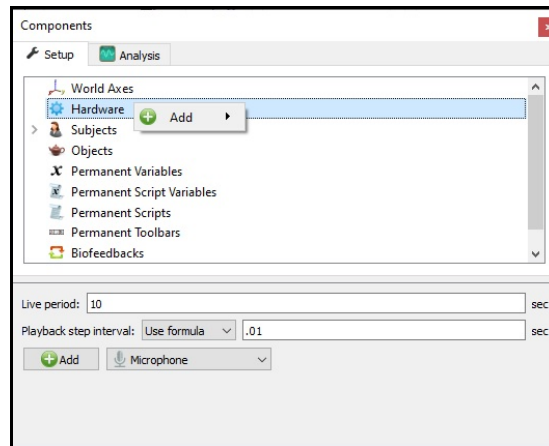


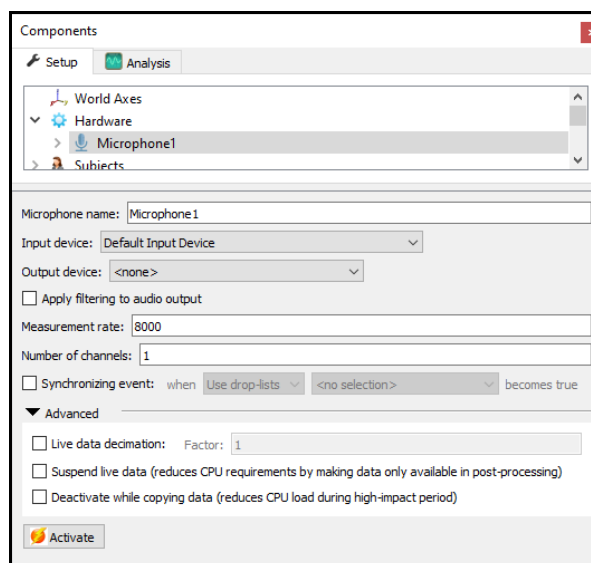
The MotionMonitor xGen Hardware Guide: Microphone

This document reviews the procedures for configuring a Microphone for capturing audio signals in The MotionMonitor xGen. The audio device must be recognized by your Windows OS for The MotionMonitor xGen to detect the device.

1. From the Hardware node in the Setup Components window add the Microphone through the Add button at the bottom of the Components window or right-click on the Hardware node to add the device.



2. From the Microphone parameters panel, specify the name for your Microphone and the Input and Output devices. The name will be used to reference the device and its data within the software. The drop-lists will be populated with available options for the computer for recording and playing back audio, respectively. The Output device selection can be modified after an Activity has been recorded and can be set to None, to prevent any audio from playing back. Options for the Output device will also update if the Activity is transferred to a different computer from where the data were collected. The measurement rate should be specified to capture the desired audio frequency. The number of channels to capture from the device can also be specified if there are multiple audio channels.

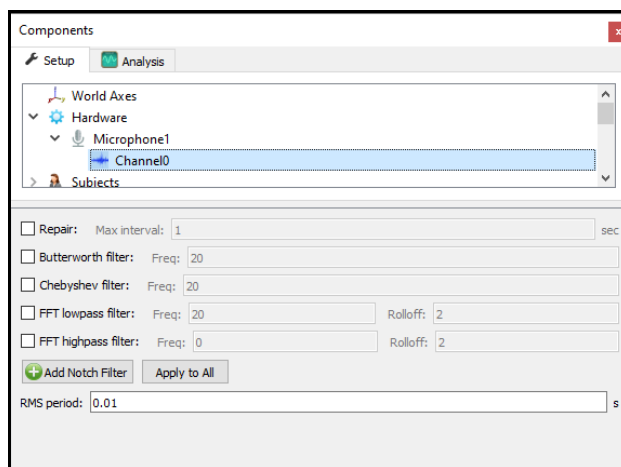


The "Apply filtering to audio output" check box will determine whether the smoothing parameters for the microphone channels are applied to the audio that plays on the Output device and when exporting an audio file.

The "Live Decimation factor" checkbox provides a means for limiting the computer resources being used while running in the Live Window by displaying only a fraction of captured data points in real-time. When this feature is disabled, real-time plots may not be able to be displayed. This does not affect the measurement rate as data will still be captured at its full resolution. If visualizing or utilizing the data in real-time is not desired, the "Suspend live data" checkbox will suppress any data from the device from being displayed in graphs or used in any equations. However, the data would immediately be available and presented in a recorded activity.

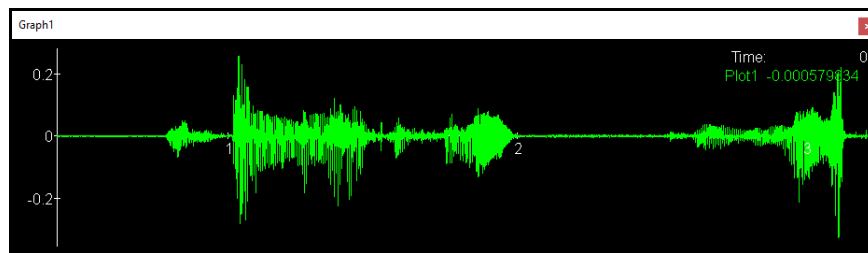
The "Deactivate while copying data" check box will reduce the CPU load while copying data. This setting is highly recommended for users who are collecting longer trials or higher measurement rates. Note that once the data has finished copying into an activity file the Microphone system will reactivate. Then, you may interact with the new activity or continue with a recording. This functionality will persist for any activity that is opened while the Microphone device is activated. If you are reviewing several activities, you may choose to deactivate the Microphone until you are ready to collect data again.

3. Smoothing parameters can be enabled or disabled at any time through the nodes for the Microphone Channels in the Setup Components tab, as shown below. Depending on whether the "Apply filtering to audio output" check box is enabled in the Microphone parameters panel will determine if filtering is applied to the audio when it is played on the output device and exported.



4. Once the device has been activated, data is available within the system and can be displayed in graphs or used in formulas. A sample data definition for the Voltage for Channel 0 is displayed below.

RMS Voltage, Voltage, and RawVoltage can be selected from the drop-list. RMS voltage calculates the RMS for the defined variable using the smoothing settings enabled for that Channel under the Setup Components Hardware node. Voltage will report the voltage including any smoothing, if enabled. RawVoltage will report the raw voltage irrespective if any smoothing applied.



5. The microphone time series and frequency domain data may be included in any Report export. Audio data may be exported to a ".wav" file type from within an Activity using the "Export" button in the parameters panel for the Microphone device. The ability to export the .wav is only available from within an activity and not the live workspace. The exported data can be either filtered or unfiltered, depending on whether the "Apply filtering to audio output" checkbox is enabled in the Microphone parameters panel. Note that if the microphone has more than one channel, all the channels will be written to the same file, resulting in an audio file with stereophonic sound.

The .wav file will be saved under the current User/Export folder unless the pathway is changed.