Contents

US Training Days

Our US training days will take place on November 13th and 14th, just prior to the Society for Neuroscience annual meeting, in Washington, DC.

Sign up and learn how to make the best use of Spike2 and Signal to save time and increase productivity.

Who should attend?

- Users who want to save time and become more efficient with CED systems
- New users or those new to a lab that uses CED systems
- Those considering the purchase of a CED data acquisition and analysis system

Future meetings and events

11th Annual Scottish Neuroscience Group Meeting
University of Glasgow,
Glasgow,
UK
August 29th 2014

Oxford Breathing Conference
Grace Hotel,
Sydney,
Australia
October 26th – 31st 2014

Society for Neuroscience 44th Annual Meeting
Washington, DC
USA
November 15th - 19th 2013
Exhibit dates: November 16th – 19th 2013

Latest versions of Spike2 and Signal

Spike2	Released	Signal	Released
Spike2 version 8.02c	07/14	Signal version 6.02	08/14
Spike2 version 7.14	07/14	Signal version 5.10	03/14
Spike2 version 6.17	10/12	Signal version 4.11	02/14
Spike2 demo	07/14	Signal demo	08/14

Script spotlight

Wanting to automate a repetitive task is a common reason for users to first investigate the script language, and one of the requirements that often comes up is the need to import data files that have been recorded with other systems. Often the user will have a large number of these files which would make importing 'by hand', one at a time, a rather tedious operation. You could always hand this task over to your grad student but the more efficient (not to mention kinder) approach would be to use a script that will automatically import a whole directory of files at the click of a button.

The example script, BatchImport.s2s, will import all Axon .abf files from a directory selected by the user. The imported data is then saved to the same directory in Spike2 .smr format. This script code can also be used in Signal; just copy and paste the script code into a Signal script file to import files into .cfs format. Axon do not currently supply a 64-bit version of their file format, so the Axon file importer is only available in 32-bit versions of Spike2 and Signal.

You can change the type of files to import by replacing the value of the `fileExt$` variable in the script code (currently set to "`*.abf`") with the file format you require. A complete list of supported file formats can be found in the on-line help.

"I have a wireless sensor on an exercise bike that records power usage, and I'd like to add this data to my Spike2 recordings of respiration and blood pressure from the cycling subject. The sensor uses ANT+ wireless communication to send data to the host PC. Is there any way to import or save this data to my Spike2 file?"

Spike2 supports the use of Talkers, which are custom software modules that act as an interface between 3rd party data capture devices and Spike2. The new ANT+ talker interface allows Spike2 to record measurements from devices that use ANT+ wireless communication technology.

The ANT+ talker for Spike2 is compatible with any device that uses an ANT+ profile. These profiles include:

- Bicycle speed/power/cadence/calories
- Running speed/power/cadence/calories
- Heart Rate
- Muscle Oxygen
- Temperature

A full list of profiles can be found on the ANT+ website.

A partial list of devices that use ANT+ can also be found here.

An ANT+ device will take a series of relevant measurements and transmit the data using one of these profiles. The transmission rate depends on the profile, but is generally around 4Hz for most sports science purposes. During sampling, the selected Spike2 ANT+ talker interface monitors the device and, every time the device sends a message, Spike2 saves a RealMark containing the measurement values at that time . For example, the Bicycle Power interface saves a RealMark containing five values corresponding to cadence (RPM), power (Watts), angular velocity (Rad/s), torque (Newtons) and energy (KCals), and has been tested using Garmin vector pedals.

If you are interested in using Spike2 to record data from a device that uses ANT+ wireless technology, please contact us for more details.

Scripts: Spike2

"I am analyzing EEG data and would like to generate phase-plane trajectory plots as a measure of the dynamic activity"

The script, PhasePlanePlot.s2s, generates a phase-plane plot in an XY view based on waveform activity in a user-defined time range which can be set using cursors. The plot updates dynamically so the user can click and drag the cursor positions to update the display.
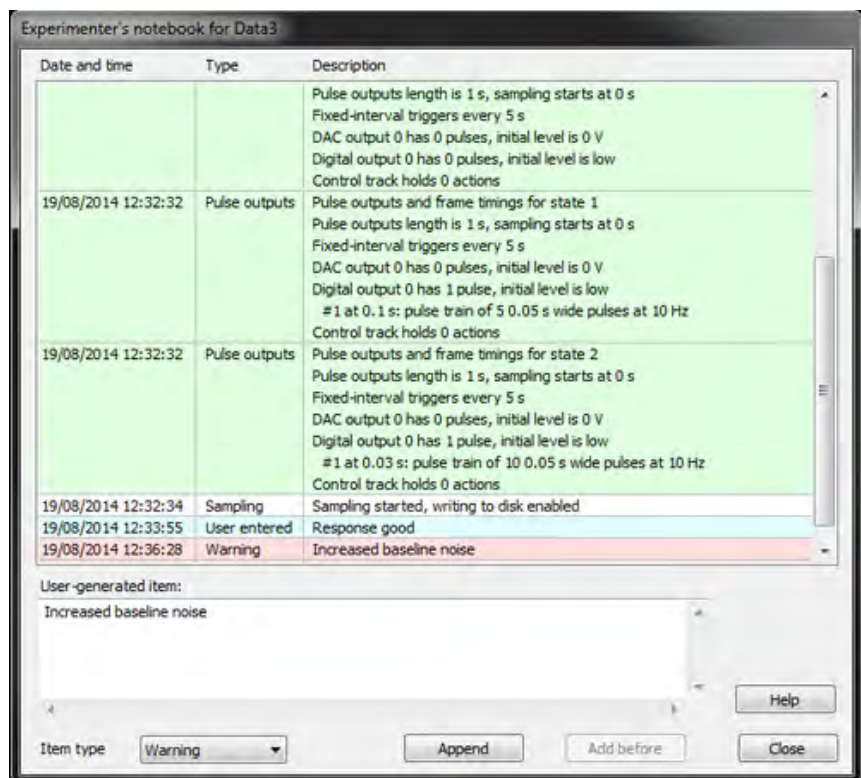
Signal

"When reviewing or analysing data files, it would be useful to be able to see the settings, and any changes, that were applied during the recording."

Signal version 6 creates an Experimenter's notebook for each data file. This notebook displays a log of timed and dated notes, automatically generated by Signal, to record sampling configuration settings as well as any modifications, such as filtering or processing, that have been applied to the data by the user. This list is held in the .sgcx resource file for the data document and can be displayed from the `View` menu or by using the `Ctrl+A` keyboard shortcut. Users can also add their own notes to the notebook during sampling or when analysing the data off-line. Notes can be selected and deselected by clicking on them, double-clicking on a note that was generated during sampling will display the frame that corresponds to the time the note was added.

The different types of note (Sampling related, online/offline actions and user-generated) are displayed using different background colours. The text box is used to enter your own notes which can then be classified with the `Item` type drop-down list. The `Append` button adds your user generated note to the end of the list, the `Add before` option will place the new note before any currently selected entry in the notebook window.

Notebook items can be printed, copied as text or copied ready for import to a spreadsheet package by right-clicking in the notebook window.

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Scripts: Signal

"Is there any way to replay a Signal data file? This would be very useful for presentations."

The script, SigRerun.sgs, is an example script that can be used to replay a Signal data file, along with any associated memory views or trend plots, on a frame by frame basis. Each frame is overdrawn to show the changes in data over the course of the recording.

Did you know...?

The Display Trigger function in Spike2, available from the View menu Trigger/Overdraw option, can be used to set-up an oscilloscope-type display of incoming data. This can be shown in a new window using the Duplicate command from the Window menu, giving a dual display of the continuous recording alongside the oscilloscope showing each instance of response data.

Recent Questions

"We would like to use multiple monitors during an experiment. Ideally one screen would be assigned to the incoming data, a second to online averaging and a third to subject feedback."

Both Spike2 and Signal support multiple monitor setups. The Window() script command allows you to position the main application window in relation to multiple monitors and other window types relative to monitors or the position of the main application window. You can find further details and some example code in the on-line help page of the Window() command. Most PC's have up to two available monitor outputs so you may find that a system with multiple graphics cards is required to use more than two monitors simultaneously.

CED User forums

Try the CED Forums bulletin board for software and hardware support

If you have any comments about the newsletter format and content, or wish to unsubscribe from the mailing list for this newsletter, please notify sales@ced.co.uk.

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