



# BrainMaster Discovery Software User Manual

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## Minimum PC Computer Requirements

### Atlantis I/II, 2EB, Discovery with BMrMMP\*\* and up to 4 Channel LZT\*

<b>CPU:</b>	Dual-Core 2.2GHz Processor
<b>Operating System:</b>	Windows XP, Windows Vista, Windows 7
<b>Memory(RAM):</b>	Windows XP - 1GB(Minimum) 2GB(Recommended) Windows Vista - 2GB(Minimum) 4GB(Recommended) Windows 7 - 2GB(Minimum) 4GB(Recommended)
<b>Graphics Card:</b>	512MB Dedicated OR 1GB Shared Graphics
<b>Optical Drives:</b>	DVD-ROM Drive: Required for BMrDVD**
<b>Input:</b>	1 USB Port
<b>Additional SW:</b>	Microsoft Office: Required for Certain reports and EEGAudio** Windows Media Player or 3 <sup>rd</sup> Party DVD Decoder: Required for BMrDVD** Adobe Acrobat Reader Adobe Flash Player: Required for BMrFlash Player Adobe Shockwave Player: Required for BMrFlash Player

### Discovery with BMrMMP\*\* and up to 19 Channel LZT\*

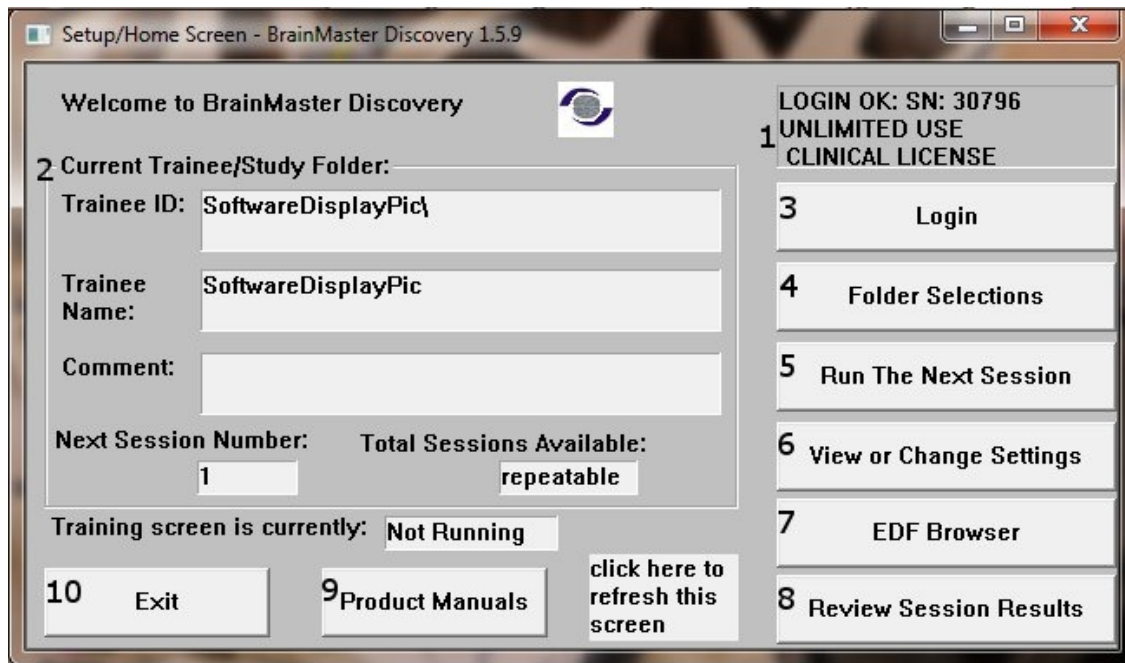
<b>CPU:</b>	Intel® Core™ i7-740QM processor
<b>Operating System:</b>	Windows Vista-64 Bit, Windows 7-64 Bit
<b>Memory(RAM):</b>	Windows Vista-64 Bit: 6GB(Minimum) 8GB(Recommended) Windows 7-64 Bit: 6GB(Minimum) 8GB(Recommended)
<b>Graphics Card:</b>	1GB Dedicated
<b>Optical Drives:</b>	DVD-ROM Drive: Required for BMrDVD**
<b>Input:</b>	1 USB Port
<b>Additional SW:</b>	Microsoft Office: Required for certain reports and EEGAudio** Windows Media Player or 3 <sup>rd</sup> Party DVD Decoder: Required for BMrDVD** Adobe Acrobat Reader Adobe Flash Player: Required for BMrFlash Player Adobe Shockwave Player: Required for BMrFlash Player

\*Live Z-Score Training is an optional purchase

\*\*BMrMMP is an optional purchase

## Software Display

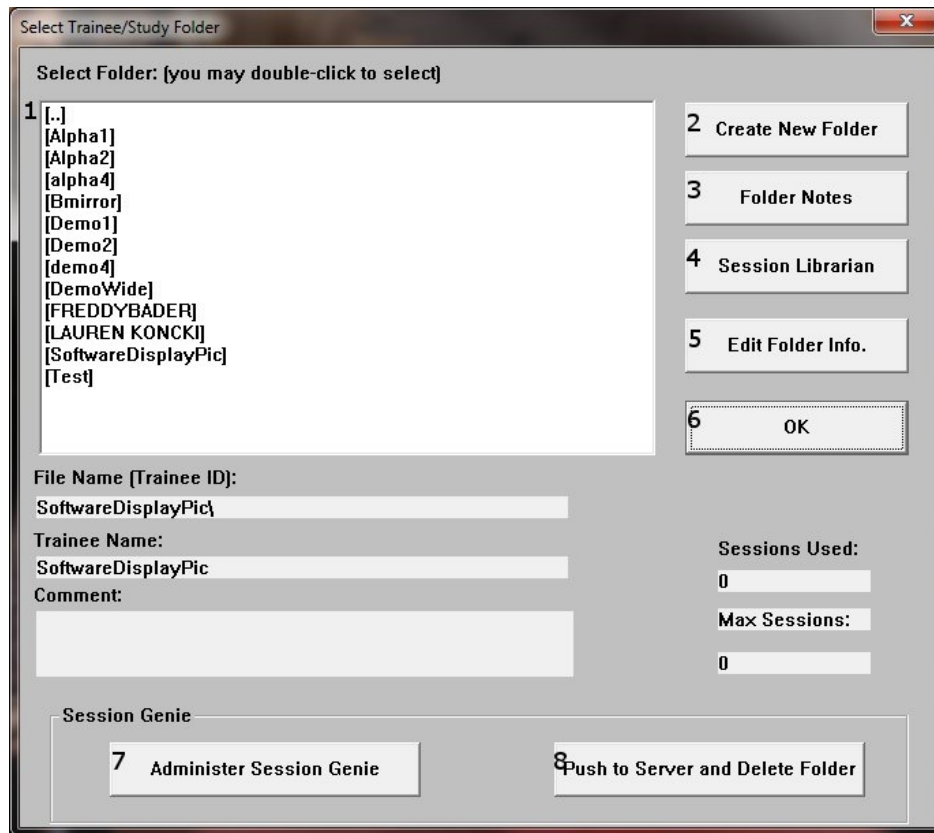
### Setup/Home Screen Menu



1. **Log-In Display** – Shows the current Serial number of the BrainMaster unit that is logged in, the expiration of the software if any, and status of the units license.
2. **Current Trainee/Study Display** – Shows the current trainee folder, the settings being used, how many sessions that have been used, and how many more that can be run.
3. **Login Button** – Click to open the Login Menu.
4. **Folders Selections Button** – Click to open the Select Trainee/Study Folder Menu.
5. **Run The Next Session Button** – Click to open the Training/Control Screen.
6. **View or Change Settings Button** – Click to open the Setup Options Menu.
7. **EDF Browser Button** – Click to open the EDF Browser program.
8. **Review Session Results Button** – Click to open the BReview Screen.
9. **Product Manuals Button** – Click to open a menu displaying documentation on our software.
10. **Exit Button** – Click to close the BrainMaster software. **\*\*\*Please Note: We do not at any point in time recommend that you use the red "X" located in the top portion of the various menus and screens of our software, unless otherwise stated.**

## Login Menu

1. **Current Login Status** – Displays what your Current Login status is.
2. **Serial Number and Passkey Box** – Area where you will input the Serial Number and Passkey of your BrainMaster unit for logging into the BrainMaster Software.
3. **Serial Number Box** – Box where you will type in the Serial Number of your BrainMaster unit.
4. **PassKey Box** – Box where you type in your Passkey supplied by BrainMaster Technologies.  
**\*\*\*PLEASE NOTE:** Always be sure to keep record of your passkey. If BrainMaster Technologies is needed to retrieve the passkey for you, an Administration fee will be charged.
5. **Remember PassKey Check Box** – If checked, the BrainMaster Software will remember your passkey. If unchecked, The BrainMaster Software will remember the passkey until the software is closed.
6. **(Optional) Personal Information** – Name and E-Mail information utilized for sending BMZ Files via E-Mail. See 533-309 for more information.
7. **OK Button** – Click when all information is entered to exit the Login Menu. **\*\*\*PLEASE NOTE:** If you are having any difficulties logging in, please double-check your passkey. When entering, it is highly recommended that CAPS Lock is on, and the “-“are left out. If you are still having difficulties, please contact BrainMaster Technologies Technical Support.
8. **Login Notes Button** – Brings you to the Login Notes Note Pad. It is highly recommended to utilize this for your Passkey, and COM Port information.
9. **Cancel Button** – Click if you do not wish to save any information entered and exit the Login Menu.

**Select Trainee/Study Folder Menu**

1. **Folder Selection List** – List where you can select from already created Studies folder. You may double-click to select a file. When highlighted information on the folder will be displayed below this box.
2. **Create New Folder Button** – Click to create a new Study Folder to be used.
3. **Folder Notes Button** – Click to create or look at a Note page for a specific client folder.  
**\*\*\*PLEASE NOTE: In order for notes to stay, you must save the completed Note file.**
4. **Session Librarian Button** – Click this to utilize the Session Librarian to create a BMZD File.
5. **Edit Folder Info. Button** – Click to open the Edit Folder Info. Menu.
6. **OK Button** – Click to confirm the folder that you have highlighted and exit the Select Trainee/Study Folder Menu
7. **Administer Session Genie** – Click to utilize the Session genie. **\*\*\*PLEASE NOTE: Administer Session Genie will not be available on Remote User Systems.**
8. **Push to Server and Delete Folder** – Click to remove a no longer wanted folder from your Folder Selection List. **\*\*\*PLEASE NOTE: Using this feature will not remove your file permanently. Using this feature creates a BMZ version of your folder in case it is needed in the future.**

## ***Edit Folder Info Menu***

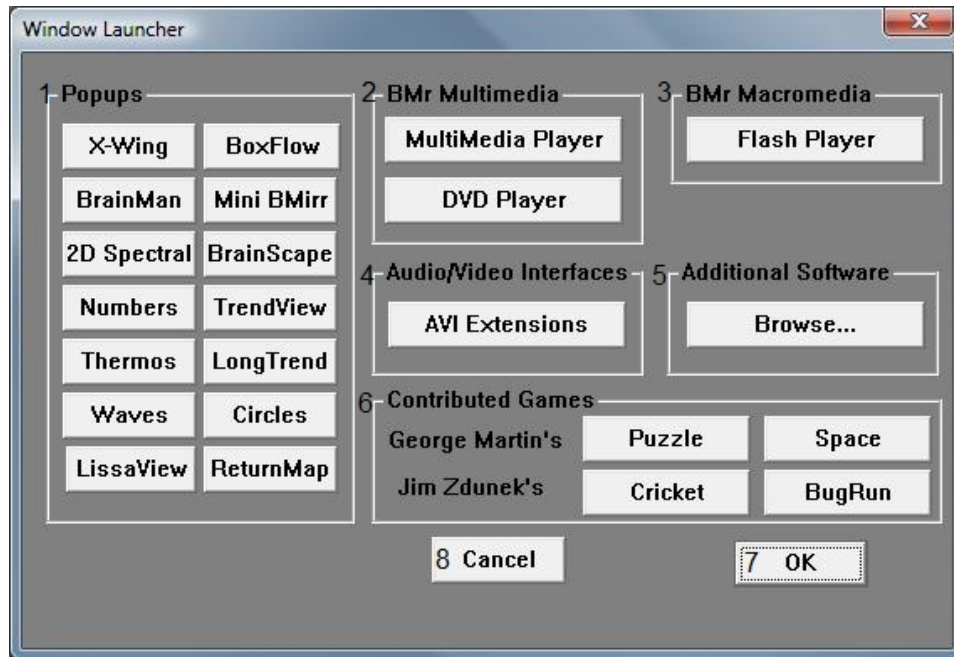
1. **Name Section** – Section that displays the name of the current Study Folder.
2. **Comment Section** – Section that you can add a comment for the Current Study Folder.
3. **Birthdate Section** – Section where you can set the clients Birthday.
4. **Age Section** – Section where you can manually adjust the age of the client.
5. **Gender Section** – Section where you can set the gender of the client.
6. **Compute Age Button** – Click to use the Birthdate from the Birthdate section to calculate out the client's age.
7. **Recording Conditions Section** – Section where you set the condition/task for the session.
8. **Sensor Type Section** – Section where you set the type of sensor used for the session.
9. **Technician Section** – Section where the name of the Technician goes.
10. **Cancel Button** – Click to cancel any changes and exit the Edit Folder Info Menu.
11. **OK Button** – Click to confirm any changes and exit the Edit Folder Info Menu.

## *Training/Control Screen*



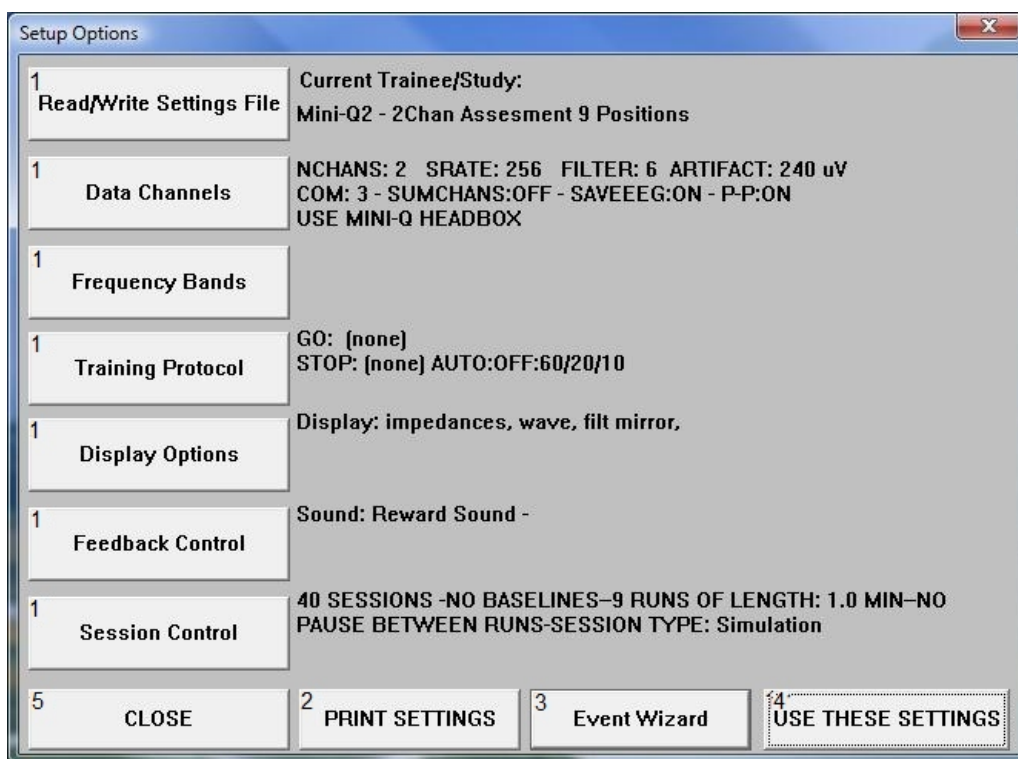
12. **Data Tab** – Click to access COM, filter settings, playback options, and Atlantis Setup Menu.
13. **Display Tab** – Click to choose from various display options.
14. **Freq. Bands Tab** – Click to choose what filtered waveforms to display.
15. **Color Tab** – Click to choose between filtered waveforms to be displayed either in color or in white.
16. **Sound Tab** – Click to choose your sound settings.
17. **GO Button** – Click to run a session. **\*\*\*PLEASE NOTE:** Be sure that before clicking GO that your BrainMaster Unit is plugged in, installed, and the software is set to the proper COM Port.
18. **STOP Button** – Click to stop a session.
19. **Window Button** – Click to open the Window Menu.
20. **Clock** – Used to keep time for the Training session.
21. **Points** – Used to keep track of the amount of Reward points earned in a training session.
22. **Close Button** – Click to close the Training/Control Screen when completed. **\*\*\*PLEASE NOTE:** If a session is ended before it is completed, it will be counted as a completed session.

## Window Menu

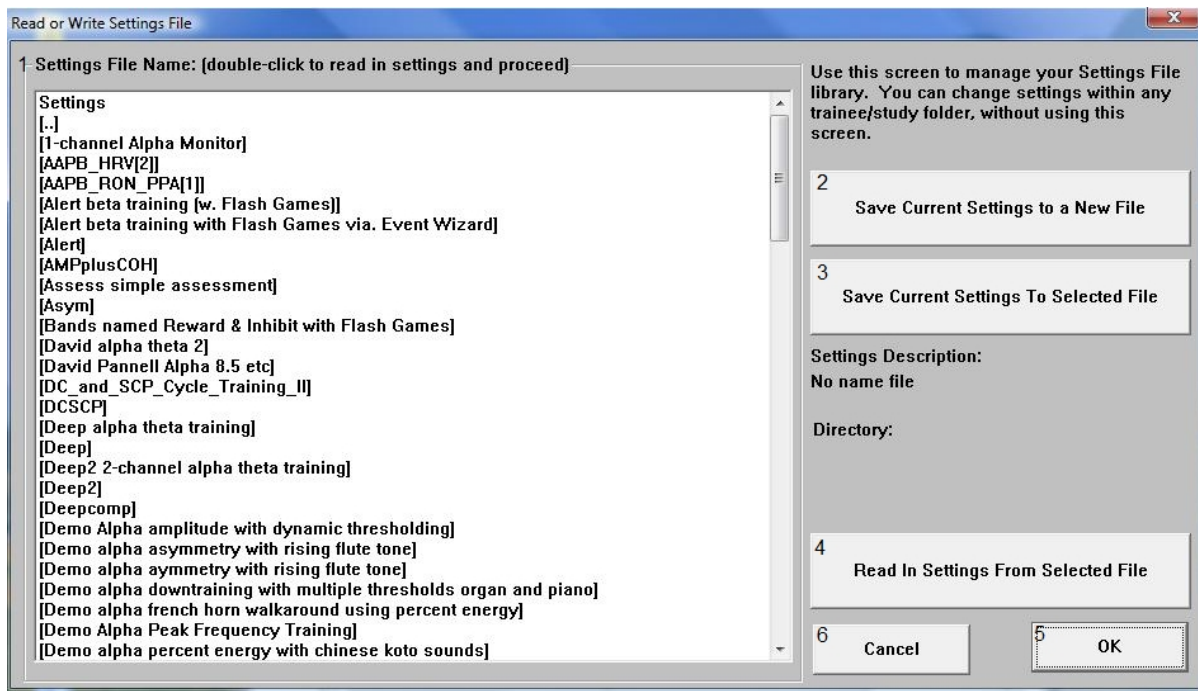


1. **Popups Section** – Click the included buttons to launch additional display/training feedback options used for feedback.
2. **BMr Multimedia Section\*** – Click the included buttons to launch either BMrDVD\* or BMrMMP\* used for feedback.
3. **BMr Macromedia Section** – Click the included buttons to launch the BMrFlashPlayer used for feedback.
4. **Audio/Video Interfaces Section** – Click the included buttons to launch EEGAudio\*.
5. **Additional Software Section** – Click the included buttons to launch additional software.
6. **Contributed Games Section** – Click the included buttons to launch contributed games used for feedback.
7. **OK Button** – Click to close the Window Menu.
8. **Cancel Button** – Click to close the Window Menu.

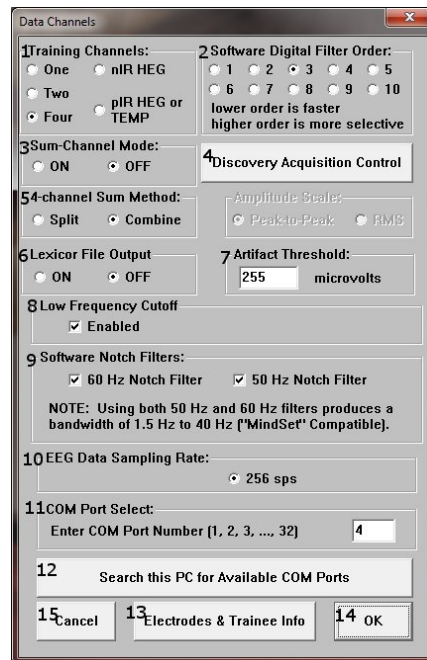
\*BMrMMP, BMrDVD, and EEGAudio make up the MultiMediaPlayer Suite. MultiMediaPlayer is an Optional Purchase.

***Setup Options Menu***

1. **Various Menu Buttons** – Click to open the associated menus.
2. **PRINT SETTINGS Button** – Click to print a hard copy of all of your Settings.
3. **Event Wizard Button** - Click to open the Event Wizard.
4. **USE THESE SETTINGS Button** – Click to confirm all settings changes and exit the Setup Options Menu.
5. **CLOSE Button** – Click to cancel all changes made and exit the Setup Options Menu.

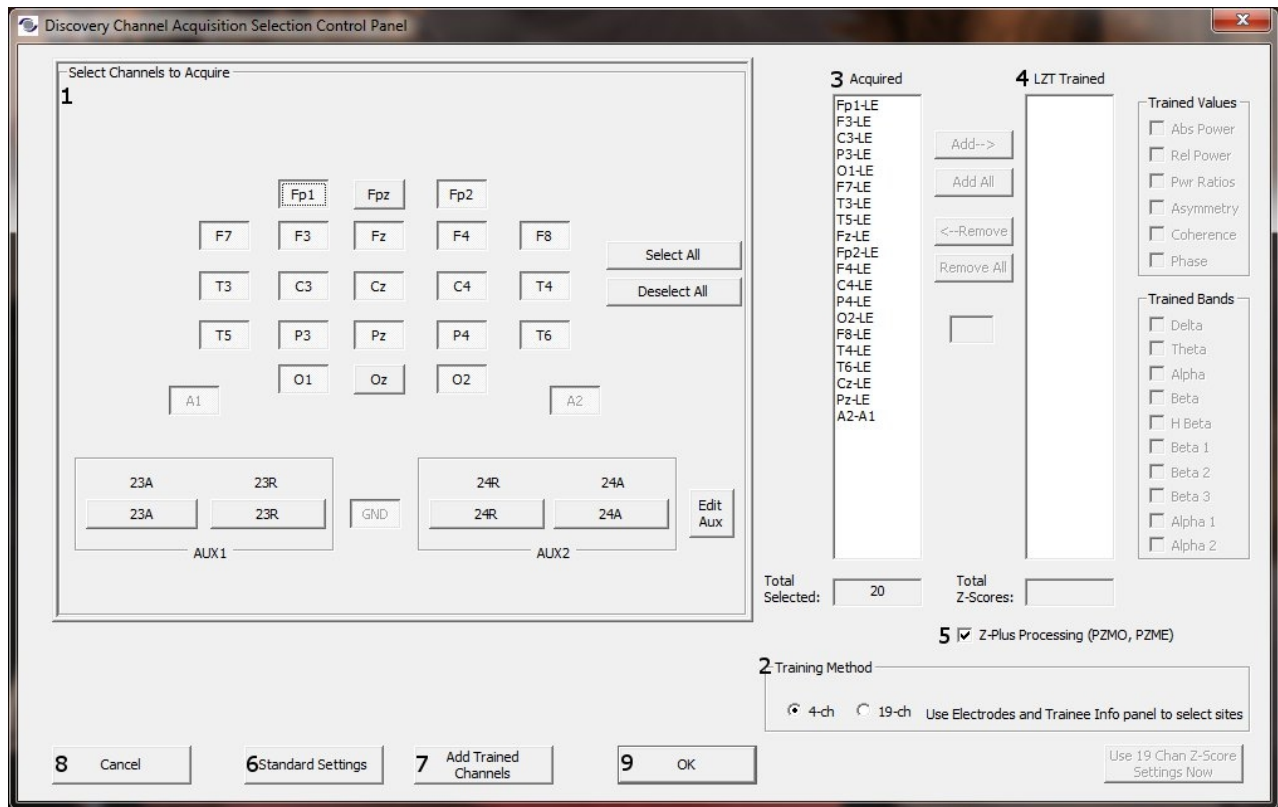
***Read/Write Settings File Menu***

1. **Settings File Name Section** – Section where a new setting may be selected. If you would like to have the selected setting file used in your Studies folder, you may double-click the Settings file to read the settings file into the folder.
2. **Save Current Settings to a New File Button** – Click to save the current Studies folders settings into a new Settings file. See 533-311 for more information
3. **Save Current Settings To Selected File Button** - Click to save the current Studies folder settings into the selected Settings file from the Settings File Name Section.
4. **Read In Settings From Selected File Button** – Click to read the Settings file from the Settings File Name Section into the current Studies folder.
5. **OK Button** – Click to confirm changes and exit the Read/Write Settings File Menu.
6. **Cancel Button** – Click to cancel changes and exit the Read/Write Settings File Menu.

**Data Channels Menu**

1. **EEG Channels Section** – Section where you choose the EEG Channels for feedback.
2. **Software Digital Filter Order Sections** – Section where you set the Digital Filter order. The higher the filter order, the more selective the system is.
3. **Sum-Channel Mode Section** – Section where you set the Sum-Channel mode on or off.
4. **Discovery Acquisition Control Button** – Click to enter the Discovery Acquisition Control Menu.
5. **4-Channel Sum Method Section** – Section where you can set the 4-Channel Sum Method to either Split or Combine.
6. **Lexicor File Output Section** – Section where you can turn on or off the Lexicor File Output Option (.DAT).
7. **Artifact Threshold Section** – Section where you can adjust the artifact rejection range.
8. **Low Frequency Cutoff Section** – Section where you can enable or disable the Low Frequency Cutoff.
9. **Software Notch Filters Section** – Section where you can turn on or off the Software notch filters.
10. **EEG Data Sampling Rate Section** – Section where you can adjust the Sample rate you are collecting from the data.
11. **COM Port Select Section** – Section where you can set what COM Port your BrainMaster is on. **\*\*\*PLEASE NOTE: COM 1 – 8 can also be chosen under the Data Tab of the Training/Control Screen.**
12. **Search this PC Button** – Click to let the BrainMaster Software search for the BrainMaster unit.
13. **Electrode & Trainee Info Button** – Click to enter the Electrode & Trainee Info Menu.
14. **OK Button** – Click to confirm changes and exit the Data Channels Menu.
15. **Cancel Button** – Click to cancel changes and exit the Data Channels Menu.

## Discovery Acquisition Control Menu



1. **Acquisition Selection Section** – Section where select the channels that you are acquiring.
2. **LZT\* Training Method Section** – Section where you can choose between the 4 Channel method or 19 Channel method of Z-Score PZOK\* Training.
3. **Acquired Section** – Section that displays the Acquired sites, selected from the Acquisition Selection Section.
4. **LZT\* Trained Section** – Section where you can select the sites, Trained Vales, and Trained Bands for Z-Score PZOK\* Training from the Acquired Section, if the Training method has been set to 19-ch.
5. **Z-Plus\*\* Processing Check Box** – Check to enable the Z-Plus\*\* software add-on.
6. **Standard Settings Button** – Click to change all changes back to a Standard 19-Channel Acquisition.
7. **Add Trained Channels Button** – Click to add the Trained Channels that are chosen from the Electrode and Trainee Info Menu.
8. **Cancel Button** – Click to cancel changes and exit the Discovery Acquisition Control Menu.
9. **OK Button** – Click to confirm changes and exit the Discovery Acquisition Control Menu.

\*Z-Score PZOK is an optional purchase.

\*\*Z-Plus Z-Score Add-on is an optional purchase.

***Electrode & Trainee Info Menu***

Electrode and Trainee Information

1 Active 1 Reference 1 GROUND Reference 2 Active 2  
 F3 Cz Fz Cz F4  
 Active 3 Reference 3 Reference 4 Active 4  
 P3 LE LE P4

2 ☐ Use Session Wizard to control session (use for MINI-Q) 3 Session Wizard

Age: (optional - must be nonzero to use Z-Score Training) 0 7

4 Condition: (required for Z-Score Training)  
☐ eyes open ☒ eyes closed 5 OK

6 Cancel

1. **Electrode Information Section** – Section where the sites for training are selected.  
**\*\*\*PLEASE NOTE:** The amount of sites that can be chosen is dependant upon the amount of channels selected in EEG Channels Section on the “Data Channels Menu”.
2. **Session Wizard to control session Check Box** – Used to control whether or not Session Wizard is used for the training/assessment.
3. **Session Wizard Button** – Click to enter the Session Wizard controls.
4. **Condition Section** – Section to choose eyes open or eyes closed for Z-Score PZOK training\*.
5. **OK Button** – Click to confirm changes and exit Electrode and Trainee Info Menu.
6. **Cancel Button** – Click to cancel changes and exit Electrode and Trainee Info Menu.
7. **Age Section** – Section to enter the age of the client.

\*Z-Score PZOK is an optional purchase

## *Frequency Bands Menu*

Frequency Bands and Damping Factors

Use Hz with 0.001 resolution, 0.0 minimum e.g. 0.0, 0.1, 0.2,..., 63.8, 63.9.  
All bands should be 1.0 Hz wide minimum for reasonable transient response

	Low:	High:		Low:	High:
1 Delta	1.000	3.000	Beta	15.000	20.000
Theta	4.000	7.000	Hibeta	20.000	30.000
Alpha	8.000	12.000	Gamma	38.000	42.000
Lobeta	12.000	15.000	User	30.000	35.000

2 On-the-fly Frequency Adjust Increment

Increment [Hz] used for on-the-fly frequency band changes. Use values 0.10 - 1.00 [default = 0.50] 0.050

3 Digital Filter Amplitude Smoothing and Damping Factors

Global Smoothing Window [used to slow amplitude changes for all displays and training using digital filters]. Specify # of milliseconds to smooth over. Use values 0-1000 (0=no smoothing, default = 60) 60

Text Damping Factor [used to further slow value changes for text displays]. Use values 0-1000 (0=no damping, default=100) 100

6 Cancel 4 Standard Settings 5 OK

1. **Frequency Band Section** – Section where the frequency band range and name can be adjusted.
2. **On-the-fly Frequency Adjustment Increment Section** – Section where the increment of the On-the-fly frequency adjustment can be adjusted. On-the-fly Frequency Adjustment is performed during training. While training is occurring, simply click the Tab button, then click the button letter associated for the band to be adjusted (d=Delta, t=Theta, a=Alpha, l=Lobeta, b=Beta, h=High Beta, g=Gamma, u=User).
3. **Digital Filter Amplitude Smoothing and Damping Factors Section** – Section where Global Smoothing Window and Text Damping Factor can be adjusted.
4. **Standard Settings Button** – Click to re-adjust all changes back to original settings.
5. **OK Button** – Click to confirm changes and exit the Frequency Bands Menu.
6. **Cancel Button** – Click to cancel changes and exit the Frequency Bands Menu.

## *Training Protocol Menu*

**Control Protocol and Threshold Values**

**PROTOCOL SETTINGS FOR CHANNEL 1: ACTIVE: Fz REFERENCE: LE**

1 Delta: ☐ Go ☐ Stop ☒ Ignore 0.0

Beta: ☐ Go ☐ Stop ☒ Ignore 0.0

Theta: ☐ Go ☐ Stop ☒ Ignore 5.0

Hibeta: ☐ Go ☐ Stop ☒ Ignore 8.0

Alpha: ☐ Go ☐ Stop ☒ Ignore 0.0

Gamma: ☐ Go ☐ Stop ☒ Ignore 0.0

Lobeta: ☐ Go ☐ Stop ☒ Ignore 1.0

User: ☐ Go ☐ Stop ☒ Ignore 0.0

2 Select Channel to Adjust: ☒ 1 ☐ 2 ☐ 3 ☐ 4

Use these controls to define the protocol and starting threshold for each channel and component band.

3 Global Sustained Reward Criterion (all channels)  
Training Conditions must be met for: to achieve a reward point and sound (use value = 0 - 10000, default=500) 500 milliseconds

4 Global Refractory Period (all channels)  
After a reward, system will wait for: before another reward is possible (use value = 0 - 10000, default=0) 0 milliseconds

5 "Original" Sweet Spot Feedback Settings: ☐ ON ☒ OFF About...

6 Points Counting Method: ☒ Normal (1 Counter) ☐ Split for 2 Players (2 Counters) About...

7 Autothreshold Options Use the button at left to view and change Autothresholding Options

8 OK

1. **Frequency Training Section** – Section where the adjustments for the frequency bands training settings can be adjusted.
2. **Select Channel to Adjust Section** – Section where you can choose which channels frequency bands training settings to adjust.
3. **Global Sustained Rewards Criterion Section** – Section to adjust the time where training conditions length must be met for a reward point and sound.
4. **Global Refractory Period Section** – Section to adjust the time the system will wait before another reward point can be rewarded.
5. **“Original” Sweet Spot Feedback Settings Section** – Section to turn on and off the “Original” Sweet Spot Feedback Settings. For more information, on the “Original” Sweet Spot Feedback Settings, click the About... Button.
6. **Points Counting Method Section** – Section to change between one or two counters for training. Visit [www.brainm.com/kb/entry/111](http://www.brainm.com/kb/entry/111) for more information.
7. **Autothreshold Options Button** – Click to enter the Autothreshold Options Menu.
8. **OK Button** – Click to Confirm changes and exit the Training Protocol Menu.

***Autothreshold Options Menu***

Autothresholding Parameters

1 Autoset "Go's" for:  percent time over threshold  
 Autoset "Stops" for:  percent time over threshold  
 Autoset HiBeta (stop) for:  percent time over threshold

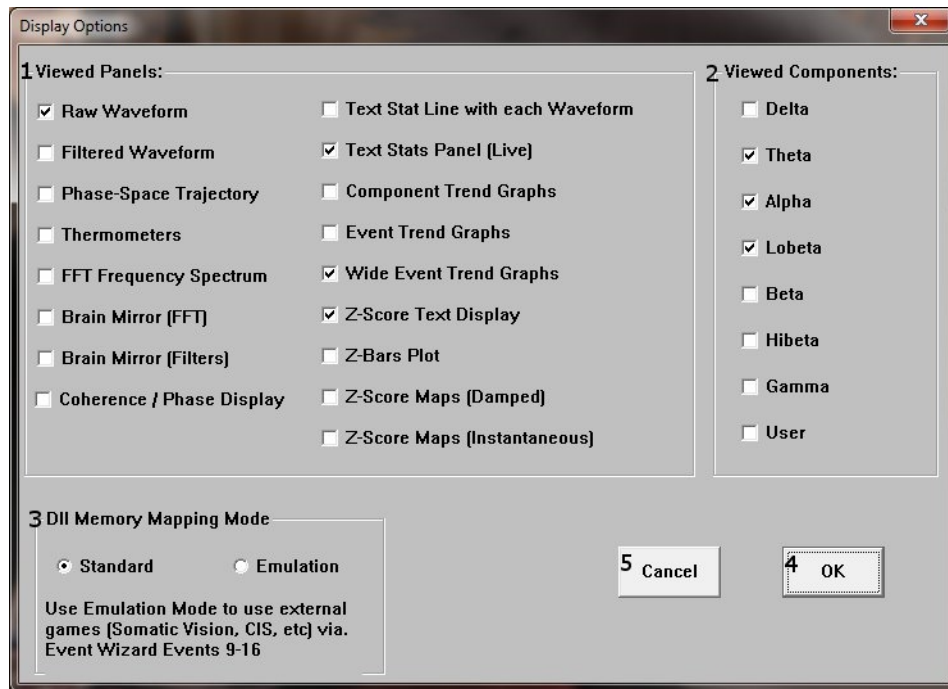
2 Autothresholding is:  
☐ ON ☒ OFF

3 Threshold Updating:  
☐ Manual (Press 'Y' on keyboard to update)  
☐ Autoupdate once, after pre-baseline  
☒ Autoupdate repeat: after pre-baseline + after each run  
☐ Autoupdate continuous: every second  
 Note: 'Y' key can be used to manually update at any time

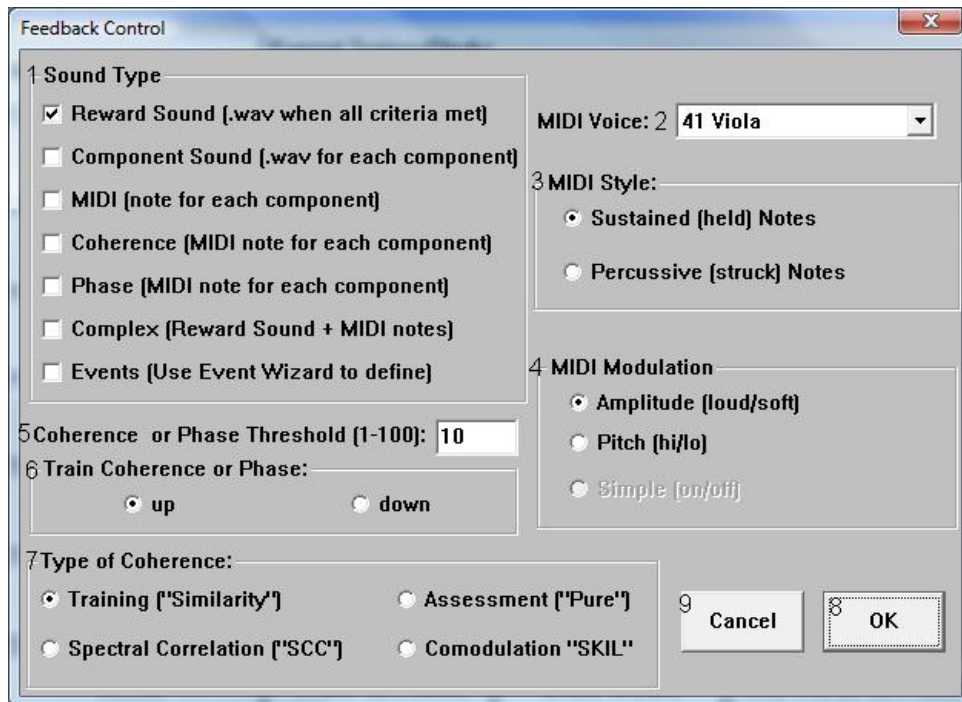
4 Autothreshold Epoch  
 Autothresholding uses epoch length of  seconds  
 to compute autothreshold values  
 (use value = 1 to 60, default = 60)

6 Cancel 5 OK

1. **Autoset Percent Section** – Section to set the percent time over threshold settings for the Go's, Stops and HiBeta(stop).
2. **Autothresholding Is: Section** – Section to turn on or off Autothresholding.
3. **Threshold Updating: Section** – Section where you can set the threshold updating options.
4. **Autothreshold Epoch Section** – Section where you can adjust the epoch to compute the autothreshold value.
5. **OK Button** – Click to confirm changes and exit the Autothreshold Options Menu.
6. **Cancel Button** – Click to cancel changes and exit the Autothreshold Options Menu.

**Display Options Menu**

- 1. Viewed Panels Section** – Section where you can choose what panels are to be viewed during training. **\*\*\*PLEASE NOTE: All Panels can also either turned on or off by clicking the Display Tab of the Training/Control Screen.**
- 2. Viewed Components Section** – Section where you can choose what components are to be viewed during training. **\*\*\*PLEASE NOTE: All components can also either turned on or off by clicking the Components Tab of the Training/Control Screen.**
- 3. DLL Memory Mapping Mode Section** – Section where you can choose the DLL Memory Mapping Mode you are using.
- 4. OK Button** – Click to confirm changes and exit the Display Options Menu.
- 5. Cancel Button** – Click to cancel changes and exit the Display Options Menu.

**Feedback Control Menu**

1. **Sound Type Section** – Section where you can choose the sound type for training **\*\*\*PLEASE NOTE: All Sounds can also either be turned on or off by clicking the Sound Tab of the Training/Control Screen.**
2. **Midi Voice Section** – Section where you can choose the type of MIDI sound for feedback that utilizes MIDI Playback.
3. **MIDI Style Section** – Section where you can choose the MIDI Style for feedback that utilizes MIDI Playback.
4. **MIDI Modulation Section** – Section where you can choose the MIDI Modulation for feedback that utilizes MIDI Playback.
5. **Coherence or Phase Threshold Section** – Section where you can adjust the threshold for either Coherence or Phase training.
6. **Train Coherence or Phase Section** – Section where you can adjust the method of training for either Coherence or Phase training.
7. **Type of Coherence Section** – Section where you can choose the type of Coherence training.
8. **OK Button** – Click to confirm changes and exit the Feedback Control Menu.
9. **Cancel Button** – Click to cancel changes and exit the Feedback Control Menu.

## *Session Control Menu*

**NOTE: Please enter all times as whole seconds (1, 2, 3, etc)**

1 Baseline Length (pre and post) 2 Run Length:

Seconds (before and after Runs)  Seconds

(Length of 0 means "no baselines") (0 means run indefinitely)

3 Number of Sessions: 4 Number of Runs (Trials)

sessions (80 maximum)  Runs

(0 allows repeated use of Test Session 1) (Must have at least one Run)

5 Session Type:

☐ Assessment ☐ Training

☒ Simulation ☐ Playback

6 ☐ Pause Between Runs?

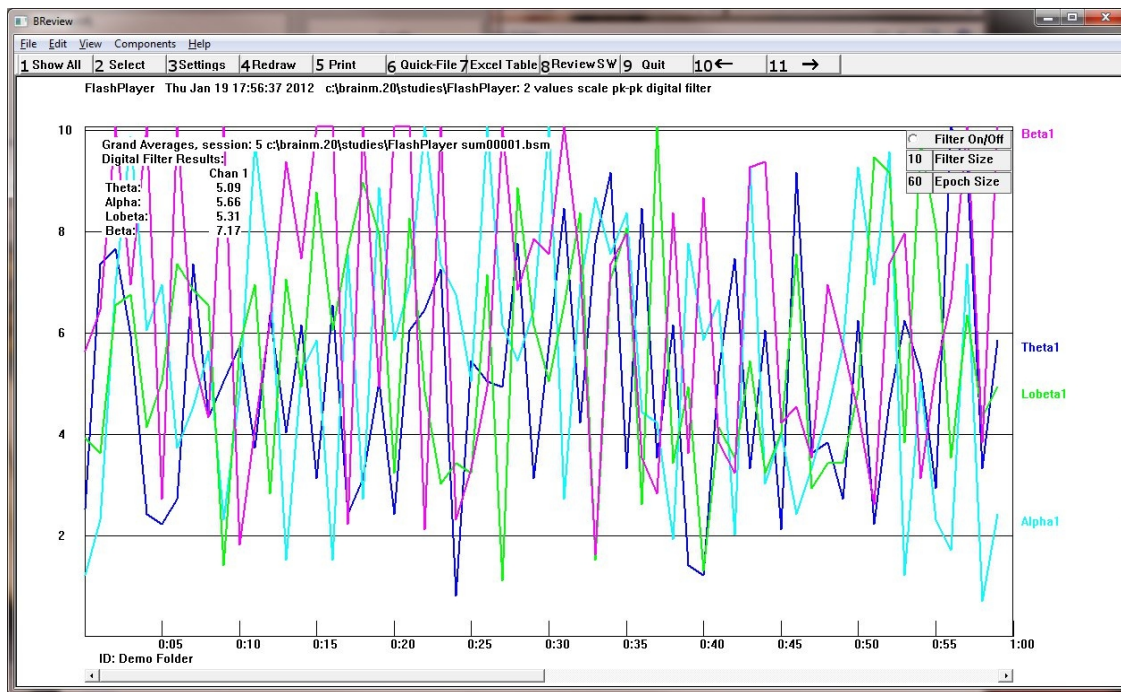
7 Session Wizard

10 Cancel ☒ 8 Use Session Wizard to control session 9 OK

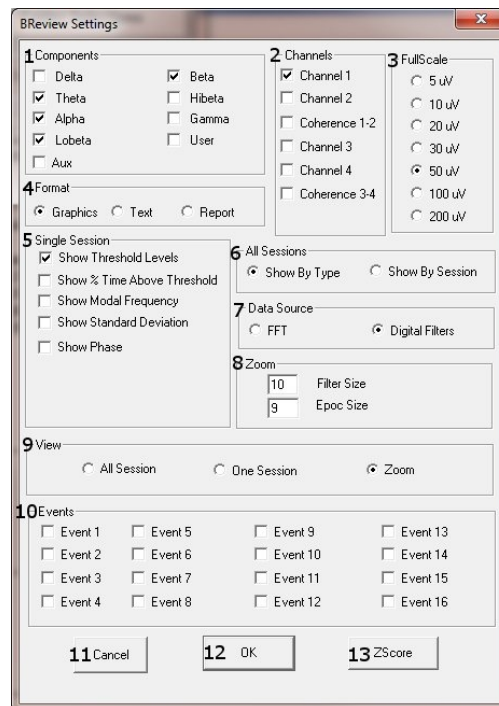
[use with MINI-Q]

1. **Baseline Length Section** – Section where you can adjust the length of the pre and post Baseline.
2. **Run Length Section** – Section where you can adjust the length of the runs for the training session.
3. **Number of Sessions Section** – Section where you can adjust the amount of Sessions a particular training can be used for.
4. **Number of Runs Section** – Section where you can adjust the amount of runs for the training session.
5. **Session Type Section** – Section where you can change the type of session that is being used.
6. **Pause Between Runs? Check Box** – Click to choose whether or not you would like the training to pause at the end of a run.
7. **Session Wizard Button** – Click to enter the Session Wizard Controls. **\*\*\*PLEASE NOTE: The Session Wizard Controls can also be accessed in the Electrode & Trainee Info Menu.**
8. **Session Wizard to control session Check Box** – Used to control whether or not Session Wizard is used for the training/assessment. **\*\*\*PLEASE NOTE: The Session Wizard to control session Check Box can also be accessed in the Electrode & Trainee Info Menu.**
9. **OK Button** – Click to confirm changes and exit the Session Control Menu.
10. **Cancel Button** – Click to cancel changes and exit the Session Control Menu.

## *Review Session Results Control Menu Display*



1. **Show All Button** – Click button to display all sessions in a particular study file plotted by session.
2. **Select Button** – Click to choose the session that you would like to view.
3. **Settings Button** – Click to open the BReview Settings Menu.
4. **Redraw Button** – Click to update the data.
5. **Print Button** – Click to print the current displayed Review Screen.
6. **Quick File Button** – Click to generate a Quick-File (Mini-Q) excel file.
7. **Excel Table Button** – Click to generate a Excel Table Summary for the Session.
8. **Review SW Button** – Click to view optional 3<sup>rd</sup> Party Review Software's.
9. **Quit Button** – Click to quit the Review Session Results.
10. **← Button** – Click to step back 60 seconds in the Review Screen.
11. **→ Button** – Click to step forward 60 seconds in the Review Screen.

***BReview Settings Menu***

1. **Components Section** – Section where you can choose the components that you would like to be viewed.
2. **Channels Section** – Section where you can choose the channel and channel combinations that you would like to be viewed.
3. **Full Scale Section** – Section where you can choose the scale for the data being displayed.
4. **Format Section** – Section where you can choose what type of format you would like the information being reviewed be displayed **PLEASE NOTE: not all formats are available for all views.**
5. **Single Session Settings Section** – Section where you can set what you would like to be displayed for a single session.
6. **All Sessions Settings Section** – Section where you can set what you would like to be displayed for a single session.
7. **Data Source Section** – Section where you can choose between the type of Data Source
8. **Zoom Section** – Section where you can the Zoom Filter size and Epoc Size
9. **View Section** – Section where you set the type of view you would like.
10. **Events Section** – Section where you can choose any or all of the Events that you would like to view in the Review Screen.
11. **Cancel Button** – Click to cancel any changes and close the BReview Settings Menu.
12. **OK Button** – Click to confirm any changes and close the BReview Settings Menu
13. **ZScore Button** – Click to open the ZScore Settings Menu.

**ZScore Settings Menu**

The screenshot shows the ZScore Settings Menu window. It has a title bar with 'ZScore' and a close button. The main area is divided into four channels (1, 2, 3, 4). Each channel has a list of Z-score values and a grid of checkboxes for selection. Below the channels, there are buttons for 'Select', 'All ZScores', 'Greater Than', and a numeric input field. At the bottom, there are buttons for 'OK', 'Cancel', 'Select All', 'Deselect All', and a 'Scale' dropdown menu.

1. **Z-Score Selection Section** – Section where you can choose which Z-Score values you would like to display on the Review Screen.
2. **Select Section** – Section where you can choose to view all Z-Scores with-in a certain defined range to be displayed on the Review Screen.
3. **OK Button** – Click to confirm changes, and close the ZScore Settings Menu.
4. **Cancel Button** – Click to cancel changes, and close the ZScore Settings Menu.
5. **Select All Button** – Click to select all Z-Score values to be displayed on the Review Screen.
6. **Deselect All Button** – Click to deselect any Z-Score values that were selected to be displayed on the Review Screen.
7. **Scale Section** – Section where you can set the Scale that you would like to set for viewing the Z-Scores on the Review Screen.

## Keyboard Quick Keys

The following keyboard controls can be used at any time when the BrainMaster is operating.

**PLEASE NOTE: When autothreshold is used, threshold commands change percent target value. ALSO NOTE: Pressing <Tab> switches into “frequency adjust” mode. Pressing “a” for alpha, “t” for theta, etc, will make the frequency band changed per what you have selected for the on-the-fly Frequency adjustment.**

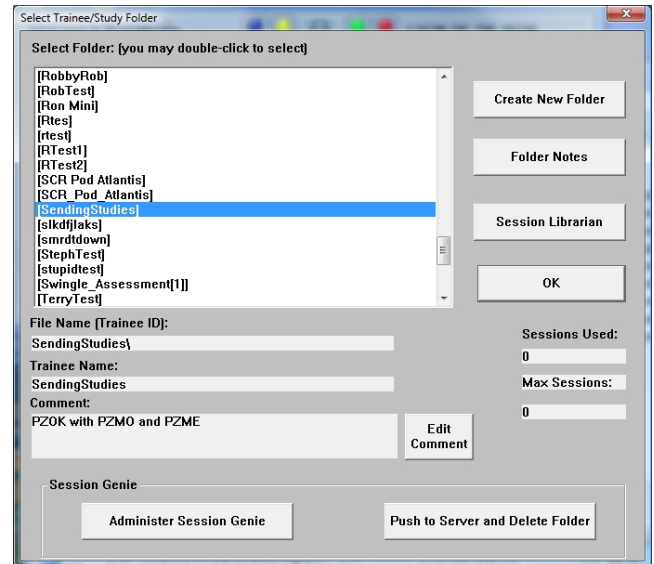
Key	Function
a	Increase alpha (8-12 Hz) threshold by 0.1uV or target by 1 percent
A	Decrease alpha (8-12 Hz) threshold by 0.1uV or target by 1 percent
b	Increase beta (15-20 Hz) threshold by 0.1uV or target by 1 percent
B	Decrease beta (15-20 Hz) threshold by 0.1uV or target by 1 percent
c	Increase coherence/phase threshold
C	Decrease coherence/phase threshold
d	Increase delta (1-3 Hz) threshold by 0.1uV or target by 1 percent
D	Decrease delta (1-3 Hz) threshold by 0.1uV or target by 1 percent
g	Increase “gamma” (38-42 Hz) threshold 0.1 uV or target by 1 percent
G	Decrease “gamma” (38-42 Hz) threshold 0.1 uV or target by 1 percent
h	Increase “hibeta” (20-38 Hz) threshold 0.1 uV or target by 1 percent
H	Decrease “hibeta” (20-38 Hz) threshold 0.1 uV or target by 1 percent
l	Increase “lobeta” (12-15 Hz) threshold 0.1 uV or target by 1 percent
L	Decrease “lobeta” (12-15 Hz) threshold 0.1 uV or target by 1 percent
M	Toggle “Brain Mirror” between FFT and Filtered Mode
r	Reduce artifact rejection threshold value by 10 microvolts
R	Increase artifact rejection threshold value by 10 microvolts
t	Increase theta (3-8 Hz) threshold by 0.1 uV or target by 1 percent
T	Decrease theta (3-8 Hz) threshold by 0.1 uV or target by 1 percent
u	Increase user band threshold by 0.1 uV or target by 1 percent
U	Decrease user band threshold by 0.1 uV or target by 1 percent
y	Copy autothresholds into current thresholds (“Autoupdate”)
+	Increase display gain by 20%
-	Decrease display gain by 20%
<Space>	Pause or end pause
1	Set mode so keys (d, t, etc) adjust channel 1 only for thresholds, etc.
2	Set mode so keys (d, t, etc) adjust channel 2 only for thresholds, etc.
3	Set mode so keys (d, t, etc) adjust channel 3 only for thresholds, etc.
4	Set mode so keys (d, t, etc) adjust channel 4 only for thresholds, etc.
0	Set mode so keys (d, t, etc) adjust both channels 1 and 2 for thresholds, etc.

## Trainee Folders

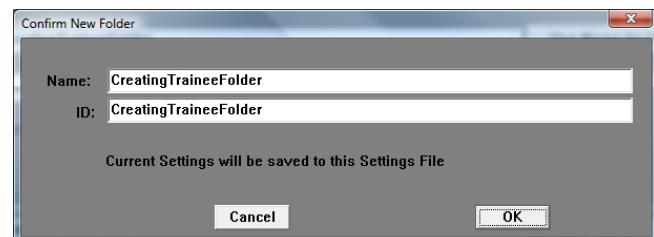
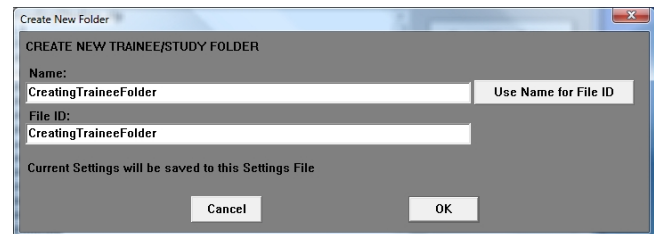
### *Creating a Trainee Folder*

**PLEASE NOTE:** This process can only be done if you have purchased a BrainMaster Clinical License

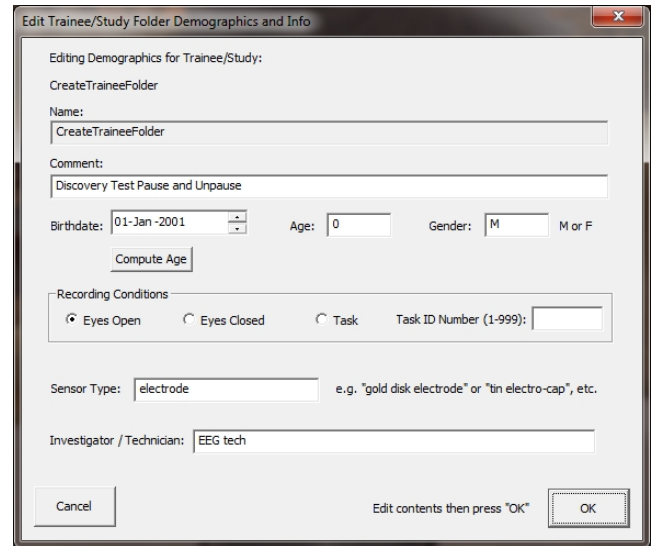
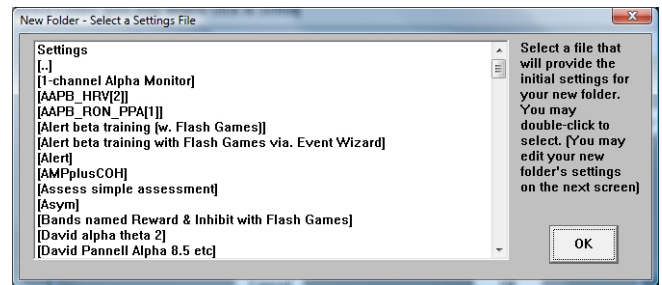
1. From the Setup/Home Screen, click the Folder Selection Button. This will bring you to the Select Trainee/Study Folder screen. On this screen, click the Create New Folder Button to begin creating a new folder.



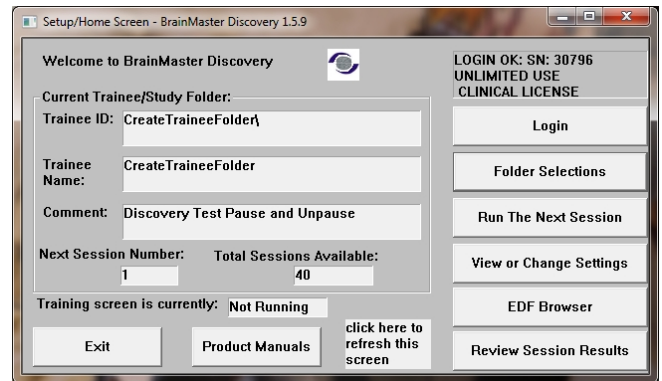
2. Type in the name that you would like, and the file ID for the folder in the proper fields. When naming the folder, please take HIPAA compliance into consideration. When you have entered the name and file ID, click OK to continue.
3. Another screen will pop up to confirm the name of the folder. If the name and file ID are OK, click OK to continue.



4. The following screen will allow you to select a settings protocol. Highlight the Settings File that you would like to use, and click OK to continue. **\*\*\*PLEASE NOTE: It is not recommended to choose [..] as a settings protocol.**
5. Next, fill out any additional information you would like for the client on the Edit Folder Info. Menu. When you have filled out all information that you would like, click the OK Button to continue.



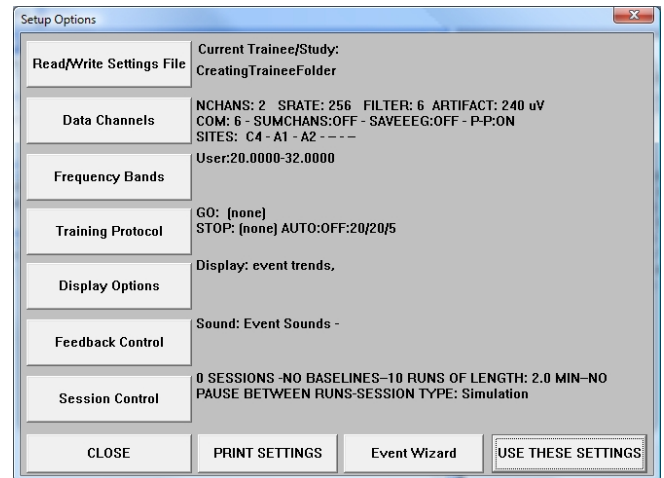
You have now created a folder for training. You will be able to tell this, as you will see the Trainee ID and Trainee Name are now displayed on the Setup/Home Screen. You might need to click somewhere on this screen in order for the updates to take place.



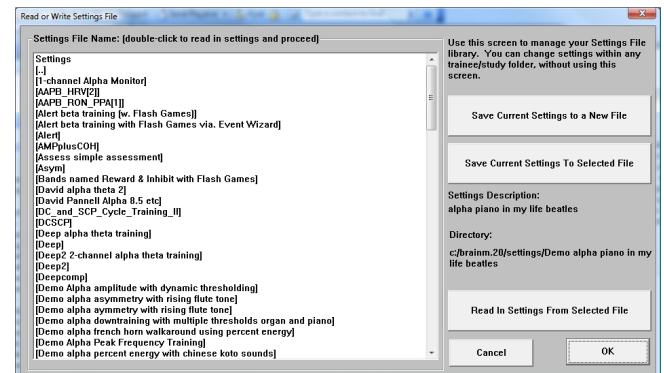
## Changing to a new Settings Files

**PLEASE NOTE:** This process can only be done if you have purchased a BrainMaster Clinical License

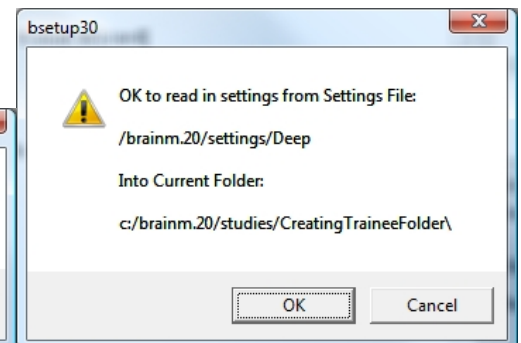
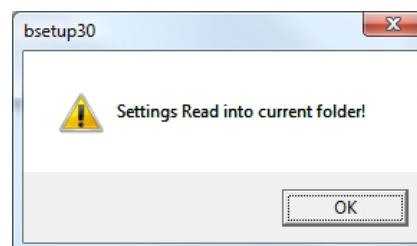
1. From the Setup/Home Screen, click the View or Change Settings Button. On the Setup Options Menu, click Read/Write Settings File Button to continue.



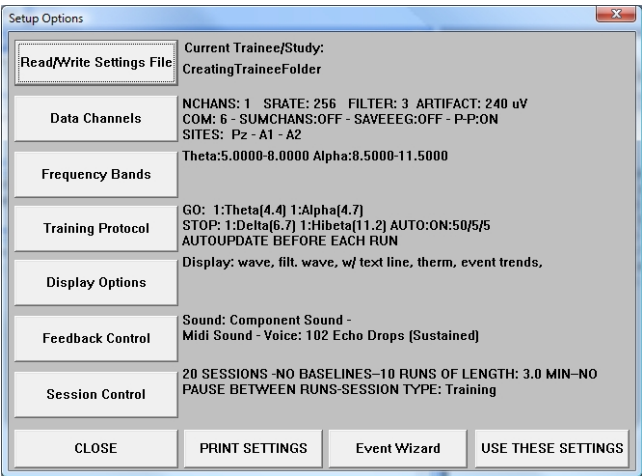
2. On the Read or Write Settings File Menu, highlight the settings file that that you would like to use, then click the Read In Settings From Selected File Button to continue.



3. The following pop-up will ask to confirm your changes. After you click OK, another Pop-Up will appear to confirm the changes.



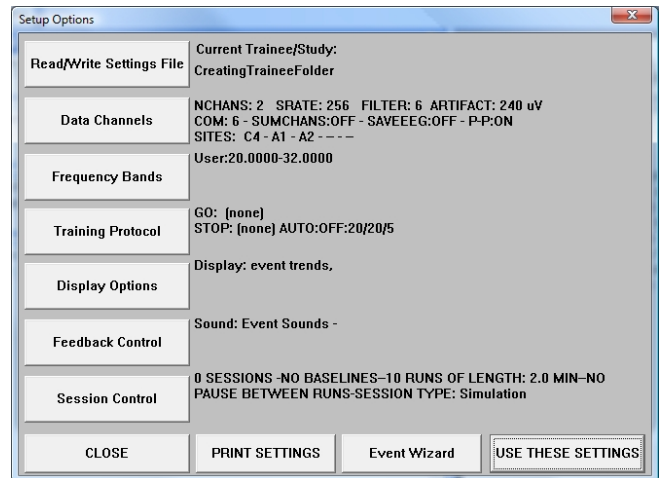
The settings for your Trainee folder have now been changed. You will be able to tell this, by seeing the information on the Setup Options screen will be different as it was before.



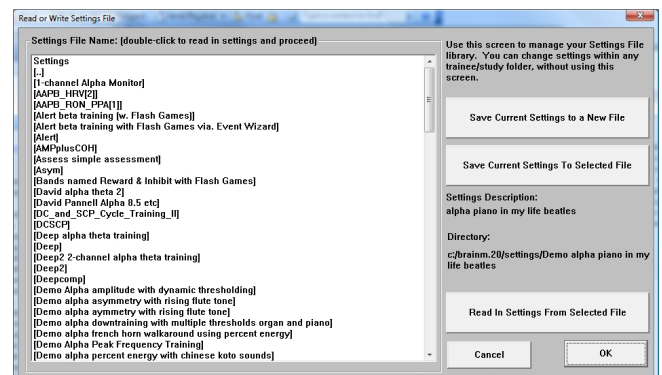
## *Saving Changes to Settings Files*

**PLEASE NOTE:** This process can only be done if you have purchased a BrainMaster Clinical License

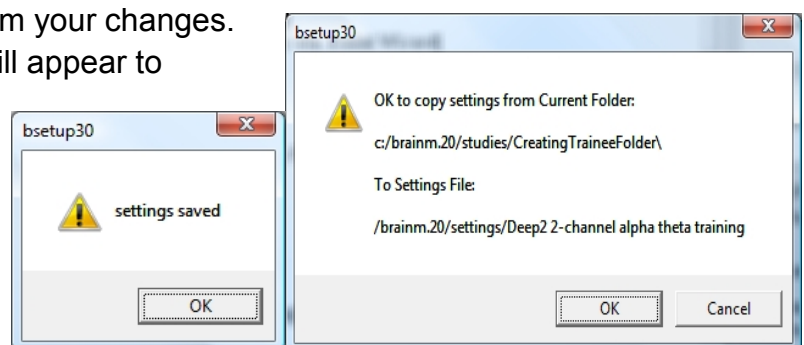
1. From the Setup/Home Screen, click the View or Change Settings Button. On the Setup Options Menu, click Read/Write Settings File Button to continue.



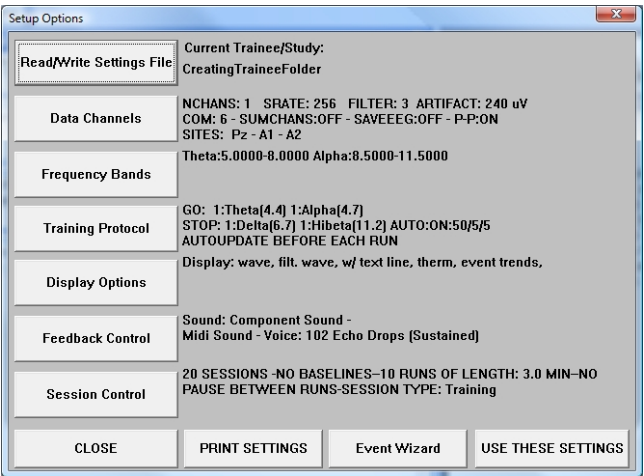
2. On the Read or Write Settings File Menu, highlight the settings file that that you would like to change, then click the Save Current Settings To Selected File Button to continue.



3. The following pop-up will ask to confirm your changes. After you click OK, another Pop-Up will appear to confirm the changes.



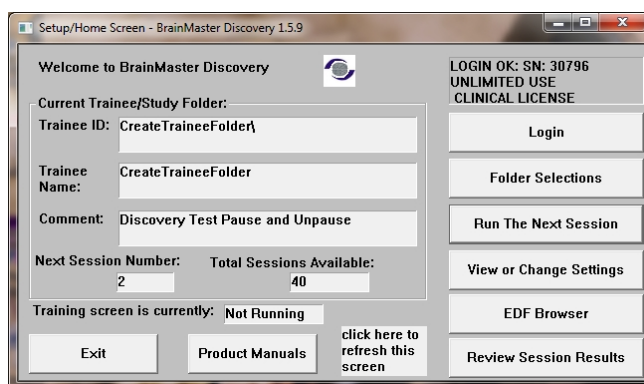
The settings have now been changed to the selected Settings File.



## Viewing a recorded EDF File

**PLEASE NOTE:** You can only play back a file that has the Save EEG to Disk option set to on. For more information on where to do this, see 533-314 for more information.

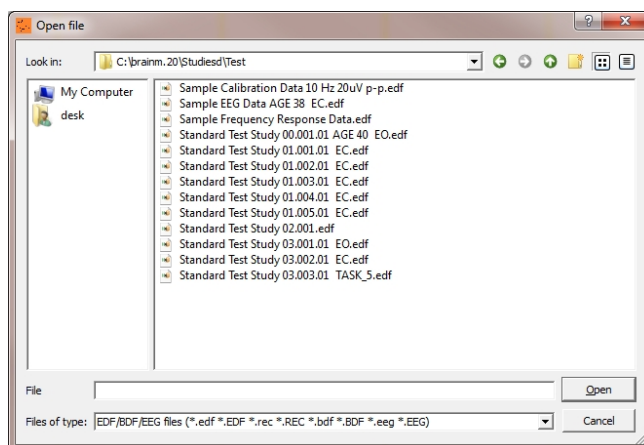
1. From the Setup/Home Screen, click the EDF Browser Button. This will open the EDF Browser.



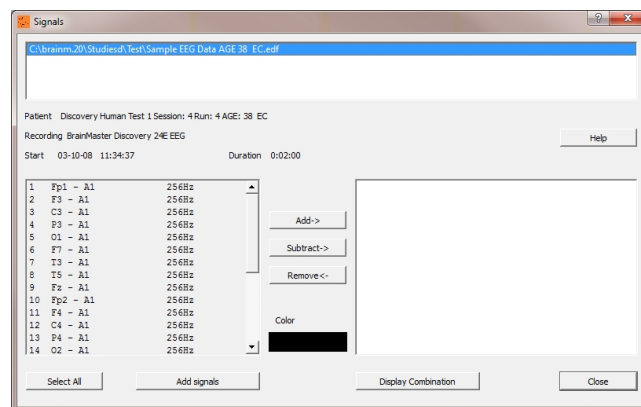
2. To open an EDF, click File→Open.



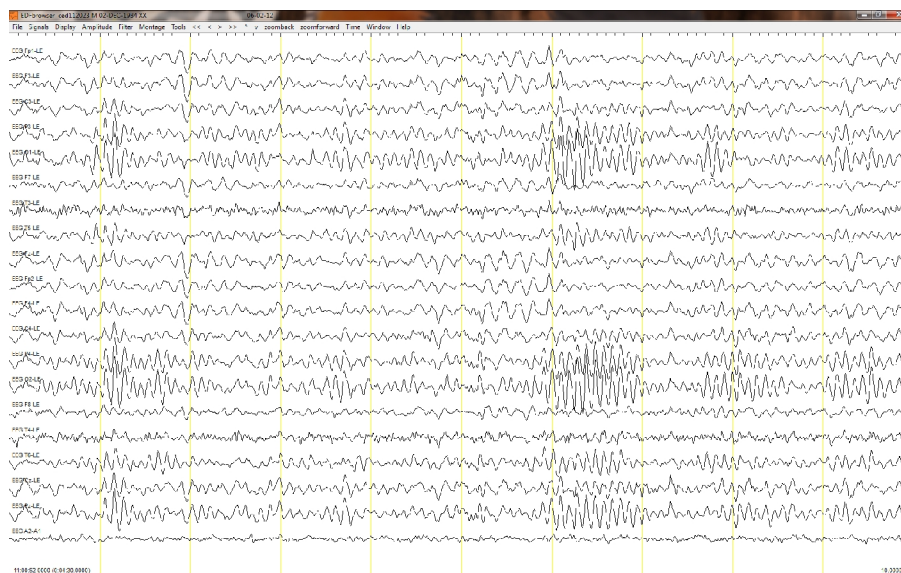
3. Use the Open File Menu, to navigate to where the EDF is located. If you have not moved this file on your own, it will be located in  
c:\brainm.20\studiesd\InsertStudyNameHere.



- On the signals menu, simply click the Add signals button to continue.



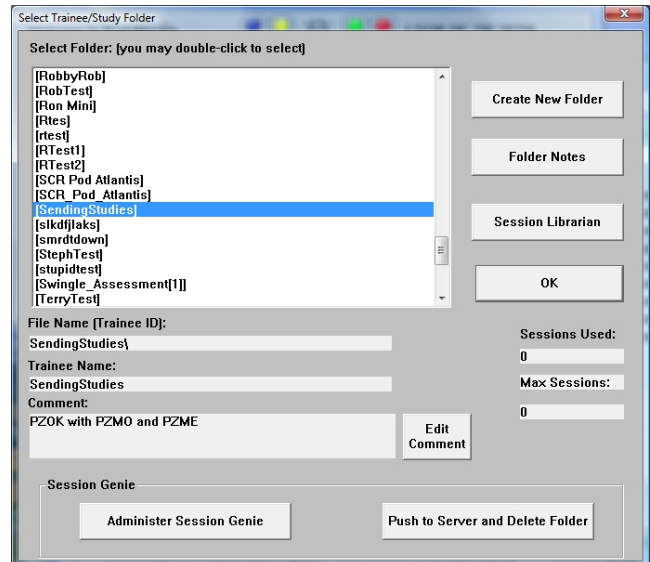
You will now be able to see the EDF that you recorded. The arrows at the top will allow you to move through the session.



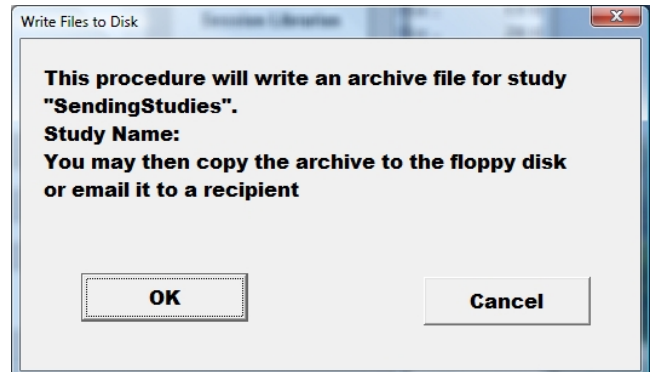
## BMZD Files

### *Creating A BMZD from a Studies File*

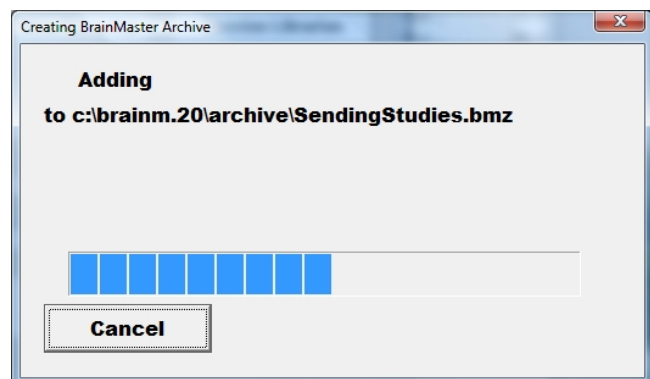
1. From the Setup/Home Screen, click the Folder Selection Button. This will bring you to the Select Trainee/Study Folder screen. On this screen, highlight the Folder you would like to create into a BMZD file, and click Session Librarian Button.



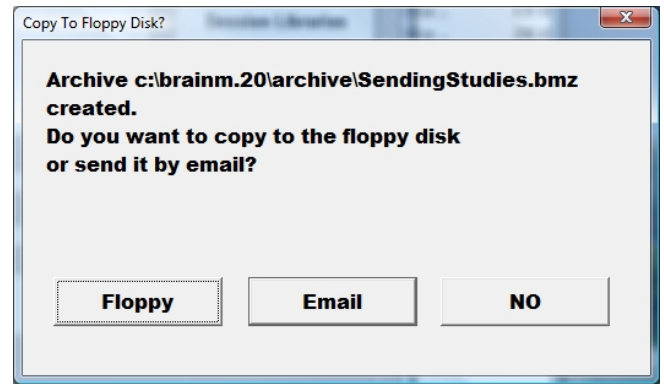
2. When the following screen pops up, click OK to continue.



3. Another screen will pop up to show progress. Nothing is needed to be done. Simply wait for the extraction to complete to continue.



4. When the following screen appears, it will give you 3 options: Floppy, Email, NO.
  - A. **Floppy** – This option will only work with a Floppy Disk. If you do not have a floppy drive, it will not function properly.
  - B. **Email** – In order for this to work properly, two things are needed. First, proper E-mail information needs to be filled in from the Login page(See attached Picture). Second, the E-Mail account has to be tied through Microsoft Outlook.



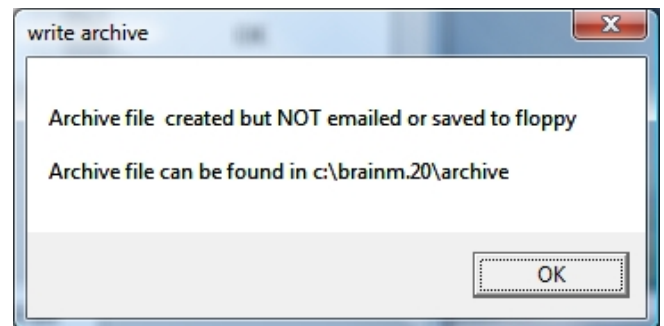
[Optional] Personal Information:

Name:

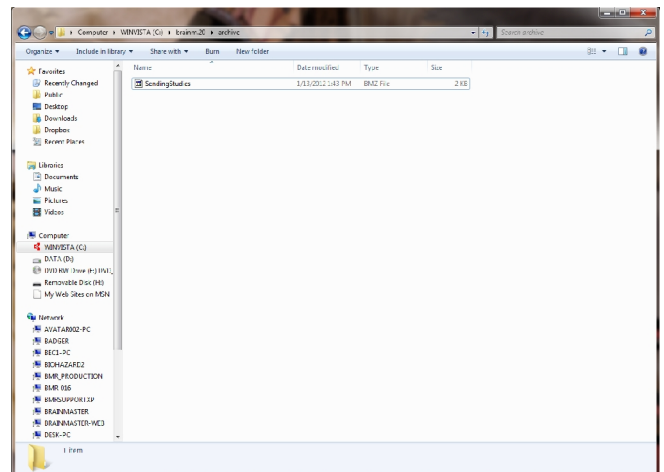
Email:

- C. **NO** – This is the option that most people will use. This will still create the BMZ, but it will not E-Mail it, or save it to a Floppy, it will simply create the BMZ File at C:\brainm.20\archived

5. Depending on which option that you choose above, you will receive a message stating that the action has been completed.



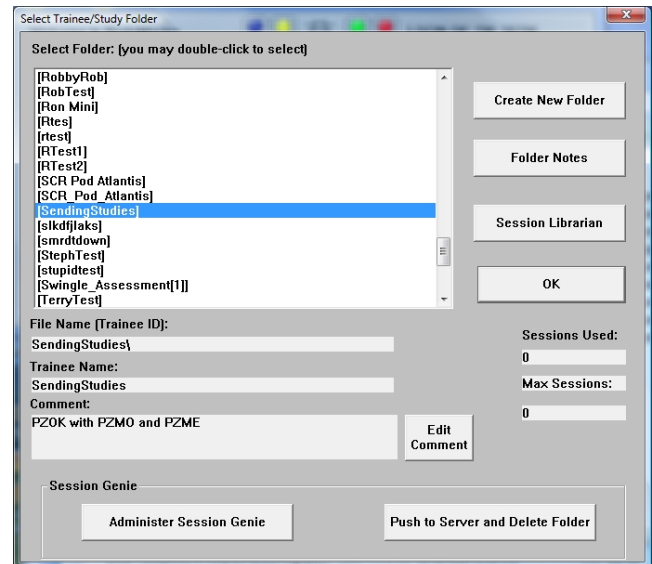
You now have a BMZD file created. You will be able to tell this is complete by seeing the archive of the folder in c:\brainm.20\archived.



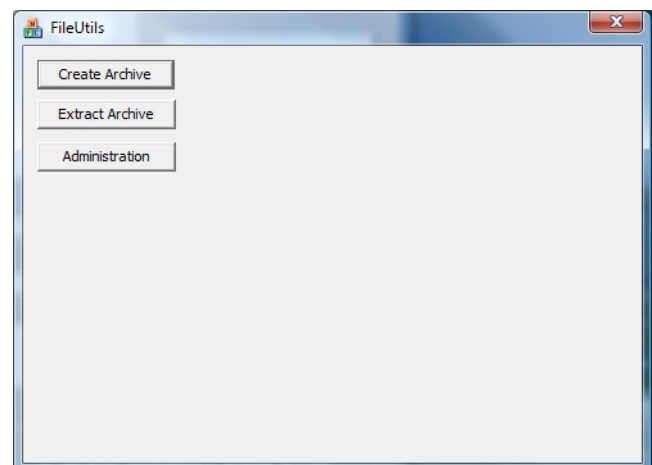
## *Creating a BMZD from a Settings File*

**PLEASE NOTE:** This method can only be done if you have purchased a BrainMaster Clinical License

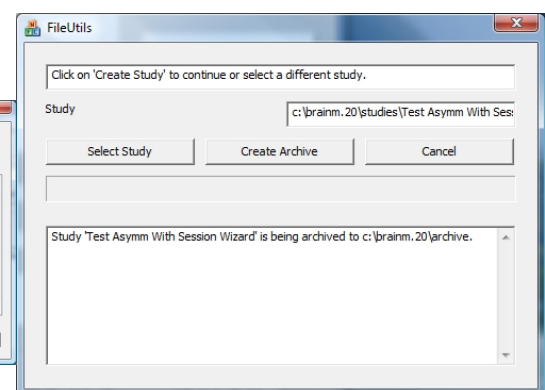
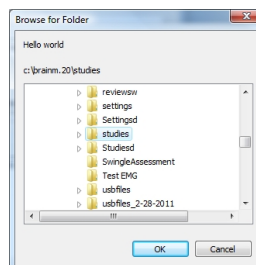
1. From the Setup/Home Screen, click the Folder Selection Button. This will bring you to the Select Trainee/Study Folder screen. On this screen, highlight the Folder you would like to create into a BMZD file, and click Administer Session Genie Button.



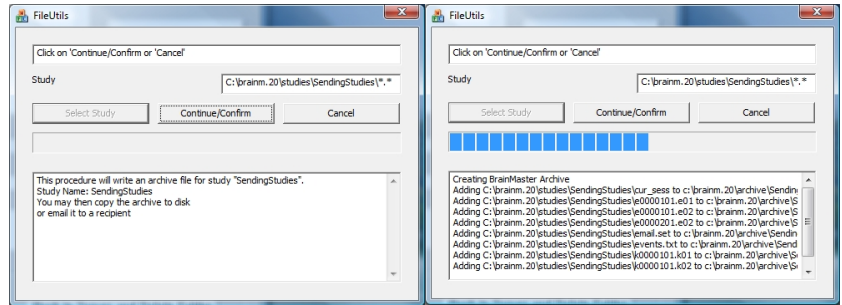
2. When the FileUtils Screen opens, click the Create Archive Button.



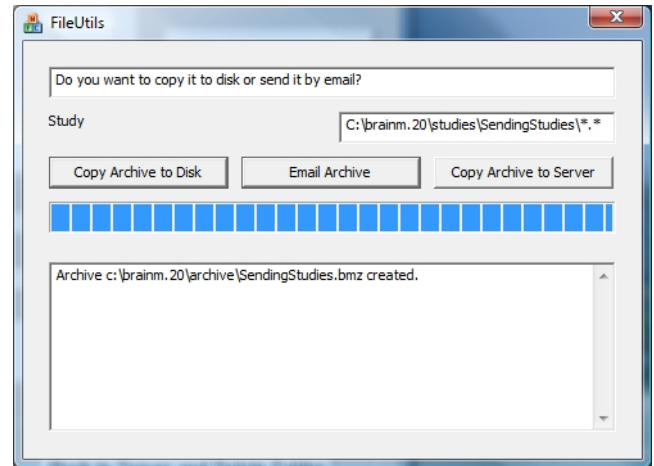
3. Click The Select Study Button. This will bring up a menu in which you can choose not only folders located in the Studies folder, but the Settings folder as well. After you have the file that you would like to Archive, click OK on the Browse For Folder Menu, and then the Create Archive Button on the FileUtils Screen to continue.



4. To continue, you will have to click the “Continue/Confirm” Button. After you do this, you will see a Blue Progress bar, and a list of tasks that are being completed.



5. When the following screen appears, it will give you 3 options: Copy Archive to Disk, Email Archive, or Copy Archive to Server.
  - A. **Copy Archive to Disk** – This option will only work with a Floppy Disk. If you do not have a floppy drive, it will not function properly.
  - B. **Email Archive** – In order for this to work properly, two things are needed. First, proper E-mail information needs to be filled in from the “Login” page(See attached Picture). Second, the E-Mail account has to be tied through Microsoft Outlook.



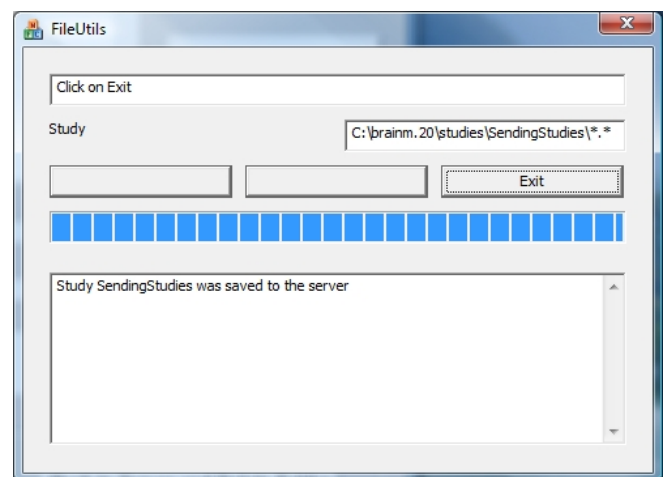
[Optional] Personal Information:

Name: BrainMaster Support

Email: support@brainm.com

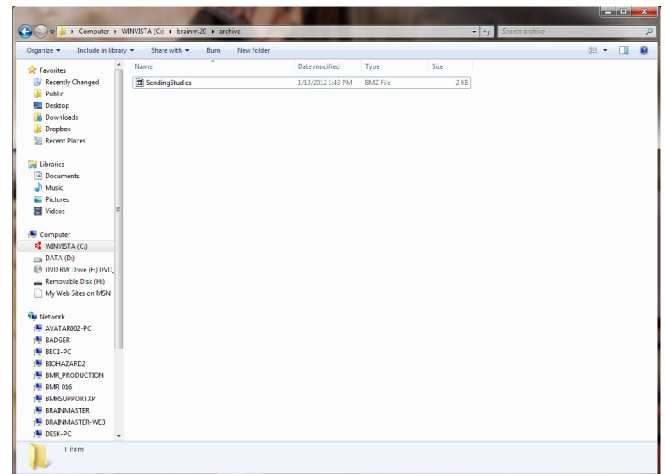
- C. **Copy Archive to Server**– This is the option that most people will use. This will still create the BMZD, but it will not E-Mail it, or save it to a Floppy, it will simply create the BMZ File at C:\brainm.20\archived

6. Depending on which option that you choose above, you will receive a message stating that the action has been completed.



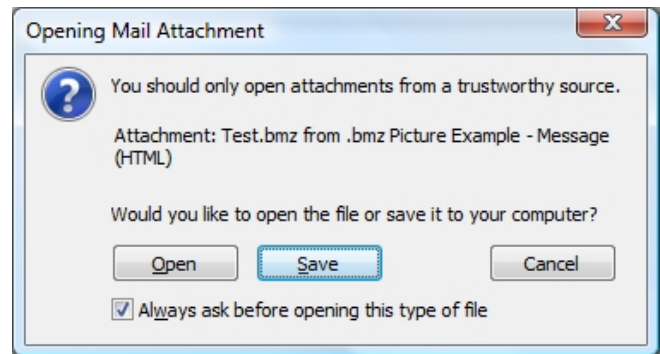
## BrainMaster Discovery Software User Manual

You now have a BMZD file created. You will be able to tell this is complete by seeing the archive of the folder in c:\brainm.20\archived

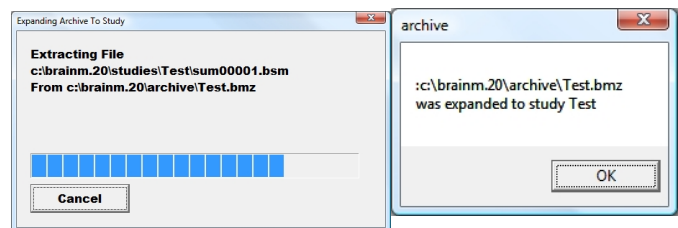


***Import Received/Downloaded BMZD Files***

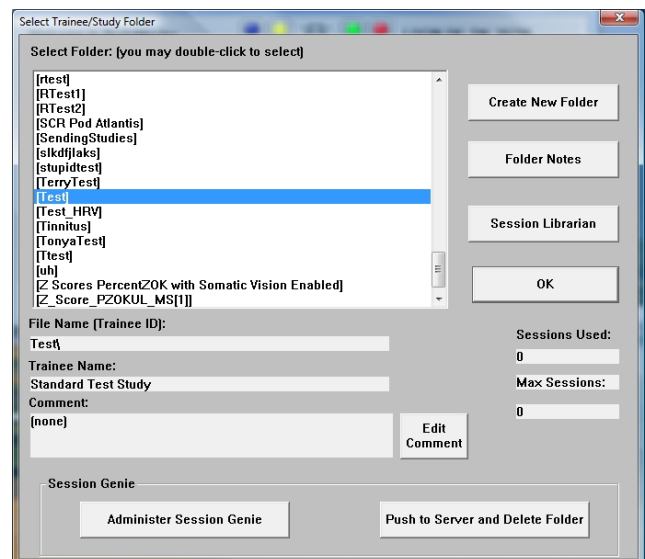
1. There are 3 ways BMZD Files can be received: E-Mail, Removable media, or downloading from the internet. Double-click on the BMZD file, and choose Open or Run, depending on your version of Windows.



2. The system will now take over. Press OK when prompted.



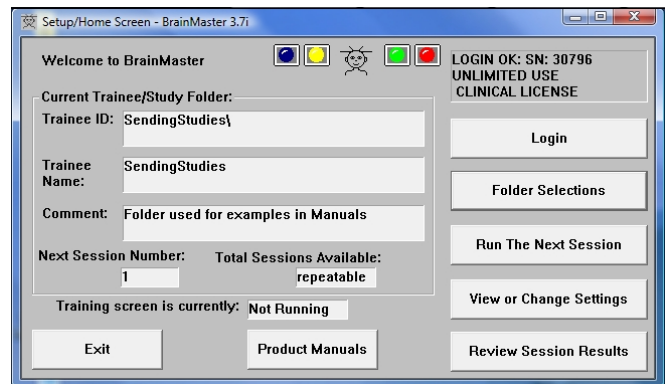
3. The folder is now expanded for use in your studies folder. You can access this folder by clicking Folder Selection Button on the BrainMaster Setup/Home Screen.



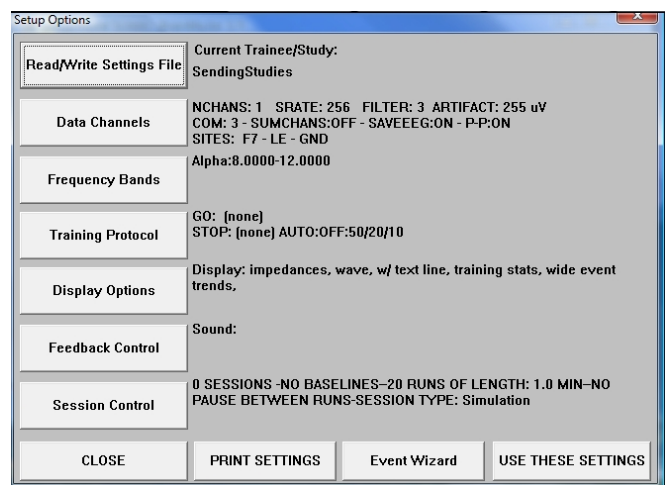
## ***Moving Studies File to be Used as Settings File***

**PLEASE NOTE:** This method can only be done if you have purchased a BrainMaster Clinical License

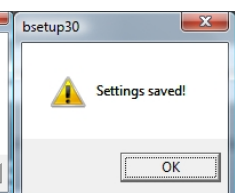
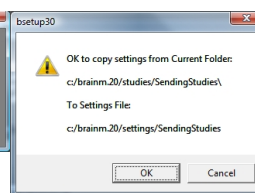
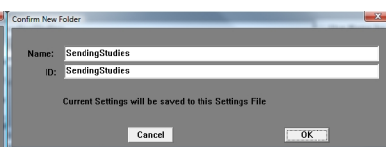
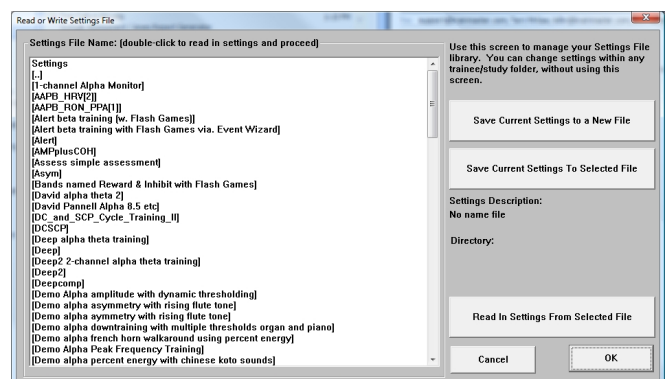
1. On the BrainMaster Setup/Home Screen, click the Folder Selections Button and select the file that you would like to be converted to a Settings File.



2. From the Setup/Home Screen, click the View or Change Settings Button. Once this is complete, then click the Read/Write Settings File Button.

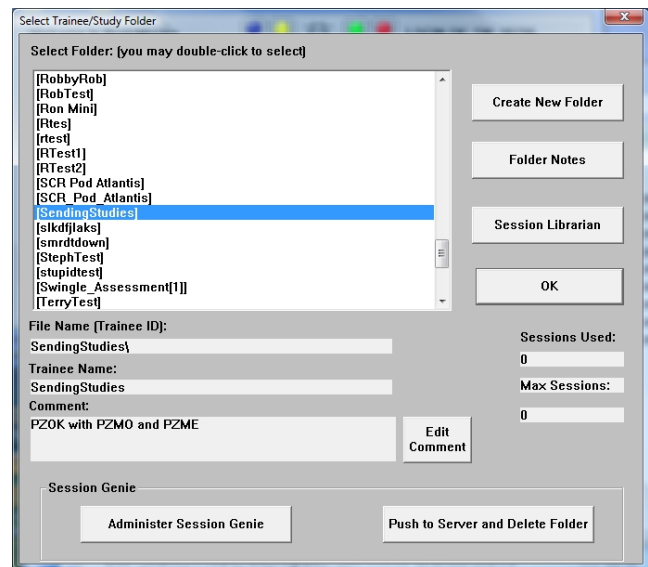


3. In the Read or Write Settings File Menu, you will click the Save Current Settings to a New File Button. After doing this, click OK to all the prompts to follow. After you click OK on the Settings saved screen, you will now be able to use the folder as a settings protocol.

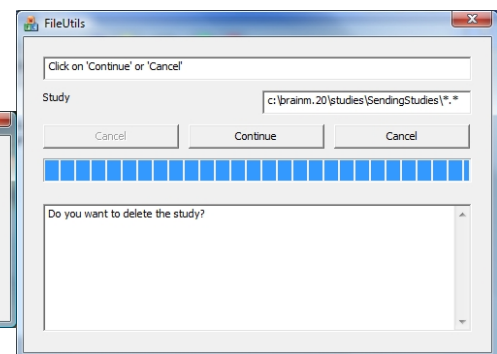
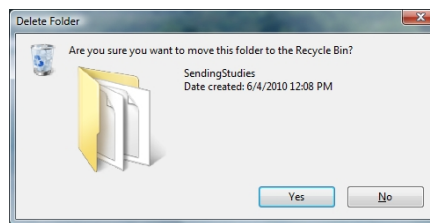


## *Archiving Old Studies Folders*

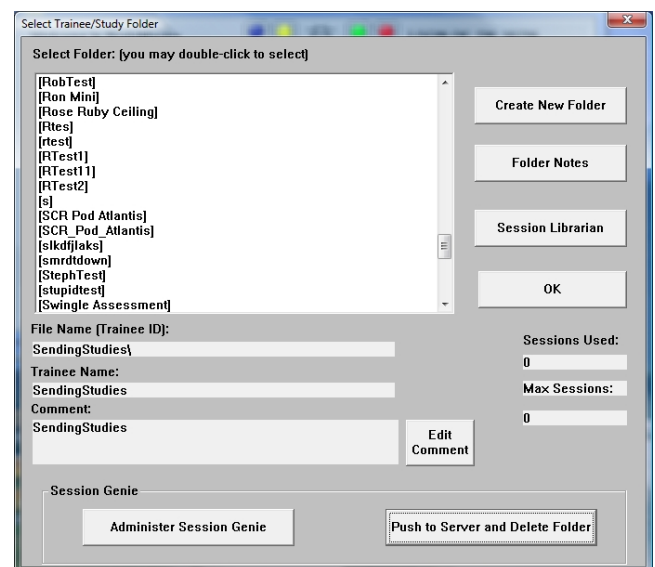
1. From the Setup/Home Screen, click the Folder Selection Button. This will bring you to the Select Trainee/Study Folder screen. On this screen, highlight the Folder you would like to remove, and click the Push To Server and Delete Folder Button.



2. The system will take over. Once the archiving process is completed, it will ask if you are sure that you want to move the folder to the recycling bin. Click Yes to continue.

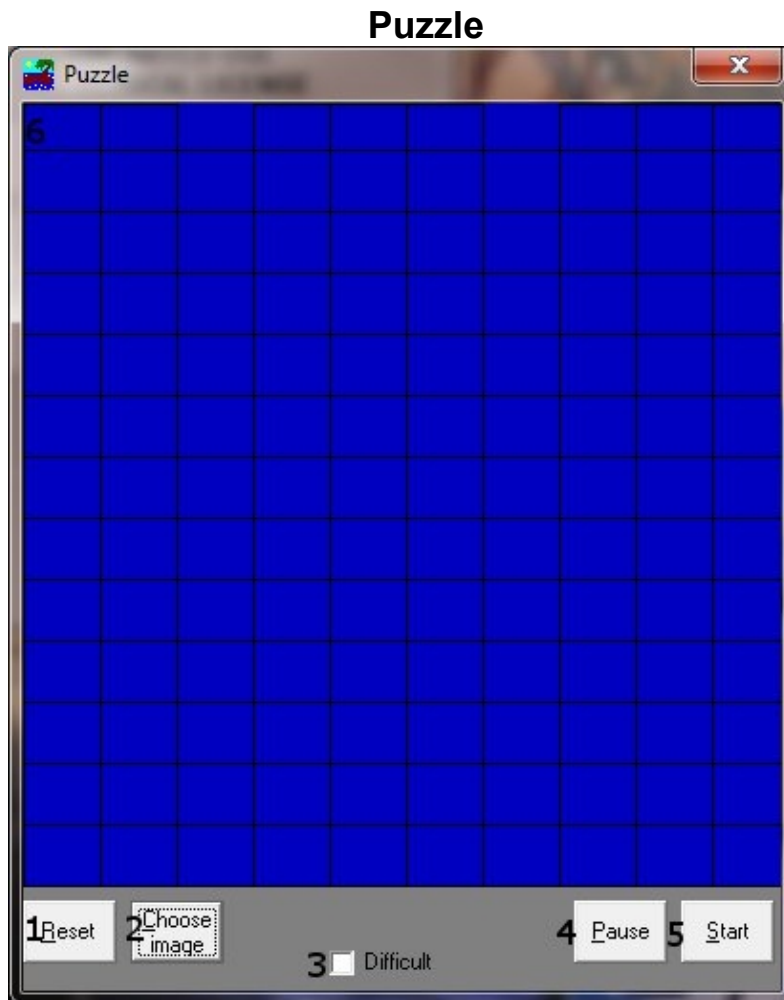


The folder has now been deleted from the Studies Directory. A BMZD of this file has been created, and is saved at C:\brainm.20\archived.



## BMr Extras

### *BMr Contributed Games*



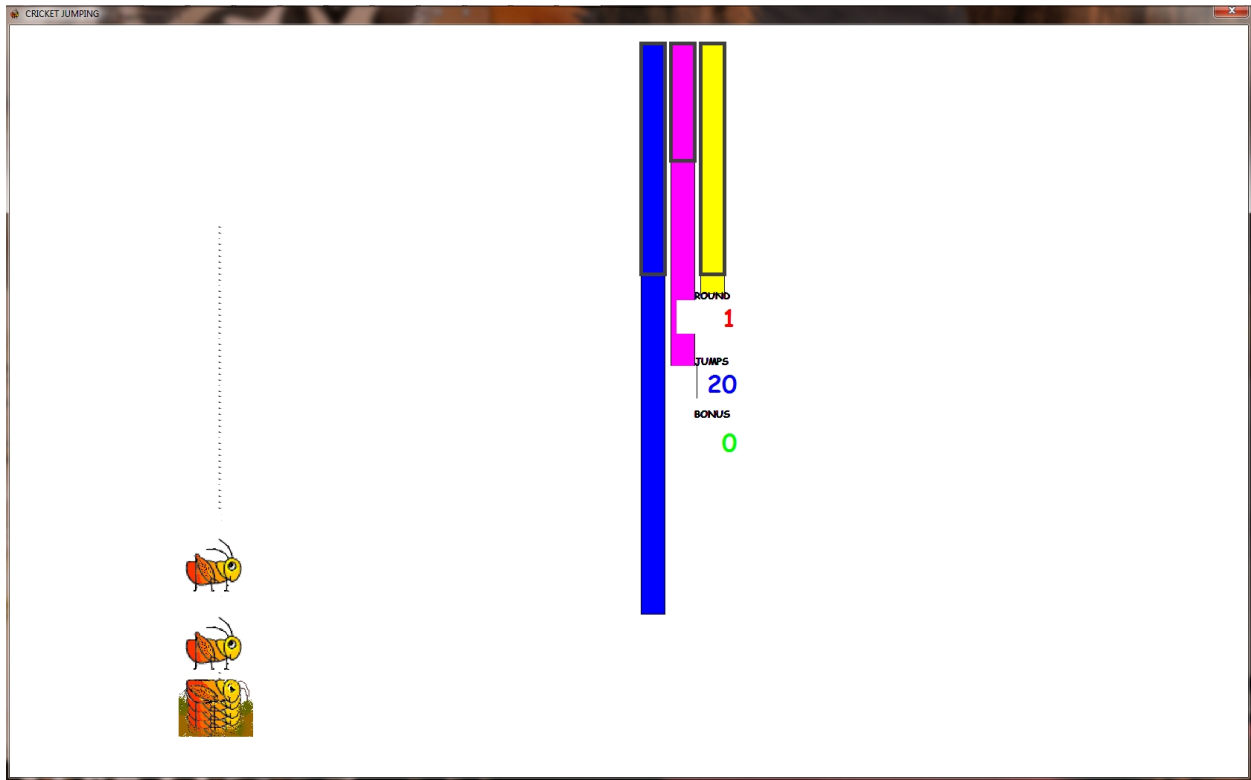
1. **Reset Button** – Click to make the blue squares visible. This can also be performed by clicking Alt + R.
2. **Choose Image Button** – Click to place a new image behind the blue squares. This can also be done by clicking Alt + C.
3. **Difficulty Check Box** – Check to change the difficulty. If the difficulty is checked on, then the customer must score two points to reveal a piece of the picture.
4. **Pause Button** – Click to pause the game in progress. This can also be performed by clicking Alt + P.
5. **Start Button** – Click to start the game. This can also be performed by clicking Alt + S.
6. **Display** – This is display, which is a square covered with 130 small blue squares. The puzzle will be revealed one square every time a point(depending on difficulty) is scored in the BrainMaster software.

## Space Race



1. **Interceptor** – The Interceptor Rocket will advance when points are not being scored.
2. **Lunar Lander** – The Lunar Lander will advance whenever points are scored. The object is to get the lander to the top of the screen before the interceptor.
3. **Score Board** – Section that keeps track of how many times each ship wins the race.
4. **Start Button** – Click to start the game. This can also be performed by clicking Alt + S.
5. **Pause Button** – Click to pause the game. This can also be performed by clicking Alt + P.
6. **Change Background Button** – Click to choose between several background images for the screen. This can also be performed by clicking Alt + B.
7. **Choose Sound Button** – Click to choose an explosion sound(if you desire) for when the lander wins the race. There are several that are included. This can also be performed by clicking Alt + C.
8. **Hide Controls Button** – Click to shrink the screen and obscure the control buttons. This can also be performed by clicking the Alt + H. To get the controls back, click Alt + “=”.

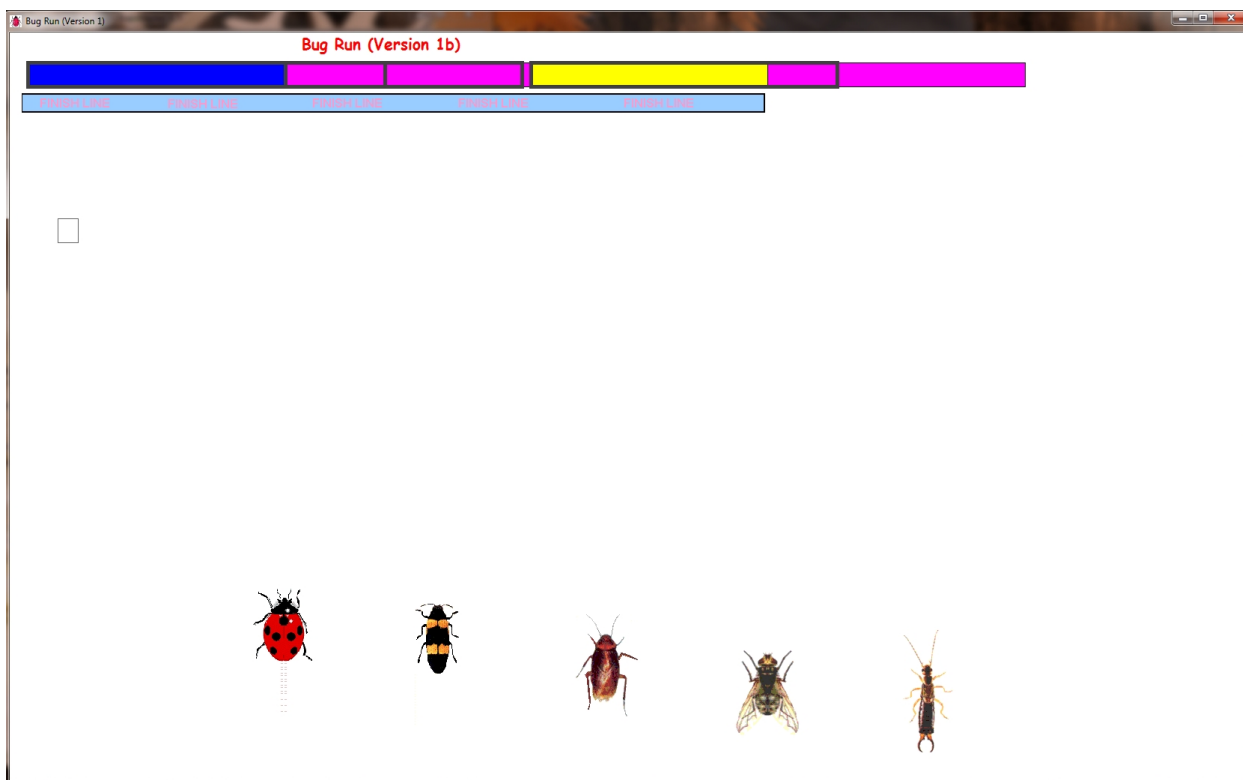
## Cricket



As training proceeds, the crickets “stack up” and pile on top of each other.

Later on, the bottom images change, bonus points are awarded, and the screen becomes more interesting.

## Bug Run

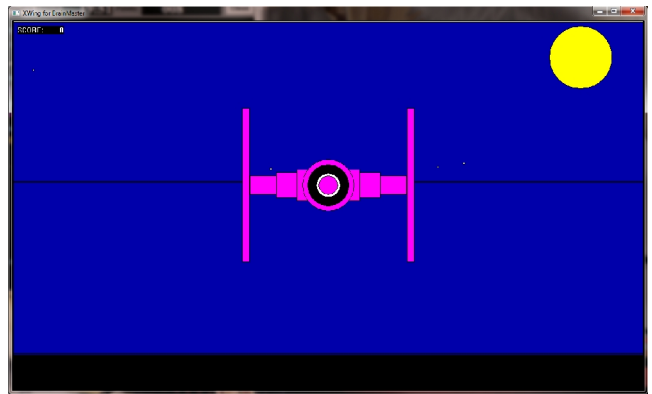


This screen provides a “bug race”. As the trainee meets the training criteria, the bugs will advance at random, running a race. If the trainee has excessive amounts of “stop” component, some of the bugs will slip down a bit, and fall behind. The goal of the game is to have the race progress.

After a while, one of the bugs will win, and be declared the winner.

***BMr Popups Displays*****Display:** X-Wing**Display Type:** Game**Requirements:** Basic amplitude training

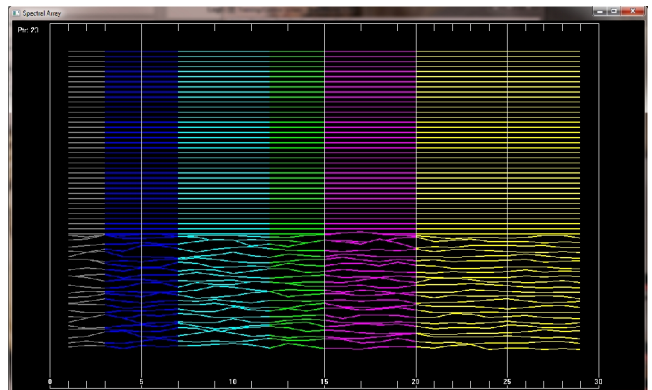
**Brief Description:** The space ship will rise when the reinforced component (e.g. lobeta or beta) is high, and the ground will rise when the inhibited component (e.g. theta) is high. Both thresholds are shown as lines on the screen. When a point is scored, the spaceship will briefly turn red, and the point will be registered in the indicator area. When two channels are trained, this window shows two space ships, with the left panel showing Channel 1, and the right panel showing channel 2.

**Display:** BrainMan**Display Type:** Game**Requirements:** Basic amplitude training

**Brief Description:** BrainMan will advance 1 point for each target “hit”. Since what constitutes a “hit” is determined by the setup of the Thermometer system, the exact criteria for causing BrainMan to move can be set up in any desired fashion. Whenever an inhibited component is over its threshold (e.g. theta), BrainMan will turn blue, signaling the trainee.

**Display:** 2D Spectral**Display Type:** Display**Requirements:** Basic amplitude training

**Brief Description:** This provides a cascade of past FFT spectra, covering the previous 1 minute of activity. Each frequency band is colored according to the frequency ranges selected. This coloring is the same as used on the FFT and the BrainMirror displays. There are tic marks and the labels to identify the frequency coordinates of the display. When two channels are used, two spectra are shown.

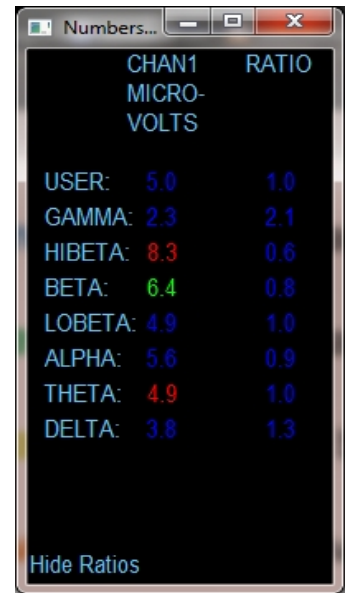


**Display:** Numbers

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** This screen shows numeric values for each component. “GO” components are shown in green. “STOP” components are shown in red. All other components are shown in blue. The values are “damped”, so they do not change too quickly. Ratios to theta can be shown by selecting the bottom text with the mouse. In 2-channel mode, it shows both channels.

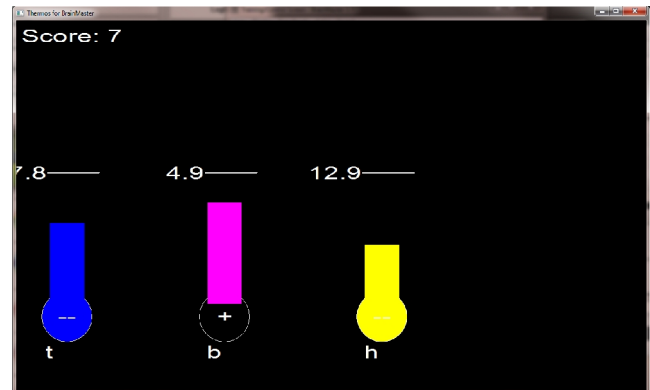


**Display:** Thermos

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** This window shows each of the major EEG component intensities as a bar graph with real-time response. “GO” components show a “+” in the bottom of the thermometer. “STOP” components show a “-” in the bottom of the thermometer. Un-trained components will not be shown in this screen.

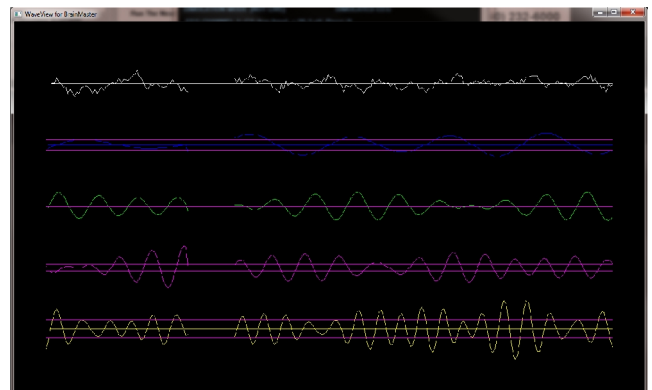


**Display:** Waves

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** This window shows the raw and filtered EEG waves in a resizable window. The display scal can be changed using the “+” and “-” keys, as usual. When two channels are used, both channels appear.



**Display:** Lissaview

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** This is a 2-dimensional display, using “rate of change” in place of the time axis. The vertical axis is exactly the same as in the EEG waveform display, while the horizontal axis is the first derivative of the EEG signal.

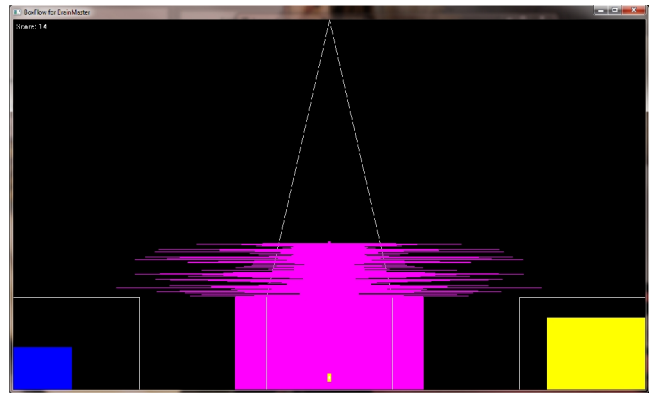


**Display:** BoxFlow

**Display Type:** Game

**Requirements:** Basic amplitude training

**Brief Description:** This is similar to that used in other common displays. The center box gets wider and narrower, so you can see the past history of the enhance band. You want it wide, to meet the threshold. The outer boxes are the “inhibits” and you want them small. If they get large, they encroach on the inner box, which inhibits feedback. When two channels are used, two “BoxFlows” appear.

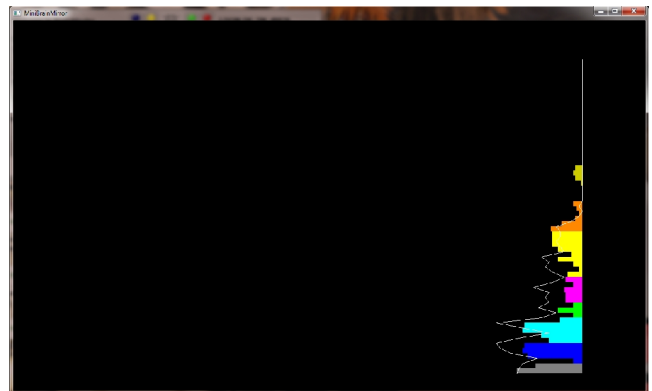


**Display:** MiniBMirr

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** This window shows the BrainMirror in a resizable window. It uses the FFT to show the current EEG component values. The BrainMirror window also works in 2-channel mode.

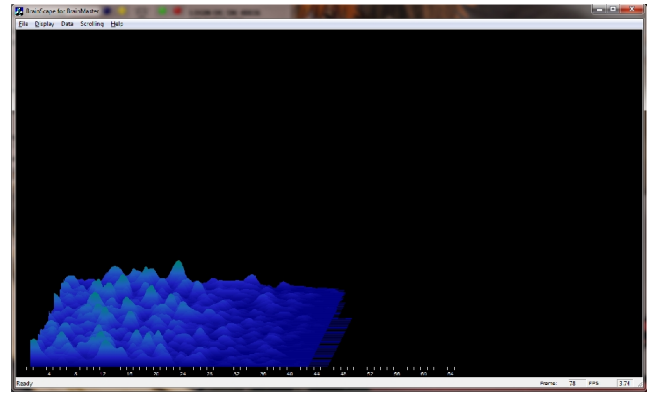


**Display:** BrainScape

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** BrainScape is designed to provide a 3-dimensional time/frequency representation of EEG signals, using a combination of frequency analysis, spline interpolation, and color-coded representation of signal amplitude. When two channels are used, a BrainScape for both channels appears. In two channel mode, when Sum/Difference channel mode is used, the two signals viewed are transformed into their sum and difference signals, and displayed in the usual manner.

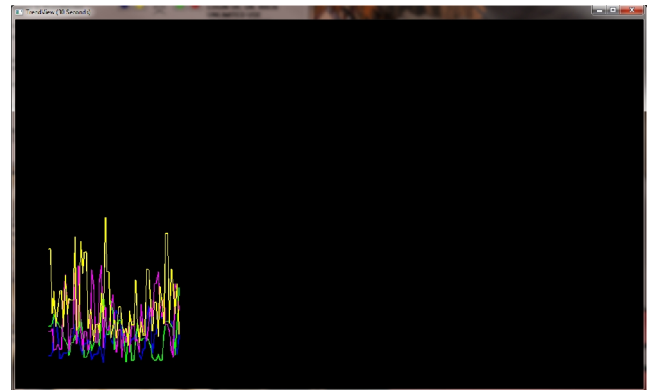


**Display:** TrendView

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** This shows the current and past activity of a component, in a plot of value vs. time, over a period of 30 seconds. After the plot reaches 30 seconds, it clears and redraws. The plot window displays only those components that are currently selected. When two channels are used, both appear on the display.

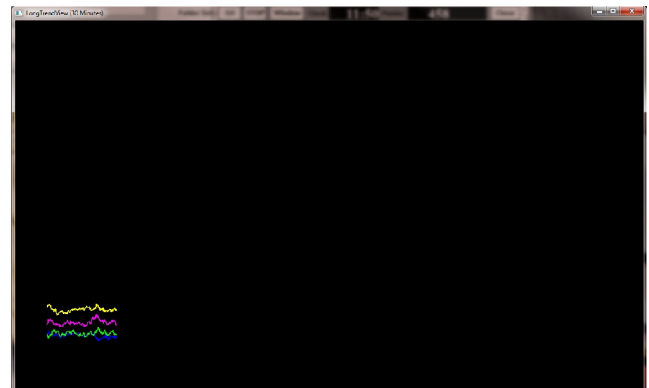


**Display:** LongTrend

**Display Type:** Display

**Requirements:** Basic amplitude training

**Brief Description:** This shows the current and past activity of a component, in a plot of value vs. time, over a period of 30 minutes. After the plot reaches 30 minutes, it clears and redraws. The plot window displays only those components that are currently selected. When two channels are used, both appear on the display.

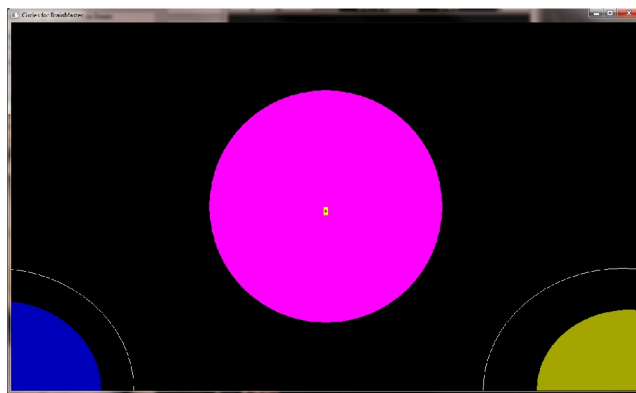


**Display:** Circles

**Display Type:** Game

**Requirements:** Basic amplitude training

**Brief Description:** The Circles Window is similar to the BoxFlow, in that the center feature shows the main “uptrained” component, while the outer features show the high and the low “inhibits”. When two channels are used, this window adapts, to show the two “uptrained” components as an ellipse (width represents channel 1, and height represents channel 2). In addition, the total of 4 inhibits are shown in the corners. Channel 1 inhibits are shown on the left, and channel 2 inhibits are shown on the right



## BMr Flash Player

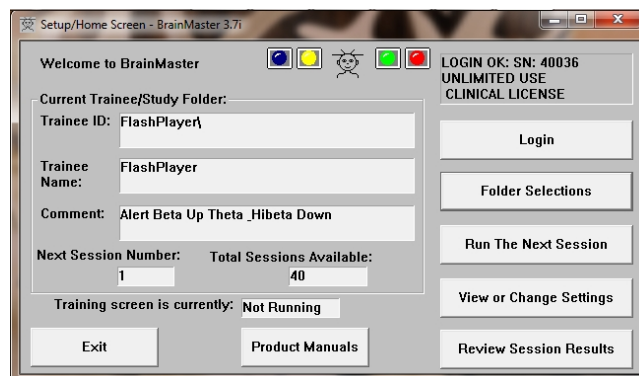
### *BMr Flash Player Control Menu Display*



1. **Game Drop-Down Box** – Drop-down box where you can choose the game that you would like the Flash Player to use.
2. **Protocol Type Drop-Down Box** – Drop-down box where you can choose the type of Protocol you are using, whether it's a Standard BrainMaster, LZT-Live Z-Score, or RTZ-Real Time Z-Score.
3. **Game Type Drop-Down Box** – Drop-down box where you can choose the Game Type that the Flash Player is using.
4. **Display Window** – Display Window where the Flash Player Game is played.
5. **Event Wizard Readings** – Displays the information that is coming in from the Event Wizard.

## Using BMr Flash Player

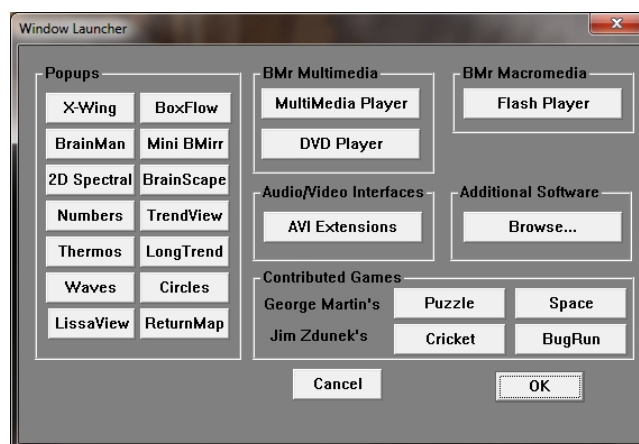
1. Setup the training that you would like to use, or choose an existing folder that you would like to us, and click the “Run The Next Session” Button.



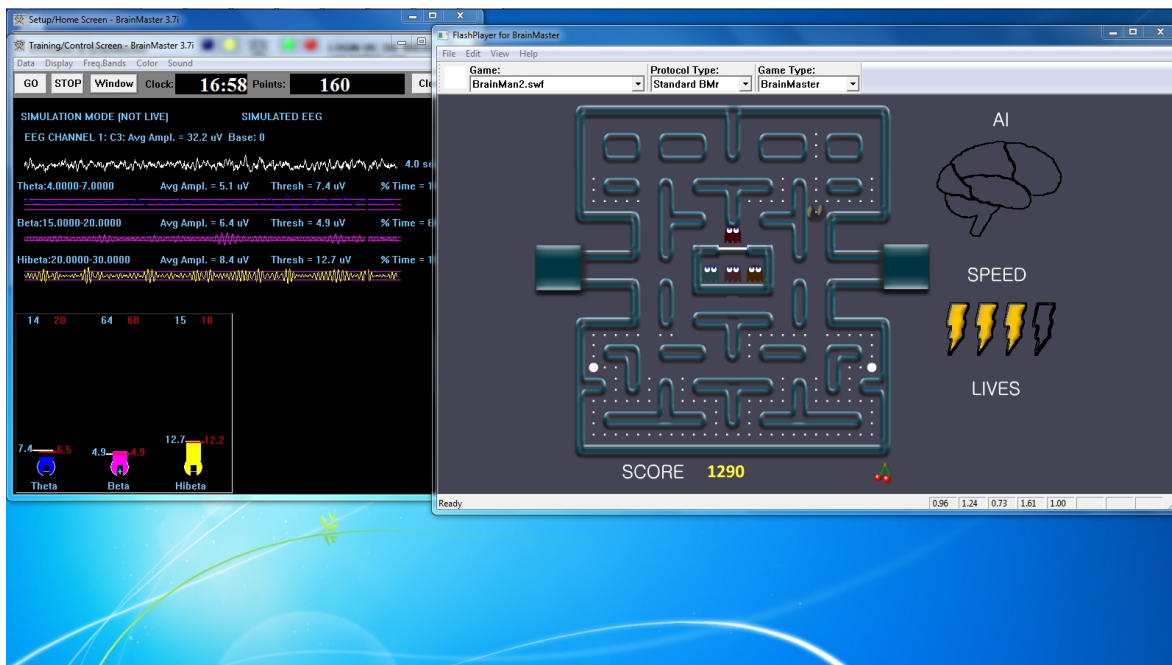
2. After you start the Session, click the “Window” Button.



3. In the Window Launcher Menu, click the “Flash Player” Button, located in the BMr Macromedia Section.



The Flash Player will now be running with the BrainMaster Software. You will be able to tell this has been successful, as the FlashPlayer Player for BrainMaster for BrainMaster Window will open, and the chosen Video file will play. Please make sure for proper use, the the Protocol Type, as well as the Game Type are properly set for optimal performance.



*Flash Player Games***Color Quest**

1. **Blimp** – Once a blimp has launched, the user will cause it to move every time its green progress bar fills up. When the blimp moves, it will move in the direction of the Colorful Ring (accuracy is dependent on user feedback). When the blimp hits the ring, it will change color. After 10 hits, the blimp will “spin out”, causing it to disappear, restoring color to the game screen. There are 6 total blimps.
2. **Launch Pad** – When there is no blimp on-screen, the user must fill the green progress bar in the top-left corner. Once this happens, a new blimp will launch from the Launch Pad. Also, the pink lights on the Launch Pad will illuminate when the user meets the requisite feedback conditions.
3. **Colorful Ring** – This ring is the target of the blimp. When the blimp hits it, the blimp will change color. Also, the ring will spin when the user meets the required feedback conditions.
4. **Progress Bars** – These progress bars measure the overall feedback of the user. The “rainbow” feedback bar, on the left, displays the user’s relative feedback for the last 3 seconds (i.e.: A full bar means the user met conditions 100% for the last 3 seconds, a half-bar means the user has met conditions 50% for the last 3 seconds, etc.). The green progress bar accumulates over time. If the user does not meet required conditions, the green progress bar will begin to descend. Filling the green progress bar once corresponds to 3 seconds of 100% feedback.
5. **Trophy Blimps** – As your blimp continually hits the Colorful Ring, three miniature models of your blimp will become visible, floating about in the background. They are purely aesthetic, and represent a visual reward for the user’s hard work.
6. **Progress Panel** – The Progress Panel has six blimp-shaped outlines. As the user “completes” each of the six blimps, the blimp-shaped outline will be filled in with a gold blimp “token”. This panel lets the user know how many blimps are left before the game is finished, as well as representing a visual reward for the user.

**Similar Games** – None

## BrainCats 2



Opening Screen

1. **Select Cat Section** – Section where you select the cat who will run according to the user feedback.
2. **Race Length Section** – Section where you choose the length of the race. The non-user cats will take about this long to complete the race. Depending on the difficulty level and user feedback, the user could complete the race in a wide range of times. If the user meets the difficulty level consistently, they can be expected to take about as long as the non-user cats.
3. **Difficulty Setting** – Section where you set the difficulty. The difficulty corresponds to the percentage of client feedback that will put the player cat about “on par” with the race competition. The default value is 50%. For example: at a difficulty level of “25”, the client will have to meet the required conditions about 25% of the time to keep up with their opponents in the race. As the client meets conditions more consistently, the chance of the client winning will also increase. So, in the case of “25”, a client providing 35% feedback would have a good chance of winning the race.
4. **Sound On/Off Section** – Sections where you can control the sound settings for the game. The sounds act primarily as reward feedback, and appear in 5 different places during the game:
  - a. At the games start
  - b. At the result screen after a win
  - c. When the user earns the Monkey Trophy
  - d. When the user earns the Elephant Trophy
  - e. When the user reaches the nighttime scenario
  - f. When the user wins after completing the nighttime scenario
5. **Start Race Button** – Click to begin the game after all settings are set to your desired settings.

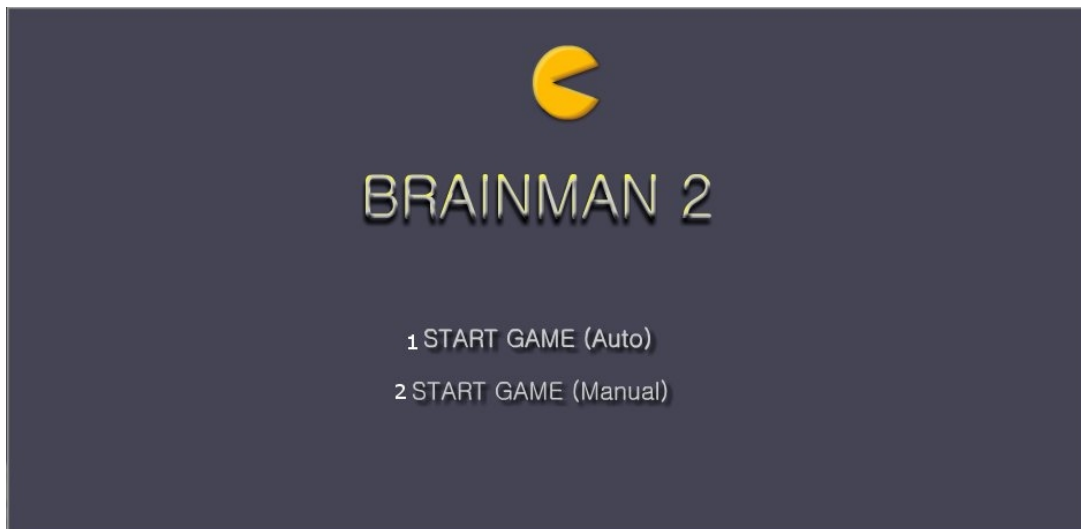


Race Screen

1. **Sun/Moon Graphics** – This graphic will move through the sky as you win more races. Eventually, when the sun passes the mountains on the west side of the screen, day turns into night, and the process begins again with the moon.
2. **Trophies Graphics** – As you gain points, trophies begin to appear. When the client meets feedback requirements, the trophies animate. Each stage has nine trophies, with three models. For the daytime, these are the ladybugs, hummingbirds, and monkeys. For the nighttime, these are bees, doves, and elephants.
3. **Race Track Borders** – When the client meets feedback requirements, the borders of the race track will light up around the players selected cat.
4. **Statistics Section** – Here, you can see the user's performance for that game.

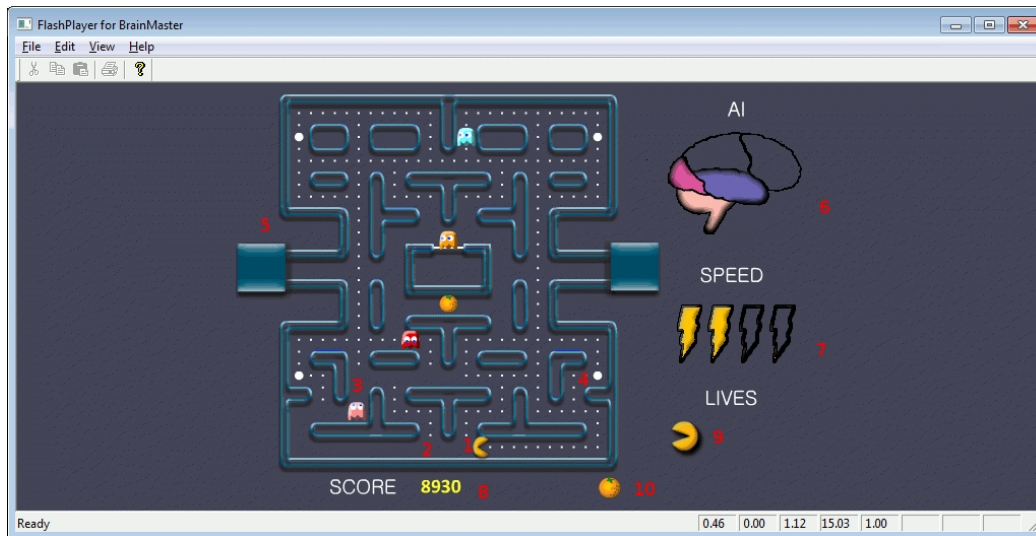
**Similar Games** – BrainCats, BrainCats 3D, Blimp Race, Blimp Race 3D

## BrainMan 2



Title Screen

- 1. Automatic Gameplay Selection** – Click to choose the Automatic Gameplay mode. This is more akin to the original BrainMan for BrainMaster. BrainMan will move automatically across the board. His movements are a direct response to the user's feedback. In addition, the user's feedback over the last six seconds will govern the "intelligence" of BrainMan's AI, with a more consistent feedback resulting in a more effective BrainMan.
- 2. Manual Gameplay Selection** – Click to choose the Manual Gamelay mode. This mode boasts a more arcade-style of gameplay, with the user directly controlling the movement of BrainMan.

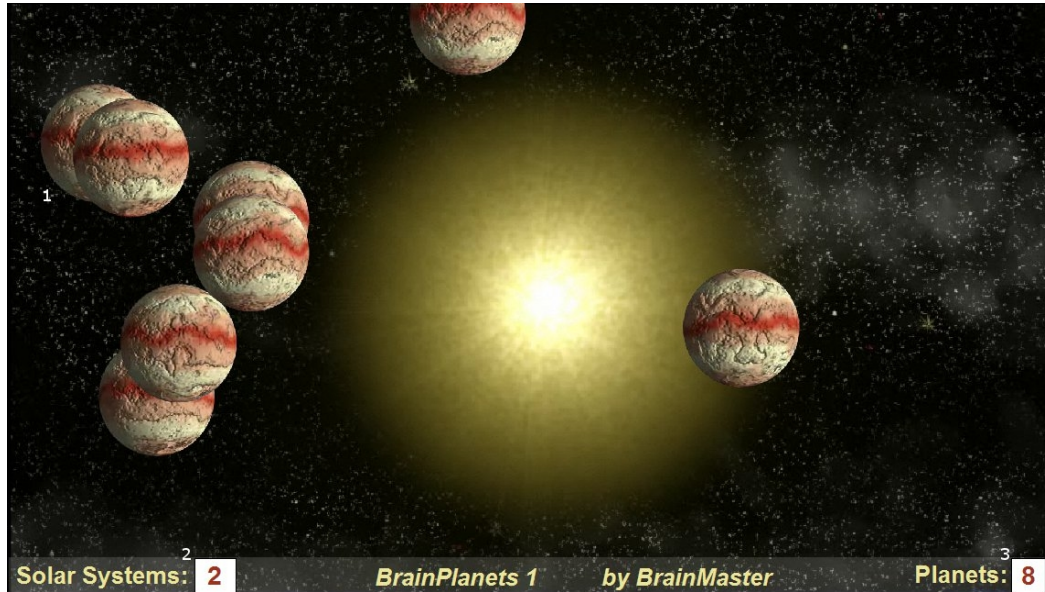


Training Screen

1. **BrainMan** – This is BrainMan. He moves according to the feedback of the user. If the user does not meet specified feedback requirements, BrainMan will not move.
2. **Pills** – When all the pills on a stage have been eaten, BrainMna will move on to the next stage.
3. **Ghosts** – These familiar foes begin to freely move about the screen on Stage 3. Unlike the ghosts that you are used to, these pose no threat to BrainMan. They are extra points, and can be eaten. If the client is meeting the requirements, then the Ghosts will be a blue color and will be able to be consumed. They will turn in to a set of eyes and have to return to their “base” to regenerate.. If the client is not meeting the training requirements, then the Ghosts will be their normal colors. If during this time, they make contact with BrainMan, they will pass through him.
4. **Power Pill** – The Power Pill delivers a reward sound to the client, and has a small chance of increasing BrainMan’s speed for the duration of the level.
5. **Maze** – In this version, even the maze borders respond to the feedback. As the client meets requirements, the borders will become brighter and more saturated. Conversely, as the clinet fails to meet requirements, the maze will grow dark.
6. **AI Level** – The AI is the controller of BrainMan’s movement. It is based on a combination of three things: the client’s relative feedback, the client’s progress through the game, and the client’s progress through the level. As these values increase, you will notice the Brain begin to “fill up”. This means that BrainMan will actually become smarter, and hunt pills more effectively.
7. **Speed Level** – This is self-explanatory. Much like the AI Level, it is governed by both the client’s relative feedback and progress through the game. It does not however, measure progress through the level. Instead, it has a chance to temporarily increase when the user eats a power pill.
8. **Score** – This number is raised by eating Pills, Fruit, and Ghosts.
9. **Lives** – These do not affect gameplay. Rather, they function as “trophies”. The user receives one life for every 8,000 points sored.
10. **Fruit** – Each level boasts a particular kind of Fruit. It will appear in the center of the game board for a brief interval of time during every level. They can be eaten for extra points.

**Similar Games** - BrainMan

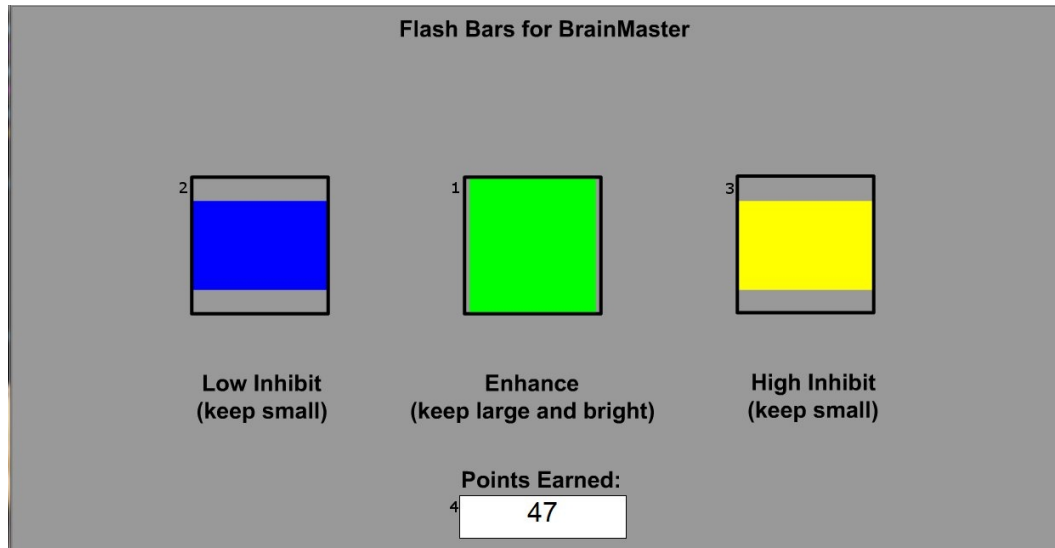
## BrainPlanets



1. **BrianPlanets** – The BrainPlanets are created when the trainee meets the training criteria continuously for a certain period of time(approx.. ½ second). The Planets are moving quickly when the criteria are met, and slow down otherwise. The number of cells reflects the success in keeping in state over a period of time. If the trainee falls out of state(or has inhibits) for a period of time(approx. 1 second), one planet will disappear. 10 Planets create a Solar System, and all planets disappear and the client begins to build a Solar System again.
2. **Solar System Counter** – This box counts the amount of Solar Systems that have been created.
3. **Planet Counter** – This box counts the amount of Planets that have been created.

**Similar Games** – BrainPlanet1lite, BrainPlanets2, BrainPlanets2lite, BrainCell

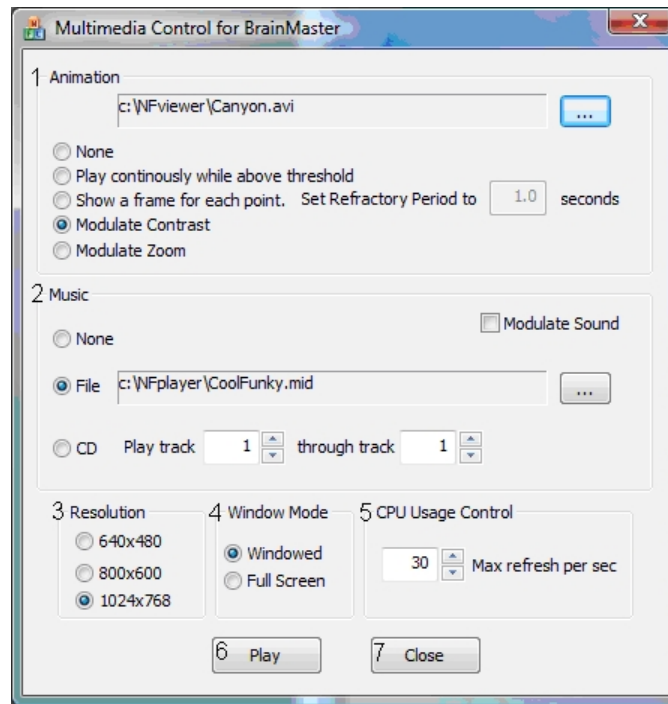
## App Boxes



1. **Enhance Box** – Shows a box that represents the enhance band. This will increase and decrease in size horizontally, depending on your enhancement training.
2. **Low Inhibit Box** – Shows a box that represents the low inhibit band. This will increase and decrease in size vertically, depending on your low inhibit, and will also have an effect on the Enhance Box. When the inhibit goes above the threshold, they cause the Enhance Box to become dimmer. When both Inhibit boxes are above threshold, the Enhance Box is maximally dark.
3. **High Inhibit Box** - Shows a box that represents the High inhibit band. This will increase and decrease in size vertically, depending on your high inhibit, and will also have an effect on the Enhance Box. When the inhibit goes above the threshold, they cause the Enhance Box to become dimmer. When both Inhibit boxes are above threshold, the Enhance Box is maximally dark.
4. **Points Earned Box** – Box that displays the current amount of points that the client has earned during their training.  
**Similar Games** – None.

## **BMrMMultiMediaPlayer BMr DVD and EEGAudio(Optional Purchase)**

### ***BMrMultiMedia(BMrMMP) Player Control Menu Display***



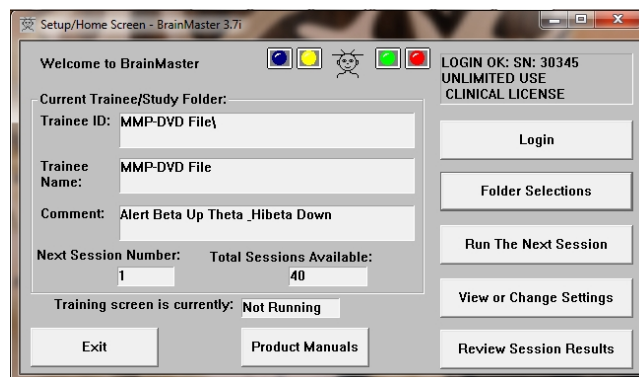
1. **Animation Section** – Section where you can choose what type of animation being viewed, and the type(if any) modulation is occurring. In order to choose a different animation, you can do so by clicking the “...” button.
2. **Music Section** – Section where you can choose what type of music is being played, and whether or not audio modulation will occur. In order to choose a different audio file, you can do so by click the “...” button.
3. **Resolution Section** – Section where you can adjust the resolution the animation file is being displayed.
4. **Window Mode Section** – Section where you can adjust whether the animation is being displayed as a Window, or in Full Screen Mode.
5. **CPU Usage Control** – Section where you can control the Max refresh rate per second.
6. **Play Button** – Click to confirm settings and launch BMr MultiMediaPlayer.
7. **Close Button** – Click to close BMr MultiMediaPlayer Control Menu.

**Acceptable Media Files:** MPEG, AVI, WMV

**Acceptable Audio Files:** MIDI, MP3, WAV

*Using BMrMMP*

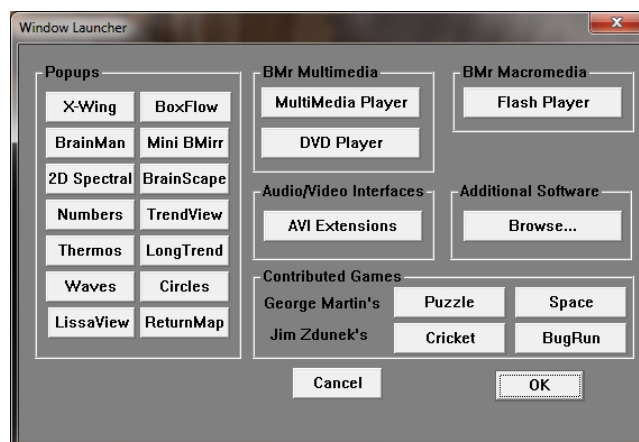
1. Setup the training that you would like to use, or choose an existing folder that you would like to us, and click the “Run The Next Session” Button.



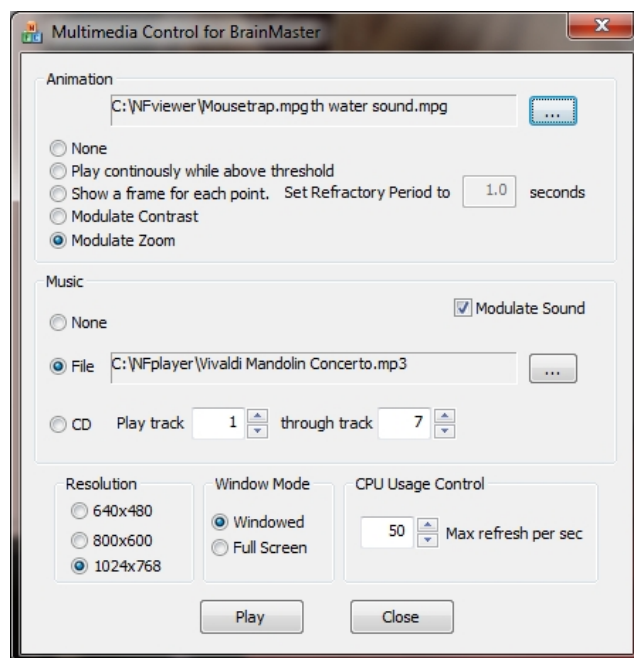
2. After you start the Session, click the “Window” Button.



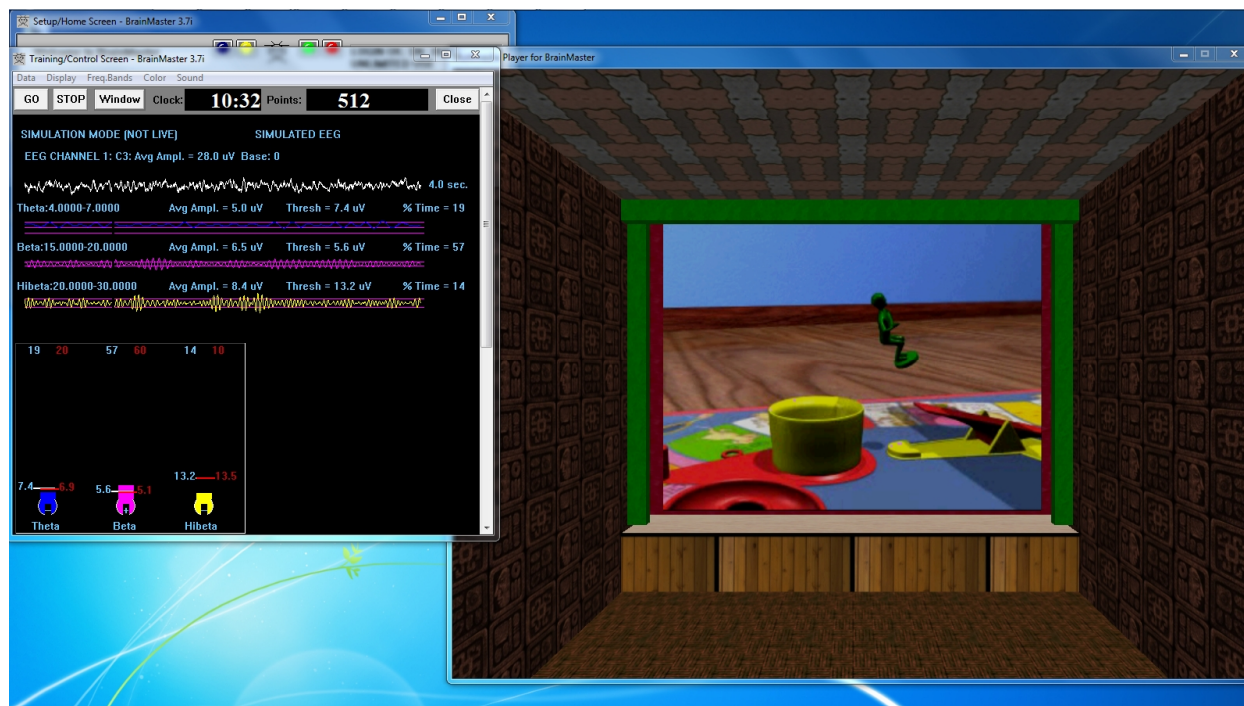
3. In the Window Launcher Menu, click the “MultiMedia Player” Button, located in the BMr Multimedia Section.



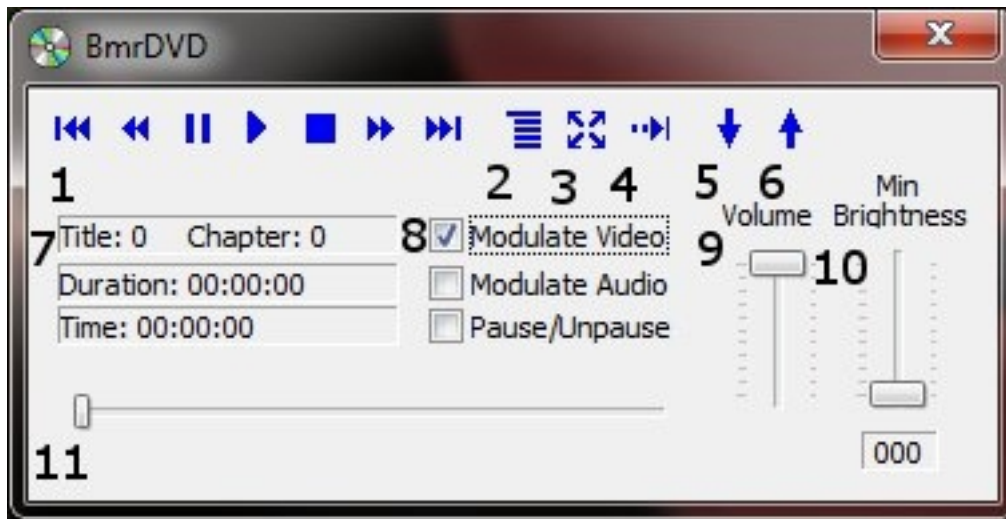
4. Setup the Controls for the BMrMMP as you would like them to react. When your settings are as you would like them, click the “Play” Button to continue.



You have now set up the MultiMedia Player for use with the BrainMaster Software. You will be able to tell this has been successful, as the Multimedia Player for BrainMaster for BrainMaster Window will open, and the chosen Video file will play.



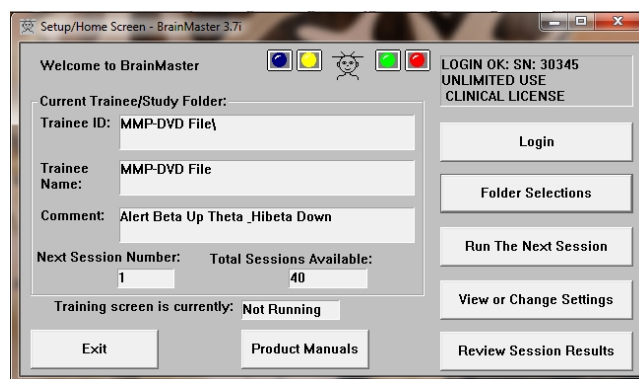
## ***BMrDVD Control Menu Display***



1. **DVD Basic Controls** – Basic DVD Controls(Skip Back, Rewind, Pause, Play, Stop, Fast Forward, and Skip Forward).
2. **Root Menu/Resume Button** – Click to switch from to the Main Menu, or back to your original position.
3. **Full Screen Button** – Click to Expand the DVD Window to Full Screen Mode.
4. **Step Forward Button** – Click to step through the different Title Screens.
5. **Save Bookmark Button** – Click to create a Bookmark for the Trainee Folder that you are currently using.
6. **Restore Bookmark Button** – Click to restore a Bookmark for the Trainee Folder that you are currently using.
7. **Disc Information** – Displays the Chapter Information, Duration and Time for the DVD.
8. **Modulate Check Boxes** – Section where you can choose the type of Modulation(if any).
9. **Volume Control** – Controls the Volume for the BMrDVD Program
10. **Min Brightness Control** – Controls how low the software modulates when the client is not meeting criteria.
11. **Scroll Bar** – Use to Scroll through the DVD with-out skipping or fast forwarding.

*Using BMrDVD*

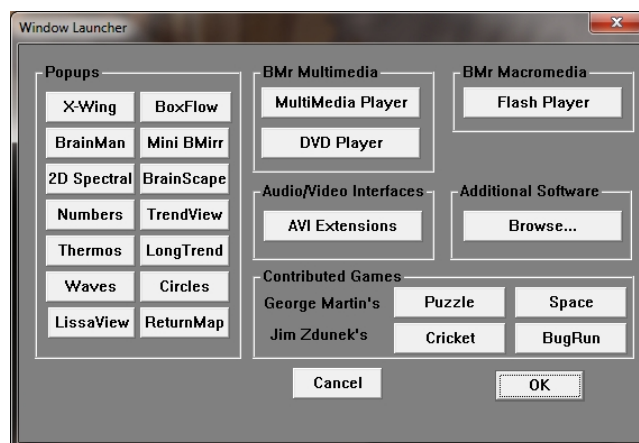
1. Setup the training that you would like to use, or choose an existing folder that you would like to us, and click the “Run The Next Session” Button.



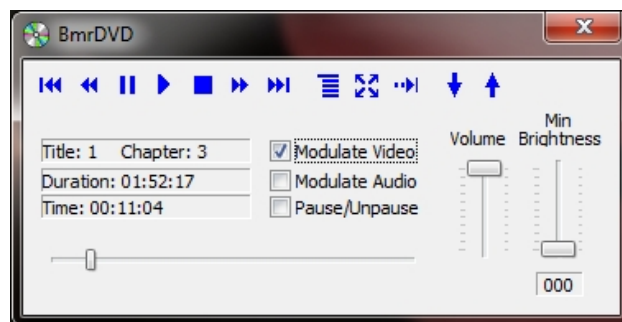
2. After you start the Session, click the “Window” Button.



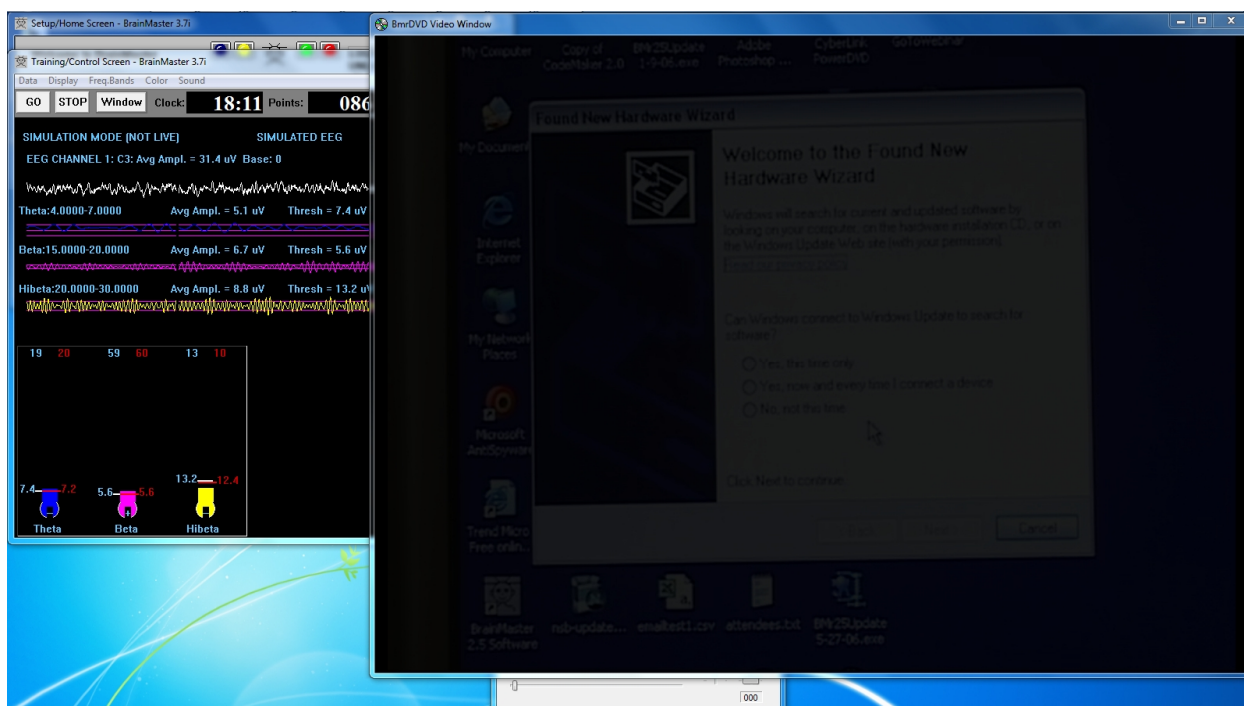
3. In the Window Launcher Menu, click the “DVD Player” Button, located in the BMr Multimedia Section.

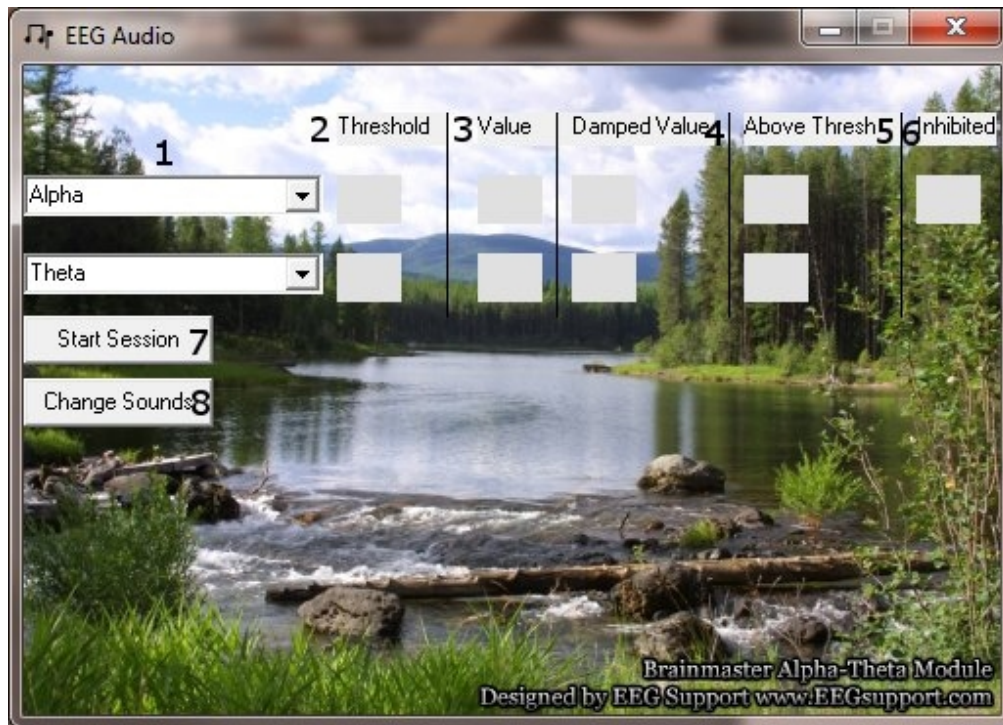


- Click the “Play” Button or the “Restore Playback” Button to continue.



You have now set up the DVD Player for use with the BrainMaster Software. You will be able to tell this has been successful, as the BmrDVD Video Window will open, and the DVD will play.

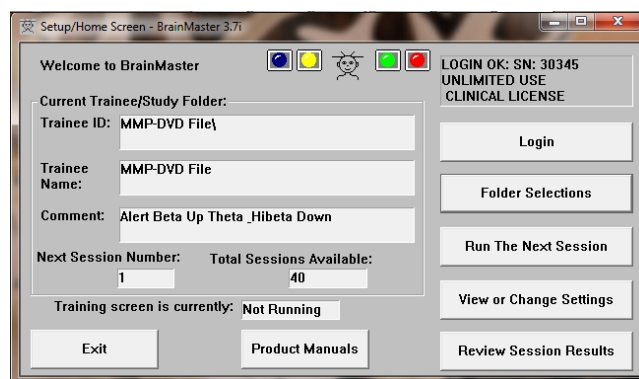


**EEGAudio Control Menu Display**

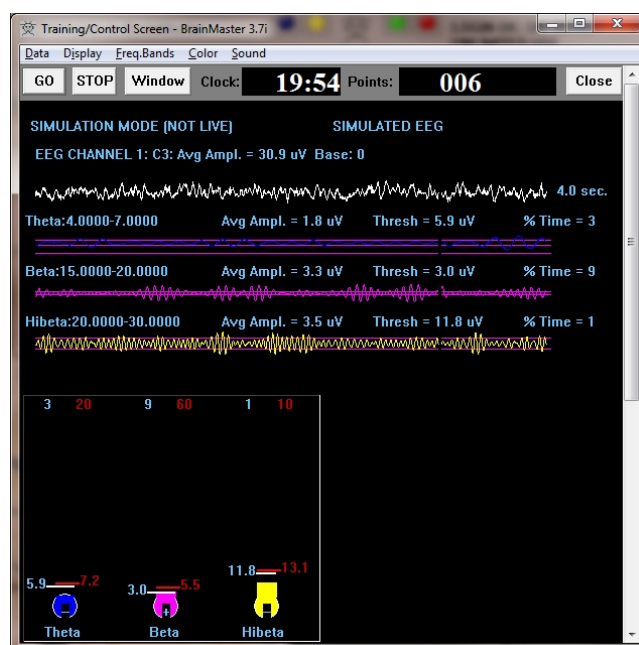
1. **Band Drop-Down Boxes** – Drop-Boxes, where you can choose which bands you would like use for the training. **PLEASE NOTE:** EEGAudio is typically used for Alpha/Theta Training, but is versatile enough to be used with any type of protocol that includes two enhance(“Go”) components, in which it is desirable to inform the trainee of their relative size, as well as when either of the goes above threshold.
2. **Threshold Boxes** – Display boxes that show the current Threshold values for the bands chosen from the Band Drop-Down Boxes.
3. **Value Boxes** – Display boxes that show the current value for the bands chosen from the Band Drop-Down Boxes.
4. **Damped Value Boxes** – Display boxes that show the damped(averaged) value for the bands chosen from the Band Drop-Down Boxes.
5. **Above Thresh. Boxes** – Display boxes that show the value that shows the amount that the component is currently above threshold(negative if below) for the bands chosen from the Band Drop-Down Boxes.
6. **Inhibited Box** – Displays whether or not any inhibits are active.
7. **Start/Stop Session Button** – Click when all settings are proper to run the EEGAudio Program.
8. **Change Sounds Button** – Click to change the sounds that are coming in for each band, as well as the background for each band.

*Using EEGAudio*

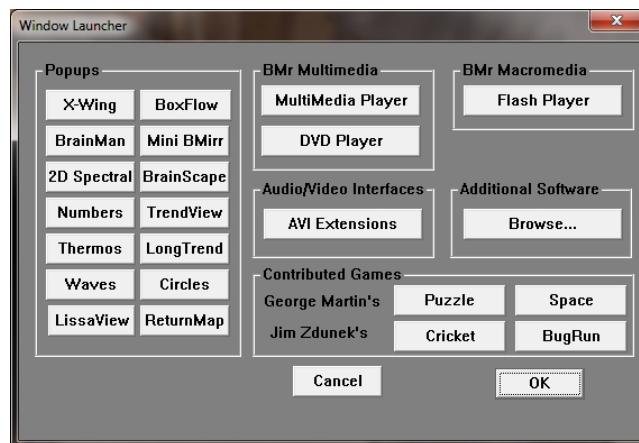
1. Setup the training that you would like to use, or choose an existing folder that you would like to us, and click the “Run The Next Session” Button.



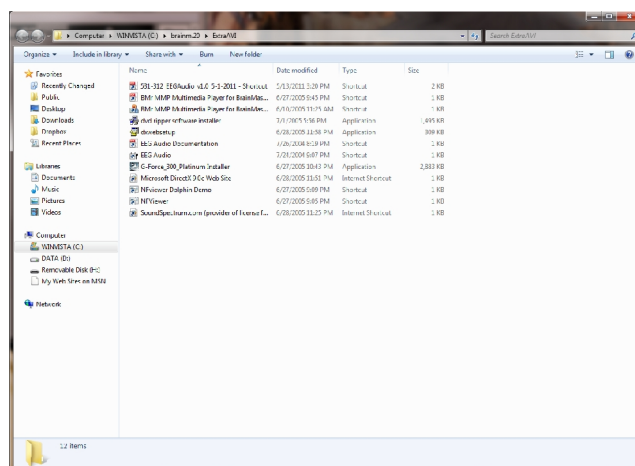
2. After you start the Session, click the “Window” Button.



3. In the Window Launcher Menu, click the “AVI Extensions” Button, located in the Audio/Video Interfaces Section.



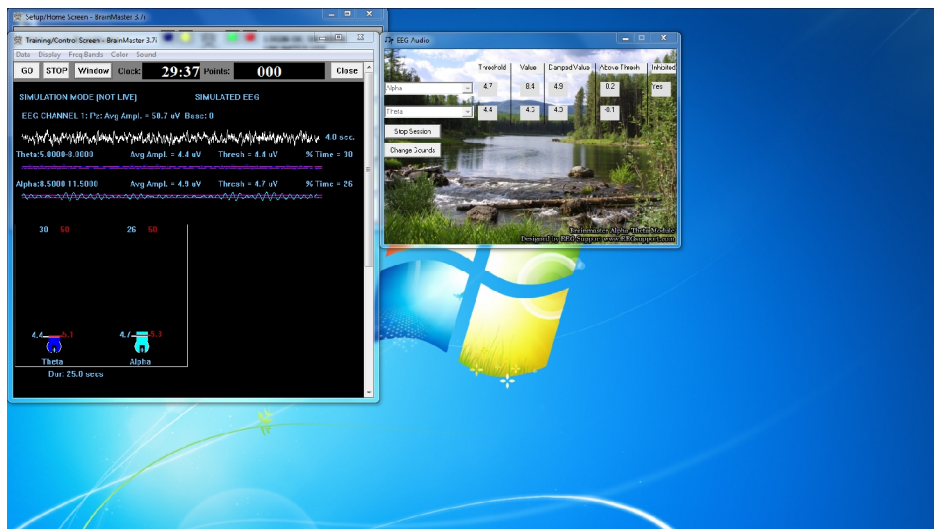
- The following menu will open. Double-Click “EEGAudio.exe” to open the EEGAudio program.



- Setup the sounds and bands as you would like them. When the set-up is complete, click the Start Session Button.



You have now set up the EEGAudio for use with the BrainMaster Software. You will be able to tell this has been successful, as EEGAudio will be having numbers, and you have chosen will be playing as the requirements are met.

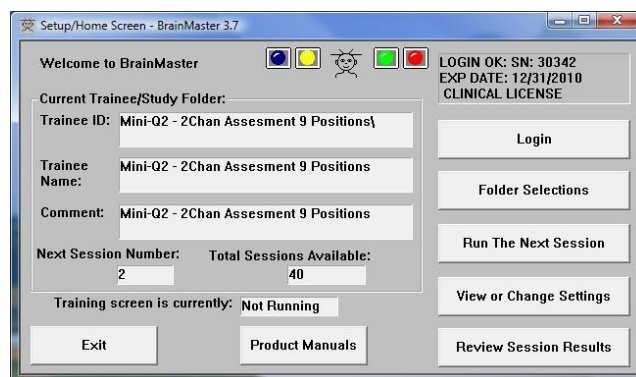


## ANI Z-Score DLL for BrainMaster Software(Optional Purchase)

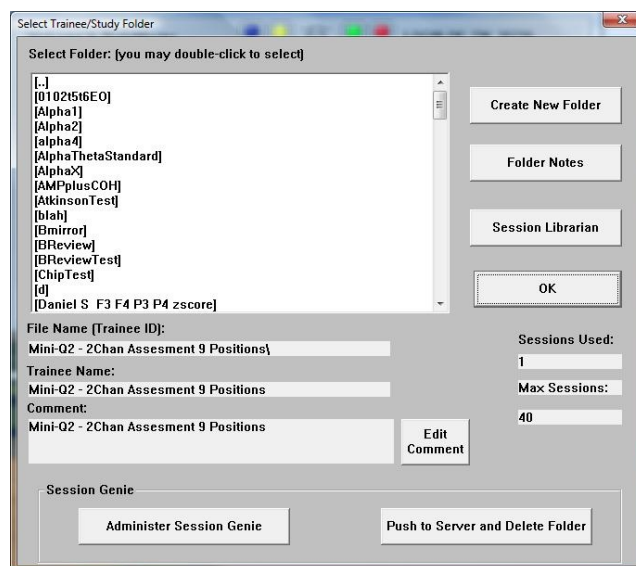
### *Activating for the BrainMaster 3.0 or Discovery Software*

**PLEASE NOTE: ANI Z-Score DLL can only be activated on 2 Computer Systems. Please be sure before activating, that you are doing this on the system that you want this to be on**

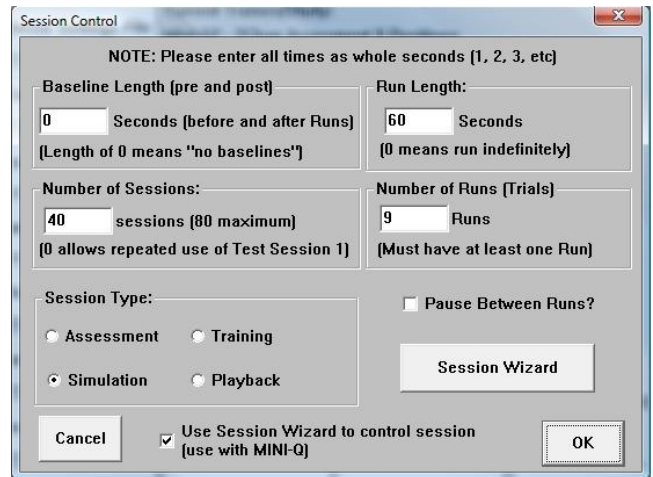
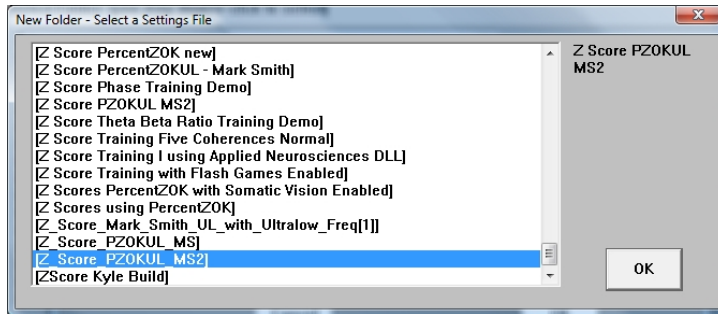
1. From the Setup/Home Screen, click the Folder Selections Button



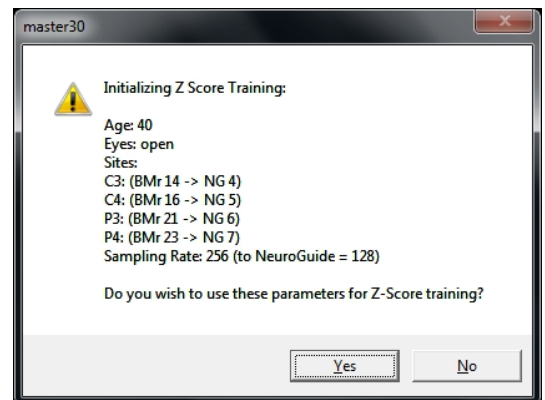
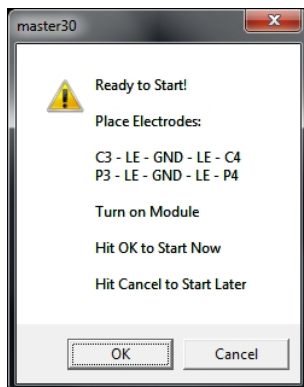
2. From the Select Trainee/Study Folder Menu, click the Create New Folder Button



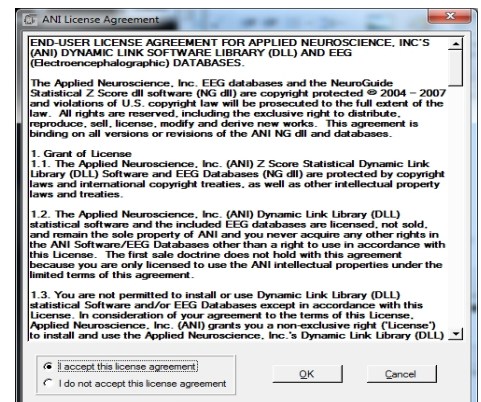
3. Create a folder named ZscoreInstall, that contains a Z-Score protocol. After the folder is created, click View or Change Settings Button. On the Setup Options Menu, click the Session Control Button. On the Session Control Menu, make sure that the Session Type is set to Simulation. Once this is complete, click OK on the Session Control Menu, USE THESE SETTINGS on the Setup Options Menu, and click the Run The Next Session Button



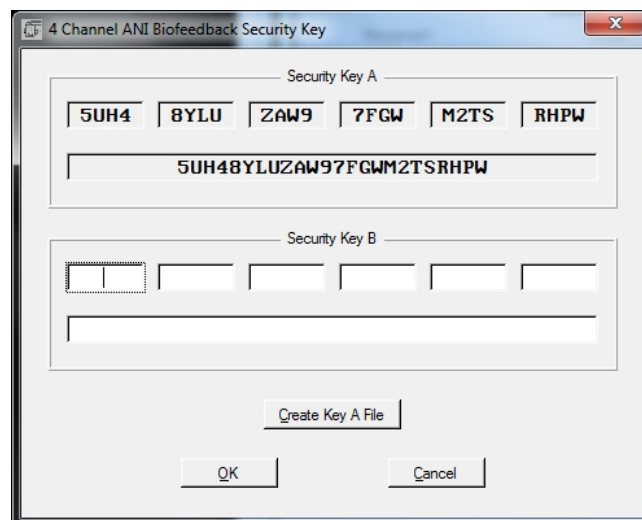
4. Click GO on the Training/Control Screen, and confirm the following screens



5. When the following screen appears, click I accept the license agreement option, and click OK to continue



6. When the following screen appears, click the Create Key A File Button. This will create a text document

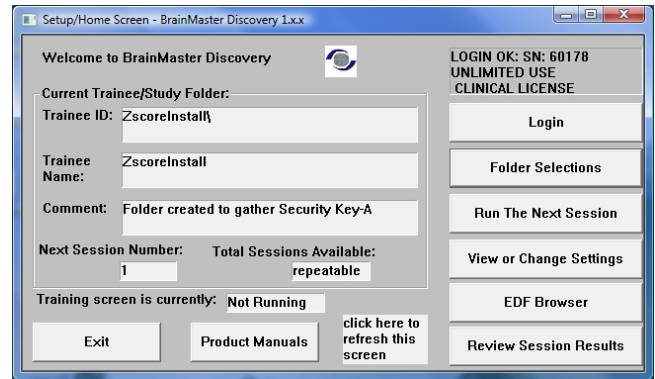


7. Save the document to the folder that was created named BrainMasterInstalls. E-Mail the document to [geeg@appliedneuroscience.com](mailto:geeg@appliedneuroscience.com). Once the Key-B is created, it will be E-Mailed to you. In order to put the Key-B into the system, you will need to run another session with the folder created to receive our Key-A

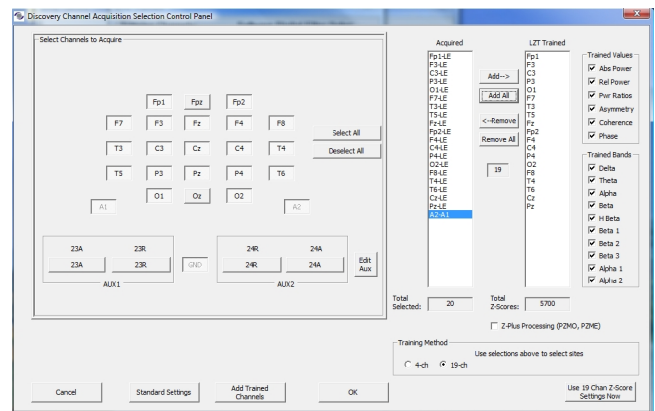
### Upgrading from 4 to 19channel Z-Score training for Discovery

**PLEASE NOTE:** In order for the upgrading process to be successful, you will need to assure that you are running the latest Discovery software. You will also need to assure that you have received your key from BrainMaster Technologies that is enabled for 19Channel Z-Score training.

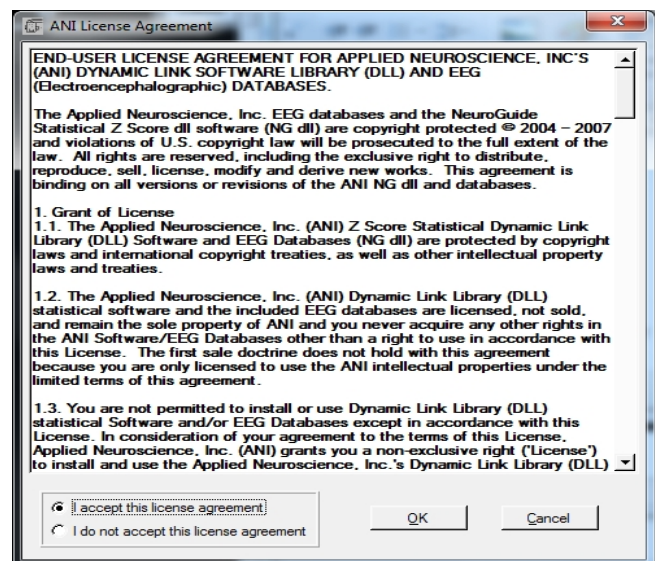
1. Choose ZscoreInstall from the Folder Selection Menu



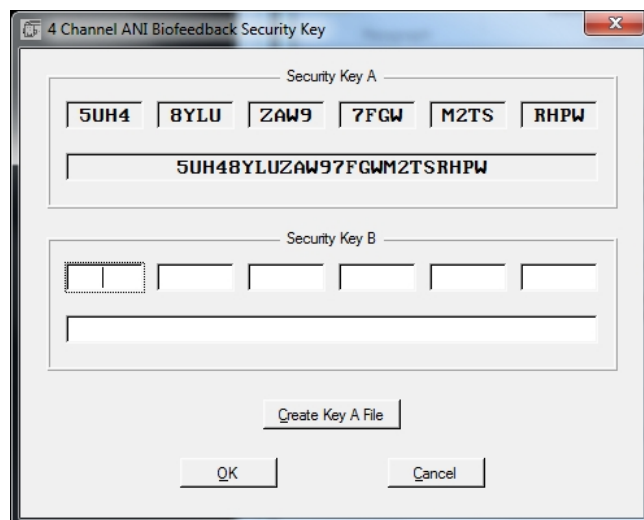
2. Press View or Change Settings. In the Setup Options Menu, choose Data Channels. In the Data Channels Menu, click Discovery Acquisition Control. In the Discovery Acquisition Menu, set Training Method from 4 to 19 channels. After you have done this, choose more than 4 channels to be LZT Trained. Click OK/USE THESE SETTINGS until you have returned to the Setup/Home Screen



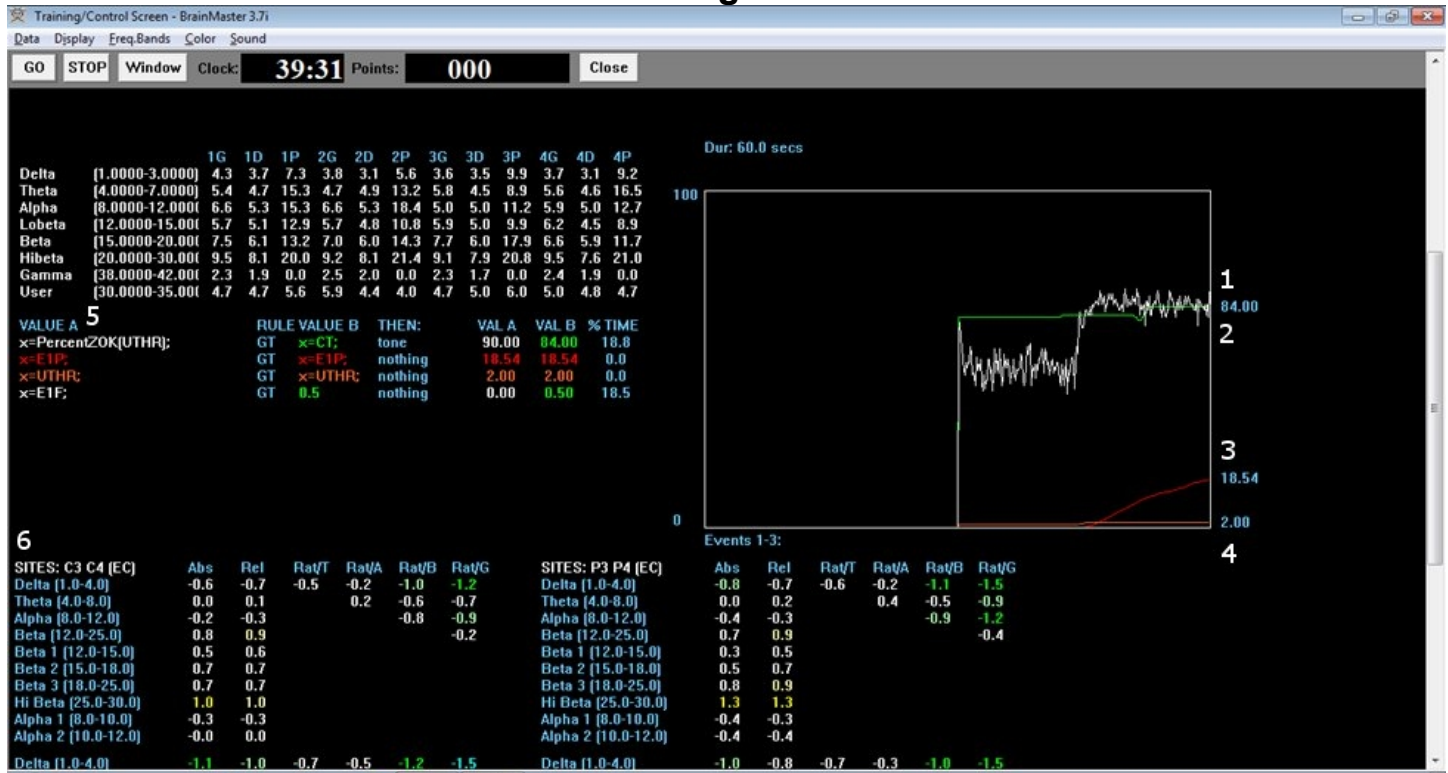
3. Click Run the Next Session, then click GO. Confirm through the following screens, and you will receive a pop-up stating “Invalid passkey for number of channels selected. Click OK, and The ANI License agreement will pop-up. Click I Accept, and click OK to continue



4. When the following screen appears, click the Create Key A File Button. This will create a text document

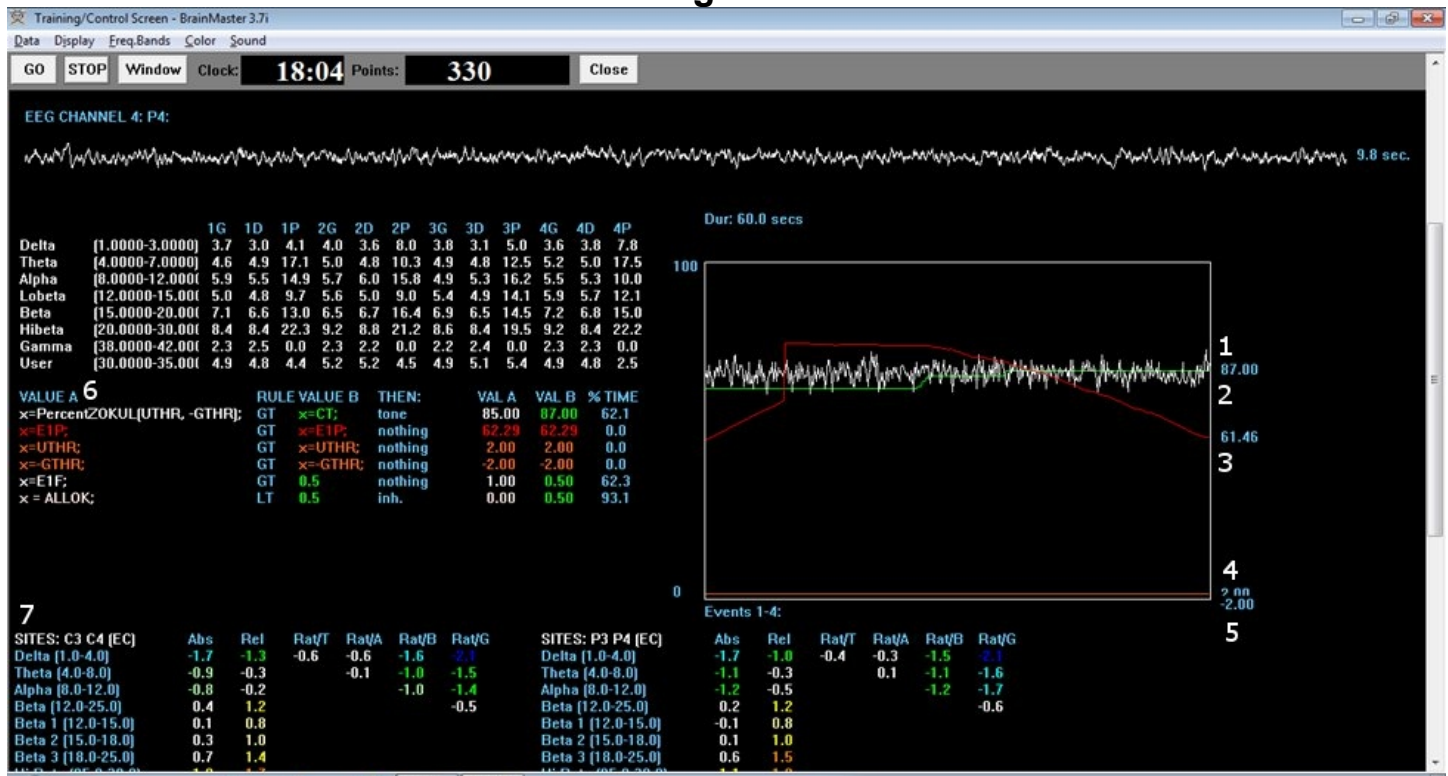


5. Save the document to the folder that was created named BrainMasterInstalls. E-Mail the document to [geeg@appliedneuroscience.com](mailto:geeg@appliedneuroscience.com). Once the Key-B is created, it will be E-Mailed to you. In order to put the Key-B into the system, you will need to run another session with the folder created to receive our Key-A

*Controls/Displays for a Basic Z-Score Session***Z-Score Using PercentZOK**

- 1. Z-ScorePZOK(White Line)** – This line is the Percent of Z-Scores with-in the defined range
- 2. Z-Score Threshold(Green Line)** – This line is the threshold for the Z-Scores. When the Z-Scores are below the threshold, the system will reward the client with the chosen reward. This is controlled by the “C” key.
- 3. Percent of Reward(Red Line)** – This line shows the percent time that the Z-Scores are greater than the Z-Score threshold.
- 4. Z-Score Range Definer(Orange Line)** – This line defines the range of Z-Scores that you are looking at. This is controlled by the “U” key.
- 5. Text Stats** – This gives you a text representation of what is occurring in the graph.
- 6. Z-Scores** – This shows a text representation of the Z-Scores. This is a “damped” change, which is not instantaneous. This is a more stable view of the Z-Scores.

## Z-Score Using PercentZOKUL



1. **Z-ScoresPZOKUL(White Line)** - This line is the Percent of Z-Scores with-in the defined range.
2. **Z-Score Threshold(Green Line)** – This line is the threshold for the Z-Scores. When the Z-Scores are below the threshold, the system will reward the client with the chosen reward. This is controlled by the “C” key.
3. **Percent of Reward(Red Line)** – This line shows the percent time that the Z-Scores are greater than the Z-Score threshold.
4. **Z-Score Range Upper Range(Orange Line)** – This line defines the upper range of Z-Scores that you are trying to train down. This is controlled by the “U” key.
5. **Z-Score Range Lower Range(Yellow Line)** – This line defines the lower range of Z-Scores that you are trying to train up. This is controlled by the “G” key.
6. **Text Stats** – This gives you a text representation of what is occurring in the graph.
7. **Z-Scores** – This shows a text representation of the Z-Scores. This is a “damped” change, which is not instantaneous. This is a more stable view of the Z-Scores.

## Event Wizard

### *Event Wizard Control Menu Display*

The screenshot shows the 'Event Wizard Designer' window with the following sections and controls:

- 1 Event Number:** A row of 16 radio buttons for selecting an event number (1-16).
- 2 Event Condition:** Includes 'IF' and 'RULE' sections with dropdowns for 'Use Equation', 'Delta', 'Amplitude', and 'Constant'. It also has 'Check Equation' buttons and a 'Damping Factor' input.
- 3 Event Result:** Includes a 'THEN' dropdown (set to 'Do Nothing') and checkboxes for 'Obey Inhibits ("stops")' and 'Control MMP Player'.
- 4 Event Trend Graph:** Includes 'Scale Factor' (set to 2) and 'Offset' (set to 0) inputs.
- 5 This Event Is:** Radio buttons for 'Enabled' (selected) and 'Disabled'.
- 6 Visibility:** Radio buttons for 'Visible' (selected) and 'Hidden'.
- 7 Sustained Reward Criterion:** Input for 'Condition must be met for:' in milliseconds (set to 0).
- 8 Refractory Period:** Input for 'Time between rewards is:' in milliseconds (set to 0).
- 9 MIDI Sound Properties:** Includes dropdowns for 'Starting Note' (1 A (55.0)), 'Instrument' (0 Piano 1), 'Playing Style' (Sustained), 'Modulation' (Amplitude), 'Starting Loudness' (Level: 0), 'Loudness Change Rate' (0), 'Note Change Rate' (0), 'Musical Scale (Mode)' (Chromatic), 'Musical Key' (A), and 'Play Note or Chord' (1 Note).
- 10 Enable All Events:** Button to enable all 16 events.
- 11 Disable All Events:** Button to disable all 16 events.
- 12 Data Dictionary:** Button to bring up the Data Dictionary.
- 13 Clear All Events:** Button to clear all events.
- 14 Show All Events:** Button to show all events.
- Print All Events:** Button to print all events.
- Help:** Button for help.
- 15 Copy Event:** Button to copy the selected event.
- 16 Paste Event:** Button to paste the copied event.
- 17 Cancel:** Button to cancel the operation.
- 18 Use Now:** Button to use the current settings.
- 19 OK:** Button to confirm and save changes.

**Event Summary:**  
 Summary for Event 1:  
 IF: EQN: x=THETA/TTHR; IS GREATER THAN Value: 1.0  
 THEN: Do Nothing  
 EVENT 1 IS CURRENTLY: ENABLED

1. **Event Number Section** – Section where you choose which Event you are viewing.
2. **Event Condition Section** – Section where you set the chosen Event Condition for operation.
3. **Event Result Section** – Section where you set what the chosen Event does when the Event Condition has been met.
4. **Event Trend Graph Section** – Section where you set the size for the Graph.
5. **This Event Is: Section** – Section where you set whether the chosen Event is enabled or not.
6. **Visibility Section** – Section where you set whether the chosen Event Graph will be visible or not, when the Trend Graphs are chosen for display.
7. **Sustained Reward Criterion Section** – Section where you set how long the chosen Event Condition must be met to produce the selected Event Result.
8. **Refractory Period Section** – Section where you set how long for a time before another reward is possible for the chosen event.
9. **MIDI Sound Properties Section** – Section where you can set the properties for MIDI reward feedback for the chosen Event.
10. **Enable All Events Button** – Click to enable all 16 Events.
11. **Disable All Events Button** – Click to disable all 16 Events.
12. **Data Dictionary Button** – Click to bring up the Data Dictionary.

***Event Wizard Control Menu Display(Continued)***

The screenshot shows the 'Event Wizard Designer' window with the following sections:

- 1 Event Number:** A row of 16 radio buttons, with '1' selected.
- 2 Event Condition:**
  - IF: Use Equation: [Delta] [Amplitude] [Constant: 5] [Damping Factor: 5]
  - Check Equation:  $x = \text{THETA} / \text{TTHR}$  [Blue button]
  - RULE: IS GREATER THAN: [ ]
  - Use Entered Value: [Delta] [Constant: 1.0] [Damping Factor: 0]
  - Check Equation:  $x = 1$  [ ]
  - Note: You must press "Check Equation" to check and save any changes made to equations
- 3 Event Result:**
  - THEN: [Do Nothing] [ ] [ ]
  - [ ] [ ] [ ]
  - ☐ Obey Inhibits ("stops") ☐ Control MMP Player
- 4 Event Trend Graph:**
  - Scale Factor: [2] Offset: [0]
  - Event Summary:
    - Summary for Event 1: IF: EQN:  $x = \text{THETA} / \text{TTHR}$ ; IS GREATER THAN Value: 1.0 THEN: Do Nothing
    - EVENT 1 IS CURRENTLY: ENABLED
- 5 This Event Is:** ☒ Enabled ☐ Disabled
- 6 Visibility:** ☒ Visible ☐ Hidden
- 7 Sustained Reward Criterion:** Condition must be met for: [0] milliseconds
- 8 Refractory Period:** Time between rewards is: [0] milliseconds
- 9 MIDI Sound Properties:**
  - Starting Note: [1 A (55.0)] [1 to 88]
  - Instrument: [0 Piano 1] [128 choices]
  - Playing Style: [Sustained] [Percus. or Sust.]
  - Modulation: [Amplitude] [Ampl. or Pitch]
  - Starting Loudness: [Level: 0] [0 to 128]
  - Loudness Change Rate: [0] [0 to 20]
  - Note Change Rate: [0] [0 to 20]
  - Musical Scale (Mode): [Chromatic] [15 choices]
  - Musical Key: [A] [C to B Flat]
  - Play Note or Chord: [1 Note] [1 to 8 Notes]
- 10 Enable All Events** **11 Disable All Events** **12 Data Dictionary**
- 13 Clear All Events** **14 Show All Events** **Print All Events**
- Help** **15 Copy Event** **16 Paste Event**
- 17 Cancel** **18 Use Now** **19 OK**

**13. Clear All Events Button** – Click to clear the data from all 16 Events.

**14. Show All Events Button** – Click to show the Event Summary information for all 16 Events.

**15. Copy Event Button** – Click to copy the chosen Event.

**16. Paste Event Button** – Click to paste an Event that has been selected from the Copy Event Button.

**17. Cancel Button** – Click to cancel any changes made, and exit the Event Wizard.

**18. Use Now Button** – Click to accept all changes.

**19. OK Button** – Click to Exit the Event Wizard.

***Data Dictionary for the Event Wizard***

<b>User-defined bands</b>	
Any component names may be used to access data, including user-defined variables.	band name: channel 1 amplitude (from digital filters) for 8 components e.g. "User1" or "EMG"
Any component name followed directly by the letter "T" will automatically access the current threshold from the protocol processor for that band.	channel 1 thresholds (from digital filters) for 8 components, e.g. "User1T" or "EMGT"
<p>Note: User-defined bandnames will automatically override any built-in names. For example, if you define your own band called "D", then "D" will be used for your band, not the default D (Delta) band. This allows you to completely redesign the component band names and use all of your redefined band names in the Math Wizard.</p>	
<b>Standard 1-channel variables computed in real time using BrainMaster built-in filter and protocol processing system</b>	
D, T, A, L, B, H, G, U	channel 1 amplitude (from digital filters) for 8 components
DELTA, THETA, ALPHA, LOBETA, BETA, HIBETA, GAMMA, USER	channel 1 amplitude (from digital filters) for 8 components
DTHR, TTHR, ATHR, LTHR, BTHR, HTHR, GTHR, UTHR	channel 1 thresholds (from digital filters built-in autothresolder)
D1, T1, A1, L1, B1, H1, G1, U1	channel 1 amplitude (from digital filters) for 8 components
DELTA1, THETA1, ALPHA1, LOBETA1, BETA1, HIBETA1, GAMMA1, USER1	channel 1 amplitude (from digital filters) for 8 components
C1DA, C1TA, C1AA, C1LA, C1BA, C1HA, C1GA, C1UA	channel 1 amplitude (from digital filters) for 8 components
C1DF, C1TF, C1AF, C1LF, C1BF, C1HF, C1GF, C1UF	channel 1 modal frequency (from FFT) for 8 components
C1DE, C1TE, C1AE, C1LE, C1BE, C1HE, C1GE, C1UE	channel 1 percent energy (from FFT) for 8 components
C1DP, C1TP, C1AP, C1LP, C1BP, C1HP, C1GP, C1UP	channel 1 percent time over threshold (using digital filters)
C1DT, C1TT, C1AT, C1LT, C1BT, C1HT, C1GT, C1UT	channel 1 thresholds (from digital filters built-in autothresolder)
C1DV, C1TV, C1AV, C1LV, C1BV, C1HV, C1GV, C1UV	channel 1 variability (from digital filters)
<b>Standard variables for channel 2</b>	
D2, T2,...DELTA2, THETA2,...C2DA, C2TA,...C2GV, C2UV	channel 2 repeats all channel 1 variables shown above that use a "1" e.g. D1, C1AF, etc., with the "1" replaced by "2"

Standard variables for channel 3	
D3, T3,...DELTA3, THETA3,...C3DA, C3TA,...C3GV, C3UV	channel 3 repeats all channel 1 variables shown above that use a "1" e.g. D1, C1AF, etc., with the "1" replaced by "2"
Standard variables for channel 4	
D4, T4,...DELTA4, THETA4,...C4DA, C4TA,...C4GV, C4UV	channel 4 repeats all channel 1 variables shown above that use a "1" e.g. D1, C1AF, etc., with the "1" replaced by "2"
Standard 1/2 channel cross-channel variables	
CT	Coherence Threshold currently in use in built-in coherence processor. This will automatically track any changes in the coherence threshold.
C1DC, C1TC, C1AC, C1LC, C1BC, C1HC, C1GC, C1UC	Coherence (currently selected type) between channels 1 and 2
DCOH, TCOH, ACOH, LCOH, BCOH, HCOH, GCOH, UCOH	Coherence (currently selected type) between channels 1 and 2
DPCOH, TPCOH, APCOH, LPCOH, BPCOH, HPCOH, GPCOH, UPCOH	"Pure" coherence between channels 1 and 2
DTCOH, TTCOH, ATCOH, LTCOH, BTCOH, HTCOH, GTCOH, UTCOH	Similarity ("Training Coherence") between channels 1 and 2
DSIM, TSIM, ASIM, LSIM, BSIM, HSIM, GSIM, USIM	Similarity ("Training Coherence") between channels 1 and 2
DCOR, TCOR, ACOR, LCOR, BCOR, HCOR, GCOR, UCOR	"Spectral Correlation Coefficient" (SCC) between channels 1 and 2
DCOM, TCOM, ACOM, LCOM, BCOM, HCOM, GCOM,	Comodulation (Sternman/Kaiser "SKIL" type) between channels 1 and 2
C1DH, C1TH, C1AH, C1LH, C1BH, C1HH, C1GH, C1UH	Phase between channels 1 and 2
DPHASE, TPHASE, APHASE, LPHASE, BPHASE, HPHASE, GPHASE, UPHASE	Phase between channels 1 and 2
Values from other events:	
Events can read real-time data from other events. The events are processed in numerical order, so that the events are evaluated and act in order, e.g. Event 1 before Event 2, etc. Note that all events are checked for to see if any inhibits are generated, before events take action. All data passed between events are treated as double precision, floating-point numbers.	
E1A, E2A, E3A, E4A, E5A, E6A, E7A, E8A, E9A, E10A, E11A, E12A, E13A, E14A, E15A, E16A	values of "antecedent" variables in Events 1-16. These are the selected component values, or the values of the "x=" equation in the "IF" portion of the event design. Note: These are also the values of "In1", "In2", "In3", through "In16", in the Macromedia Flash Player for BrainMaster

E1, E2, E3, E4, E5, E6, E7, E8, E9, E10, E11, E12, E13, E14, E15, E16	values of "antecedent" variables in Events 1-16. These are the selected component values, or the values of the "x=" equation in the "IF" portion of the event design. Note: These are also the values of "In1", "In2", "In3", through "In16", in the Macromedia Flash Player for BrainMaster
E1B, E2B, E3B, E4B, E5B, E6B, E7B, E8B, E9B, E10B, E11B, E12B, E13B, E14B, E15B, E16B	values of "condition" variables in Events 1-16. These are the selected component values, or the values of the "x=" equation after the "RULE" portion of the event design. Note: These are also the values of "In16", "In17", "In18", through "In32", in the Macromedia Flash Player for BrainMaster
E1F, E2F, E3F, E4F, E5F, E6F, E7F, E8F, E9F, E10F, E11F, E12F, E13F, E14F, E15F, E16F	values of flags for Events 1-16. These are 0 if the event's condition is not met, and 1.0 if the event's condition is met. These are also the values of "Flg1", "Flg2", through "Flg16" in the Macromedia Flash Player for BrainMaster
E1P, E2P, E3P, E4P, E5P, E6P, E7P, E8P, E9P, E10P, E11P, E12P, E13P, E14P, E15P, E16P	percent time meeting the condition for Events 1-16. These allow any events to "see" how often other events are "true" and use these values in rules. Values are returned as percent, e.g. between 0 and 100
Built-in Training Control Variables:	
INHF1, ENHF1, NUME1	channel 1 training flags: number of "stops" meeting criterion, number of "gos" meeting criterion, number of possible "go's"
INHF2, ENHF2, NUME2	channel 2 training flags: number of "stops" meeting criterion, number of "gos" meeting criterion, number of possible "go's"
ALLOK	indicates that all "gos" are met, and no "stops" exceed threshold. Use e.g. "x=ALLOK" for Event 5, to allow games like BrainMan and BrainCell to work automatically with any amplitude-based protocol that is set up using the standard "Training Protocol" setup.
Special Built-in Functions (note that "arg" can be any number or variable name, including other Event Values, flags, etc. etc.)	
Zor1(arg)	returns 0 if argument is <1, 1 otherwise. Note: when used with a fraction e.x. X/Y, returns 1.0 if X >= Y, 0.0 otherwise
GT(arg)	returns 0 if argument is <1, 1 otherwise. Note: when used with a fraction e.x. X/Y, returns 1.0 if X >= Y, 0.0 otherwise
Rng(arg1, arg2, arg3)	returns 0 if arg1 is within arg2 of arg3. E.g. Rng (C1AF, 0.5, 10) returns 1 if Channel 1 Alpha Frequency is within 0.5 Hz of 10 Hz. E.g. between 9.5 and 10.5 Hz, and returns 0 otherwise

Bnd(channel, low, high) or Band(channel, low, high)	returns total FFT energy in a band for a channel. E.g. Bnd(2, 4, 6) returns the energy in channel 2 between 4 Hz and 6 Hz
Modf(channel, low, high)	returns modal frequency ("first moment") from FFT in a band for a channel. E.g. Modf(2, 4, 6) returns the modal frequency in channel 2 in band from 4 Hz to 6 Hz
Peakf(channel, low, high)	returns peak frequency (highest amplitude) from FFT in a band for a channel. E.g. Modf(2, 4, 6) returns the peak frequency in channel 2 in band from 4 Hz to 6 Hz
Special Built-in Constants:	
Schumann, SCH	Schumann Frequency = 7.81
PHI, GOLDEN, GM	Golden Mean = 1.618
PI	PI = 3.14159
Standard Operators: Note: all arguments and parameters are treated as double precision floating point values	
+ - * /	add, subtract, multiply, divide
%	modulus returns the remainder after an integer division
^	power: $y = x^2$
()	parenthetical grouping, unlimited, e.g. (2 + BETA) / THETA
;	semicolon, needed at end of each equation in formula
//	comment, single line
/*...*/	comment, multiple lines
Priority of Operators:	
()	highest
^	next
-x (unary minus)	next (e.g. $y = -x^2$ , the ^ occurs before - )
*/^	next
+ -	lowest
Standard Built-in Functions:	
abs(x)	return absolute value
acos(x)	calculate arccosine
asin(x)	calculate arcsine
atan(x)	calculate arctangent
atan2(x,y)	calculate arctangent with two parameters to preserve quadrant angle
bessj(n,v)	Bessel function of the first kind. n is order and v is input value
bessy(n,v)	Bessell function of the second kind. n is order and v is input value.
Ceil(x)	Find integer ceiling
Cos(x)	Calculate cosine
Cosh(x)	Calculate hyperbolic cosine

exp(x)	calculate exponential function "e to the x"
floor(x)	Find integer floor
hypot(a,b)	calculate hypotenuse of right triangle
log(x)	calculate natural logarithm
log10(x)	calculate base-10 logarithm
max(x,y)	return larger of two values
min(x,y)	return smaller of two values
rand(x)	get pseudorandom number between 0 and 1
sin(x)	calculate sine
sinh(x)	calculate hyperbolic sine
sqrt(x)	find square root
srand(x)	initialize pseudorandom series
tan(x)	calculate tangent
tanh(x)	calculate hyperbolic tangent
<b>Z-Scores (using optional NeuroGuide Real-Time Extensions for BrainMaster)</b>	
With this option, the equation processor can access real-time z-score computations based upon the NeuroGuide normative database. (www.appliedneuroscience.com)	<b>Note: With 2 channels, N Z scores = <math>26 * 2 + 24 = 76</math> targets (24 are connectivity-related). With 4 channels, N Z scores = <math>26 * 4 + 6 * 24 = 248</math> targets (144 are connectivity-related).</b>
<b>Available output values: (76 total targets)</b>	
ZAP1D, ZAP1T, ZAP1A, ZAP1B, ZAP11, ZAP12, ZAP13, ZAP1G, ZAP2D, ZAP2T, ZAP2A, ZAP2B, ZAP21, ZAP22, ZAP23, ZAP2G	delta, theta, alpha, beta, beta1, beta2, beta3, gamma Absolute Power 2 channels / 8 bands
ZRP1D, ZRP1T, ZRP1A, ZRP1B, ZRP11, ZRP12, ZRP13, ZRP1G, ZRP2D, ZRP2T, ZRP2A, ZRP2B, ZRP21, ZRP22, ZRP23, ZRP2G	delta, theta, alpha, beta, beta1, beta2, beta3, gamma Relative Power 2 channels / 8 bands
ZPR1DT, ZPR1DA, ZPR1DB, ZPR1DG, ZPR1TA, ZPR1TB, ZPR1AB, ZPR1AG, ZPR1BG, ZPR2DT, ZPR2DA,...	d/t, d/a, d/b, d/g, t/a, t/b, t/g, a/b, a/g, b/g Power Ratios 2 channels / 10 ratios
ZAAD, ZAAT, ZAAA, ZAAB, ZAA1, ZAA2, ZAA3, ZAAG	delta, theta, alpha, beta, beta1, beta2, beta3, gamma Amplitude Asymmetry 8 bands
ZCOD, ZCOT, ZCOA, ZCOB, ZCO1, ZCO2, ZCO3, ZCOG	delta, theta, alpha, beta, beta1, beta2, beta3, gamma Coherence 8 bands
ZPHD, ZPHT, ZPHA, ZPHB, ZPH1, ZPH2, ZPH3, ZPHG	delta, theta, alpha, beta, beta1, beta2, beta3, gamma Phase Difference 8 bands
<b>Additional Z Scores for 4-channel systems: (248 total targets)</b>	
ZAP3D, ZAP3T,... ZAP4D, ZAP4T,...	delta, etc. absolute power, channels 3 and 4
ZRP3D, ZRP3T,... ZRP4D, ZRP4T,...	delta, etc. relative power, channels 3 and 4
ZPR3DT, ZPR3DA,... ZPR4DT, ZPR4DA,...	d/t, d/a, etc. power ratios, channels 3 and 4
ZAA12D, ZAA12T, ...	asymmetry between chans 1 and 2 (same as ZAAD, ZAAT, etc)
ZAA13D, ZAA13T, ...	asymmetry between chans 1 and 3

ZAA14D, ZAA14T, ...	asymmetry between chans 1 and 4
ZAA23D, ZAA23T, ...	asymmetry between chans 2 and 3
ZAA24D, ZAA24T, ...	asymmetry between chans 2 and 4
ZAA34D, ZAA34T, ...	asymmetry between chans 3 and 4
ZCO12D, ZCO12T, ...	coherence between chans 1 and 2 (same as ZCOD, ZCOT, etc)
ZCO13D, ZCO13T, ...	coherence between chans 1 and 3
ZCO14D, ZCO14T, ...	coherence between chans 1 and 4
ZCO23D, ZCO23T, ...	coherence between chans 2 and 3
ZCO24D, ZCO24T, ...	coherence between chans 2 and 4
ZCO34D, ZCO34T, ...	coherence between chans 3 and 4
ZPH12D, ZPH12T, ...	phase between chans 1 and 2 (same as ZPHD, ZPHT, etc)
ZPH13D, ZPH13T, ...	phase between chans 1 and 3
ZPH14D, ZPH14T, ...	phase between chans 1 and 4
ZPH23D, ZPH23T, ...	phase between chans 2 and 3
ZPH24D, ZPH24T, ...	phase between chans 2 and 4
ZPH34D, ZPH34T, ...	phase between chans 3 and 4
PercentZOK(range) or PZOK(range)	Percentage of Z scores that are within "range" of normal. Returns value between 0 and 100
PercentZOKUL(upper, lower) or PZOKUL(upper, lower)	Percentage of Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
PercentZAOKE(range) or PZAOKE(range)	Percentage of ABSOLUTE POWER Z scores that are within "range" of normal. Returns value between 0 and 100
PercentZAOKEUL(upper, lower) or PZAOKEUL(upper, lower)	Percentage of ABSOLUTE POWER Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
PercentZROK(range) or PZROK(range)	Percentage of RELATIVE POWER Z scores that are within "range" of normal. Returns value between 0 and 100
PercentZROKUL(upper, lower) or PZROKUL(upper, lower)	Percentage of RELATIVE POWER Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
PercentZPROK(range) or PZPROK(range)	Percentage of POWER RATIO Z scores that are within "range" of normal. Returns value between 0 and 100
PercentZPROKUL(upper, lower) or PZPROKUL(upper, lower)	Percentage of POWER RATIO Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
PercentZASOK(range) or PZASOK(range)	Percentage of ASYMMETRY Z scores that are within "range" of normal. Returns value between 0 and 100
PercentZASOKUL(upper, lower) or PZASOKUL(upper, lower)	Percentage of ASYMMETRY Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
PercentZCOK(range) or PZCOK(range)	Percentage of COHERENCE Z scores that are within "range" of normal. Returns value between 0 and 100

PercentZCOKUL(upper, lower) or PZCOKUL(upper, lower)	Percentage of COHERENCE Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
PercentZPOK(range) or PZPOK(range)	Percentage of PHASE Z scores that are within "range" of normal. Returns value between 0 and 100
PercentZPOKUL(upper, lower) or PZPOKUL(upper, lower)	Percentage of PHASE Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
PercentZCCOK(range) or PZCCOK(range)	Percentage of ALL CONNECTIVITY Z scores that are within "range" of normal. Returns value between 0 and 100
PercentZCCOKUL(upper, lower) or PZCCOKUL(upper, lower)	Percentage of ALL CONNECTIVITY Z scores that are below upper limit, and above lower limit. Returns value between 0 and 100
	NOTE: ALL CONNECTIVITY Z Scores includes scores for ASYMMETRY, COHERENCE, and PHASE
Controls for Atlantis Photic Output Controls	
x=SetPhoticRate(rate) or x=SPR(rate)	sets rate of photic stimulation to value given by "rate"
Controls for DC and Slow Cortical Potentials Atlantis or Discovery Training Channels	
x=DC1, DC2, ...	DC offset for channel 1, 2, ... 1 unit = 4 microvolts
x=DCE1, DCE2, ...	Enhanced DC for channel 1, 2, ... 1 unit = 1 millivolt
Controls for Discovery Acquired Channels DC and Slow Cortical Potentials	
x=DCA1, DCA2, ...	DC Acquired channel 1, 2, .... 24
x=CA1DCP, CA2DCP, ...	DC Acquired channel 1, 2, .... 24
x=DCALL	DC average of all 19 10-20 channels
x=DCFR	Frontal DC: Fp1 F3 F7 Fz Fp2 F4 F8
x=DCBK	Back DC: P3 P4 Pz T5 T6 O1 O2
x=DCLT	Left DC: Fp1 F3 F7 C3 T3 P3 T5 O1
x=DCRT	Right DC: Fp2 F4 F8 C4 T4 P4 T6 O2
x=DCFp1, DCFp2, DCF3, DCF4, ...	DC of any 10-20 site specified by name

## Designing an Event

1. On The Even Wizard Screen, choose the Event Number that you would like to work with (For this Example, we will work with Event 1).

Event Number: ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16

2. Next, set the Event Condition (For this example, we are going to reward the Channel 1 Theta band, when it is greater than its threshold). There are many ways that the Event Wizard can define what is being trained (See Attached pictures). If an equation is used, the Check Equation Button must be clicked, or it will not save this.

Event Condition with

Event Condition:

IF:

Check Equation

RULE:

Check Equation

Note: You must press "Check Equation" to check and save any changes made to equations

Event Condition with

Event Condition:

IF:

Check Equation

RULE:

Check Equation

Note: You must press "Check Equation" to check and save any changes made to equations

3. Next, set the Event Result (For This example, if the Event Condition is met, a .wav will play. This will also Control BMrMMP).

Event Result:

THEN:

☐ Obey Inhibits ("stops") ☒ Control MMP Player

4. Next, set the size of the Event Trend Graph. If you are not going to make your graph visible, you do not need to do anything with this (For this example, the graph will range from 0 to 20).

Event Trend Graph

Scale Factor:  Offset:

5. Next, you will need to make sure, that the Event is enabled. You will also need to choose whether you would like it visible or not. If the Event is not enabled, it will not work. But, if the Event is Hidden, it will still operate.

This Event Is: ☒ Enabled ☐ Disabled

Visibility: ☒ Visible ☐ Hidden

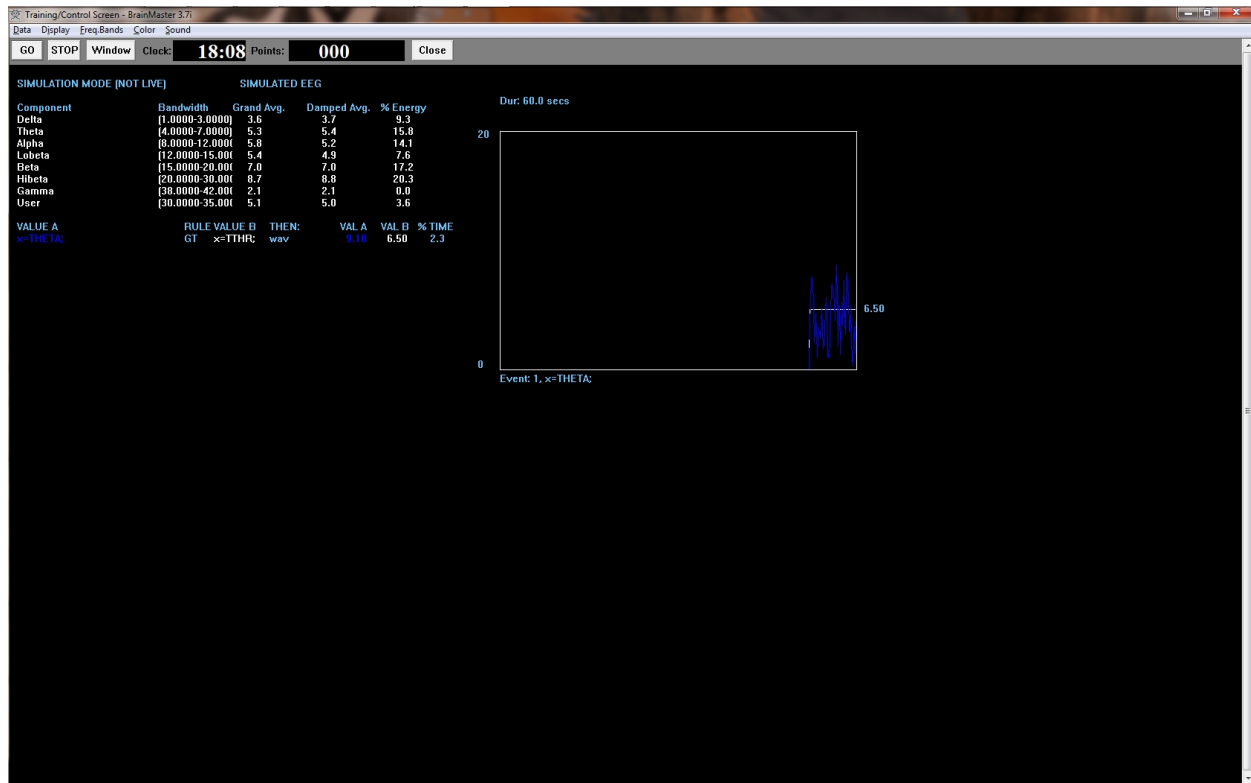
6. Next, set the Sustained Reward Criterion, Refractory Period and the properties of the MIDI Sound. If you are not utilizing a MIDI sound for a reward sound, you do not have to set this. The Sustained Reward Criterion and Refractory Period effect how often a reward can be give (For this example, the Sustained Reward Criterion and Refractory Period are both set for 500 milliseconds. This means, that a reward will not be given unless the client stays above the threshold for 500 milliseconds. Then, another reward is not possible for another 500 milliseconds).

Sustained Reward Criterion Condition must be met for: 500 milliseconds		Refractory Period Time between rewards is: 500 milliseconds	
MIDI Sound Properties:			
Starting Note:	1 A (55.0)	1 to 88	
Instrument:	0 Piano 1	128 choices	
Playing Style:	Sustained	Percus. or Sust.	
Modulation:	Amplitude	Ampl. or Pitch	
Starting Loudness:	Level: 0	0 to 128	
Loudness Change Rate:	0	0 to 20	
Note Change Rate:	0	0 to 20	
Musical Scale (Mode):	Chromatic	15 choices	
Musical Key:	A	C to B Flat	
Play Note or Chord:	1 Note	1 to 8 Notes	

7. Click the Use Now Button, and then click OK.

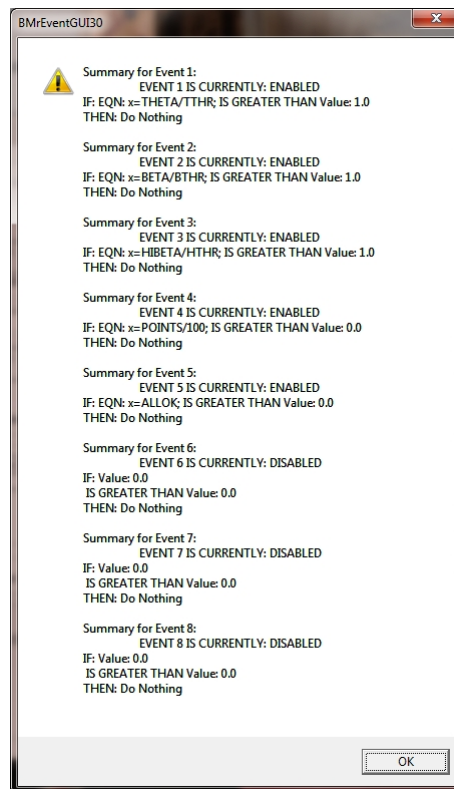
The screenshot shows the 'Event Wizard Designer' window. The 'Event Number' is 1. The 'Event Condition' is set to 'IF: [Use Equation] [Theta] [Amplitude] [Constant] [Damping Factor]'. The 'Event Result' is 'THEN: [Play WAV Sound]'. The 'Event Trend Graph' shows a scale factor of 20 and an offset of 0. The 'Event Summary' states: 'Summay for Event 1: EVENT 1 IS CURRENTLY ENABLED IF EQN: =>THETA IS GREATER THAN EQN: =>THRR.SUSTAIN 500ms REFRACTORY: 500ms THEN: Play WAV Sound'. The MIDI Sound Properties are the same as in the previous image. The 'Use Now' button is highlighted.

The Event Wizard has been set for the Client Folder. You will be able to tell this during the running of a session. If the Event was set to Visible, then you will see a graph if you choose the Display Event Trend Graph, or Wide Event Trend Graph. If you do not have the Event set to Visible, then you can still see that this is occurring through the Display Text Stat Panel.



## ***Basic BrainMaster Setting Protocol through the Event Wizard***

### **Alert**



**Event 1** – THETA/TTTHR is Greater than 1. This shows the ratio of the low “stop” inhibit to its threshold.

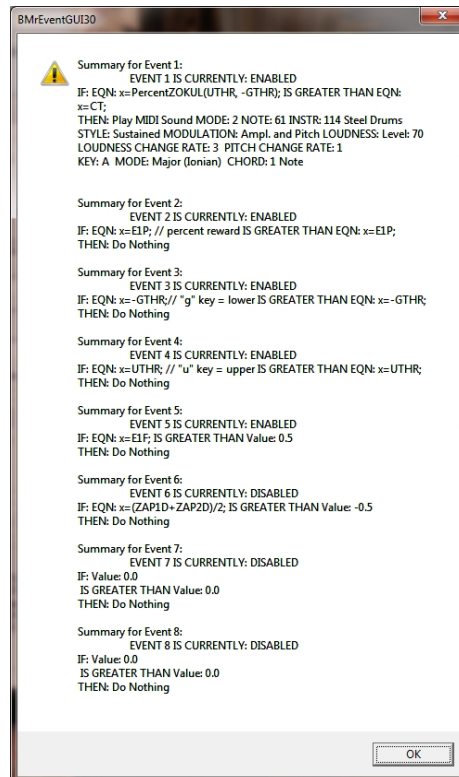
**Event 2** – BETA/BTHR is Greater than 1. This shows the ratio of the “go” component to its threshold.

**Event 3** – HIBETA/HTHR is Greater than 1. This shows the ratio of the hi “stop” inhibit to its threshold.

**Event 4** – x=POINTS/100. This shows the points divided by 100. This is merely for the Flash Game indicator.

**Event 5** – x=ALLOK. This indicates that all components meet criteria, and the Flash Game can “move” or proceed.

## Z-Score PZOKUL



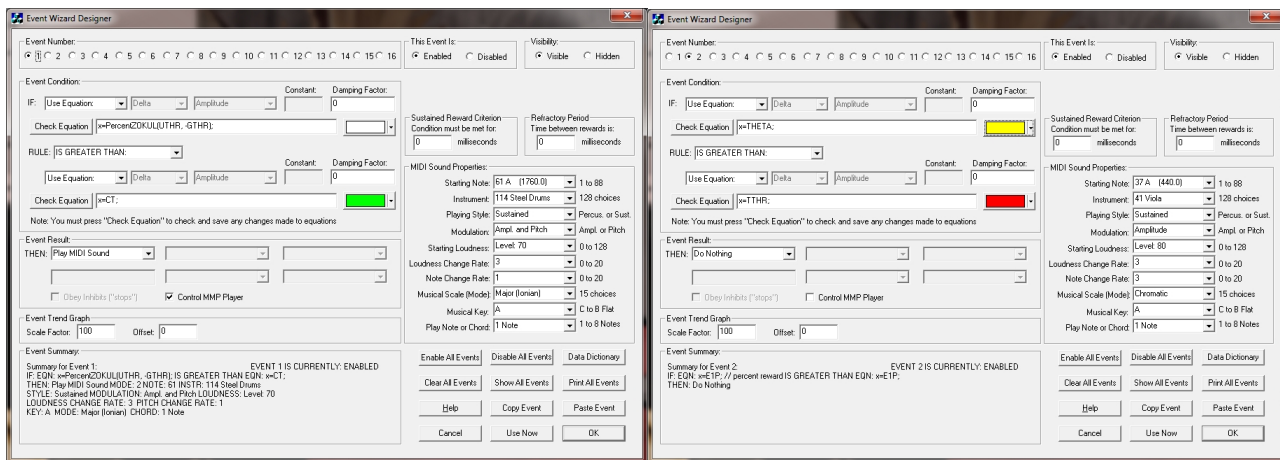
**Event 1** –  $x = \text{PercentZOKUL}(\text{UTHR}, -\text{GTHR})$  is Greater than CT. This rewards the Percentage of Z-Scores that are with-in the ranges of the U Threshold and G Threshold that are above the threshold that is defined by the C Key.

**Event 2** –  $x = \text{E1P}$ . This shows the percentage of reward for Event 1.

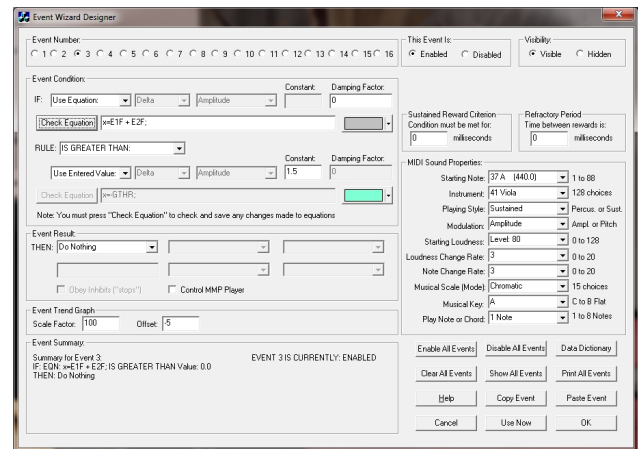
**Event 3** –  $x = -\text{GTHR}$  is greater than  $x = -\text{GTHR}$ . This gives a graphical representation for the Lower threshold for the Z-Score equation.

**Event 4** –  $x = \text{UTHR}$  is greater than  $x = \text{UTHR}$ . This gives a graphical representation for the Upper threshold for the Z-Score equation.

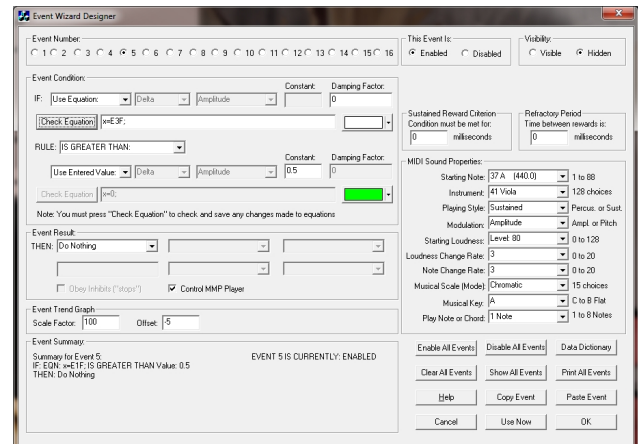
**Event 5** –  $x = \text{E1F}$  is greater than 0.5. This flags Event 1. When the Event 1 meets its Event Condition, Event 5 produces a 1, which indicates that this component has met criteria, and the Flash Game can “move” or proceed.

*Advanced Event Wizard Controls***Enabling Multiple Events to control Flash Player (2 Event Example)**

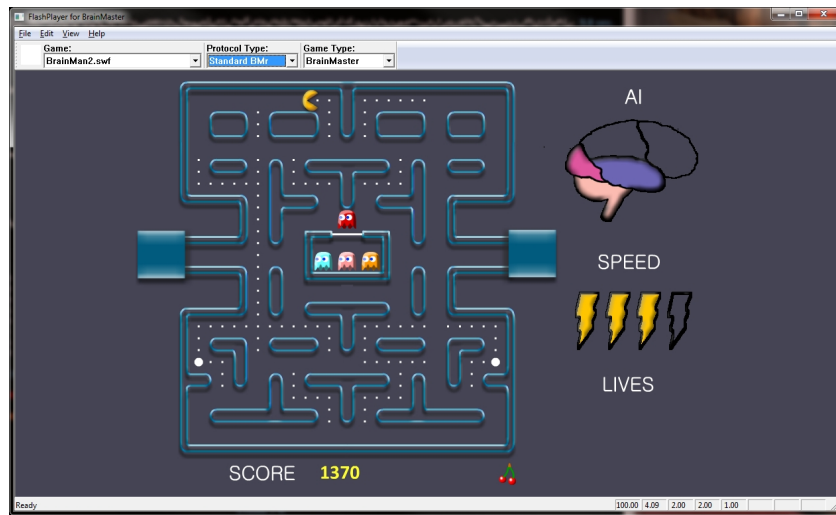
1. Create an Event (Event 3) that Flags these Events, and requires them to be greater than the possible combination with-out all being met (For this example, since there are two Events, we want the Event Condition to be greater than 1.5. This way, we are only successful when both Event 1 and Event 2 have been met).



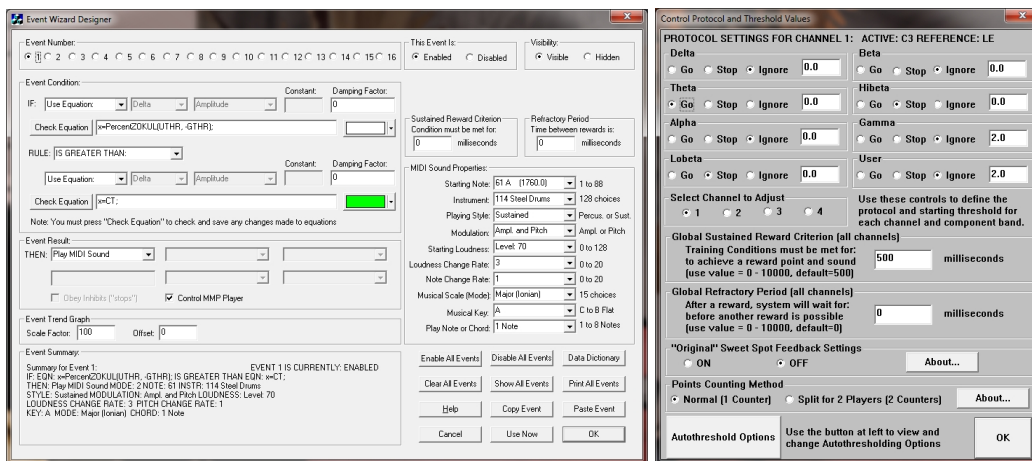
2. Next, we will need to flag the results of this last created Event into Event 5, so that the Flash Player can be controlled.



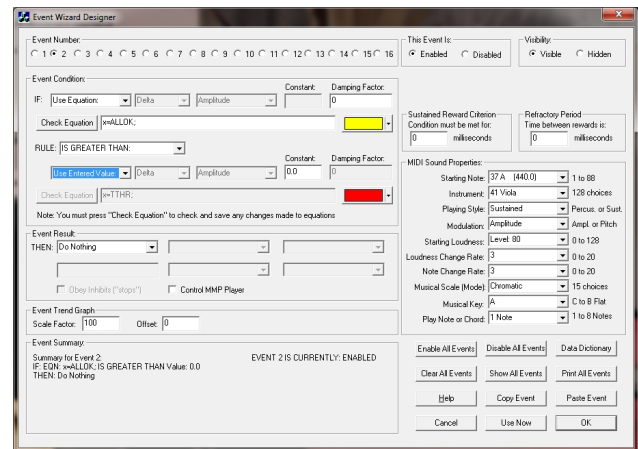
Your protocol will now be able to drive the Flash Player when all Event criteria has been met for the different Event Conditions. You will be able to tell, as you can see that the Flash Player will operate to Event 5



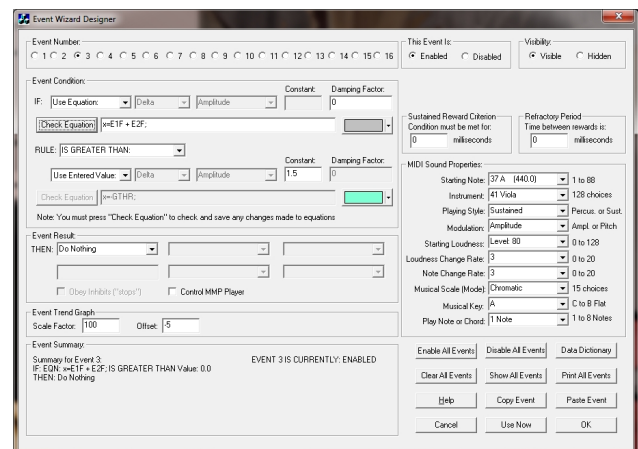
## Enabling Amplitude and Events to control Flash Player



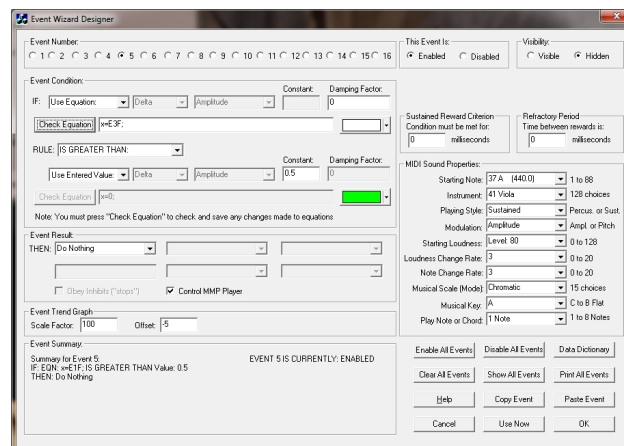
1. Create an Event to indicate that all amplitude components have met their criteria.



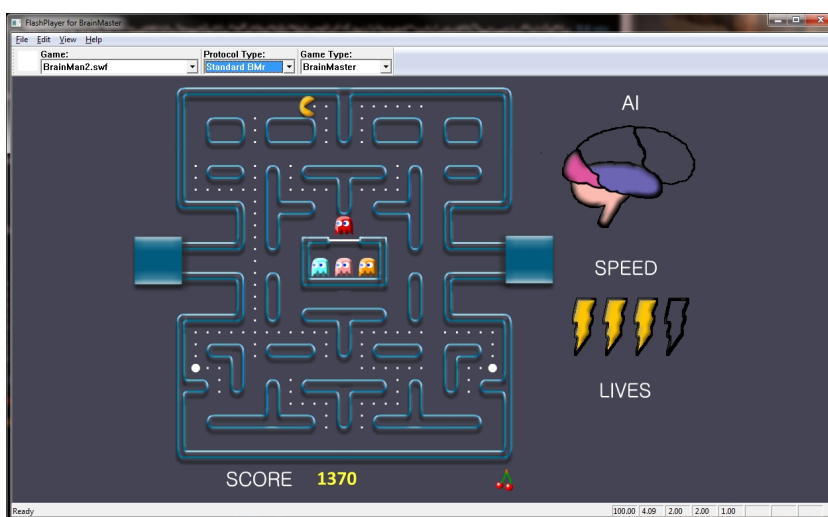
2. Create an Event (Event 3) that Flags these Events, and requires them to be greater than the possible combination with-out all being met (For this example, since there are two Events, we want the Event Condition to be greater than 1.5. This way, we are only successful when both Event 1 and Event 2 have been met).



- Next, we will need to flag the results of this last created Event into Event 5, so that the Flash Player can be controlled.

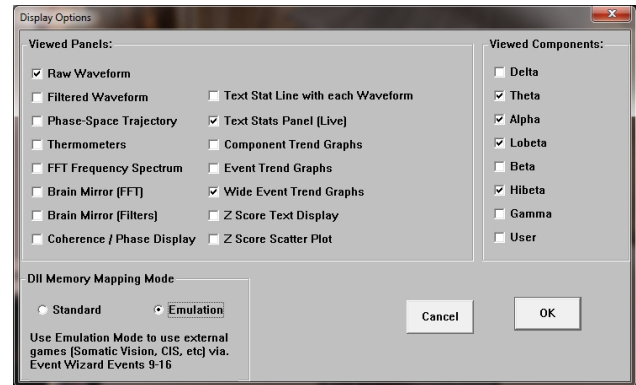


Your protocol will now be able to drive the Flash Player when all Event criteria has been met for the different Event Conditions. You will be able to tell, as you can see that the Flash Player will operate to Event 5

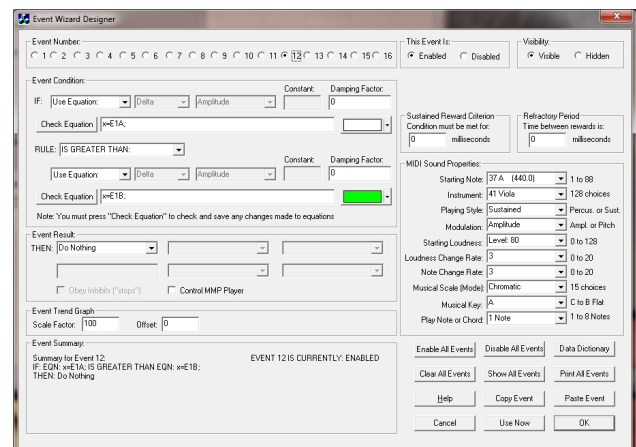


## Enabling Events to control Third-Party Games

1. First, the BrainMaster Software has to be set into Emulation Mode. This is accomplished in the Display Options Menu under the DLL Memory Mapping Mode.

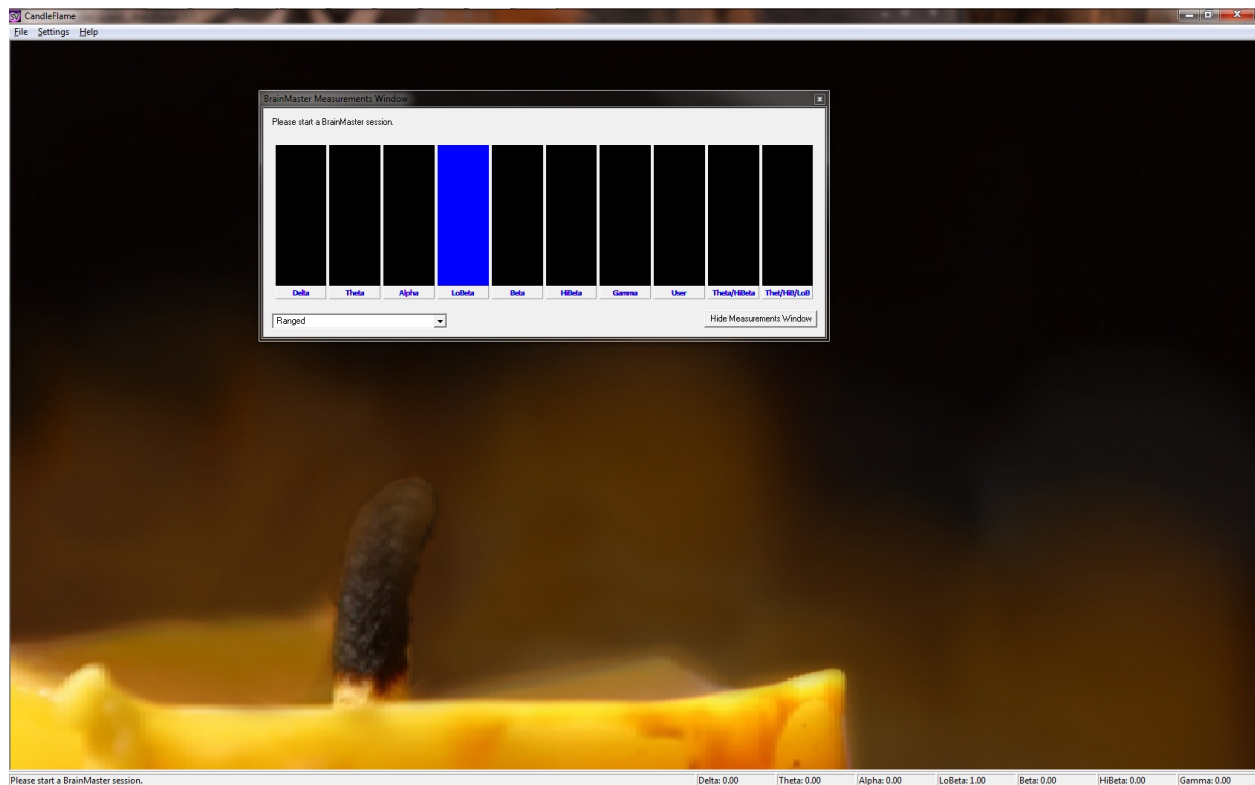


2. Next we have to set the Events so that they will properly operate. This is accomplished, by utilizing Events 9-16 to emulate the Filtered Waveforms. A list of the Events to what band they are referring to, see below (For this example, we are going to want the game to react to training done on the Lobeta band. Because of this, we will use Event 12). For proper reaction, the Event Condition must be Event must be greater than its condition (For this example, we want the training reaction from Event 1. So, because of this the Event Condition is "IF Equation:  $x=E1A$ , is GREATER THAN Equation  $x=E1B$ "). You can do this for up to all 8 Events.



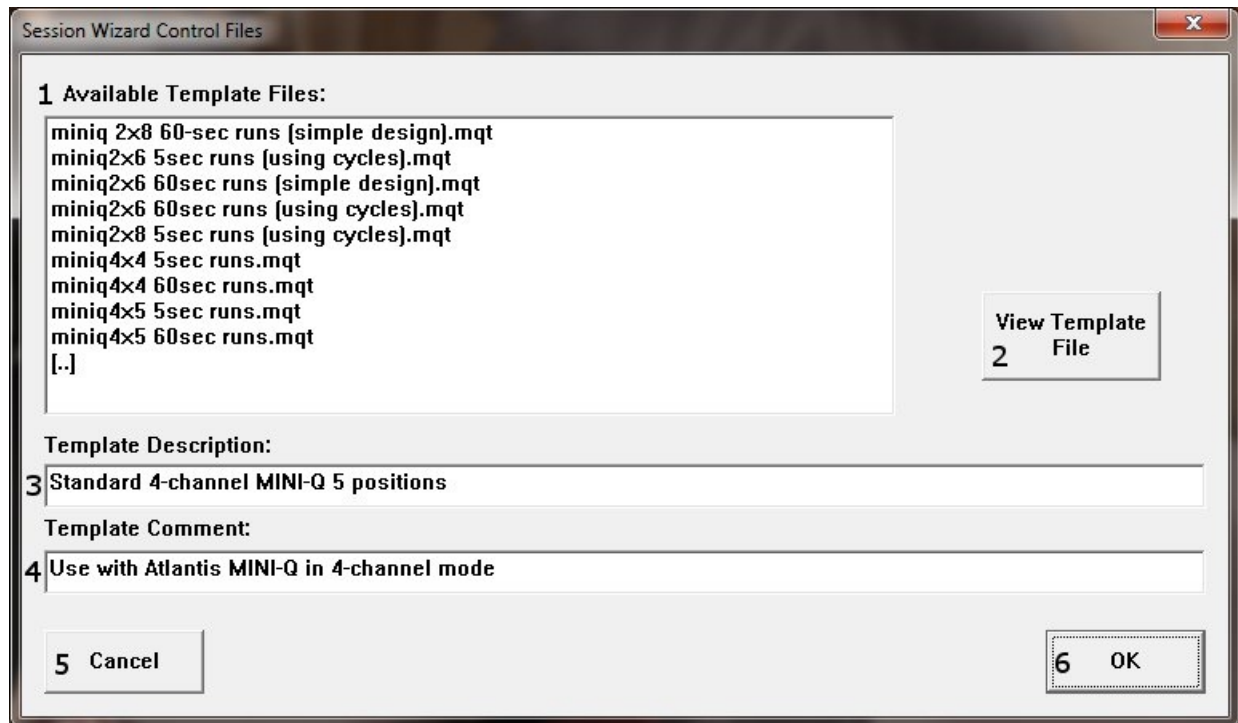
Event Number	Third-Party "Filtered band
9	Delta
10	Theta
11	Alpha
12	Lobeta
13	Beta
14	Hibeta
15	Gamma
16	User

You have now enabled the BrainMaster protocol to have its Events be seen as a Filtered waveband in the third-party game. You will be able to see this, by starting the third-party game, and seeing the band that you chose to affect the games reward. If this is not working, please make sure that you have set the reward for the game to the bands that you have chosen.



## Session Wizard

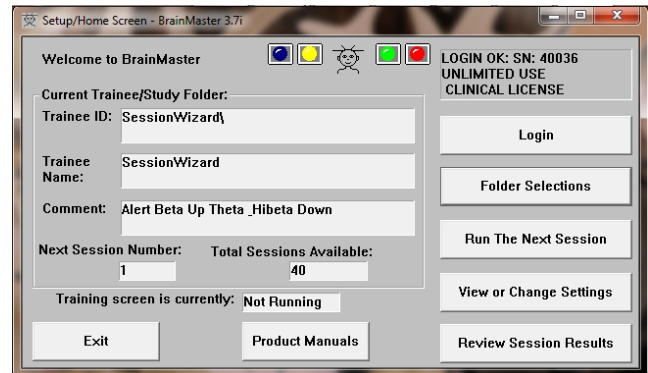
### *Session Wizard Control Screen*



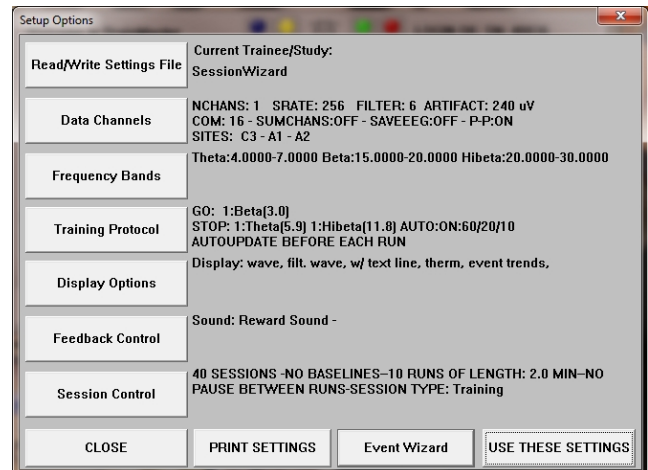
1. **Available Template Section** – Section where you can choose the Session Wizard Template you would like to use.
2. **View Template File Button** – Click to View the Template of the Session Wizard Template that has been selected.
3. **Template Description Section** – Section that displays the Template's description of the selected Session Wizard Template.
4. **Template Comment Section** – Section that displays the Template's comment of the selected Session Wizard Template.
5. **Cancel Button** – Click to cancel any selections and exit the Session Wizard Control Screen.
6. **OK Button** – Click to confirm the selections and exit the Session Wizard Control Screen.

***Loading a Protocol that has a Pre-Loaded Session Wizard File***

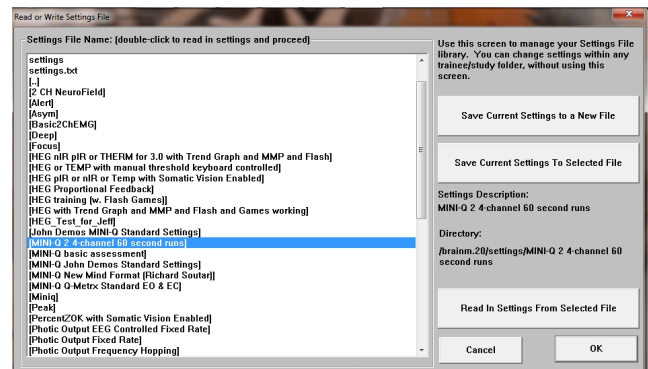
1. Choose a file that you would like to use.  
From the Setup/Home Screen, click the View or Change Settings Button.



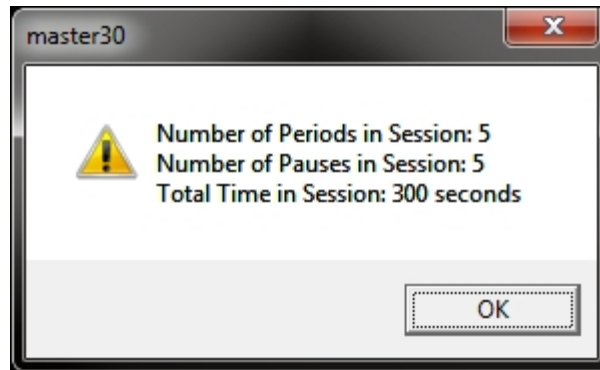
2. From the Setup Options Menu, click the Read/Write Settings File Button.



3. From the Read or Write Settings File Menu, double-click the settings protocol that you would like to use, and load this protocol, by double-clicking. Confirm all changes and run your session

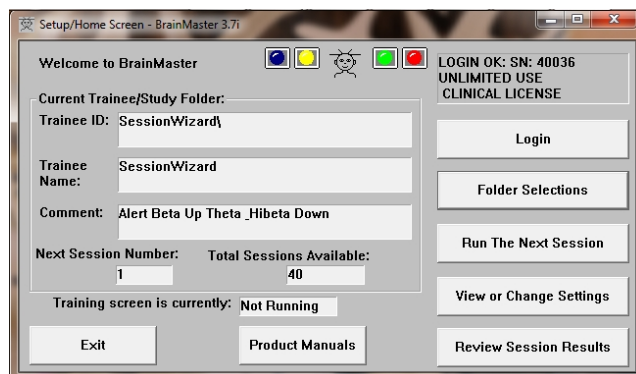


The System will now run the Session Wizard File. You will be able to tell this, as there will be a message stating the Number of periods, pauses, and total time in the session.

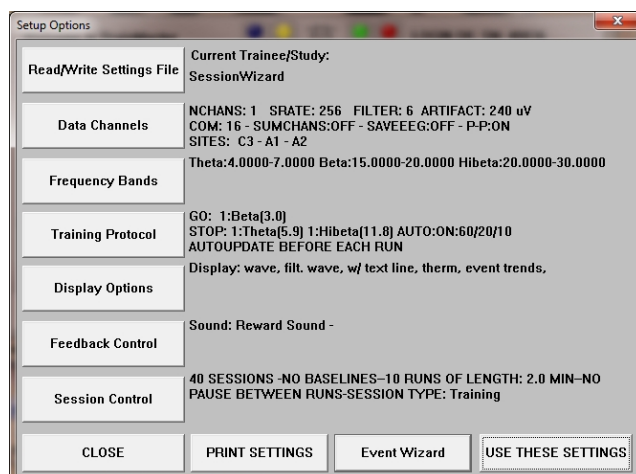


## *Loading a Session Wizard File to a Pre-Existing Protocol*

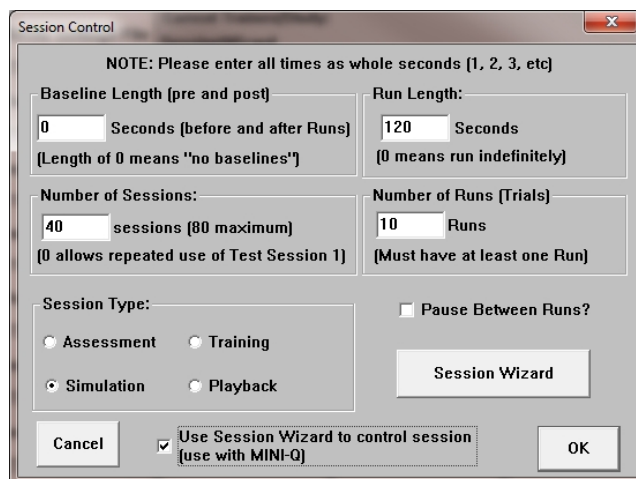
1. Choose a file that you would like to use.  
From the Setup/Home Screen, click the View or Change Settings Button.



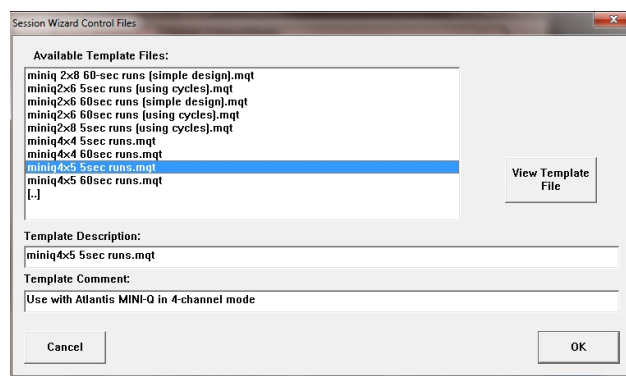
2. From the Setup Options Menu, click the Session Control Button.



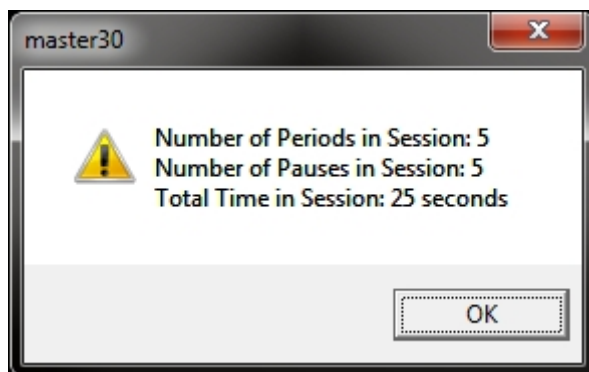
3. From the Session Control Menu, first click the Check Mark Box to use the Session Wizard to control the session. When this is complete, click the Session Wizard Button.



4. From the Session Wizard Control Menu, choose the Session Wizard Template you would like to use. When you have the file you would like, click the OK Button to confirm the choice. Confirm all changes and run your session.



The System will now run the Session Wizard File. You will be able to tell this, as there will be a message stating the Number of periods, pauses, and total time in the session.



***Data Dictionary for the Session Wizard***

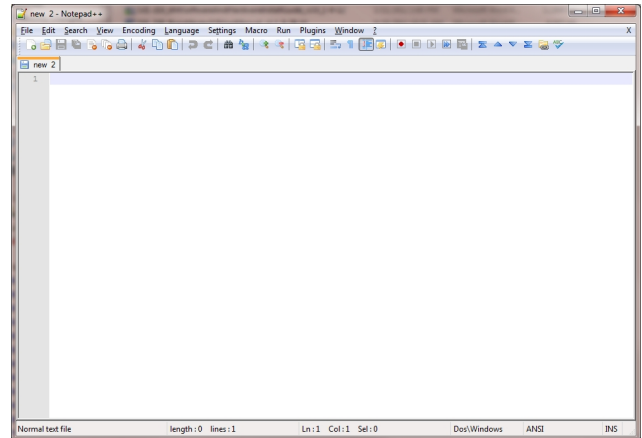
Session Wizard Basic Variables	
NAME	Defines the name of the Session Wizard Template. The name placed here, will be in view on the Session Wizard Control Screen.
VERSION	Defines what version of the Session Wizard Template. This is not displayed anywhere only in the actual Session Wizard Template
COM	Defines the comment of the Session Wizard Template. The comment placed here, will be in view on the Session Wizard Control Screen
NCHANS	Defines the number of channels that will be used by the Session Wizard Template.
DO	Starts the Session Wizard Template.
DONE	Ends the Session Wizard Template.
//	Classifies a comment for the user. Use to place comments in your Session Wizard Template, with-out the Session Wizard seeing these comments.
BEGCYCLE	Begins an area to create a pre-defined cycle to be used in the DO section of the Session Wizard Template. The CYCLE is created outside of the DO Section.
ENDCYCLE	Ends an area to create a pre-defined cycle to be used in the DO section of the Session Wizard Template. The CYCLE is created outside of the DO section.
DOCYCLE	Used in the DO section of the Session Wizard Template. Calls to a pre-defined CYCLE with-in the Session Wizard Template.
Session Wizard Session Variables	
MESG1	Displays a message before the run begins.
MESG2	Displays a message after the run ends.
SITES	Programs the run for the specific locations that will be acquired/trained.
PERIOD	States how long the run will be
FEEDBACK	Variable that can be used for the Session Wizard Template. This value will only be kept for the period declared.
DUTY	Percentage Variable that controls the FEEDBACK variable. This allows FEEDBACK to be worth its stated value for the percentage of time of DUTY (If PERIOD is 30, FEEDBACK is 10, and DUTY is 50, then FEEDBACK=10 for the first 15 seconds and 0 for the last 15 seconds). This value will only be kept of the period declared.
INTENSITY	Variable that can be used for the Session Wizard Template. This value will only be kept for the period declared.

Session Wizard Session Variables for Discovery	
EYES OPEN	Creates an EDF File with the EO mark when the PERIOD is complete.
EYES CLOSED	Creates an EDF File with the EC mark when the PERIOD is complete.
TASK	Creates an EDF File with the TASK mark when the PERIOD is complete. You will have to declare the Task for this.
Session Wizard Session Variables for Peripherals	
PHOTICRATE	Variable that sets the rate for Photic glasses to be used for the Session Wizard Template. This value will only be kept for the period declared.
PHOTICENABLE	Enable or Disable Photic Output. 1 Enables Photic Output. 0 Disables Photic Output.

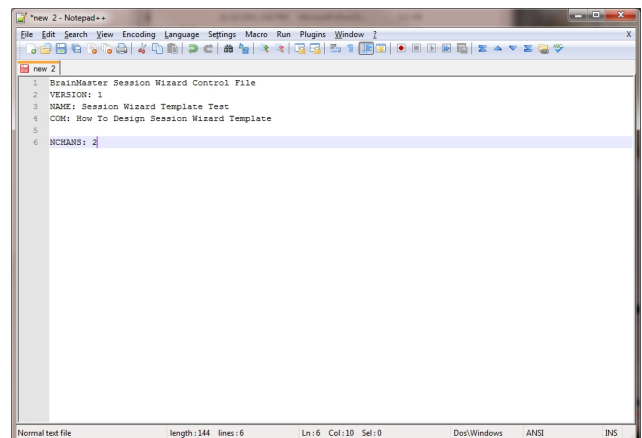
## *Designing a Session Wizard Template*

**PLEASE NOTE:** A Session Wizard Template can be designed in any Notepad-based program. It is recommended to use Notepad++. For more information on Notepad++, please visit <http://notepad-plus-plus.org/>.

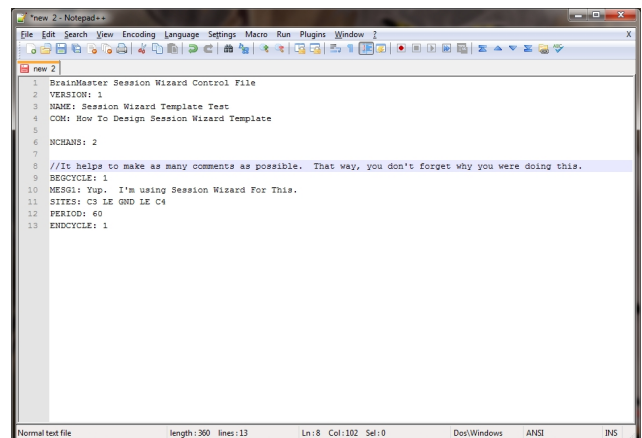
1. Open your Notepad-based program.



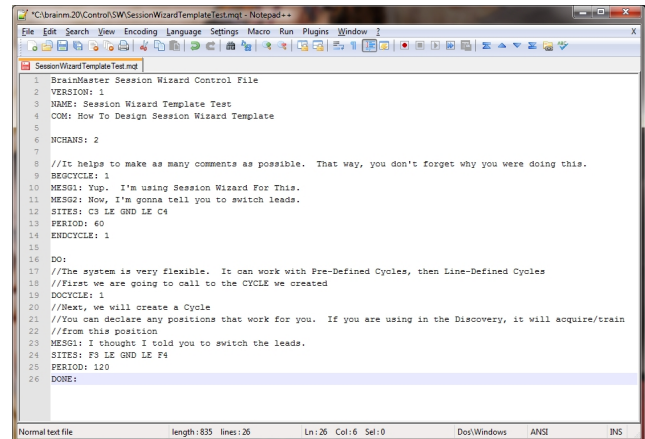
2. Create your Header information. The Header information will contain the Line “BrainMaster Session Wizard Control File”. It will also contain the Version, Name, Comment, and Number of channels.



3. Next, create any cycles that will be used. If you are not using the CYCLE feature, this is not needed.



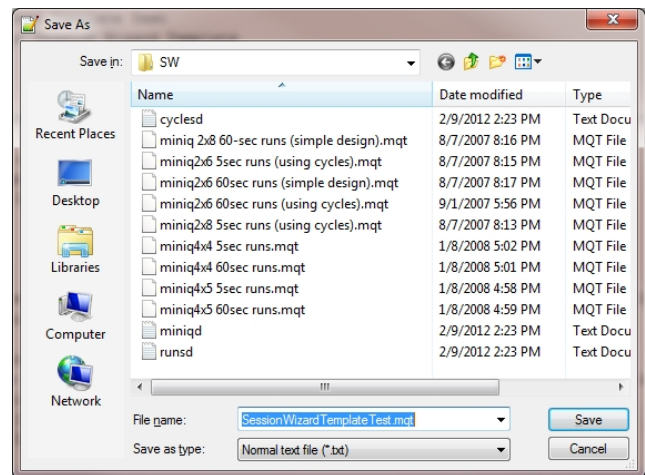
4. Now, create the DO section of the template section of the Session Wizard Template. All that is created in the DO section will control the session. When the DO section is completed, end with DONE.



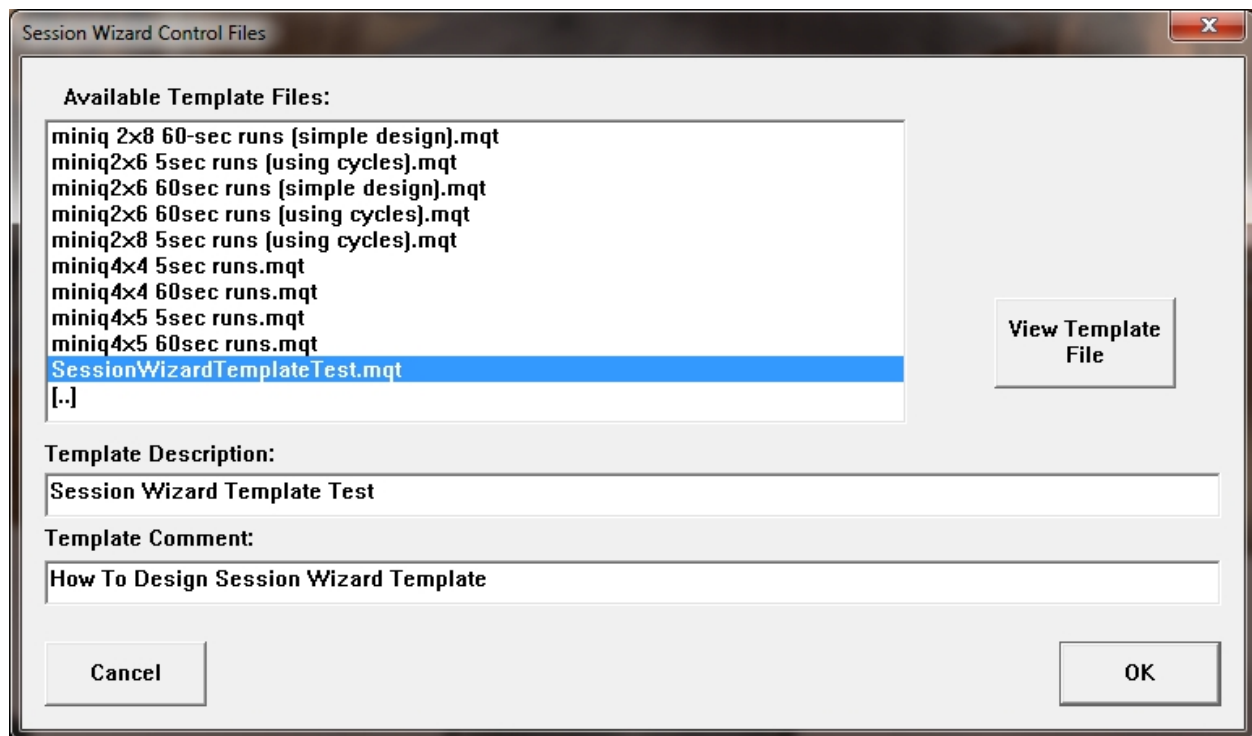
```

1 BrainMaster Session Wizard Control File
2 VERSION: 1
3 NAME: Session Wizard Template Test
4 COM: How To Design Session Wizard Template
5
6 MCHANS: 2
7
8 //It helps to make as many comments as possible. That way, you don't forget why you were doing this.
9 BEGCYCLE: 1
10 MESG1: Yup. I'm using Session Wizard For This.
11 MESG2: Now, I'm gonna tell you to switch leads.
12 SITES: C3 LE GND LE C4
13 PERIOD: 60
14 END CYCLE: 1
15
16 DO:
17 //The system is very flexible. It can work with Pre-Defined Cycles, then Line-Defined Cycles
18 //First we are going to call to the CYCLE we created
19 DO CYCLE: 1
20 //Next, we will create a Cycle
21 //You can declare any positions that work for you. If you are using in the Discovery, it will acquire/train
22 //from this position
23 MESG1: I thought I told you to switch the leads.
24 SITES: F9 LE GND LE F4
25 PERIOD: 120
26 DONE:
    
```

5. When completed with you Session Wizard Template, it is now time to save it. The location that you will need to save this in for use is c:\brainm.20\Control\SW for use in the BrainMaster 3.0 Series Software, and c:\brainm.20\Control\SWD for use in the BrainMaster Discovery Series Software. You will save the file as “YourSessionWizardTemplateName”.mqt. If you are using a Notepad program that allows this action, no further action will be required. If you are using a Notepad program that will not support this naming, you will have to force the .mqt ending in Windows manually.



You have now created a Session Wizard Template, that can now be used for future sessions. You will be able to tell that this has been completed, by opening the Session Wizard Control Screen, and seeing your newly created Session Wizard Template ready for use.





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