

Dirac Live Active Room Treatment Setup Guide

- Setup
 - Installation
 - Connecting to your device
 - Setting up Dirac Live
 - Active Room Treatment Filter Design
- ART Parameters
 - Detailed Description of Parameters
- Comment on Grouping

Setup

Installation

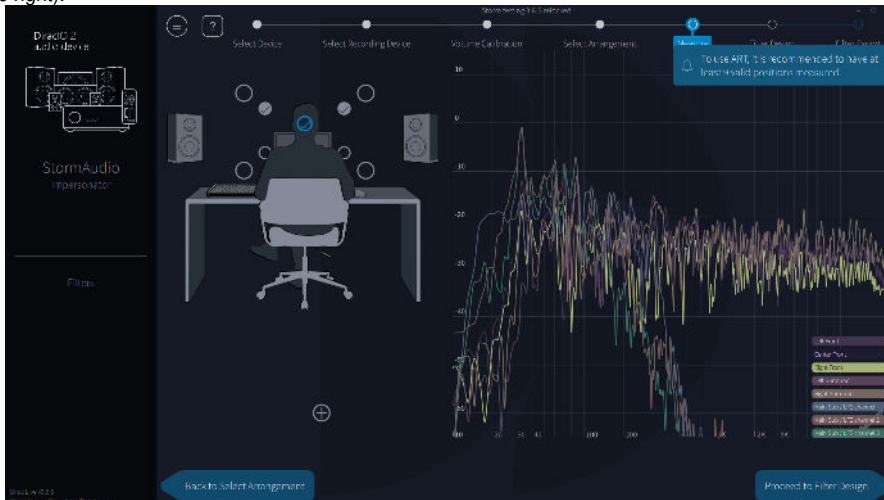
1. Download and install the latest version of Dirac Live from <https://www.dirac.com/live/downloads>

Connecting to your device

1. Refer to your AVR's owner's manual for a description of how to prepare the device for Dirac Live calibration. This setup is the same for Dirac Live Room Correction, Bass Control, and Active Room Treatment.

Setting up Dirac Live

1. Once your device is ready for calibration, open Dirac Live and select it in the "Select Device" screen.
2. At this point, you have two options:
 - a. Load a previous Dirac Live project. If at least 9 mic positions have been captured and nothing has changed in the system since that project was measured, then you can skip past the Measure step (since you're re-using your old measurements instead) and go directly to "Filter Design".
 - b. Proceed through the steps of Dirac Live up to "Measure."
3. Measure all points needed for your system, noting how many measurement points ART requires for your setup (shown as a persistent notification at the top right).



- a. 4. When your measurements are complete, click "Proceed to Filter Design."

Active Room Treatment Filter Design

1. If your device and license capabilities include ART, then ART will be selected by default in the correction technology section of the right-side sidebar of the Filter Design screen.



- a. If you have less than 3 valid measurements, including the sweetspot, you will not be able to select the ART option.
 - b. Note also, that in order to use ART with one or more subwoofers, you will also need to hold a Bass Control license. You then need to
 - i. either, purchase and activate a Bass Control license,
 - ii. or, deactivate the subwoofers by removing them from the device's speaker configuration.
2. ART groups (also referred to as main groups) are speaker groups containing at least one input channel. They are shown on the right side panel and can be managed just the same as in Dirac Live, by dragging individual speaker channels in and out of each group. See also the section below about channel grouping.



- a.
3. The main concept behind the powerful control of decay time in ART is based on speakers being co-optimized to reach the desired impulse response and target curve by assigning speaker support groups to each ART group. The frequency range at which a support group is allowed to contribute to an ART group is called the Support Range. The Support Range is automatically detected from the measurements and set as default upon initializing the ART filter design. It should be noted that the default Support Range for non-subwoofer speakers will not be lower than 50Hz.
 - a. Each ART group has a set of sliders at the bottom of the Filter Design graph area. They allow the user to control the Support Range at which each support speaker group is allowed to contribute to the selected ART group. See also the section below describing the support range parameters.



i.



ii.

b. Each support group can be enabled or disabled from providing support to a particular ART group by toggling a checkbox that appears when the mouse pointer hovers over its slider track.



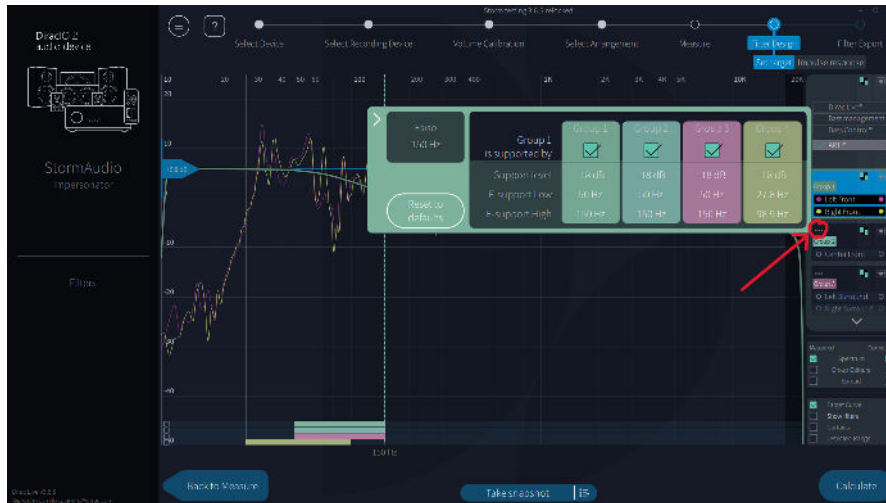
i.



ii.

4. ART groups have parameters that are accessed by clicking the triple-dot button in the top left corner of its box. This button is only available on ART groups and clicking it unfolds the parameter panel. For a full description of ART parameters, see the "Detailed Description of Parameters" section below.

a. Every ART Group (main group) can be supported by every other channel group (support group). As a common setting, the upper limit to which the supporting groups are allowed to support the main group is specified in the F_{support} setting.



i.

5. Edit the bass and treble sliders in the Filter Design view (outside the parameters menu) to your liking. It is common to increase the bass slider on the left.



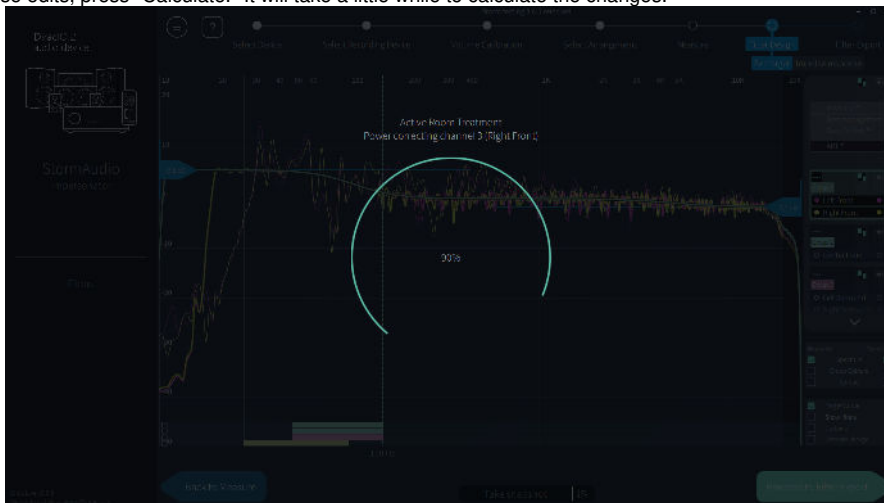
a.



b.

i. If you have several groups, these sliders can also be changed. It is common to change these to the same values as the first group.

6. After these edits, press "Calculate." It will take a little while to calculate the changes.



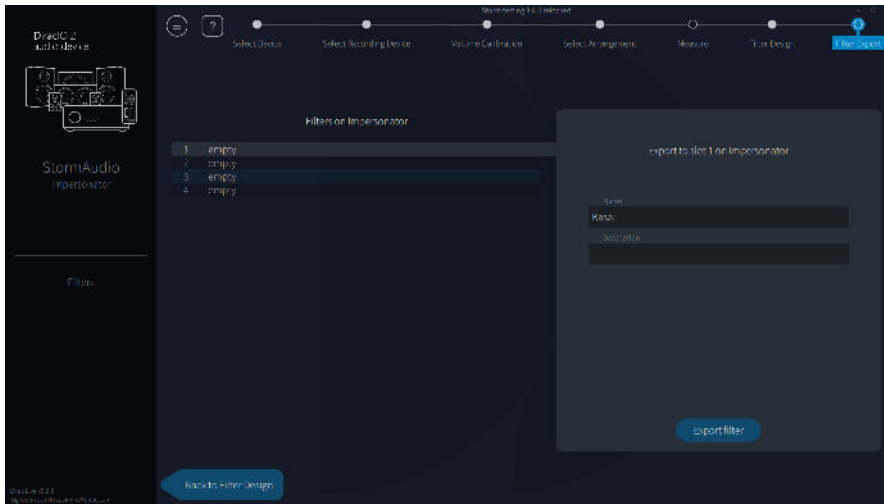
a.

7. When your filter has been calculated, press "Proceed to Filter Export".



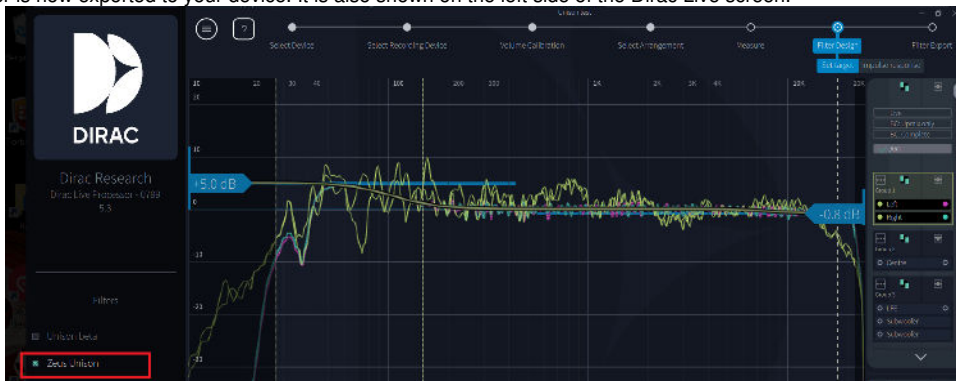
a.

8. Export the filter to your device.



a.

9. Your filter is now exported to your device. It is also shown on the left side of the Dirac Live screen.



a.

10. It can be encouraging to also visualize the improvement achieved by ART and compare it to Dirac off (original measurements), Dirac Live Room Correction, and Dirac Live Bass Control. In the following examples, this is visualized by the Spread graph, showing how the resulting response varies across the different microphone positions:



Dirac off



Dirac Live Room Correction



Dirac Live Bass Control



Dirac Live ART

ART Parameters

Every support group has the following parameters:



Detailed Description of Parameters

Parameter	Meaning	Comment	Default	Legal input
Fsiso	The maximum frequency where speakers can support each other. Above this frequency a regular Dirac Live correction will be applied.	Fsiso is a critical parameter that acts like a crossover frequency in a bass-managed system. The goal is to find the highest Fsiso value for your system that still provides a great result. Lower Fsiso values are more robust but offer less benefit, while higher values provide more benefits but may reveal supporting speakers in the output.	150 Hz	50 to 150 Hz
Group <i>n</i> is supported by	Turns on or off the channels of the group supporting the input channels of the ART group. I. e., the speakers in this group will act to support the this groups main speakers.	The use of this parameter depends on your specific speaker grouping. When adjusting this setting, it's important to consider the F-support High parameter in each group to achieve the desired effect.	On	On or Off
Support level	Controls the amount of support the speakers in this groups gives to the main speaker. -1 dB will contribute a minimal amount, -24 dB will contribute a maximal amount.	Support level determines how heavily a speaker is used by the algorithm. To balance speaker usage and avoid distortion, change the support level values according to the position of speakers in the room. This helps in achieving the desired output without overloading specific speakers.	-18 dB	-24 to -1 dB
F-support Low	Controls the lowest frequency of the Support Range, where the support speakers in this group will contribute to the selected main speaker group. It has the same value as the low end of the corresponding Support Range slider.	F-support Low defines the lowest frequency at which a speaker can support another speaker. This parameter helps prevent small speakers from overloading with bass they're not designed to handle. Keep in mind that setting this value low doesn't guarantee the speaker will be used at that low frequency.	Detected range	20 Hz to Fsiso
F-support High	Controls the highest frequency of the Support Range, where the support speakers in this group will contribute to the selected main speaker group. It has the same value as the high end of the corresponding Support Range slider.	F-support High sets the highest frequency at which a speaker can support another speaker. For subwoofers, this value acts like a lowpass filter applied to the input signal. For full-range speakers, this parameter can be adjusted based on speaker position to prevent revealing support speakers in the final result.	Detected range	F-support Low to Fsiso

Comment on Grouping

Active Room Treatment groups are designed to simplify parameter settings for multiple speakers. Group speakers with similar parameters together for easier management.

For example, in a 2.2 system, you could use two or three groups:

- Two groups: Combine Left and Right speakers in one group, and Subwoofers in the second group if you want to use the subwoofers the same way.
- Three groups: Combine Left and Right speakers in one group, and place each subwoofer in separate groups if you want to control their interaction with front speakers independently.

For larger systems, the concept remains the same. Group speakers based on their usage and position, considering speaker location's impact on settings like Fsiso and F-support High. Choose groups that make the most sense for your system and listening position.