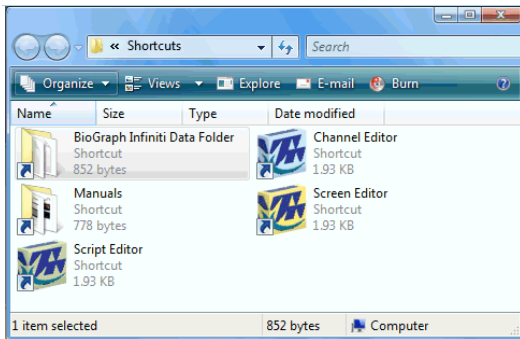


New Features

BioGraph Infiniti version 5.0

Overall Improvements

Enhancing Compatibility with Windows Vista



BioGraph's overall compatibility with Microsoft's Windows Vista was improved. Changes have been made to its installation structure and key file locations. All user-editable files - session data, Suite files and supporting multimedia files - have been moved to the "Program Data" folder ("Application Data" folder in Windows XP). A desktop shortcut, called "BioGraph Infiniti Data Folder", was added to the BioGraph Infiniti Docs and Editors Program Group to give easy access to these folders.

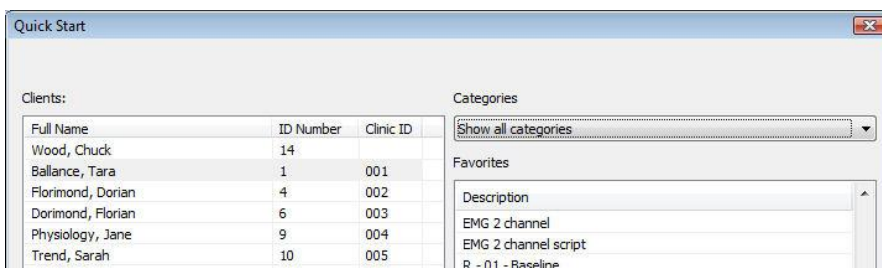
Quick and Easy Sessions

Quick Start button and Favorite Presets



The new Quick Start and Favorite presets features allow you to run pre-defined session with a minimum of clicks. You can create your own Favorites or use those that are included as part of the Thought Technology Suites, such as the EEG or Physiology Suites.

A Favorite preset includes all the steps associated with running a session as well as all the settings that it requires for recording, reviewing and reporting. If you need to be running the same session many times a day, setting it up as a favorite allows you to launch a session from your desktop with minimal configuration required.

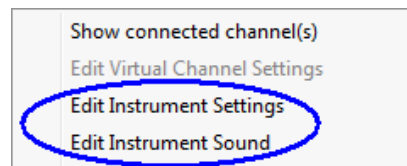
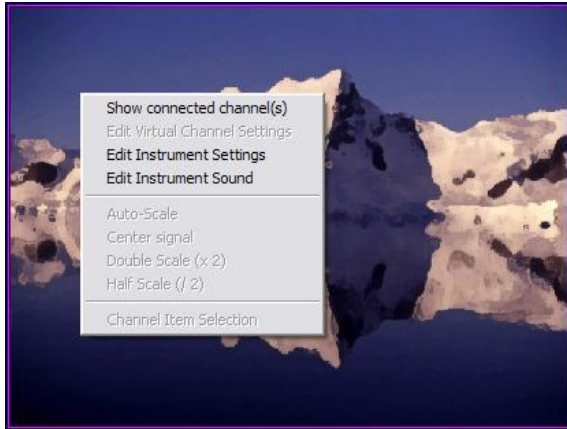


A Favorites editor allows users to create, edit and manage Favorites.

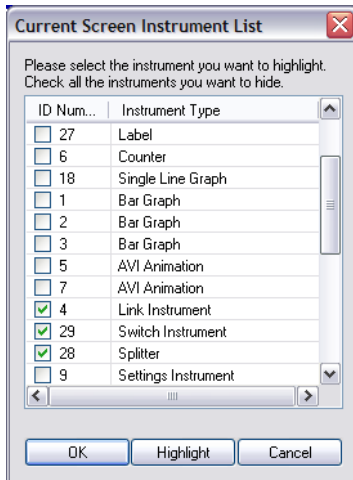
Simpler Editing Functions (Screen Editor "Lite" is obsolete)

Animation and Sound

With version 5.0, the Screen Editor "Lite" is made obsolete as more right-click editing options are added to BioGraph. Users can now access the screen instrument settings and modify animation and sound feedback options directly from the recording screen by simple right-click, with no switching to the editor. New capabilities also include modifying threshold options, access to basic screen logic and editing the text in label instruments.

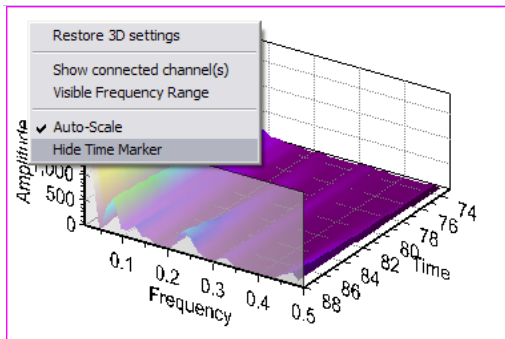


Show/Hide Invisible Instruments



Intermediate and advanced users are able to modify the high-level settings of a feedback screen directly from within BioGraph by revealing usually hidden instruments like the MIDI Splitter, Switch Control and Link instruments. The Link instrument gives you direct access to a screen's logic control settings. With this new feature, the Boolean logic of a screen can be temporarily modified and the Switch instrument's Normally ON or OFF state can be toggled without switching to the screen editor.

3D Spectrum instrument



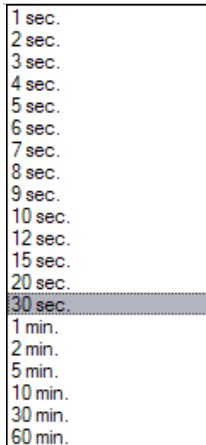
An option to "Hide Time Marker" was added to the 3D instrument's right-click menu to facilitate reviewing. When selected, this function removes the translucent rectangle from the selected instrument.

DVD Instrument



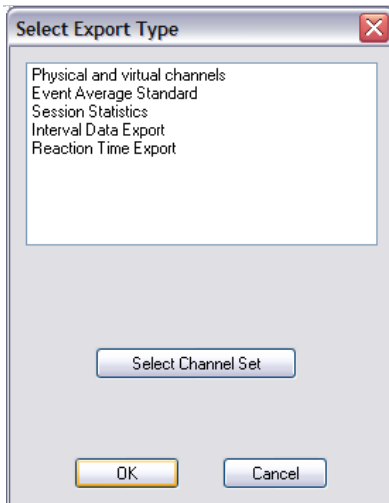
BioGraph 5.0 will automatically place a Bookmark when a session is ended in the middle of a movie and will re-start the movie at the same place during the next session. BioGraph maintains one bookmark per client and per DVD movie. The bookmark is deleted if a different DVD is used.

More Time Scale Options



New Time Frame options were added for 3, 4, 6, 7, 8, 9, 12, 15 and 20 seconds. These scale options are useful for EMG re-education protocols and any script with activities of different durations.

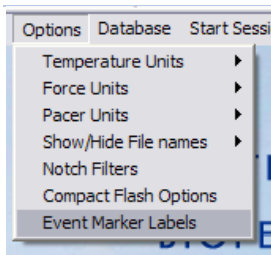
BioGraph Database: New Data Export Options



New data export options have been added:

- Interval Data Export: Allows exporting periodic values with no redundancy caused by oversampling. This is useful for BVP & Respiration Amplitude, IBI from EKG or BVP, Respiration Period, HR max-min & Pulse Transit Time.
- Reaction Time Export: Specific function for reaction time data channels.

Accessing Marker Label Table from Main screen

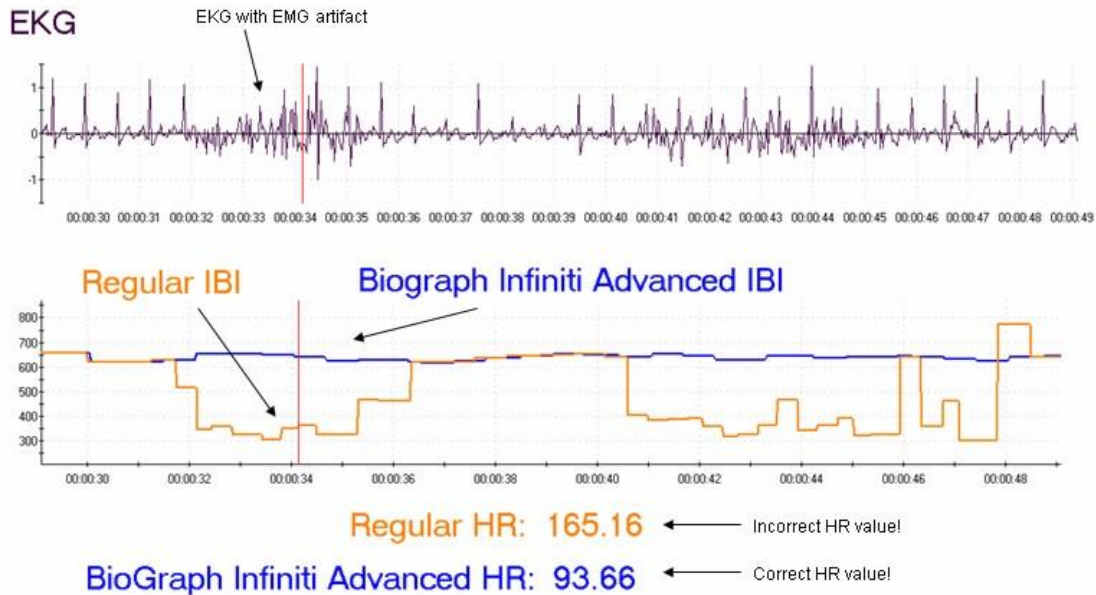


The Event Marker Label table can be accessed from the Main BioGraph screen. This makes editing label names easier since the user isn't required to start recording a session.

Physiology Applications

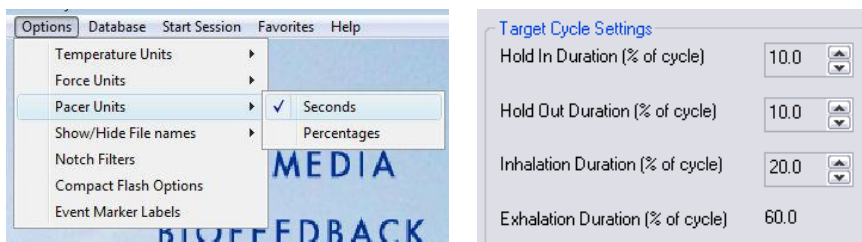
Advanced IBI from EKG Algorithm

In previous versions of BioGraph, the Channel Set Editor incorporated two IBI from EKG algorithms: Basic and Advanced Method. In version 5.0, there is only one IBI from EKG algorithm with both methods available as user-selectable options within this algorithm. The advanced method provides more accurate R spike detection and minimises the number of artefacts caused by missed or extra beats.



Percent or Time Based Respiration Pacer Units

It is now possible to display the respiration cycle timing in seconds or % of cycle. This option is globally selected from the Options menu, in the Main Screen. When selected, this option shows the pacer timing information (in, out, hold in and hold out) as a percentage of the total cycle duration.



New Features for Developers

Infiniti Developer Tools version 5.0

For EEG Applications

Improved Z-Score Feedback Options

BioGraph is now able to perform z-score based neurofeedback with 2 or 4 channels, depending on the NeuroGuide DLL option that is installed on your system, and give feedback based on a “percentage of z-score items that are within a specified range” computation. The z-score processing algorithm lets you set the range by specifying the low and high threshold values of your choice and obtain a percentage output that you can use for feedback.

Low Threshold (TH Low)	<input type="text" value="-1.0"/>
High Threshold (TH High)	<input type="text" value="1.0"/>

The algorithm settings allow you to check and uncheck groups of metrics to include in the calculation, including Absolute Power, Relative Power, Power Ratio, Coherence, Phase Difference and Amplitude Asymmetry.

NeuroGuide z-score Processing Settings

Absolute Power:	<input checked="" type="checkbox"/> EL 1	<input checked="" type="checkbox"/> EL 2	<input checked="" type="checkbox"/> EL 3	<input checked="" type="checkbox"/> EL 4		
Relative Power:	<input type="checkbox"/> EL 1	<input type="checkbox"/> EL 2	<input type="checkbox"/> EL 3	<input type="checkbox"/> EL 4		
Power Ratio:	<input type="checkbox"/> EL 1	<input type="checkbox"/> EL 2	<input type="checkbox"/> EL 3	<input type="checkbox"/> EL 4		
Coherence:	<input type="checkbox"/> Pair 1-2	<input type="checkbox"/> Pair 1-3	<input type="checkbox"/> Pair 1-4	<input type="checkbox"/> Pair 2-3	<input type="checkbox"/> Pair 2-4	<input type="checkbox"/> Pair 3-4
Phase Difference:	<input type="checkbox"/> Pair 1-2	<input type="checkbox"/> Pair 1-3	<input type="checkbox"/> Pair 1-4	<input type="checkbox"/> Pair 2-3	<input type="checkbox"/> Pair 2-4	<input type="checkbox"/> Pair 3-4
Amplitude Asymmetry:	<input checked="" type="checkbox"/> Pair 1-2	<input checked="" type="checkbox"/> Pair 1-3	<input checked="" type="checkbox"/> Pair 1-4	<input checked="" type="checkbox"/> Pair 2-3	<input checked="" type="checkbox"/> Pair 2-4	<input checked="" type="checkbox"/> Pair 3-4

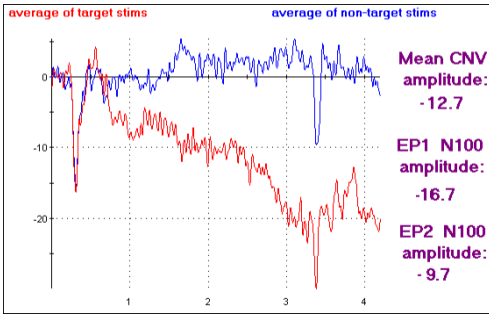
Select All Clear All

OK Cancel

When running a z-score feedback session, you can pause the session, modify the grouping of metrics and adjust the low/high threshold values.

Advanced Evoked Potential and Reaction Time Processing

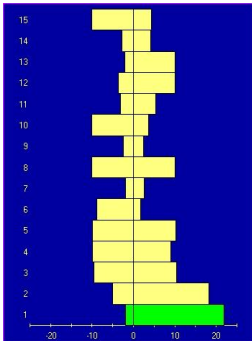
The Evoked Potential and Reaction Time Processing functions were improved to provide more information in real-time or post session analysis. The Channel Set Editor includes new algorithms for calculating extended statistics on evoked and slow cortical potentials as well as maintaining reaction time and error statistics for Go/NoGo tasks.



Non-target count:	Target count:	Total count:
76	19	95
Mean Reaction Time (ms):		166.76
Total errors of commission:		2
Total errors of omission:		2
Overall Sensitivity (%):		93.55
Overall Specificity (%):		94.74

Multi-Band Algorithm and Screen Instrument

To facilitate the implementation of bilateral multi-band type displays, BioGraph now incorporates a new Multi-Band Processing algorithm and a Multi-Band screen instrument.

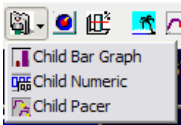


The new functions allow you to easily and rapidly define up-to 32 bands, for one or two channels, and specify the filter settings (FIR or IIR) and the rectification method to use (peak to peak or magnitude) and any periodic or whole session statistical processing. These options make it easy to create feedback and review screens for this very specialized training method.

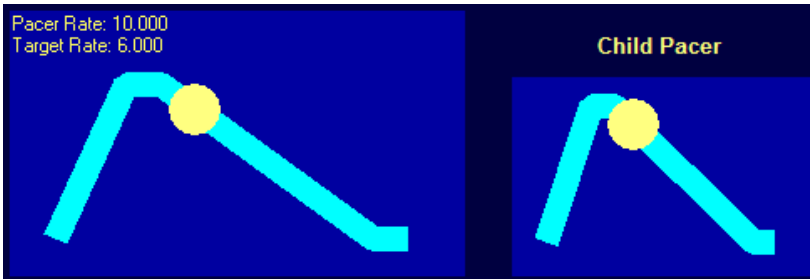
For HRV & Physiology Applications

Child Respiration Pacer

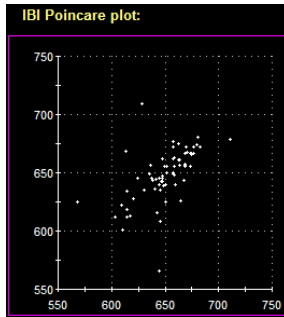
A Child Respiration Pacer instrument was added to allow clinicians to work with multiple monitor configurations.



The Child Pacer connects to a previously placed pacer instrument and mirrors its settings when the clinician makes changes to the pacer's configuration.



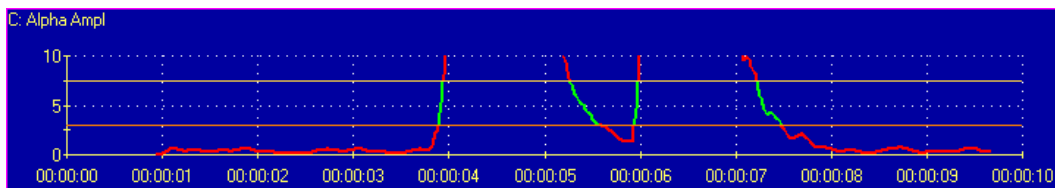
Poincaré Plot on Lissajous Instrument



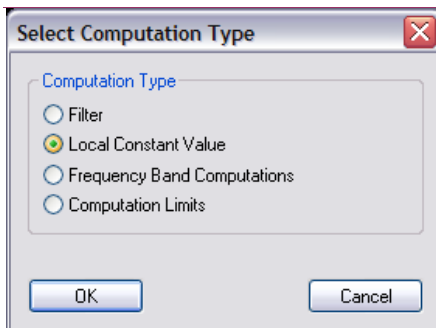
The Lissajous Instrument offers a new mode for Poincaré Plot. The graph plots each IBI value against the previous one. The Poincaré plot is also called a scatter plot and is a non-linear analysis of IBI. Published data indicates that the geometry of point distributions can be correlated to various physical conditions.

Dual Threshold on Line Graphs

The Single Line Graph and Template Line Graph instruments have settings for dual threshold feedback, similar to the Bar graphs. Using this feedback method allows you to give inside/outside type feedback.



Settings Instrument – New Computation Types



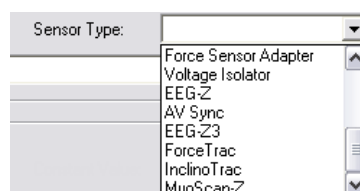
The Settings instrument can now be connected to any virtual channel using one Local Constant Value. Such computations include Comparators, Signal as Percentage of time, Signal as Percentage of Value, Arithmetic, etc... An option to connect the Settings Instrument to “Computation limits” allows the user to specify the Begin and End time for Event Average Processing channel type.

For EMG Applications

New Sensor: MyoScan-Z



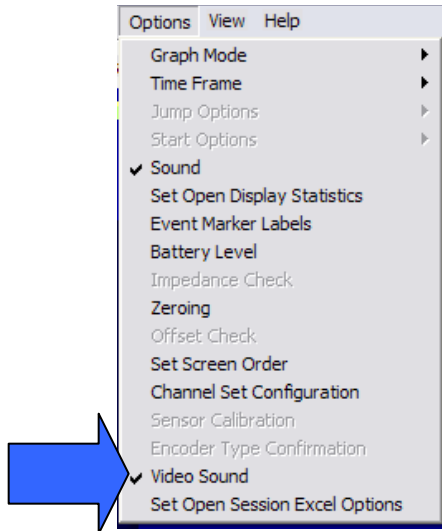
A new MyoScan-Z EMG sensor joins the line-up of physiological sensors for use with the ProComp Infinity, ProComp 5 Infinity or FlexComp Infinity devices. Designed for a sampling rate 2048 samples per second, it measures raw EMG signals within a range of 0 to 2000 microVolts. The new sensor also offers an impedance check mode, which can be triggered from BioGraph Infinity.



For All Modalities

New Video Instrument Features

Audio Recording Capability



Screens can contain up to two video instruments, enabling BioGraph Infinity 5.0 to record and replay session video data from one or two web cameras.

When starting a session using a screen with a video instrument, you can specify whether to record audio with the video data by enabling the “Video Sound” option in the Options menu. If your computer is equipped with a microphone or a Web Camera with an integrated microphone, you are able to record and replay the audio stream with the recorded video. In replay mode, you can jump to anywhere in the session to replay from a selected moment in time.

Feedback Actions

The video instrument adds the option of controlling up-to four feedback actions. These actions are independent from one another and can be enabled by connecting them to other instrument’s Boolean output or to a Boolean data channel.

The actions include:

- ON/OFF: Turns the video image on and off
- Blur: Makes the video image become blurry or clear
- Brightness: Makes the video image brighter or normal
- Darkness: Makes the video image darker or normal



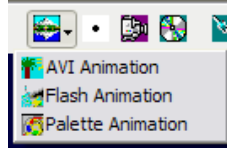
New video compression method

The video instrument now compresses the recorded video on-the-fly, which makes saving sessions that have video data faster than ever. A new video compression method (codec) allows faster saving time and creates smaller video data files.

Flash Animation Instrument

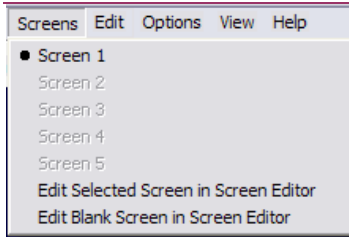


A new Flash animation instrument was added to the screen instrument list. This new instrument allows you to play Flash based animations just like an AVI file and define all the usual feedback options, including play forward and backward as well as play frame by frame.



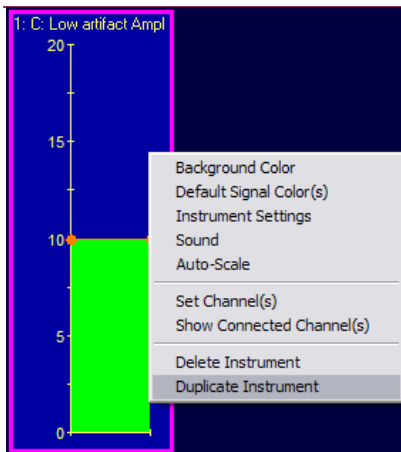
Note: The Connection Instrument can be used to interface BioGraph to an external application or game. Developers can obtain a copy of the software developer kit by contacting Thought Technology.

Edit Blank Screen in Screen Editor

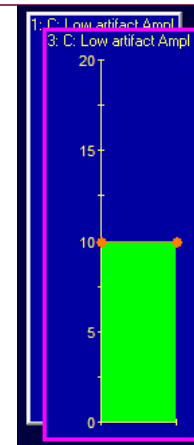


You can launch the Screen Editor from BioGraph and create a screen from scratch by selecting the “Edit Blank Screen in Screen Editor” option.

Screen Editor: Duplicate Instrument Menu Option



A “Duplicate Instrument” option was added to the right-click menu. This function is similar to the existing copy and paste function ([Control]-C and [Control]-V). The duplicated instrument appears over the first one with identical instrument settings.



Screen Editor: Select All Instruments

In the main screen of the Screen Editor, the Options > Select All Instruments menu item allows you to highlight all the instruments on the screen to allow you to move them as a group.

Screen Editor: Deleting Instruments

When attempting to delete an instrument that is still connected to another instrument on the screen, BioGraph will ask you to disconnect this instrument before it can delete it. To help you identify connected instruments, BioGraph will also highlight the next instrument in the sequence. You can edit its settings and try deleting the instrument again. BioGraph will keep highlighting connected instruments until there aren't anymore.

Script Editor: Trend Reports

The Script Editor includes a function to define Trend Reports from within the editor (as opposed to having to specify them from BioGraph Infiniti's Database).

Script Editor: Data Export Settings

Define Export Settings: It is now possible to specify the desired format for "Session Statistics" within a script (Standard/TLC and Export header). When this is defined, the Export Type dialog box doesn't appear when exporting data for this type of script session.

