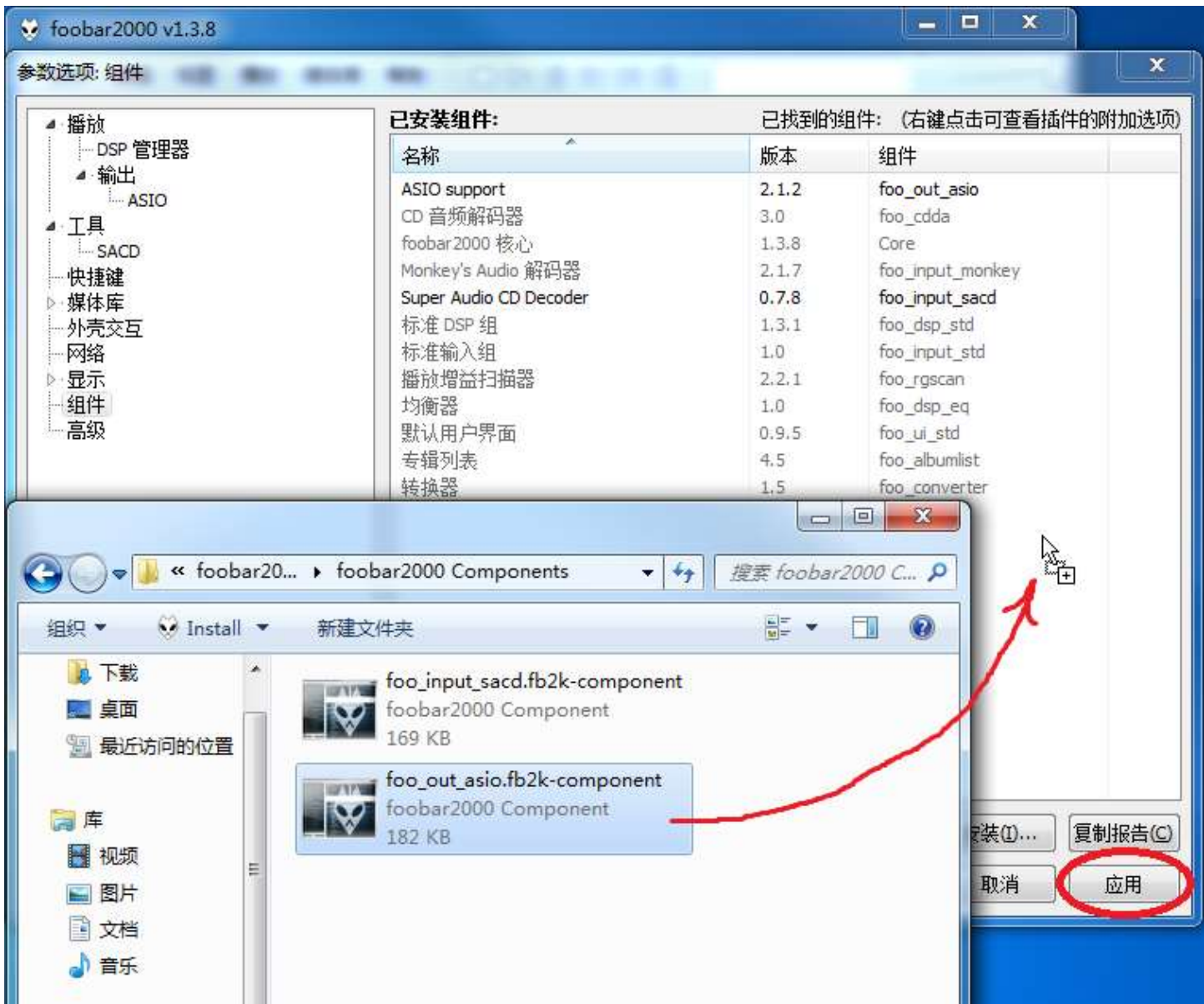
2. Q: Why there is no 'SACD' option under 'Tools'?

A: Because the SACD components is not installed. Drag the 'foo_out_sacd.fb2k-component' under 'foobar2000_DSD' into foobar2000's 'components' page. Then click apply and yes to relaunch foobar2000. You can use SACD now.
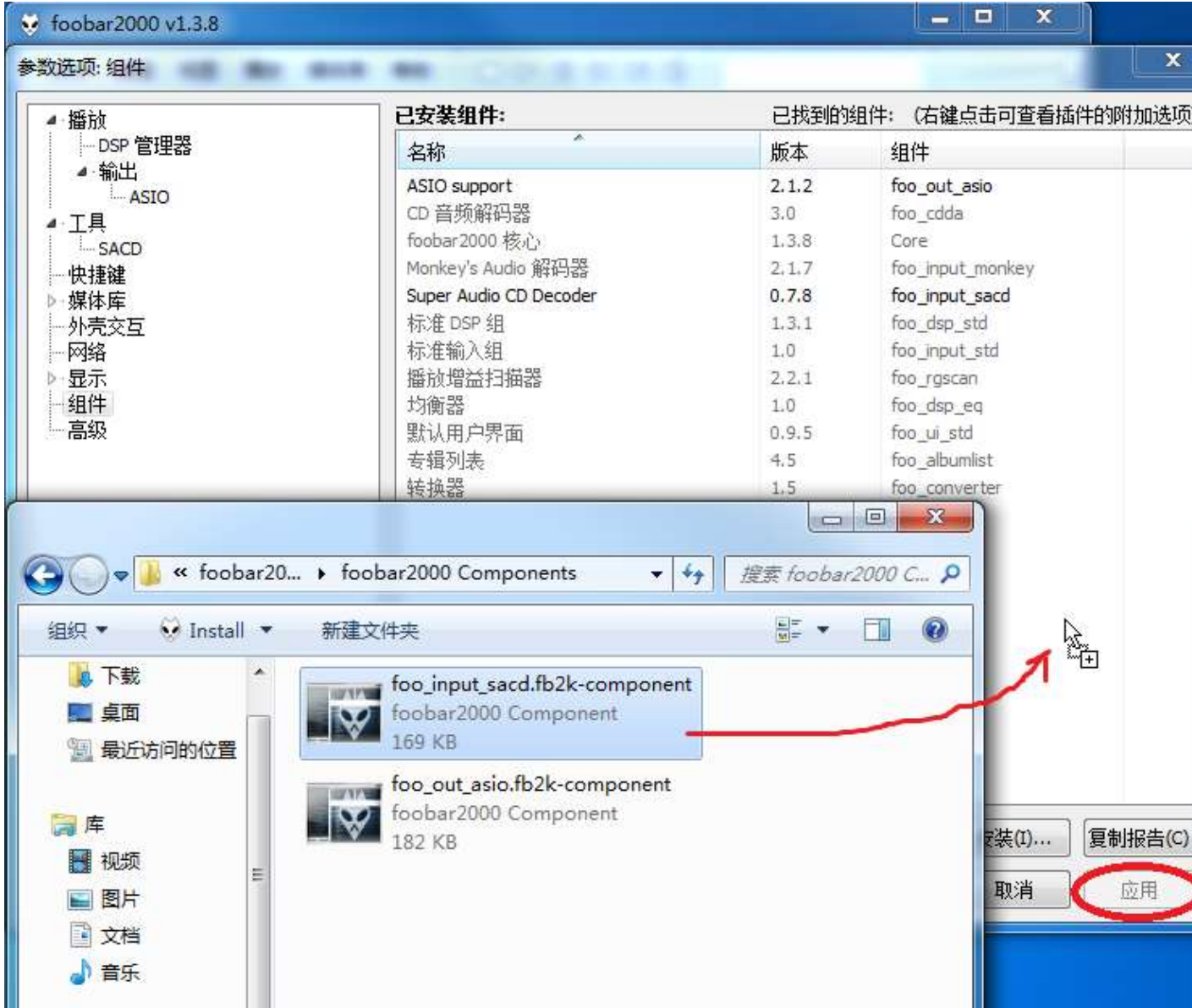
3. Q: Finished all settings, I got such a bug when playing DSD file.
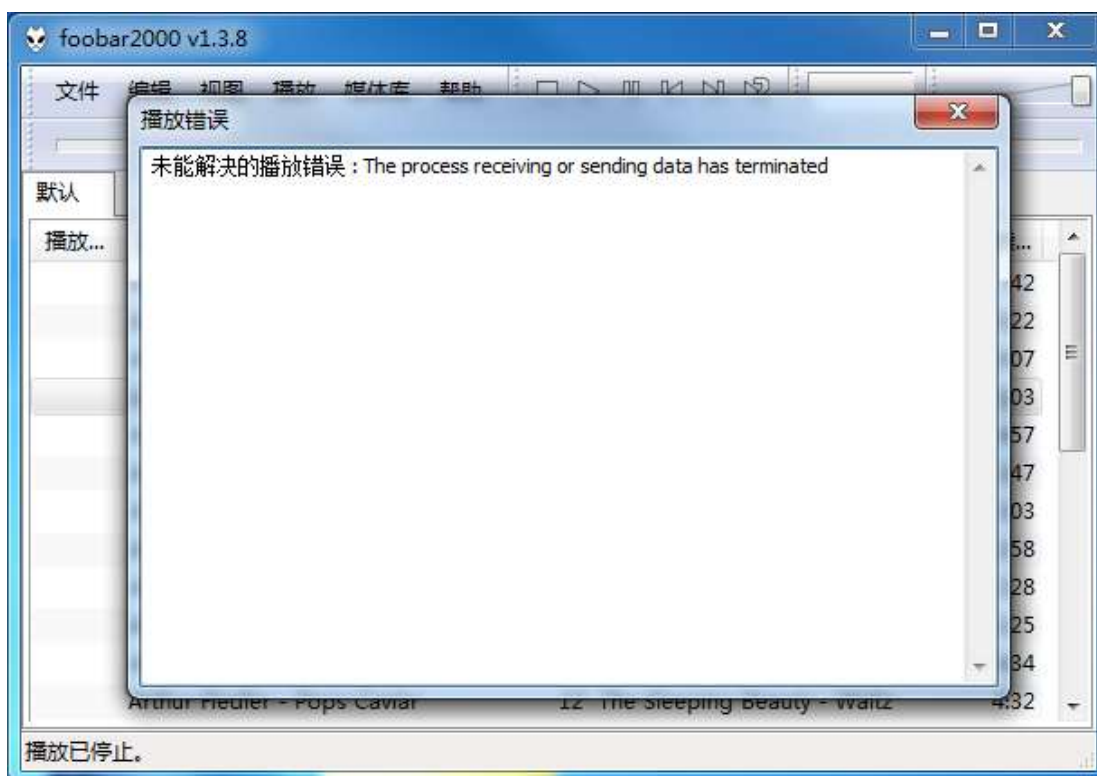
A: It is caused by version conflicts of ASIOProxy and SACD component. They should all be 0.7.x. If you are using an old version of foobar2000 whose SACD component is 0.6.x. The ASIOProxyInstall-0.7.2 will cause the conflicts.

There are two solutions. The first is to upgrade the SACD component[following Q&A2]. But some versions of foobar2000's components is locked, it would work to reinstall the official version. If you do not want to reinstall your foobar2000, you can choose the old version of ASIOProxy like ASIOProxyInstall-0.6.5.exe.
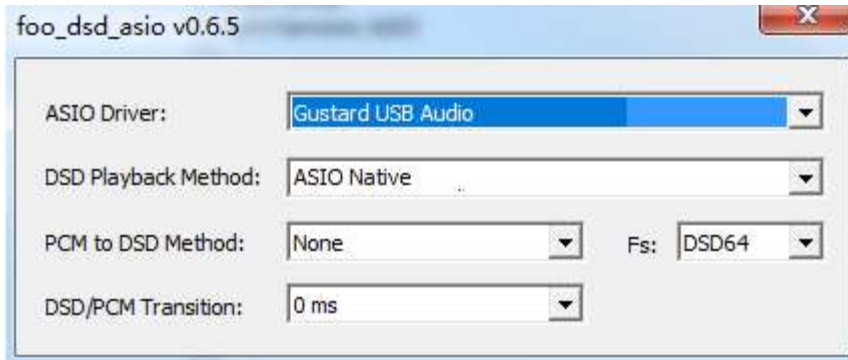
Specifications

Inputs:

COAX   : PCM 16-24bit/44.1-192kHz, DSD DOP64
AES   : PCM 16-24bit/44.1-192kHz, DSD DOP64
OPT   : PCM 16-24bit/44.1-192kHz, DSD DOP64
USB   : PCM 16-32bit/44.1-768kHz, DSD DOP64-256, NATIVE DSD64-512
IIS   : PCM 16-32bit/44.1-768kHz, DSD DOP64-256, NATIVE DSD64-512
Bluetooth 5.0   : LDAC/AAC/SBC/APTX/APTX LL/APTX HD/LDAC (up to 24bit/96Khz)

*USB supported OS: WIN7/WIN8/WIN10 32/64bit, macOS, Linux

Outputs

Frequency Response: 20-20kHz /+-0.08dB
Dynamic range   : >128dB
Crosstalk   : -130dB @ 1kHz

THD+N   : < -122dB 1kHz @vol=-02dB 20k BW
THD+N   : < -123.5dB 1kHz @vol=-00dB 20k BW
IMD   : < 0.0004% @-1dBFs

RCA Output   : 2.5Vrms (VOLUME 00dB) / 2Vrms (VOLUME -02dB)
RCA Impedance   : 100Ω

XLR Output   : 5 Vrms (VOLUME 00dB) / 4Vrms (VOLUME -02dB)
XLR Impedance   : 100Ω

Others

AC input   : AC 115V/230V 50/60Hz
Power Consumption : <15W
Size   : 220mm(Width)*50mm(Height)*170mm(Length) (protrusion not included)
Weight   : 2.5Kg (with package)

Product Warranty:

You will enjoy the 2-year free warranty and lifetime maintenance after the date purchasing GUSTARD's U18 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 X26pro 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.