



Smaart Suite Quick Start Guide

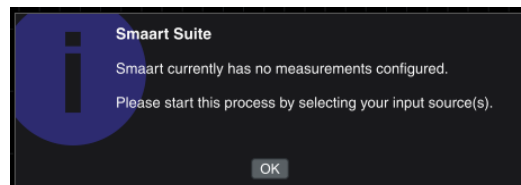
This is a step-by-step guide to initial input, output, and measurement configuration using the Real Time Mode, IR Mode, and SPL Modes of Smaart Suite. To follow along with this guide, either launch Smaart for the first time, or head to the Config menu > Manage Configurations > Restore Defaults.

For licensing help and registration instructions, please refer to the Smaart Licensing Help Guide. The Smaart Licensing Help Guide is available at support.rationalacoustics.com under the [Smaart Suite Documentation](#) category.

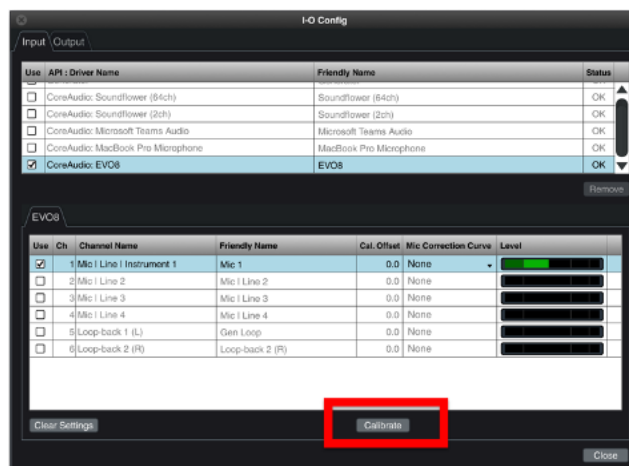
Before you start, we recommend connecting a recording interface to your computer, with a measurement microphone connected to a preamp with phantom power, as well as sending an output of your interface to a speaker system. You will also need access to an SPL calibrator. By the time you are through with this guide, you will be able to create single channel spectrum (RTA & Spectrograph), dual channel transfer function, impulse response, and SPL data.

Input Configuration

1. After launching Smaart for the first time or restoring defaults, you will be prompted to select your input sources. Select OK and continue to the I-O Config dialog.

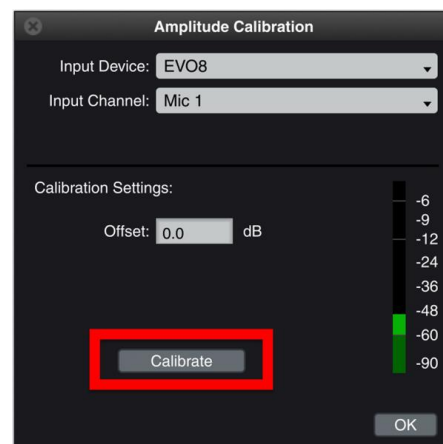


2. In the upper portion of the *Input* tab of I-O config, select the *device* you will be using for measurement. In this example: CoreAudio: EVO8. In the lower portion of this window, select the *input(s)* you wish to use for measurement. We have selected *Mic|Line|Instrument 1* (measurement microphone) and *Loop-back 1 (L)* which is the Audient EVO 8's internal loop feature. This channel will be used for Smaart's signal generator as well as our reference input for transfer function engines. It is helpful to also give your inputs a *Friendly Name* as that is what they will display as in Smaart – in this case, *Mic 1* and *Gen Loop*.



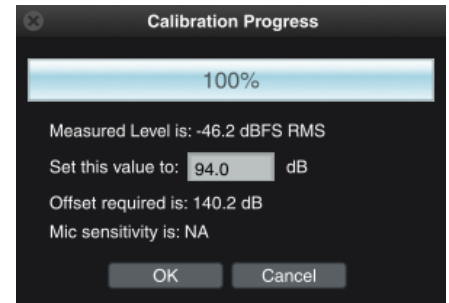
Note: *Mic Correction Curves* are and SPL Calibration are not required for Real Time Mode's spectrum and transfer function measurement.

3. Select the *Calibrate* button to open the *Amplitude Calibration* dialog and verify that the *Input Device* and *Input Channel* match what you wish to calibrate, so it is highlighted in blue, then select "Calibrate." With your SPL calibrator on and fitted to your measurement microphone, adjust the preamp to a conservative level that will leave enough headroom so the input will not clip during the show. For concert level measurement, we recommend that your measurement rig be able to accommodate at least 135-140 dB peaks.



Note: Adding the approximate level of the input meter in the *Amplitude Calibration* dialog as a positive value to the level setting of your SPL calibrator will provide an estimation of the resultant max SPL capability. For ex: 48 dB FS + 94 dB SPL = 142.

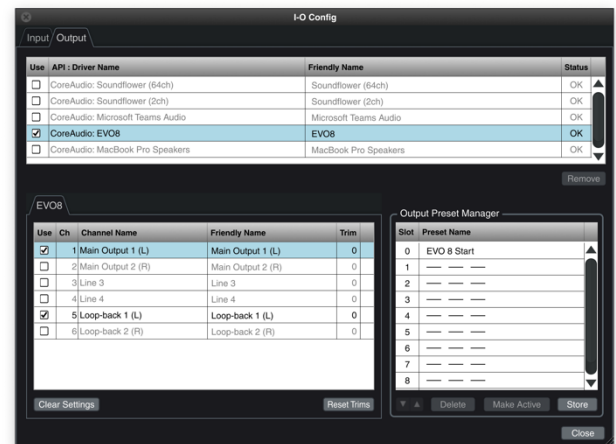
4. Select the calibrate button. A new *Calibration Progress* dialog will appear. Once the progress bar has filled to 100% enter the level your calibrator is producing in the *Set this value to* field and Select *Ok* to close out of the window. If you wish you calibrate another input, use the dropdowns in the amplitude calibration window to select another input and repeat this step.



Note: Once you have calibrated your input for SPL, any changes to that inputs preamp will negate that calibration value. If your device is not integrated with Smaart for gain tracking, then it is recommended that you finish the tasks that don't require SPL calibration before steps 3 & 4.

5. Navigate to the *Output* tab of I-O Config to route the signal generator outputs. For this example we are using the Audient EVO 8's *Main Output 1 (L)* to physically patch and send signal to our speaker system. We are also routing signal to *Loop-back 1 (L)* as our reference input.

If your interface does not support internal loop-back, simply use a short patch cable to physical wire one of the interface outputs to one of the interface inputs. Close the I-O Config dialog.



Real Time Mode Configuration

1. You will now be presented with Smaart's Real Time Mode GUI, with spectrum engines automatically created and placed in the control bar on the right most portion of the interface.

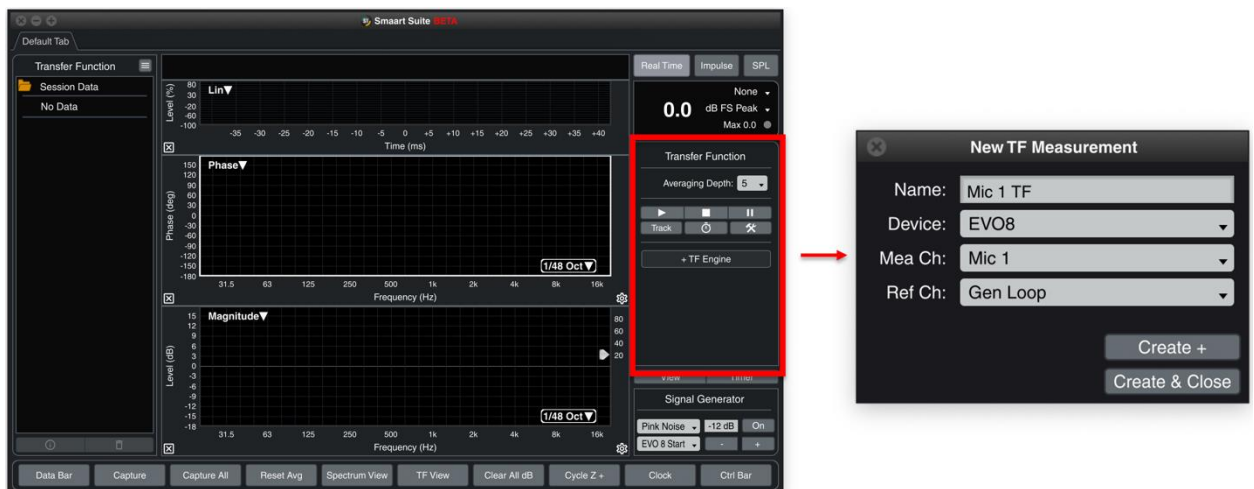
Select the triangle *Run* buttons to activate the spectrum engines and begin plotting data on the screen.

Turn on the signal generator by pressing the hot-key [G], or selecting the *On* button in the signal generator control block in the bottom right of the GUI. Adjust the signal

generator output/speaker level until you reach your desired loudness. In combination with the interface preamps, we recommend targeting -12 dB FS on Smaart's signal meters – the point where green turns to yellow.



- Next, configure Smaart for transfer function measurement. Navigate to transfer function view using the hot-key [T] or selecting *TF View* in the command bar. You will be presented with the default transfer function view – consisting of a 3-graph plot area with Live IR, Phase, and Magnitude. Unlike spectrum engines, transfer function engines are not automatically configured. Select on the *+ TF Engine* button in the TF control bar to configure a transfer function engine.



Enter a name for the engine, ensure that the correct device is selected, and assign your measurement and reference channels. In this example, the measurement input is the measurement microphone, and the reference input is the signal generator loop-back. If you have multiple inputs for multiple transfer function engines, select *Create +* to configure more transfer function engines. Otherwise, select *Create & Close* to exit the *New TF Configuration* dialog.

- Turn on the signal generator again to begin generating noise through your audio system and select the triangular *Run* button inside the TF engine. Select the *Track* button to apply reference delay to the measurement, compensating for system

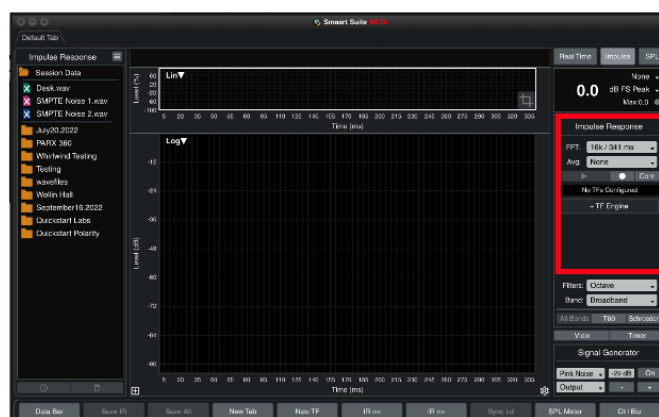
latency.



4. If you have multiple transfer function measurement engines, you can create a *Live TF Average* by using the hot-key [Shift + Cmd/Ctrl + T] or navigating to the Config Menu > *New TF Avg...* Follow the prompts in the dialog to name the engine and select the TF engine contributors.

IR Mode Configuration

1. Select *Impulse* in the upper right corner of the interface. You will now be presented with Smaart's Impulse Response mode GUI. The transfer function engine(s) that you configured in Real Time Mode will automatically appear in the IR Mode control bar. If you have not configured a transfer function measurement for IR Mode, you may do so by selecting the *+TF Engine* button.



New TF Measurement

Name: Mic TF

Device: EVO8

Mea Ch: Mic | Line | Instrument 1

Ref Ch: Loop-back 1 (L)

Create +

Create & Close

Enter a name for your engine and ensure that the correct audio device is selected, then assign the measurement and reference channels.

Note: configured transfer function engines are required for both single channel and dual channel IR measurement. When you enable the *Record* button and run the measurement, the reference channel is simply ignored and a .wav file is recorded directly from the measurement input.

2. Turn on the signal generator output noise through your audio system and select the circular *Track* button inside the measurement engine to apply reference delay to the measurement, compensating for system latency. Use the triangle *Run* button in the measurement engine control area to calculate an impulse response measurement.

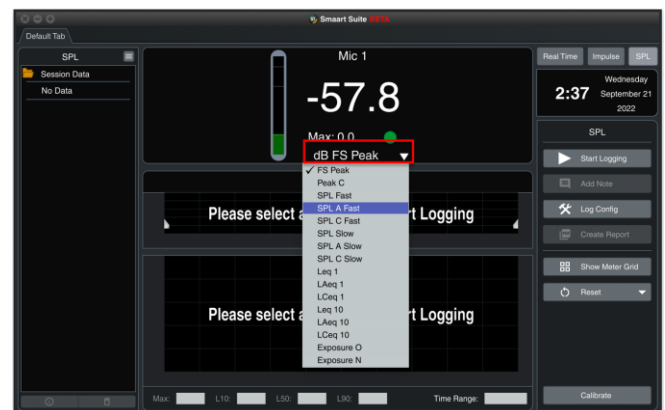


SPL Mode Configuration

1. Select *SPL Mode* using the radio buttons in the upper right corner of the interface.



Your calibrated input(s) will automatically display in the top area of the interface. Use the drop-down shown here to change the SPL value displayed.

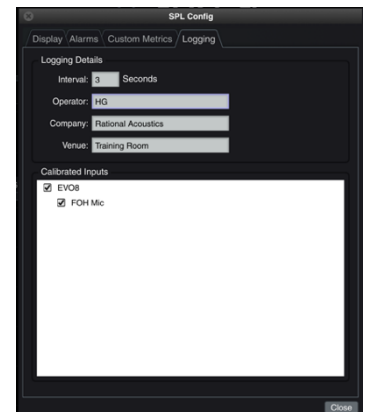


- To create additional free-floating SPL meters, select *Show Meter Grid Config* in the SPL control bar and use the hamburger menu in the upper right of the new SPL meter *Enter Meter Grid Config*. From here you can add or subtract meters non-destructively on-the-fly. Use the X and Y axis +/- buttons to add or remove meters. Return to the hamburger menu and select *Exit Meter Grid Config* to return the meters to their normal state.



- To log SPL data, start by selecting the Hammer & Wrench *Log Config* button in the SPL control bar and enter the necessary details for your event, chose the calibrated inputs you wish to log.

Note: this dialog has additional tabs to configure traffic lights, SPL Alarms, as well as *Custom Metrics* beyond the default 16 selections.



- Select the *Start Logging* button in the control bar to begin collecting SPL data. To view additional metrics, use the second dropdown in the top right corner of either plot.

