

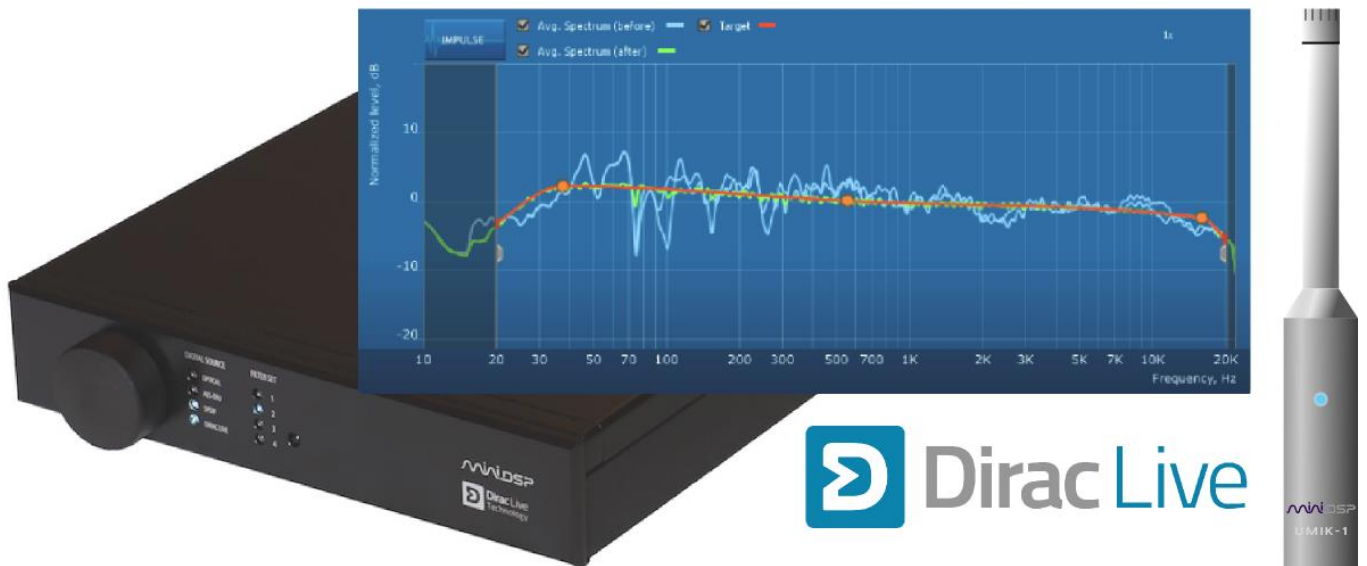


# miniDSP DDRC-22 High-Resolution Audio Processor User Manual

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## DDRC-22 HIGH-RESOLUTION AUDIO PROCESSOR WITH DIRAC LIVE® TECHNOLOGY User Manual



### Revision history

Revision	Description	Date
2	Updated for Dirac Live 2/3, DiracLive documentation moved to separate <b>miniDSP Dirac Live User Manual</b> .	30-Jun-20
2.1	Corrected support link	06-Jul-20
2.2	Adobe AIR and Flash no longer needed	01-Feb-21

## SUPPORTED OS



Windows 10



macOS Mojave



macOS Catalina



If you are unable to run the above versions of the Windows or macOS operating system, you will need to use the original version of Dirac Live ("Dirac Live 1") with your DDRC-22D processor. Please refer to the **DDRC-22 User Manual Legacy Support** version.

**Note:** Use of Dirac Live with macOS Mojave and Catalina requires some manual workarounds, which are documented in this manual.

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## IMPORTANT INFORMATION

Please read the following information before use. In case of any questions, please contact miniDSP via the support portal at [support.minidsp.com](https://support.minidsp.com).

### SYSTEM REQUIREMENTS

To configure your DDRC-22D, you will require a Windows or Apple Mac computer with the following minimum specification:

#### Windows

- **Microsoft® Windows® 10**, latest version with all updates
- Intel Pentium III or later, AMD Athlon XP or later
- 2 Gigabytes (GB) of RAM or higher
- Keyboard and mouse or compatible pointing device
- Two free USB 2.0 ports

#### Mac OS X

- macOS 10.14 Mojave or 10.15 Catalina, latest version with all updates
- Intel-based Mac with 1 GHz or higher processor clock speed
- 2 Gigabytes (GB) of RAM or higher
- Keyboard and mouse or compatible pointing device
- Two free USB 2.0 ports

## **DISCLAIMER/WARNING**

miniDSP cannot be held responsible for any damage that may result from the improper use or incorrect configuration of this product. Please read this manual carefully to ensure that you fully understand how to operate and use this product, as incorrect use or use beyond the parameters and ways recommended in this manual have the potential to cause damage to your audio system.

Please also note that many of the questions we receive at the technical support department are already answered in this User Manual and in the online application notes on the [miniDSP.com](http://miniDSP.com) website. So please take the time to carefully read this user manual and the online technical documentation. And if an issue arises with your unit, please read through the Troubleshooting section first. Thank you for your understanding!

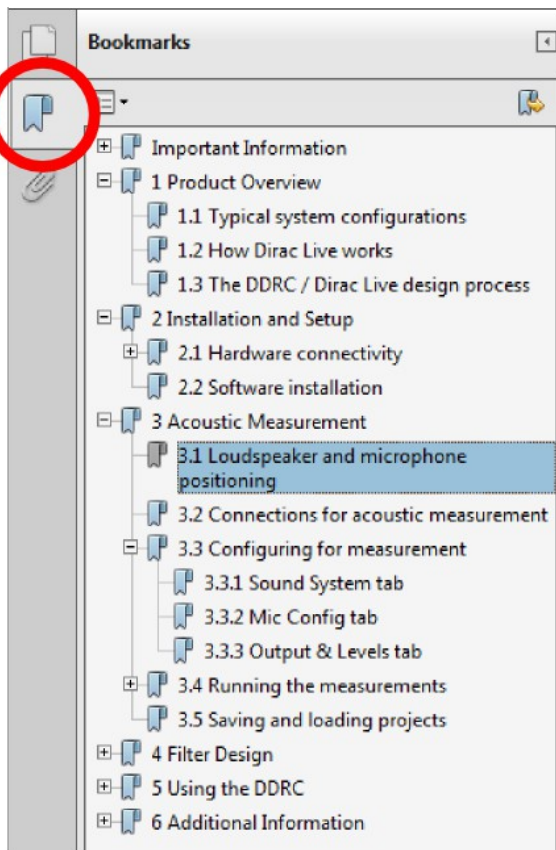
## **WARRANTY TERMS**

miniDSP Ltd warrants this product to be free from defects in materials and workmanship for a period of one year from the invoice date. Our warranty does not cover failure of the product due to incorrect connection or installation, improper or undocumented use, unauthorized servicing, modification or alteration of the unit in any way, or any usage outside of that recommended in this manual. If in doubt, contact miniDSP prior to use.

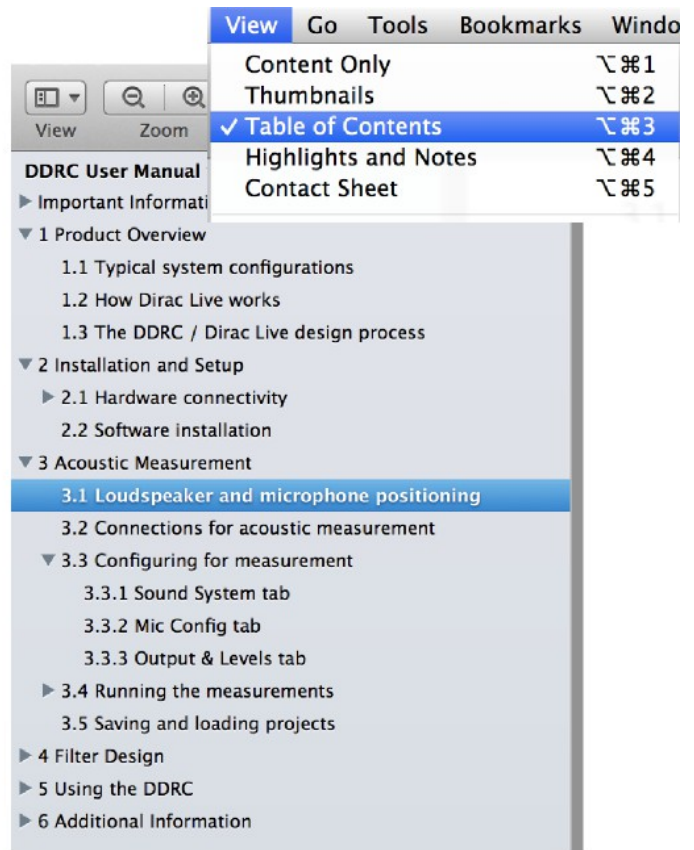
## **A NOTE ON THIS MANUAL**

This User Manual is designed for reading in both print and on the computer. If printing the manual, please print double-sided. The embedded page size is 8 ½" x 11". Printing on A4 paper will result in a slightly reduced size. For reading on the computer, we have included hyperlinked cross-references throughout the manual. In addition, a table of contents is embedded in the PDF file. Displaying this table of contents will make navigation much easier:

- In Adobe Reader on Windows, click on the “bookmarks” icon at the left. The table of contents will appear on the left and can be unfolded at each level by clicking on the “+” icons.
- In Preview on the Mac, click on the View menu and select Table of Contents. The table of contents will appear on the left and can be unfolded at each level by clicking on the triangle icons.



Adobe Reader on Windows



Preview on Mac

## PRODUCT OVERVIEW

Thank you for purchasing miniDSP DDRC-22D high-resolution<sup>1</sup> audio processor powered by Dirac Live®, the world's premier room correction solution. We are delighted to offer you this software and hardware combination, the fruit of extensive research and development and years of experience in sound system tuning. Deploying a miniDSP DDRC-22D audio processor with Dirac Live® Technology will

- Improve the imaging of your sound system
- Improve the clarity of the music
- Produce a tighter bass
- Reduce listening fatigue
- Improve the timbre
- Remove resonances and room modes
- Reduce early reflections

## TYPICAL SYSTEM CONFIGURATIONS

The DDRC-22D is typically inserted into the digital signal chain just before D/A conversion; for example, between one or more digital sources and a DAC. From there, a regular power amplifier or an integrated amplifier complete the system. Variations on this theme include the use of an integrated amplifier with a digital input or the use of a digital input of an A/V receiver, in which case a separate DAC is not required.



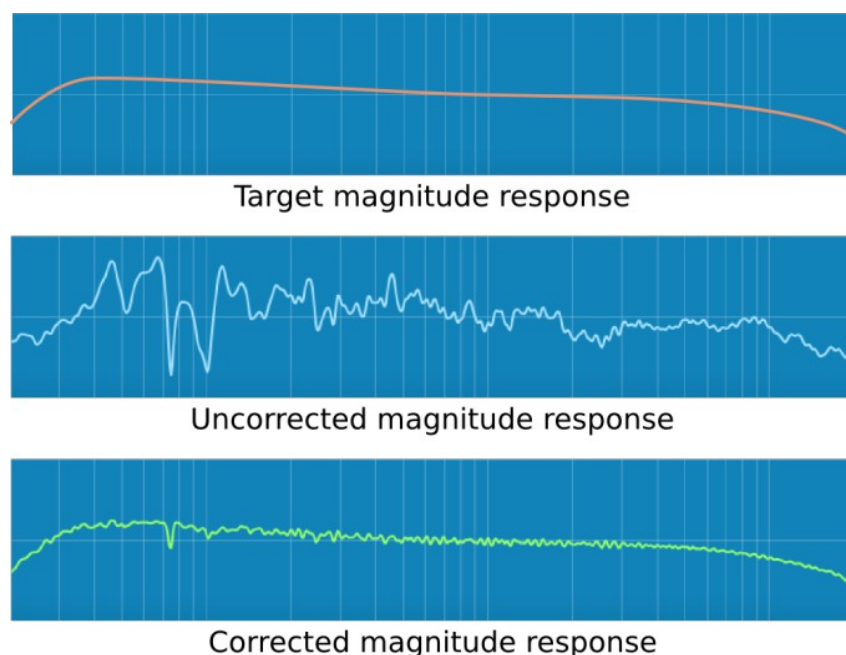
Computer connectivity is used to perform acoustic measurements and generate digital room correction filters. Up to four sets of correction filters can be stored on the DDRC-22D and recalled from the front panel or via an infrared remote. Once the processor is fully configured, the computer is no longer needed.

1 The DDRC-22D operates with 24-bit 96 kHz resolution.

## DIRAC LIVE

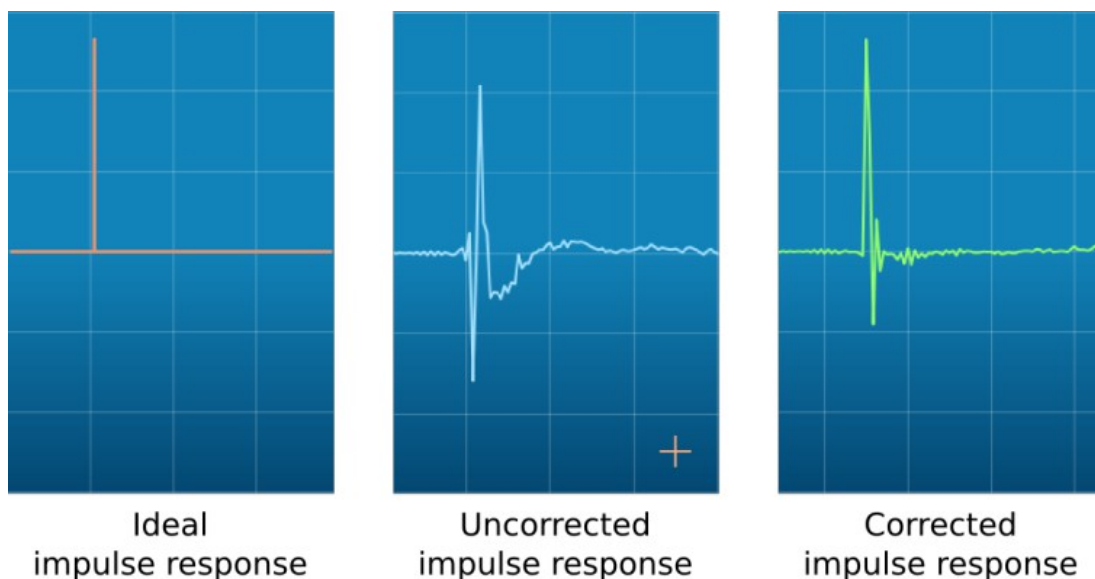
The DDRC-88D processor executes Dirac Live® digital room correction, from Dirac Research. Dirac Live's mixedphase filtering technology will improve the imaging of your system, minimize the effects of room modes and resonances, and improve dynamics and clarity.

To accomplish its remarkable improvement in listening quality, the DiracLive application steps you through the procedure for taking measurements around your listening area. Dirac Live® employs a sophisticated analysis algorithm to make the optimal correction across the whole listening area, not just at a single point. The user has full control over the target frequency response. Measurements are taken with a calibrated acoustic measurement microphone, the miniDSP UMIK-1.2



In addition to correcting magnitude response, Dirac Live® corrects the system's impulse response, which reflects how the system responds to a sharp transient such as a drumbeat. Reflections, diffraction, resonances,

misaligned drivers, and so on, all combine to smear out the transient. Correcting the impulse response makes the speaker in the room behave much more like an ideal loudspeaker. The impulse response is a critical factor for accurate sound-staging, clarity and bass reproduction.



Dirac Live calibration is described in the separate miniDSP Dirac Live User Manual.

2 A UMIK-1 is included in the standard purchase price of the C-DSP 8×12 DL processor.

## HARDWARE CONNECTIVITY

All connections to the DDRC-22D are made on the rear panel.

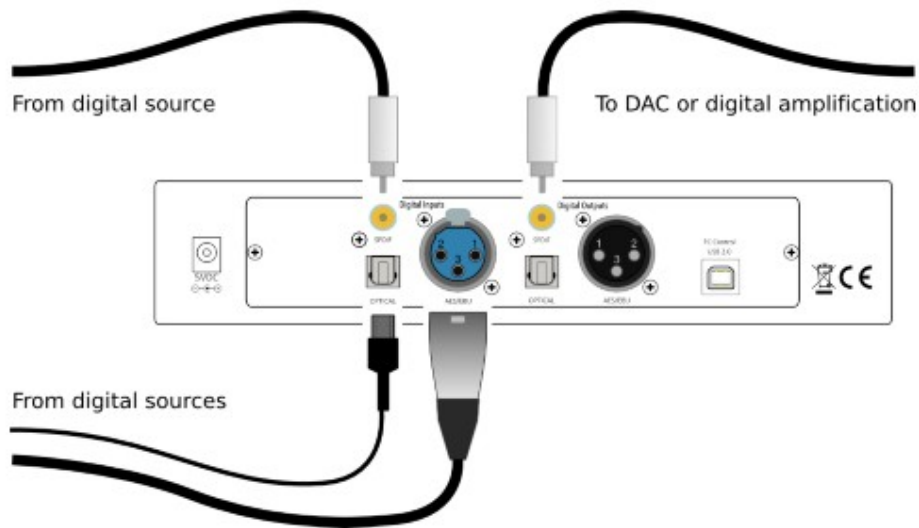
### AUDIO INPUT AND OUTPUT CONNECTIONS

#### Digital inputs

Connect up to three digital sources: AES-EBU on XLR, S/PDIF on RCA, or optical (TOSLINK). These sources can be selected between by using the front panel or an infrared remote (not included). The digital inputs of the DDRC-22D accept sample rates from 20 up to 216 kHz. Note: the digital inputs accept a stereo PCM digital signal only. They do not accept encoded or multichannel digital audio (such as Dolby Digital or DTS).

#### Digital outputs

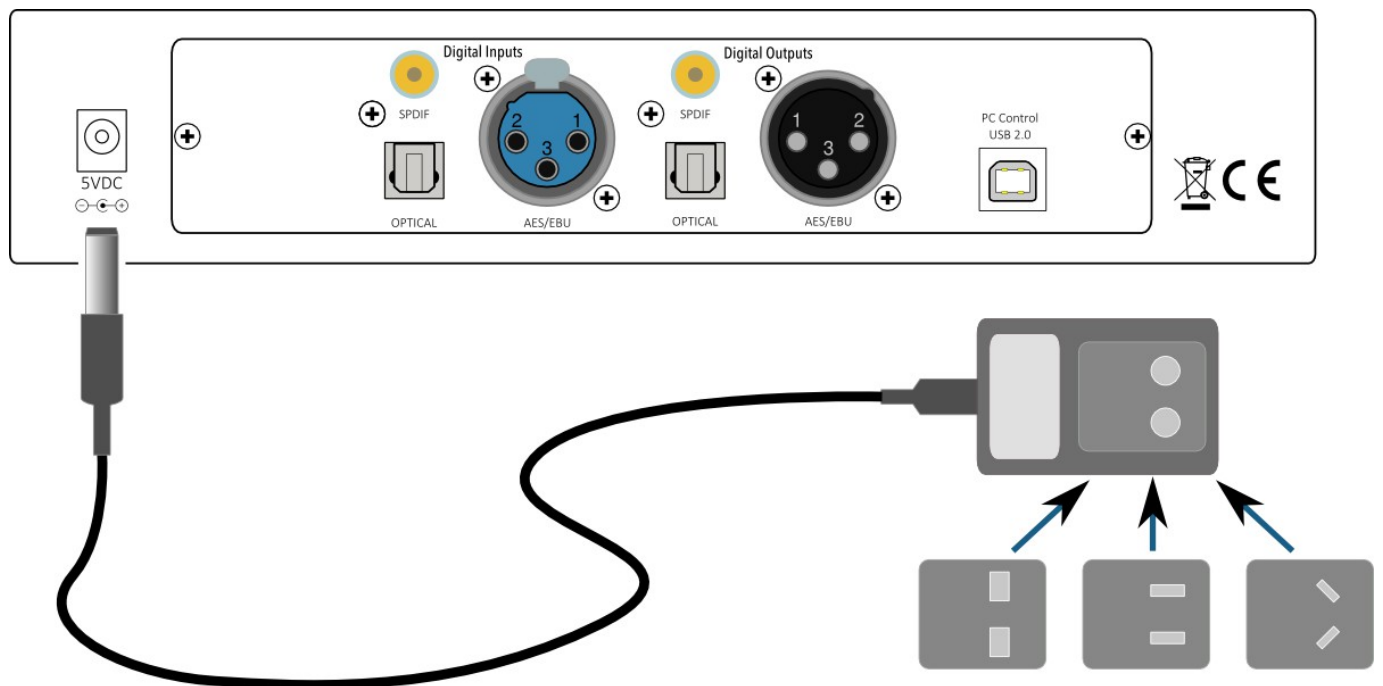
Connect one of the digital outputs to your DAC or other device with a digital input. All digital outputs are simultaneously active, so multiple output connections can be made if necessary. Note: the digital outputs of the DDRC-22D operate at 96 kHz sample rate. Any connected DAC must support this sample rate. (The digital inputs of the DDRC-22D accept any sample rate up to 216 kHz.)



*DDRC-22D connections*

## DC POWER

The supplied 5 VDC power supply includes a set of interchangeable power pins. Fit the correct pins for your country. Connect the DC plug to the 5 VDC power socket.

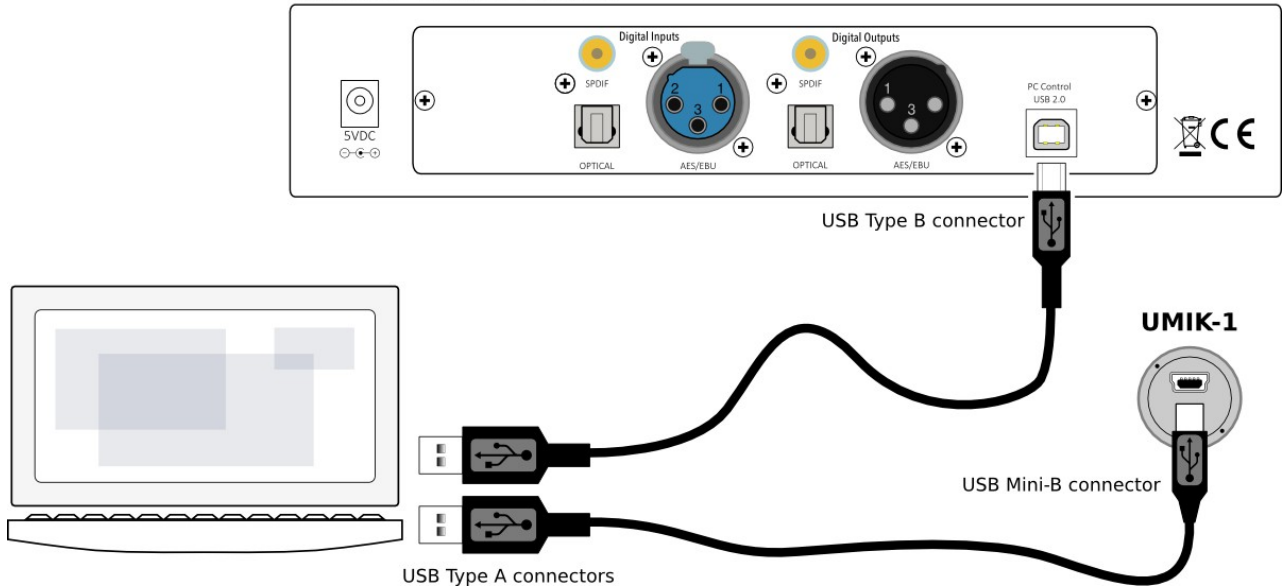


## USB

Computer connectivity is required to perform acoustic measurements in your listening room and to generate and download the digital room correction filters to the DDRC-22D. To configure the processor, connect the USB port of the processor to a USB 2.0 port on your computer using the supplied cable. For measurements, connect the UMIK-1 to a second USB port.



### miniDSP DDRC-22A/22D



Once calibration and configuration is complete, the computer can be disconnected. The processor can then be controlled from the front panel or via remote control see Section 6, **Using the DDRC-22D**.

## SOFTWARE INSTALLATION

The DDRC-22D is configured with software running on a PC or Mac. There are two sets of software to download and install, from [live.dirac.com](https://live.dirac.com) and from [miniDSP.com](https://miniDSP.com).

### WINDOWS 10

This section describes software download and installation for Windows 10.



The software described in this section runs on the latest version of Windows 10 only. Other versions of Windows are not supported by the current version of Dirac Live. If you are running an unsupported version of Windows, refer to the **DDRC-22 User Manual Legacy Support** version.

#### Download and install the DiracLive application

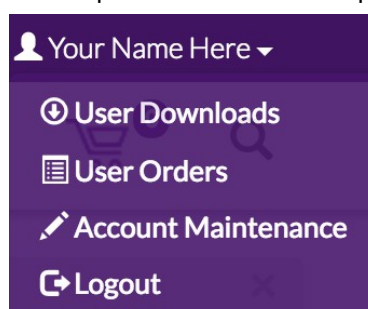
Download the DiracLive application for Windows 10 from <https://live.dirac.com/download/>. Double-click on the downloaded installer to run it. It will have a name like **DiracLive v3.0.0 Setup Windows.exe**. We recommend that you accept the default installation settings. Do not run the application yet.

#### Download the miniDSP software

If you purchased your processor directly from miniDSP, your software will be available from the User Downloads section of the miniDSP website when your order ships. To access the download, you will need to be logged into the website with the account you created when purchasing. If you purchased your processor from a miniDSP dealer, you will receive a coupon together with the product. Redeem this coupon at the link below:

- <https://www.minidsp.com/support/redeem-coupon>

The User Downloads link is visible from the dropdown menu at the top right of the website:



Navigate to the Dirac Series section and then to **DDRC-22 Software**. Download the zip file under the heading **DDRC-22 software for Dirac 2.0**.

After downloading, unzip the file (right-click and select “Extract All...”). The unzipped download has a name like **DDRC\_22\_v1\_11\_Dirac2**. (The version number embedded in the folder name may be different.)

miniDSP Ltd Hong Kong / [www.minidsp.com](http://www.minidsp.com) / Features and specifications subject to change without prior notice

Install the miniDSP software

### Possible Windows installation issues

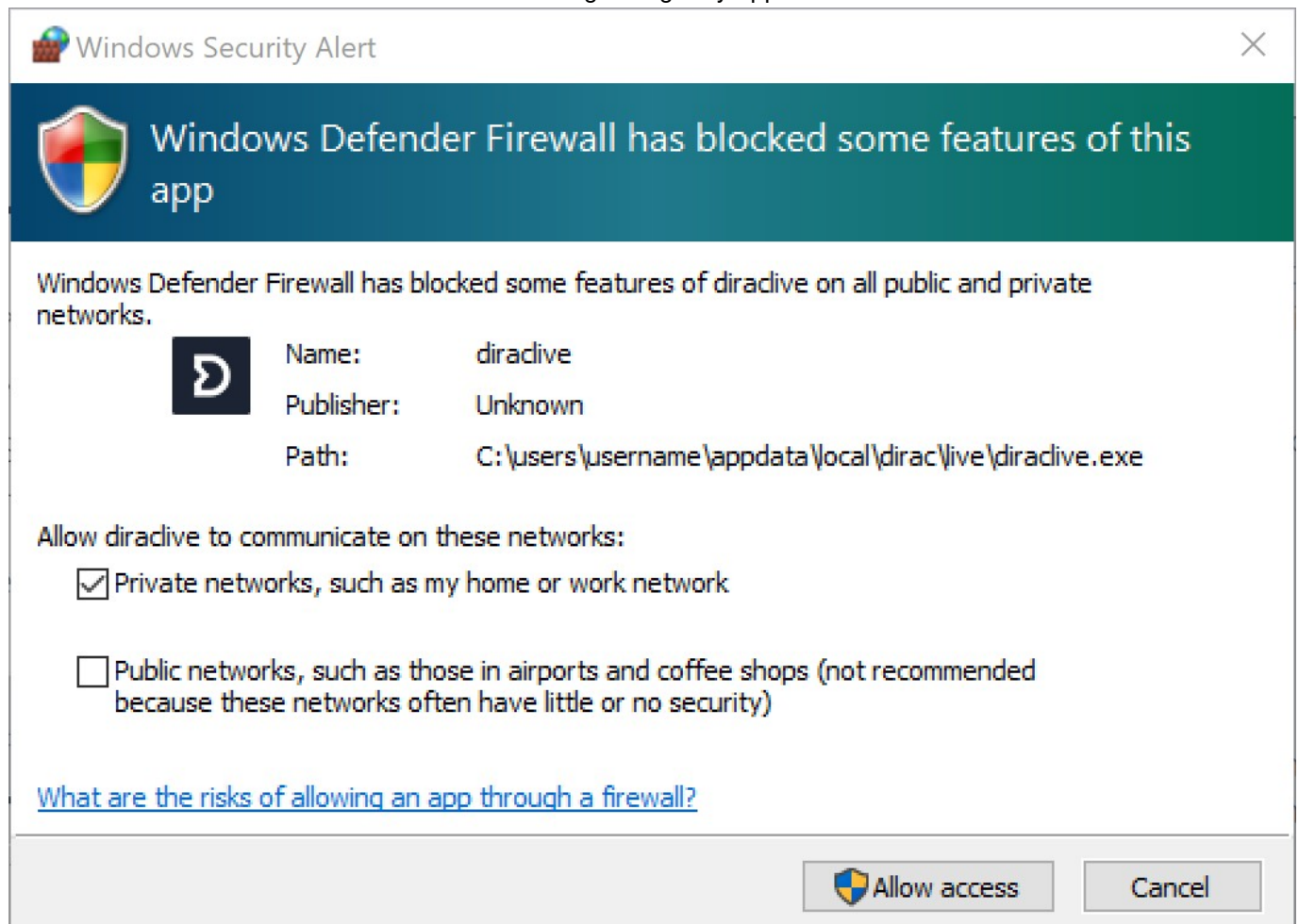
The miniDSP software requires that a number of other frameworks be installed for it to work. These packages should be installed automatically, but you can manually install them if you receive an error message that required software is missing.

- **Microsoft .NET framework** (version 3.5 or later)
- Microsoft Visual C++ 2010 Redistributable Package: for x86 (32-bit Windows) or x64 (64-bit Windows).

### Install the plugin

1. Navigate to the Windows folder of the software download.
2. Double-click on the plugin installer to run it. It will be named DDRC\_22.exe. We recommend that you accept the default installation settings.

**Note:** the first time you run the DDRC-22 plugin and the DiracLive application, you may see a Windows Firewall warning such as the one below. Ensure that “Private networks...” is checked and “Public networks...” is not checked. Then click on “Allow access.” This warning dialog may appear more than once.



## MACOS 10.14 MOJAVE AND 10.15 CATALINA

This section describes software download and installation for MacOS 10.14 Mojave and 10.15 Catalina.



This software described in this section runs on macOS 10.14 Mojave and 10.15 Catalina only. Other versions of OS X / macOS are not supported by the current version of Dirac Live. If you are running an unsupported version of OS X / macOS, refer to the DDRC-22 User Manual Legacy Support version.

### Download and install the DiracLive application

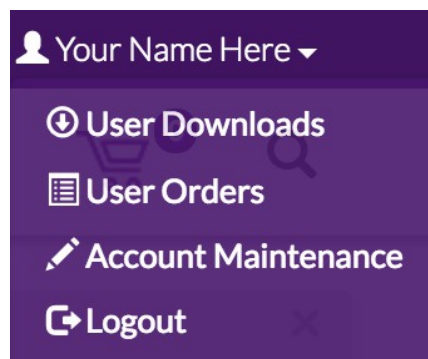
Download the DiracLive application for macOS from <https://live.dirac.com/download/>. Double-click on the downloaded file to unzip it. Then double-click on the unzipped installer file to run it. It will have a name like DiracLive v3.0.0 Setup Darwin.app. We recommend that you accept the default installation settings. Do not run the application yet.

### Download the miniDSP software

If you purchased your processor directly from miniDSP, your software will be available from the User Downloads section of the miniDSP website when your order ships. To access the download, you will need to be logged into the website with the account you created when purchasing. If you purchased your processor from a miniDSP dealer, you will receive a coupon together with the product. Redeem this coupon at the link below:

- <https://www.minidsp.com/support/redeem-coupon>

The User Downloads link is visible from the dropdown menu at the top right of the website:



Navigate to the Dirac Series section and then to DDRC-22 Software. Download the zip file under the heading DDRC-22 software for Dirac 2.0.

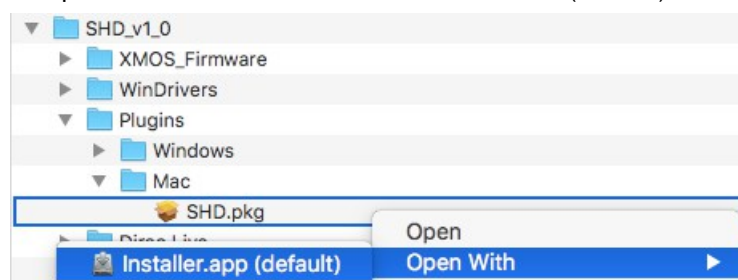
After downloading, unzip the file (double-click on it). The unzipped download has a name like DDRC\_22\_v1\_11\_Dirac2. (The version numbers embedded in the folder name may be different.)

### Install the miniDSP software

#### Possible Mac installation issues

If double-clicking on the installer brings up a message that the installer cannot run, use this alternate method:

1. Right-click on the installer (or click while holding the Control key).
2. Move the mouse over the “Open With” item and then click on “Installer (default).”



3. The following window will appear. Click on “Open.”

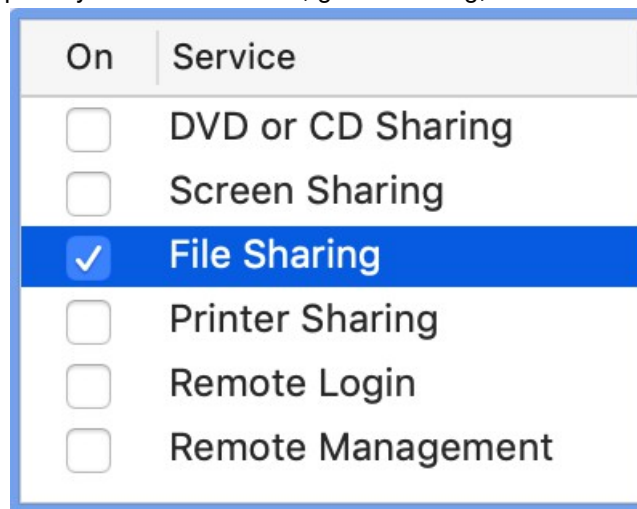


### Install the plugin

4. Navigate to the **Mac** folder of the software download.
5. The installer is named **DDRC-22.pkg**. To run it, double-click on it, or right-click and open as described above.  
We recommend that you accept the default installation settings.
6. To run the plugin, locate it in the Applications -> miniDSP folder and double-click on it. To make it easier to run in future, right-click on its dock icon and select Options -> Keep in Dock.

### Enable file sharing for device discovery

To enable device discovery, open System Preferences, go to Sharing, then enable File Sharing as shown at right.



#### Notes:

- a) This step is not always necessary and may depend on your Mac's configuration or your home network setup.
- b) If you wish, you can turn File Sharing off again after completing your Dirac Live calibration.

### THE DDRC-22 UTILITY PROGRAM

The DDRC-22 Utility program is used to set up the DDRC-22D. It is not used for Dirac Live calibration.



### Master volume

Displays the current master volume setting. Click and type here to change the master volume.

### Mute

Mutes all audio output.

### Connect/Connected



Click on the Connect icon to connect to the DDRC-22D. To disconnect, quit from the DDRC-22 Utility.

You will need to connect to the processor with this button in order to use most of the functionality of this utility. If you have been using the DiracLive application, quit it before clicking this button.

### Start Dirac Live Software

Starts the separate DiracLive application. When this button is pressed, the SHD plugin will disconnect from the DDRC-22D processor and then start up DiracLive.



You must start the DiracLive application from within the DDRC-22 plugin using the Start Dirac Live Software button. If you open the DiracLive application by itself, it will not be able to detect the DDRC-22D processor.

### Attenuation

By default, the DDRC-22 introduces 10 dB of attenuation in order to provide headroom for the EQ boost that Dirac Live may introduce. If this is too much attenuation, you can change it with the dropdown menu.

The image shows a screenshot of a software interface's dropdown menu. The menu is currently open, displaying a list of options. The top of the menu has a grey header with the text "(Please Select)". Below this, the first item is also "(Please Select)" but is highlighted with a blue background. The other visible items are "0 dB", "-3 dB", "-6 dB", and "-10 dB".

(Please Select)
(Please Select)
0 dB
-3 dB
-6 dB
-10 dB

### Refresh DSP Program

Updates the internal DSP program with the version contained in the DDRC-22 Utility. Use this after installing a new version of DDRC-22 Utility.

### Restore All to Default

Clears all four loaded filter presets.

### About

Provides the current version of DSP firmware.

### Upgrade Firmware

Starts the MCU firmware upgrade process. See MCU firmware upgrade on page 20.

### IR Learning

Buttons used to learn infrared remote control codes. See Infrared remote control on page 18.

## DIRAC LIVE CALIBRATION

Dirac Live calibration with the miniDSP DDRC-22D is described in the separate **miniDSP Dirac Live User Manual**. It can be downloaded from the **DDRC-22D product page** on our website.



Be sure to start the DiracLive application from within the DDRC-22 utility using the Start Dirac Live Software button. If you open the DiracLive application by itself, it will not be able to detect the DDRC-22D processor.



# DIRAC LIVE

## USER MANUAL

### FOR DIRAC LIVE-ENABLED MINIDSP PROCESSORS

#### STEREO PLATFORMS

SHD SERIES

DDRC-24

DDRC-22D

#### MULTICHANNEL PLATFORMS

DDRC-88A, DDRC-88D

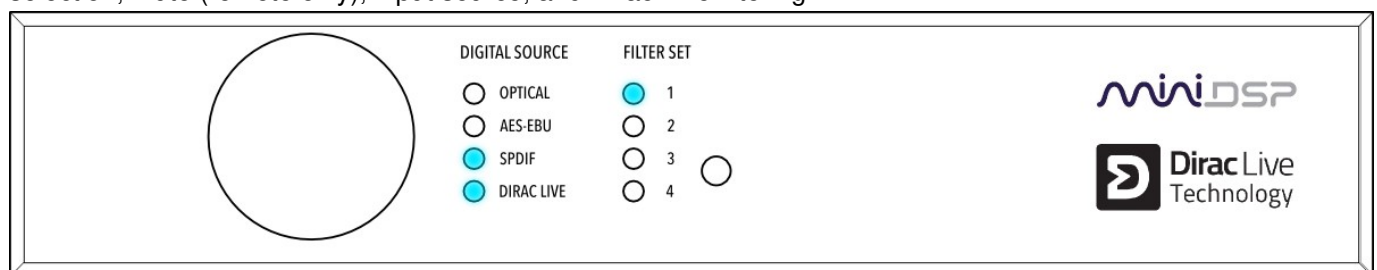
C-DSP 8x12 DL

#### SUPPORTED OS



#### USING THE DDRC-22D

Once the desired correction filters have been downloaded into the DDRC-22D, the computer is not required and can be disconnected. The front panel and/or an infrared remote can be used to control master volume, preset selection, mute (remote only), input source, and Dirac Live filtering.



#### STATUS INDICATORS

The current status of the processor is indicated by a set of LEDs:

**Filter Set** Indicates the currently selected filter set (1 through 4).

**Digital Source** Indicates the currently selected digital input.

**Dirac Live** Indicates that Dirac Live® filtering is turned on.



## FRONT PANEL CONTROLS

The DDRC-22D uses a minimalist physical control design with a single control knob.

### To change the volume

Rotate the control knob clockwise to increase the volume, and counter-clockwise to decrease it.

### To change the selected filter set

Briefly press the control knob. The Filter Set LED blinks quickly. Rotate the control knob until the desired filter set LED is blinking. Press the control knob again twice, and the selected LED will remain steady.

### To change the selected digital input

Briefly press the control button twice. The Digital Source LED blinks quickly. Rotate the control knob until the desired source LED is blinking. Press the control knob again, and the selected LED will remain steady.

## INFRARED REMOTE CONTROL

Once configuration is complete, the computer is not required and can be disconnected. An infrared remote can be used to control volume, mute, preset selection, input selection, and to turn Dirac Live processing on and. The optional miniDSP remote can be used with the DDRC-22:

### Source

Cycles through the input sources.

### 1, 2, 3, 4

Switches to the selected preset. Note that it takes a few seconds for the preset selection to complete.

### [Bell]

Enables or disables Dirac Live filtering. Dirac Live filtering will be effective only on presets for which Dirac Live filters have been loaded.

### Vol

Reduce or increase the volume. Each press changes the volume in 0.5 dB. Holding down a button will accelerate volume change to 3 dB steps.

### Mute

Mutes and unmutes audio output.

The DDRC-22 can also “learn” the control codes of your current remote if it supports one of the following remote control codes:





- NEC
- Sony
- Philips RC6
- Apple (old silver remote only)

To initiate the learning process, drop down the IR Remote menu and select IR learning. Click on the Learn button for an operation, and then press the desired button on the remote control. If the code is accepted, the status will change to show a tick, as shown at right.



To “unlearn” a command, press the Learn button and wait for the plugin to time out. Note that

you cannot “learn” the miniDSP

remote if you program another remote and want to revert to using the miniDSP remote, simply “unlearn” all codes. (Applies to firmware v2.23 and later.)

Master Mute	✓	Learn
Volume Up	✓	Learn
Volume Down	✓	Learn
Analog	✓	Learn
TOSLINK	✓	Learn
USB	✓	Learn
Config 1	✓	Learn
Config 2	✓	Learn
Config 3	✓	Learn
Config 4	✓	Learn
Dirac Live	✓	Learn

## ADDITIONAL INFORMATION

### SPECIFICATIONS

#### Computer connectivity

Driverless USB 2.0 control interface for Windows

#### Digital Audio Inputs

Digital audio source selectable from IR remote or front panel: · AES-EBU on Neutrik 3-pin female XLR / Isolated with digital audio transformer

- SPDIF on RCA connector / Isolated with digital audio transformer
- Toslink on Optical connector The input signal is processed by a high quality onboard Asynchronous Sample Rate Converter for compatibility with most common sample rates (20-216kHz)

#### Digital Audio Outputs

Processed digital audio is available on all three outputs:

- AES-EBU on Neutrik 3-pin male XLR / Isolated with digital audio transformer
- SPDIF on RCA connector / Isolated with digital audio transformer
- Toslink on Optical connector Digital audio is always output at a sample rate of 96 kHz.

#### Audio sample rate / Resolution

Input/output resolution: 24-bit integer DSP internal processing path: 96 kHz

#### Audio processing

32-bit floating-point processor

## Storage/Presets

4 filter sets stored, selectable from front panel or IR remote

## Infrared remote

“Learning remote” capabilities (NEC, Philips, Sony, Apple) Controls master volume, mute, digital input selection, filter set selection, Dirac Live® filtering on/off

## Power supply

5 VDC single supply @ 600mA, 2.1 mm center-positive

## Dimensions (H x W x D)

41.5 x 214.5 x 206 mm

## MCU FIRMWARE UPGRADE

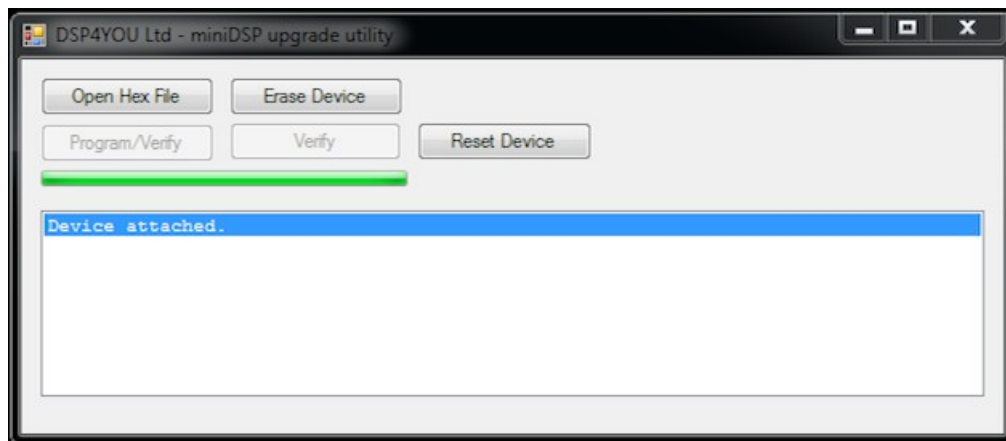
miniDSP may occasionally provide an update to the DDRC-22D MCU firmware to enable new features. To update the MCU firmware, first download and install the latest version of the DDRC-22 Utility program from the User Downloads section of the miniDSP website. Then follow the instructions below for your platform.



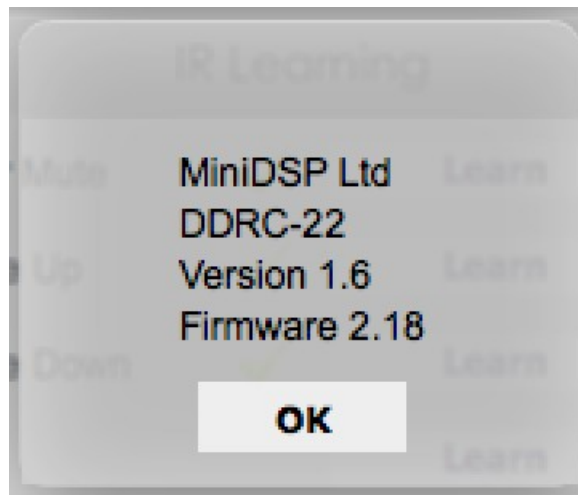
DO NOT DISCONNECT THE USB CABLE OR POWER FROM THE DDRC-22D WHILE FIRMWARE UPDATE IS IN PROGRESS. DOING SO MAY “BRICK” YOUR PROCESSOR.

## Windows

1. Connect the processor to your computer via USB (if not already connected) and power it on.
2. Start the DDRC-22 utility program.
3. Click on the Connect button. The button will display a green tick if connection is successful.
4. Click on the Upgrade Firmware button. The DDRC-22D will be put into boot loader mode and the miniDSP upgrade utility will start. The status line should display “Device attached”.

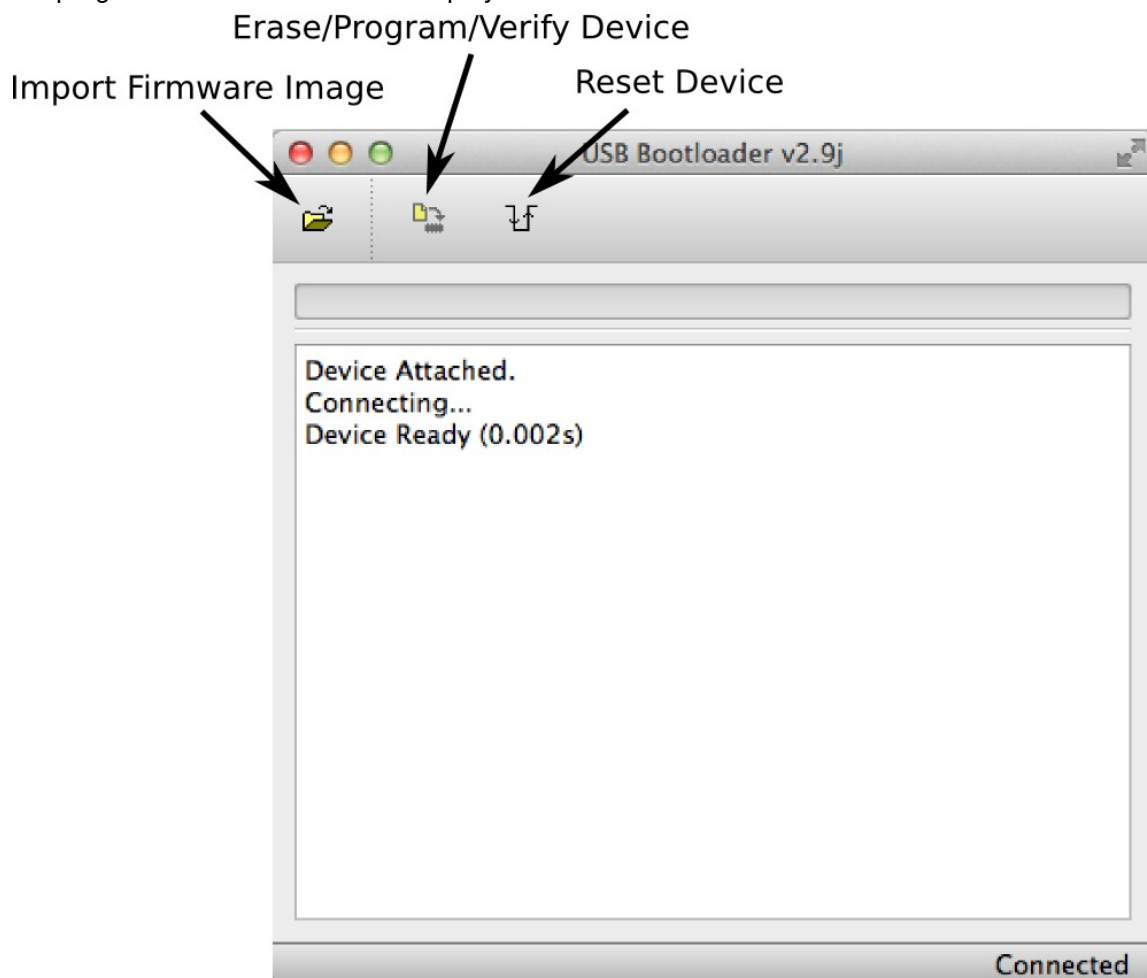


5. Click on the Open Hex File button and select the .hex file located in the firmware folder of the download. It will have a name like ENC\_DDRC22\_Ver2.26\_SS.hex.
6. Click on the Program/Verify button. The status bar will indicate progress. Do not disconnect the USB cable or remove power from the processor while this runs!
7. After the status indicates that the verify has completed successfully, click on the Reset Device button, and then quit the upgrade utility.
8. Return to the DDRC-22 Utility program. (If there is a dialog informing “Connection to DSP closed,” click on OK.) Click on the Connect button, and then on About to verify the new firmware version.



## Mac OS X

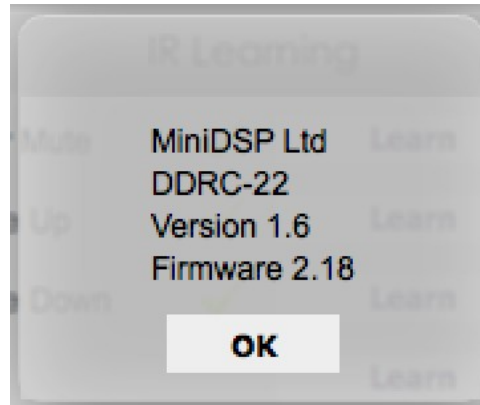
1. Connect the processor to your computer via USB (if not already connected) and power it on.
2. Start the DDRC-22 utility program.
3. Click on the Connect button. The button will display a green tick if connection is successful.
4. Click on the Upgrade Firmware button. The DDRC-22D will be put into boot loader mode and the miniDSP bootloader program will start. The status display should show "Device attached".



5. Click on the Import Firmware Image button and select the .hex file located in the firmware folder of the download. It will have a name like ENC\_DDRC22\_Ver2.26\_SS.hex.
6. Click on the Erase/Program/Verify Device button. The status display will indicate progress. Do not disconnect the USB cable or remove power from the processor while this runs!
7. After the status indicates that the verify has completed successfully, click on the Reset Device button, and then

quit the bootloader program.

8. Return to the DDRC-22 Utility program. (If there is a dialog informing "Connection to DSP closed," click on OK.) Click on the Connect button, and then on About to verify the new firmware version.



## TROUBLE-SHOOTING AUDIO ISSUES

### No sound during volume calibration

If you get no sound while on the Volume Calibration tab of DiracLive, first make sure that you increase the volume slider in the UI (the leftmost one). If there is still no sound, double-check that output cabling is connected to the right connectors on the rear panel and to the correct inputs on downstream equipment. Make sure that downstream equipment (e.g. amplifiers) is not muted, turned down, or turned off.

### No sound during playback

1. Check which input source you have selected on the front panel, and the cabling between the source and the DDRC-22D.
2. Check that output cabling is connected to the right connectors on the rear panel and to the correct inputs on downstream equipment (e.g. amplifiers).
3. Check that downstream equipment (e.g. amplifiers) is not muted, turned down, or turned off.
4. Quit DiracLive and start the DDRC-22 utility. Click on the Connect button. Then:
  - a. Check the master volume setting.
  - b. Check that the DDRC-22 is not muted.


### Distortion

If audio playback is distorted, you may have too much gain internal to the DSP. Dirac Live can apply up to 10 dB of gain. A distortion issue like this typically occurs when volume control is being done downstream of the DDRC22D Series processor. If so, check the Attenuation setting in the DDRC-22D Utility and set it at -10 dB.

## OBTAINING SUPPORT

1. Check the forums on [minidsp.com](http://minidsp.com) to see if this issue has already been raised and a solution or solutions provided.
2. Contact miniDSP via the support portal at [support.minidsp.com](http://support.minidsp.com) with:
  - a. The product information obtained from DDRC-22 Utility (About button) and DiracLive application.
  - b. A clear explanation of the symptoms you are seeing.
  - c. A description of the troubleshooting steps (see Troubleshooting) you performed and the results obtained.

## Documents / Resources

<p>miniDSP <b>DDRC-22</b> HIGH-RESOLUTION AUDIO PROCESSOR WITH DSDC LIVE® TECHNOLOGY</p> <p>User Manual</p> 	<p><a href="#">miniDSP DDRC-22 High-Resolution Audio Processor</a> [pdf] User Manual</p> <p>DDRC-22 High-Resolution Audio Processor, DDRC-22, High-Resolution Audio Processor</p>
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## References

- [!\[\]\(86b7331e04fe40a56bcff2e9c065738b\_img.jpg\) Home | miniDSP](#)
- [!\[\]\(92f87f30b7499b35d0173f4346c498d6\_img.jpg\) Support : Support Portal](#)
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- [!\[\]\(1e547046bf46be3af94c1ef718de74cb\_img.jpg\) Support : Support Portal](#)
- [!\[\]\(58dbf28ba9ef1a8c1e7741a6dc75c08d\_img.jpg\) Dirac](#)
- [!\[\]\(6b0789bcaa521602c5b85d0a737fd77a\_img.jpg\) DDRC-22D - All Digital Dirac Live Stereo Processor](#)
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