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News

Signal version 4

We are pleased to announce the release of Signal version 4. A list of the new features is included in the Signal section below. We will be writing to all registered users of Signal with upgrade details.

We support running version 4 under Windows 98SE, ME, NT2000, XP and Vista. It will run on Windows 95, but we do not support this as we no longer maintain a Windows 95 system. If you have a choice of operating system, we would recommend that you use Windows XP.

The release of version 4 means that we will not be adding significant new features to version 3, but we will continue to fix bugs.

CED at Society for Neuroscience 2007

We will be exhibiting at the Society for Neuroscience meeting in San Diego as well as running our Spike2 and Signal training courses on Thursday 1st and Friday 2nd of November. For those of you who will not see us at the training days, we hope to see you at booth 1620 during the course of the meeting.

Meetings and events

Society for Neuroscience 2007

Booth 1620
San Diego, California
November 3rd – 7th 2007

American Heart Association - Scientific Sessions

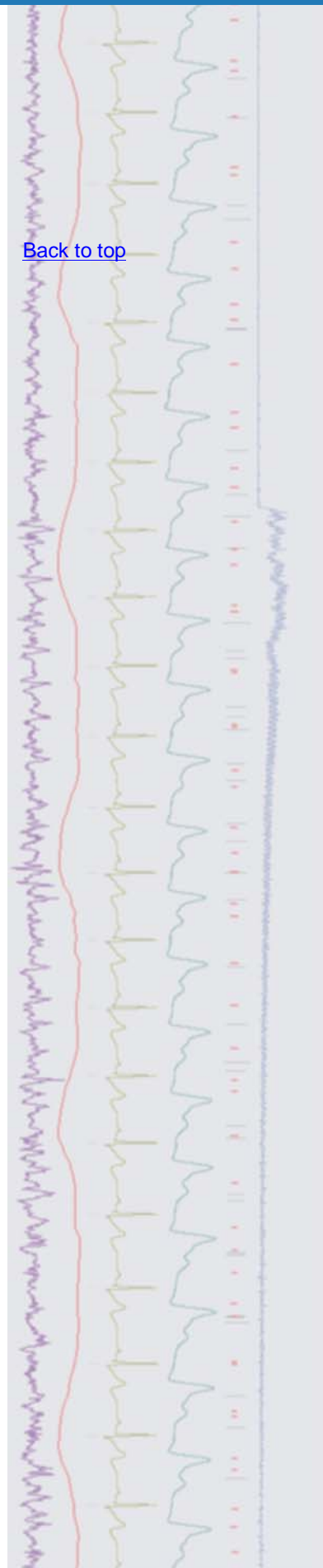
Booth 1835
Orlando, Florida
November 3rd – 6th 2007

Latest versions of Spike2 and Signal

Updates for Spike2 and Signal are available from the [CED downloads](#) page, or by clicking on the links in the table below. Demonstration versions of the latest software are also available.

Spike2 downloads	Signal downloads
Spike2 version 6.05	Signal version 3.10
Spike2 version 5.19	Signal version 2.16
Spike2 demo	Signal demo

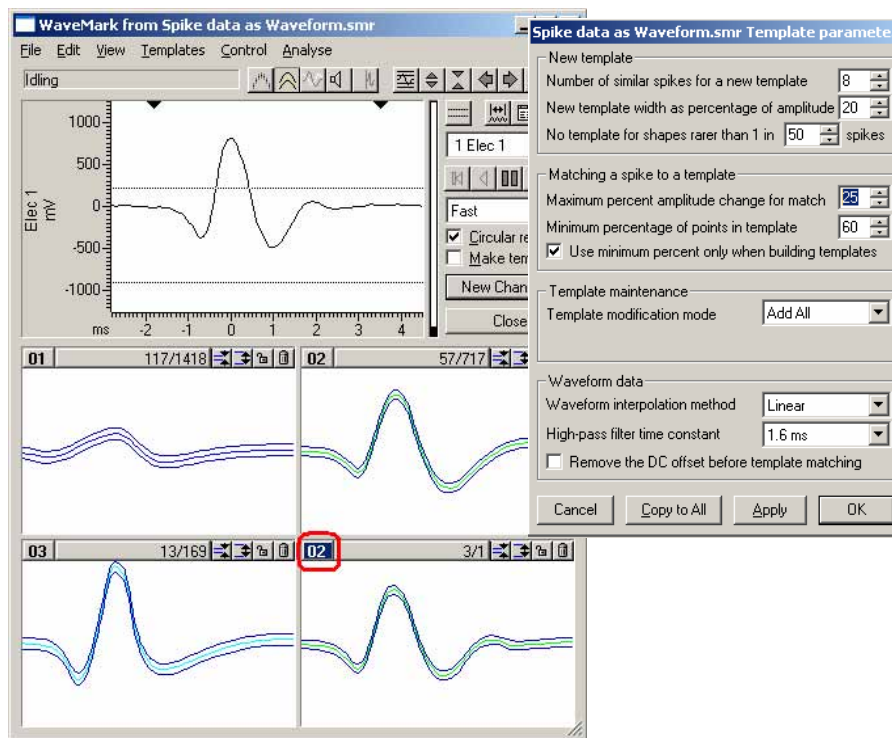
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Spike2

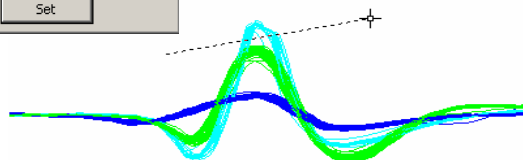
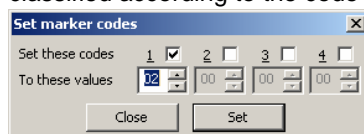
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- Q. I have recently started using the spike sorting features in Spike2, which works well with my nerve recordings, where the spikes seem to stay constant in amplitude. However some of my future recordings will be based on drug responses where the spike amplitude of individual units will probably change over time. How does Spike2 deal with this kind of data?
- A. There are a number of settings that control the formation and matching of spikes to templates which can be accessed from the Template parameters menu item in the WaveMark window. Spike2 can scale each captured spike up and down by the value specified in the Maximum percent amplitude change for match field while matching spikes to existing templates, or track the shape of the spike by modifying the template for each spike added. This can be effective for slow or gradual changes in spike amplitude. If the changes in spike amplitude are sudden then the better option is to allow Spike2 to generate multiple templates for the spike and then simply change the code of the multiple templates to match the original template. You can change the code of a template simply by double-clicking on the corresponding number (circled below) in the template area.



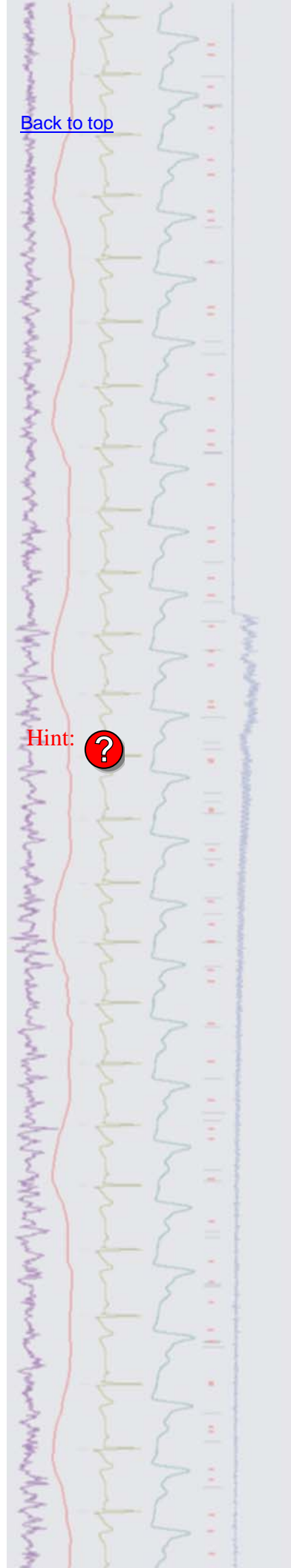
WaveMark and Template parameters dialog

You can also change template codes interactively if the spikes are displayed in Overdrawn WM mode by holding down **Alt+Ctrl** and left-clicking the mouse to draw a line. Any spike that crosses the line in the display can then be re-classified according to the code entered in the dialog.



Editing marker codes in Overdrawn WaveMark mode

Hint: ?



Signal

Q. Can you give me a description of some of the new features that will be available in Signal version 4?

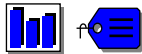
A. Version 4 is the latest release of Signal and includes many new and improved features.

These include:

- A new measurements system allows active cursors to iterate through multiple features in a single frame
- Gap-free sampling mode allows continuous sampling across multiple frames
- Variable sweep points per frame controlled by multiple states
- Interactive IIR digital filtering
- SCAN method of idealised trace generation – based on an algorithm developed by Professor David Colquhoun at University College London - now includes incremental processing of trace formation
- New dialog allows customization of the keyboard shortcuts used to control the idealised trace editor dialog
- Maximum likelihood exponential fits for Open/Closed time histograms
- New script editor with code folding, auto formatting, auto complete and call tips

Files created by previous versions of Signal are fully compatible with version 4. As with previous versions, future revisions of version 4 will be freely available to download from our website for all registered version 4 users.

Scripts: **Spike2**



Q. We are recording EEG activity and would like to automatically monitor and detect responses to drug application based on the total power FFT between 5Hz and 40Hz of the EEG waveform. Before drug application we would like to determine a baseline threshold for the total power content of the EEG based on the FFT result from the last 30 seconds of data, split up into sections of n seconds (determined by the user). The FFT should be performed on each section of data and the maximum value detected should be set as the threshold level. Once the drug has been applied we would like to monitor the FFT of the incoming data (again for each time section as previously specified) and output a pulse once the threshold activity has been exceeded. The monitoring of the FFT content should continue until the activity drops below the threshold, when another output pulse should be triggered.

A. The attached script `FFTMonitor.s2s` along with the sequence file `FFTMonitor.pls`, is an example of monitoring incoming data and responding to changes. The sequence file should be loaded into your existing sampling configuration before running the script. Once sampling has started, the script can determine a threshold value for the total power between 5Hz and 40Hz based on the last 30 seconds of data, split into sections. The user can enter the time of the individual sections and the settings for the FFT in a dialog. The script can then monitor the incoming data based on this threshold level. Once the total power exceeds the threshold, a pulse is output from the digital output 0 port of the 1401. When the signal drops back below the threshold level a second pulse is output from digital output 1. The user can decide when to determine the threshold value and when to start monitoring the incoming waveform data using the script toolbar.

Scripts: **Signal**



Q. Is there any way to take a measurement of the area over baseline where the baseline can be adjusted interactively?

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Right-click the script icon and save to disk.

If you have any problems opening the embedded scripts in this newsletter please let us know.

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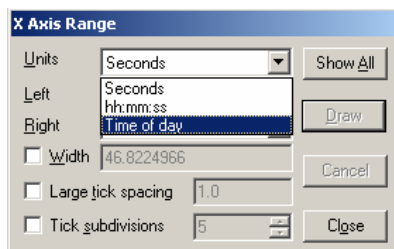
Right-click the script icon and save to disk.

If you have any problems opening the embedded scripts in this newsletter

- A. The attached script, `AreaOverBaseline.sgs`, is an example of using an idle routine to update measurements based on changes in cursor positions. It allows the user to position a horizontal cursor at the baseline position and two vertical cursors around the area to measure. The area over baseline measurement is then displayed in the script toolbar and updated whenever the baseline or start and end position are changed.

Did you know...?

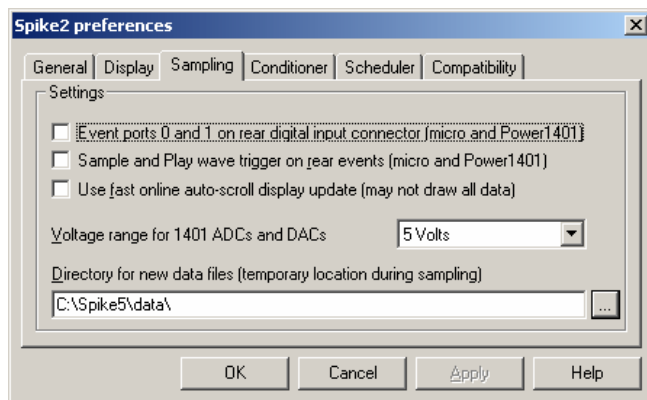
You can display X axis units for Spike2 data files in seconds, hours, minutes and seconds or as time of day relative to the operating system clock from the X Axis Range dialog.



X Axis Range dialog

Recent questions

- Q. Is there any way to specify where the temporary data file is located when sampling with Spike2? I have a separate physical drive that I'd like to use explicitly for capture of large data files, rather than using the C:\ drive.
- A. You can set the directory path for the temporary data file from the Edit Preferences menu in Spike2. The Sampling tab of the dialog lets you browse to a location or enter the location as a text string. For efficient data transfer this should always be a physical hard drive on the host PC, rather than a network drive.



Edit preferences menu

User group

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