

Power Point Manual

Get On The
BUS



BrainMaster
Universe
Simplified



“Alert”
level 3

Alert

Level 3

- How can I modify the Alert Settings to use the event wizard for greater control and flexibility of the protocol?
- How can I use the Panel Wizard to modify training screen appearance?

All protocols are for demo and research purposes only. Clinicians must determine protocol choices. All protocols must be used within scope of practice and scope of competence.

Alert

Level 3

- In the Level 1 and Level 2 Alert Protocol training was conducted through the “built in” Brainmaster digital filters.
- Let’s change the control of the protocol over to the Event Wizard for greater control and flexibility.

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Alert

Level 3

Lets Begin

- Make Sure the Atlantis Amplifier is plugged in.

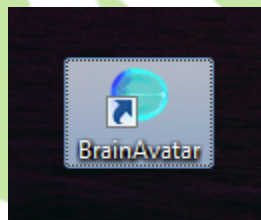


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Alert

Level 3

- Open BrainAvatar by double-clicking the BrainAvatar Icon

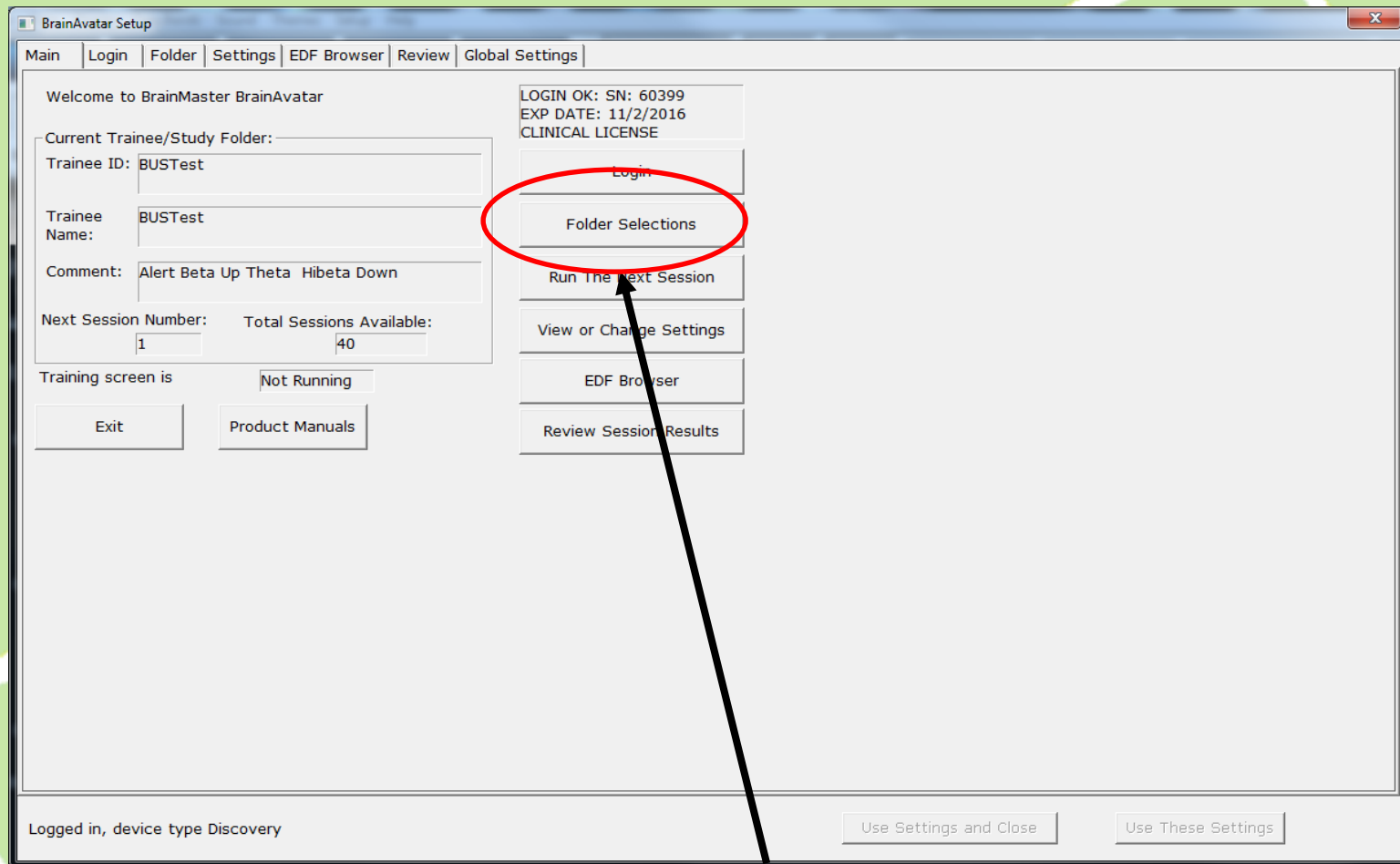


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- The Select Folder Screen will appear.
- By now you should know how to either create a new client folder or recall an existing client folder.
- For the purposes of this exercise let's open and utilize the "BUSTest" Folder which may already be resident on your system. If not, then create one.

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- The BrainAvatar Setup Window will Appear



- Click “Folder Selections”.

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- The Select Folder Screen will appear.

BrainAvatar Setup

Main | Login | Folder | Settings | EDF Browser | Review | Global Settings

Select Folder | Create Folder | Folder Notes | Session Librarian | Edit Folder Info.

Select Folder: (you may double-click to select)

Study Name	Birth Date	Sess	Max	Comment	Technician	Physician	Trainee Name	Created	Modified
..									
BUSTest	2000-7-4	40		Alert Beta Up T...	EEG tech		BUSTest	2016-8-3	2016-8-3

Study Name (Trainee ID): BroJad4chPZOKP3P4O1O2

Trainee Name: BroJad4chPZOKP3P4O1O2

Comment: comment

Sessions Used: 4

Max Sessions: 40

Session Librarian

Administer Session Genie | Push Current Study to Server and Delete | Archive Current Study | Archive Current Study and Delete

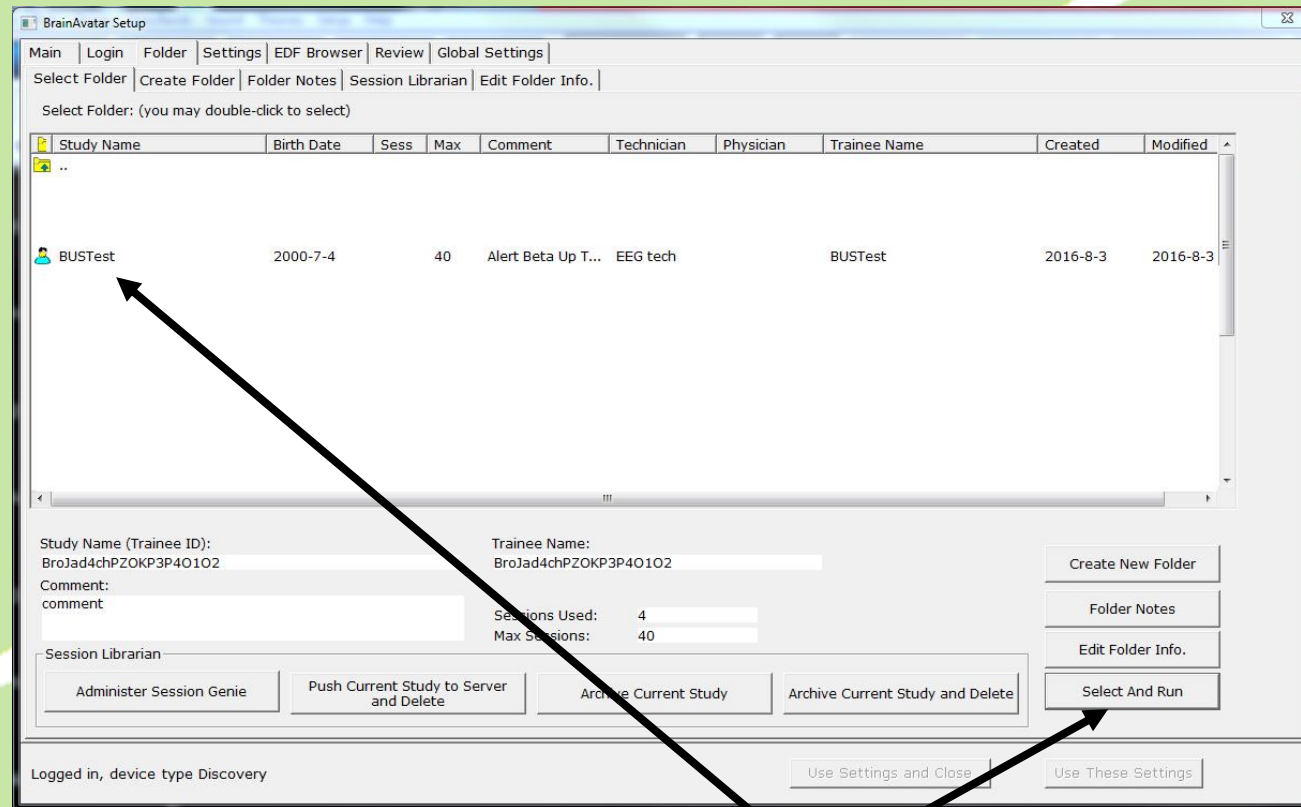
Create New Folder | Folder Notes | Edit Folder Info. | Select And Run

Logged in, device type Discovery

Use Settings and Close | Use These Settings

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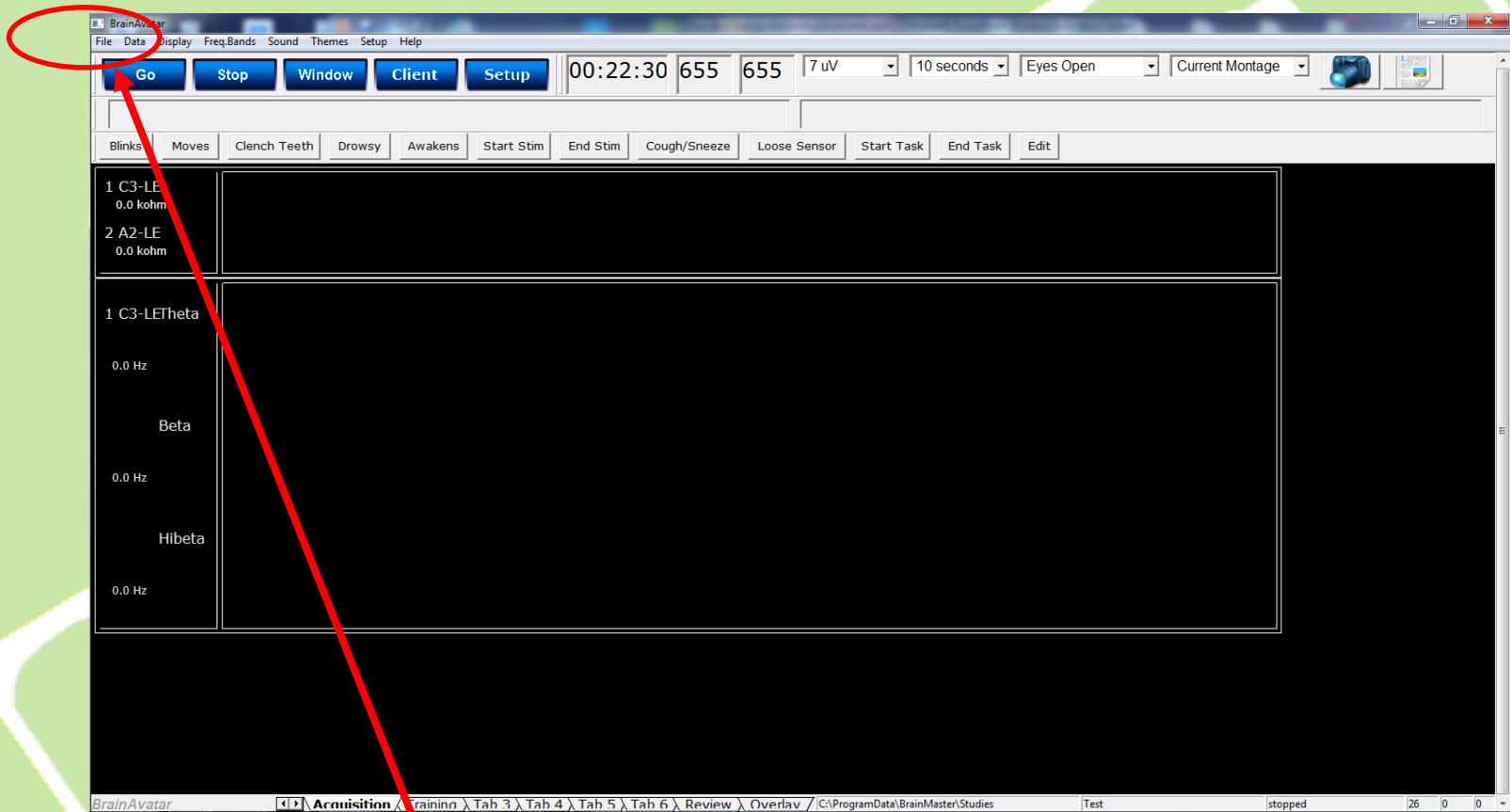
- The Select Folder Screen will appear.



- Click the Study (Folder) you would like to open (in this case BUSTest) and then click “Select and Run”.

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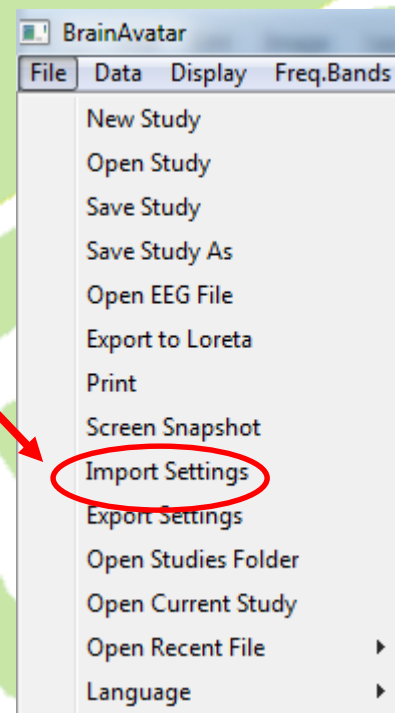
- The BrainAvatar Acquisition Screen is illuminated. Let's load the original ALERT Level 1 Setting File.




- Click “File” from the Main Menu at the top.

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- Next select “Import Settings”.



- Scroll to find the original Alert Level 1 File and double click it.

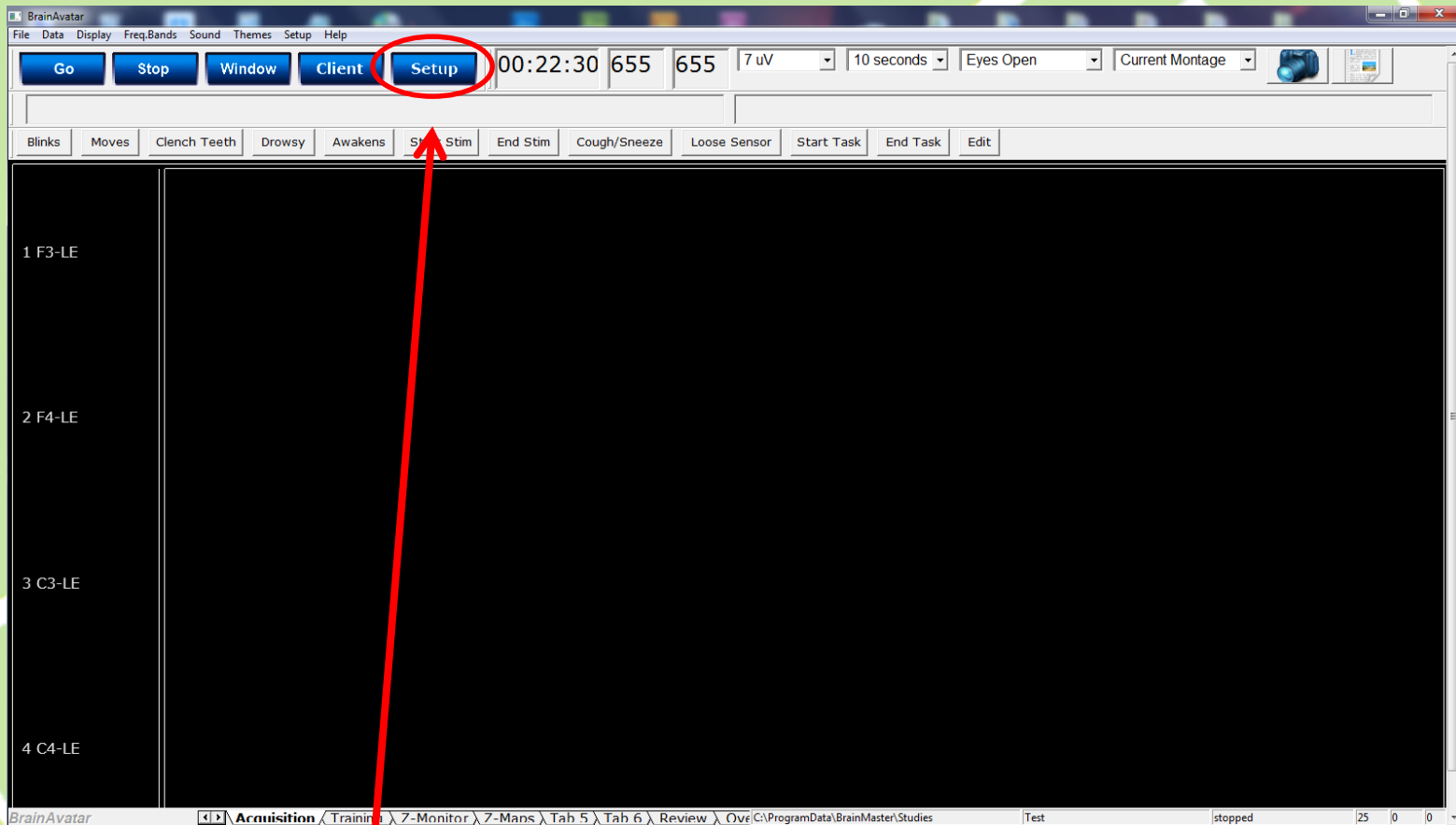
Name	Date modified	Type	Size
 0201001Alert.bdb2	11/20/2015 12:31 ...	BDB2 File	142 KB

- The original Alert Level 1 setting is imported into the Client’s Study and is now ready for modification.

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ALERT

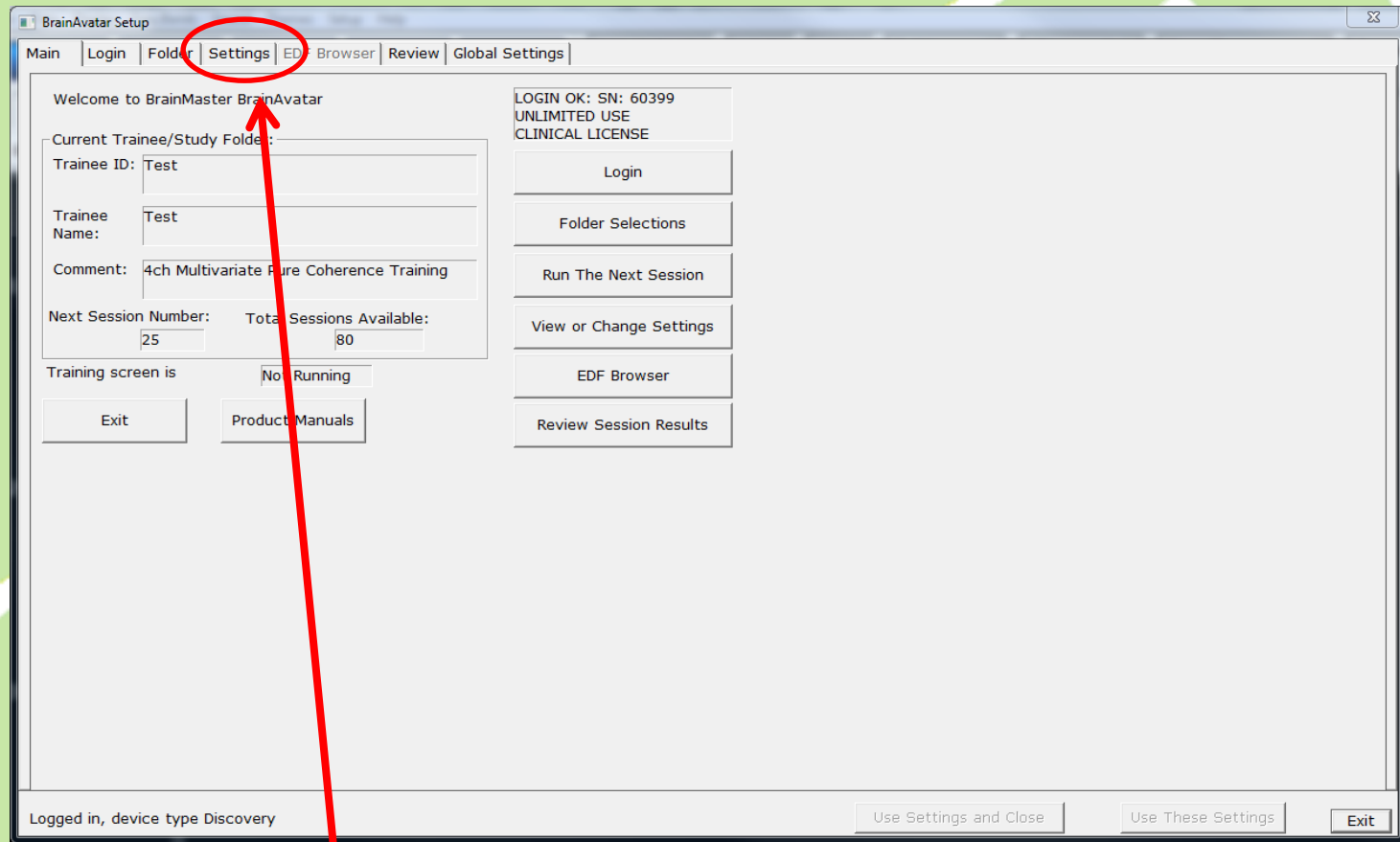
The Protocol is now ready for Modification



- Click “Setup”.

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ALERT



- Click “Settings”.

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ALERT

The screenshot shows the 'BrainAvatar Setup' window with the following tabs: Main, Login, Folder, Settings, EDF Browser, Review, Global Settings. The 'Settings' tab is active, showing sub-tabs: Main, Read/Write, Channels, Bands, Protocol, Display, Feedback, Session, Event Wizard, Acquisition, Montage, Z Scores, Session Wizard, Atlantis HW, Electrodes. The 'Main' sub-tab is selected, displaying the following settings:

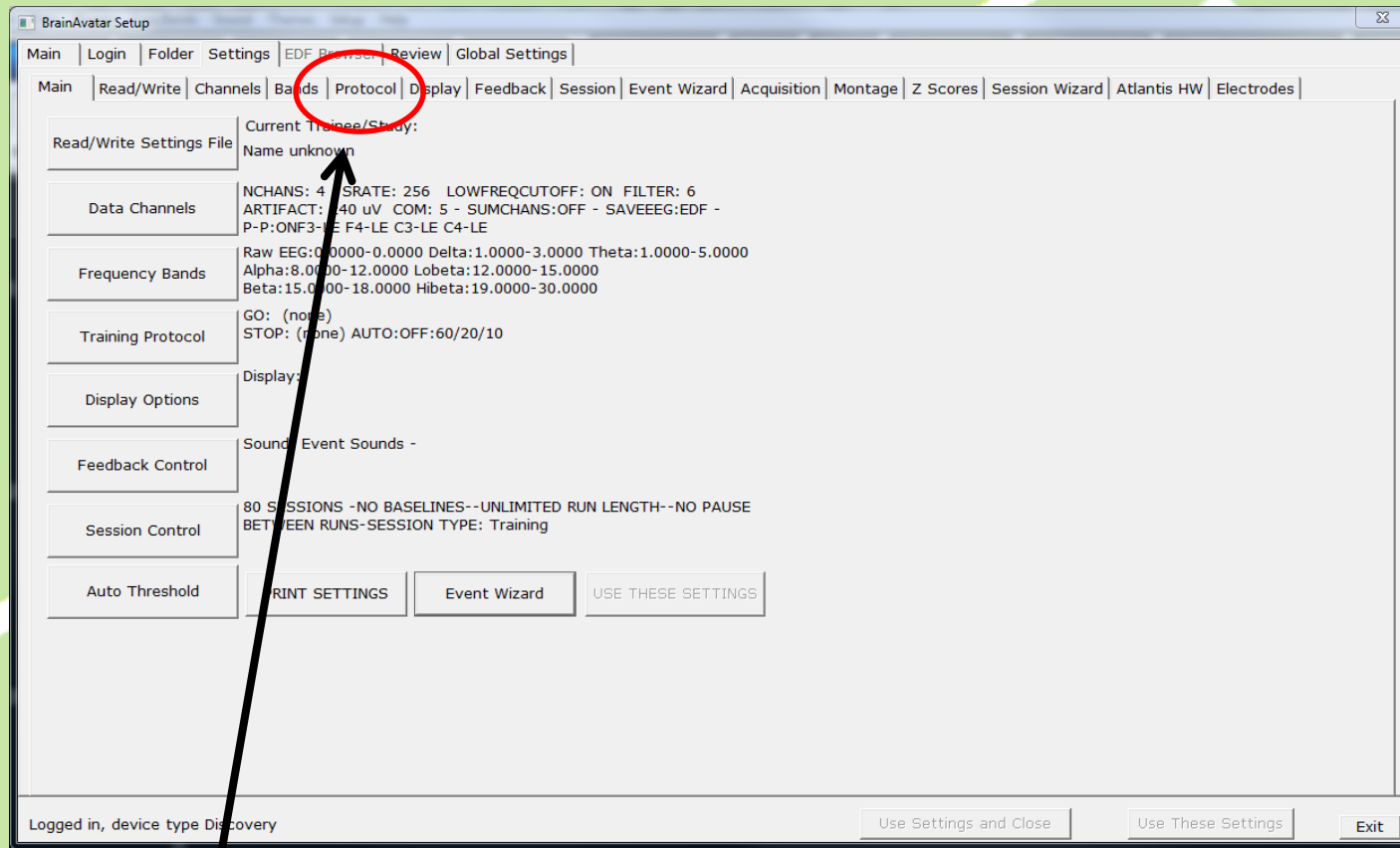
Read/Write Settings File	Current Trainee/Study: Name unknown
Data Channels	NCHANS: 4 SRATE: 256 LOWFREQCUTOFF: ON FILTER: 6 ARTIFACT: 240 uV COM: 5 - SUMCHANS: OFF - SAVEEEG: EDF - P-P: ONF3-LE F4-LE C3-LE C4-LE
Frequency Bands	Raw EEG: 0.0000-0.0000 Delta: 1.0000-3.0000 Theta: 1.0000-5.0000 Alpha: 8.0000-12.0000 Lobeta: 12.0000-15.0000 Beta: 15.0000-18.0000 Hibeta: 19.0000-30.0000
Training Protocol	GO: (none) STOP: (none) AUTO: OFF: 60/20/10
Display Options	Display:
Feedback Control	Sound: Event Sounds -
Session Control	80 SESSIONS - NO BASELINES - UNLIMITED RUN LENGTH - NO PAUSE BETWEEN RUNS - SESSION TYPE: Training
Auto Threshold	

At the bottom of the 'Main' sub-tab are three buttons: PRINT SETTINGS, Event Wizard, and USE THESE SETTINGS. The status bar at the bottom of the window shows 'Logged in, device type Discovery' on the left and 'Use Settings and Close', 'Use These Settings', and 'Exit' buttons on the right.

YOU ARE NOW ABOUT TO ENTER THE “BRAIN CENTER” OF THE BRAINAVATAR PROGRAM. ANY HAPHAZARD MODIFICATIONS HERE WITHOUT KNOWLEDGE MAY CAUSE UNPREDICTABLE RESULTS. THIS INSTRUCTION MANUAL WILL GIVE YOU THE PROPER KNOWLEDGE TO ALTER THESE CONTROL SCREENS WITHOUT CONCERN. AGAIN, YOU CAN ALWAYS INSTALL THE ORIGINAL SETTING FILE IF NECESSARY.

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ALERT



Click "Protocol".

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ALERT

BrainAvatar Setup

Main | Login | Folder | Settings | EDF Browser | Review | Global Settings

Main | Read/Write | Channels | Bands | Protocol | Display | Feedback | Session | Event Wizard | Acquisition | Montage | Z Scores | See

C3-LE

Band	Go	Stop	Ignore	Band	Go	Stop	Ignore
Delta	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Theta	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Alpha	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Lobeta	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Beta	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Hibeta	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Gamma	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	User	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Note: All thresholds are in microvolts

Autoset "Go's" for: 60 percent time over threshold

Autoset "Stops" for: 20 percent time over threshold

Autoset HiBeta (stop) for: 10 percent time over threshold

Autothresholding is:

☒ ON ☐ OFF

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

Autothreshold Epoch

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

Global Sustained Reward Criterion (all channels)

Training Conditions must be met for 500 milliseconds to achieve a reward point and sound (use value = 0 - 10000, default=500)

Global Refractory Period (all channels)

After a reward, system will wait for: 0 milliseconds before another reward is possible (use value = 0 - 10000, default=0)

"Original" Sweet Spot Feedback Settings - Markers

☐ ON ☒ OFF About... ☐ Mark EEG with reward

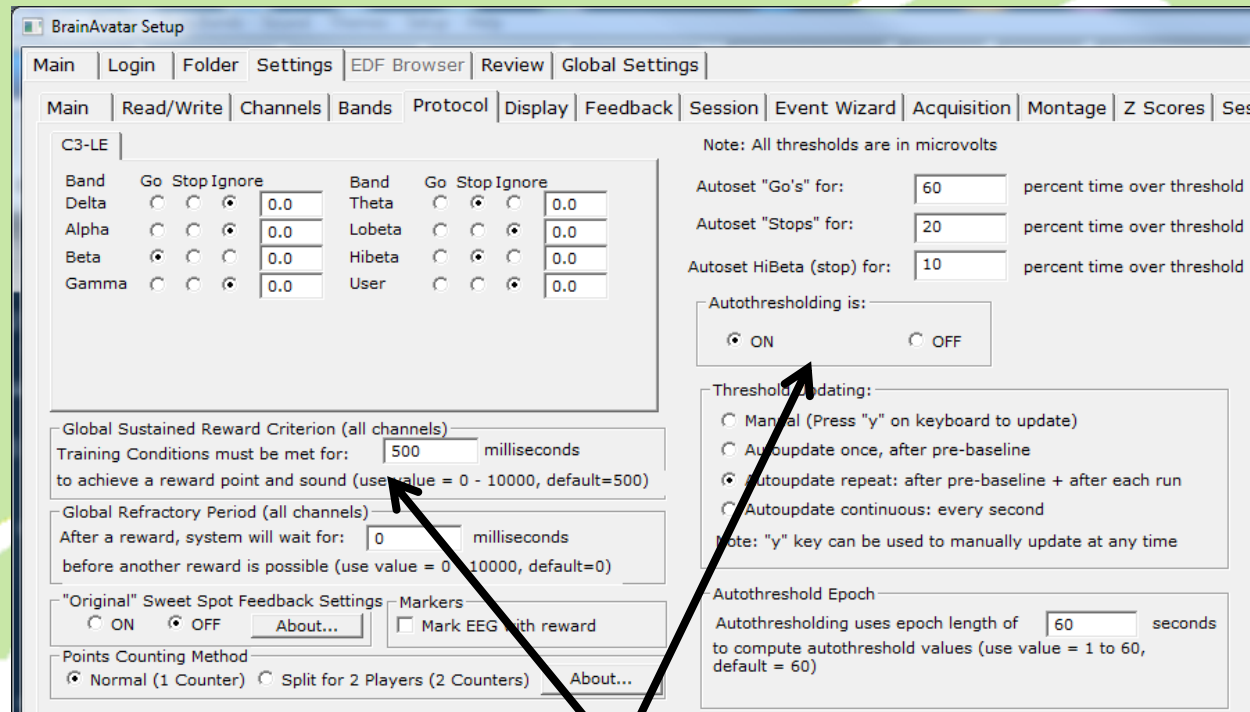
Points Counting Method

☒ Normal (1 Counter) ☐ Split for 2 Players (2 Counters) About...

This is the Protocol Screen. In the first 2 levels, selections made in this screen controlled the protocol. Check marks in the “Go” Columns created reward bands and check marks in the “Stop” columns created inhibit bands.

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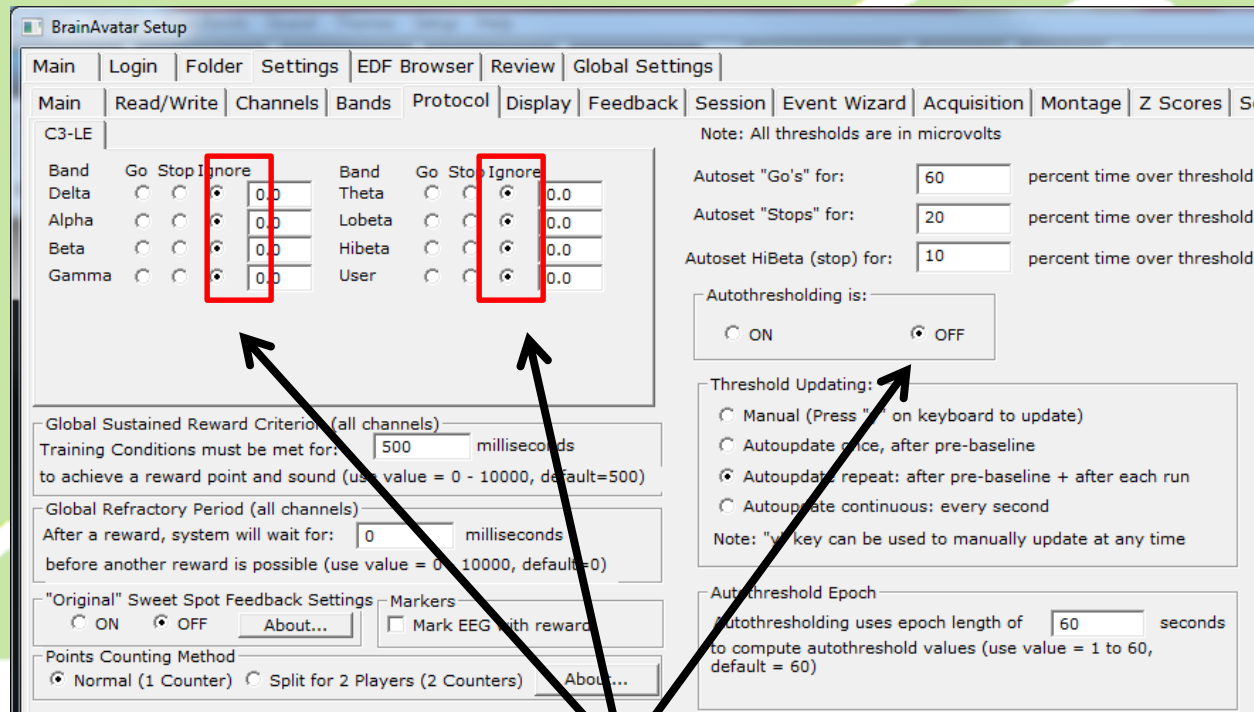
ALERT



Other options such as automatic vs. manual thresholding, use of global sustained reward criterion and global refractory period, point accumulation methods and autothresholding epochs are selected here.

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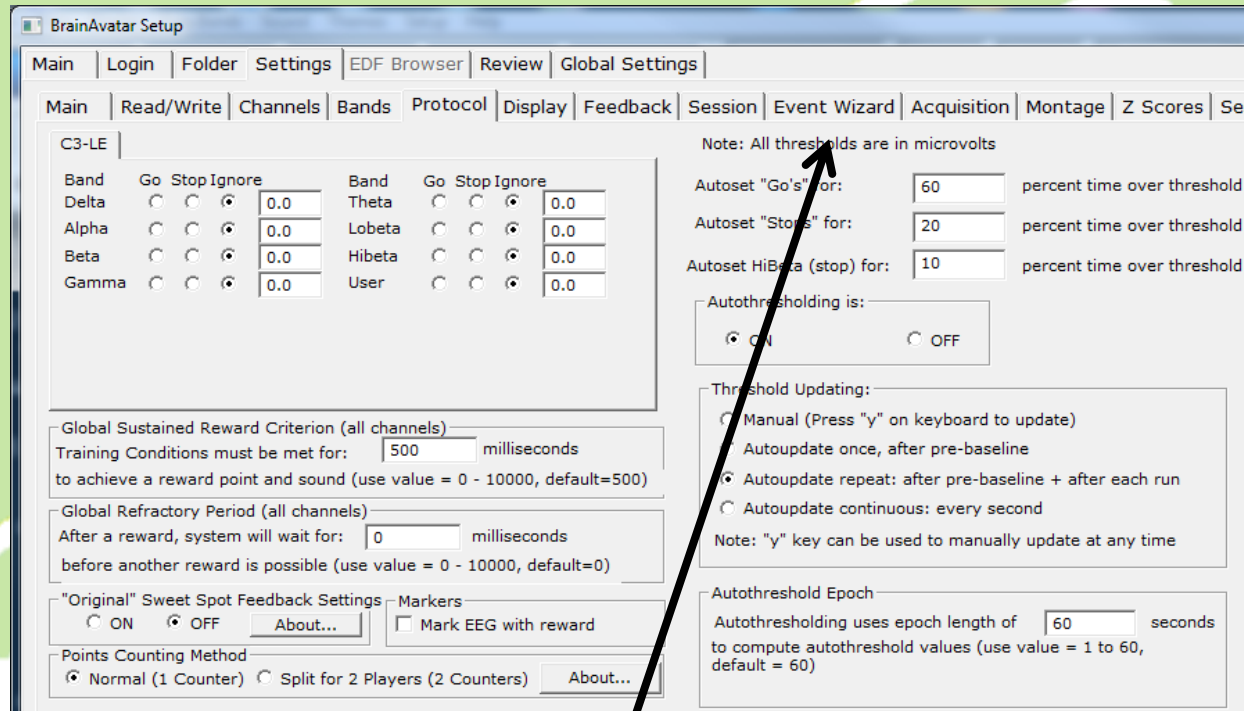
ALERT



When we give control of the protocol over to the “Event Wizard” we disable all of the options in the protocol screen because the “Event Wizard” will take over full control.

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ALERT



To navigate to the Event Wizard click the Event Wizard Tab or use the short cut “Ctrl – e” to access it.

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ALERT

The screenshot shows the 'BrainAvatar Setup' window with the 'Event Wizard' tab selected. The window has a menu bar with 'Main', 'Login', 'Folder', 'Settings', 'EDF Browser', 'Review', and 'Global Settings'. Below the menu bar is a sub-menu bar with 'Main', 'Read/Write', 'Channels', 'Bands', 'Protocol', 'Display', 'Feedback', 'Session', 'Event Wizard', 'Acquisition', 'Montage', 'Z Scores', 'Session Wizard', 'Atlantis HW', and 'Electrodes'. A tab bar at the top shows tabs numbered 1 through 16. The main area is divided into several sections:

- This Event Is:** Radio buttons for 'Enabled' (selected) and 'Disabled'. 'Visibility:' radio buttons for 'Visible' (selected) and 'Hidden'.
- Event Condition:** A section with 'Su' (Sustained) and 'Delta' dropdowns. It includes a 'Check Equation' field with 'x=THETA/TTTHR;' and a 'Damping' field with '5'. Below this is a 'RULE:' section with 'IS LESS THAN:' and a 'Constant:' field with '1.0'.
- Event Result:** A section with 'THEN:' and 'Do Nothing' dropdowns. It includes checkboxes for 'Obey Inhibits ("stops")' and 'Control MMP Player'.
- Event Trend Graph:** A section with 'Scale Factor:' (2) and 'Offset:' (0).
- Event Summary:** A large text area for notes.
- MIDI Sound Properties:** A section with various dropdowns for 'Starting', 'Instrument', 'Playing', 'Modulation', 'Level', 'Loudness Change Rate', 'Note Change', 'Musical Scale', 'Musical', 'Play Note or', and 'Play Note on Tab'.

At the bottom of the window, there are buttons for 'Enable All Events', 'Disable All Events', 'Data Dictionary', 'Clear All Events', 'Show All Events', 'Print All Events', 'Copy Event', 'Paste Event', 'Import', 'Use Now', 'OK', 'Exit', 'Use Settings and Close', and 'Use These Settings'.

You may ask, “Why have an Event Wizard?” The answer to that question is one of evolution.

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ALERT

- During the early days of neurofeedback, most protocols were single channel using up to three bands to train. The typical bands might be to inhibit theta, reward beta and to inhibit hibeta.
- This required a maximum of only 5 events.
 - Event 1: Theta Inhibit
 - Event 2: Beta Reward
 - Event 3: HiBeta Inhibit
 - Event 4: A formula to tally points and;
 - Event 5: A mechanism to operate feedback options such as games, videos, music and the like
- Control of these 5 events were managed internally through the patented Brainmaster Technologies Digital Filtering;
- This is handled through a protocol screen which appears much like the one present in today's BrainAvatar System and demonstrated in Levels 1 and 2.

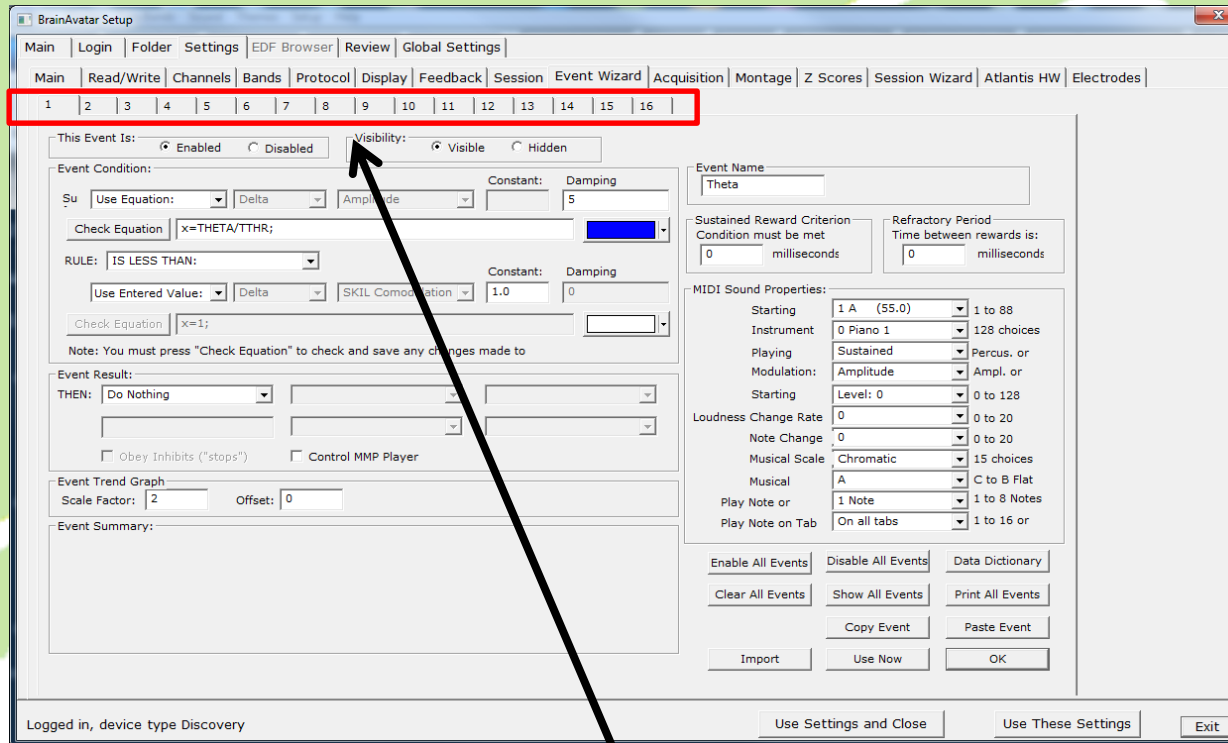
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ALERT

- As neurofeedback evolved into two and four channel amplitude, coherence and phase training, Brainmaster Technologies was able to handle this progression through evolving the digital filtering.
- However, with the next evolution, into Z-Score training, along with more sophisticated functionality requirements it was found that 5 events were not enough.
- Rather than abandoning the original digital filtering and redesigning the entire neurofeedback platform, Brainmaster Technologies decided to maintain the excellent functionality of the original digital filtering and build on top of it the “Event Wizard”. By doing this, 16 additional events are added along with many needed options so technicians may design protocols to meet today’s neurofeedback standards.
- Also, a unique language of formulas was designed to create an ease of use in operating the Event Wizard. These algorithms are catalogued in the Data Dictionary which is accessible through the Event Wizard Screen.

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ALERT



So let's take a quick tour of the Event Wizard Screen.

- At the top you will find 16 tabs, one for each event. You may click the tab associated with the event you want to modify. Default information is the same for all tabs.

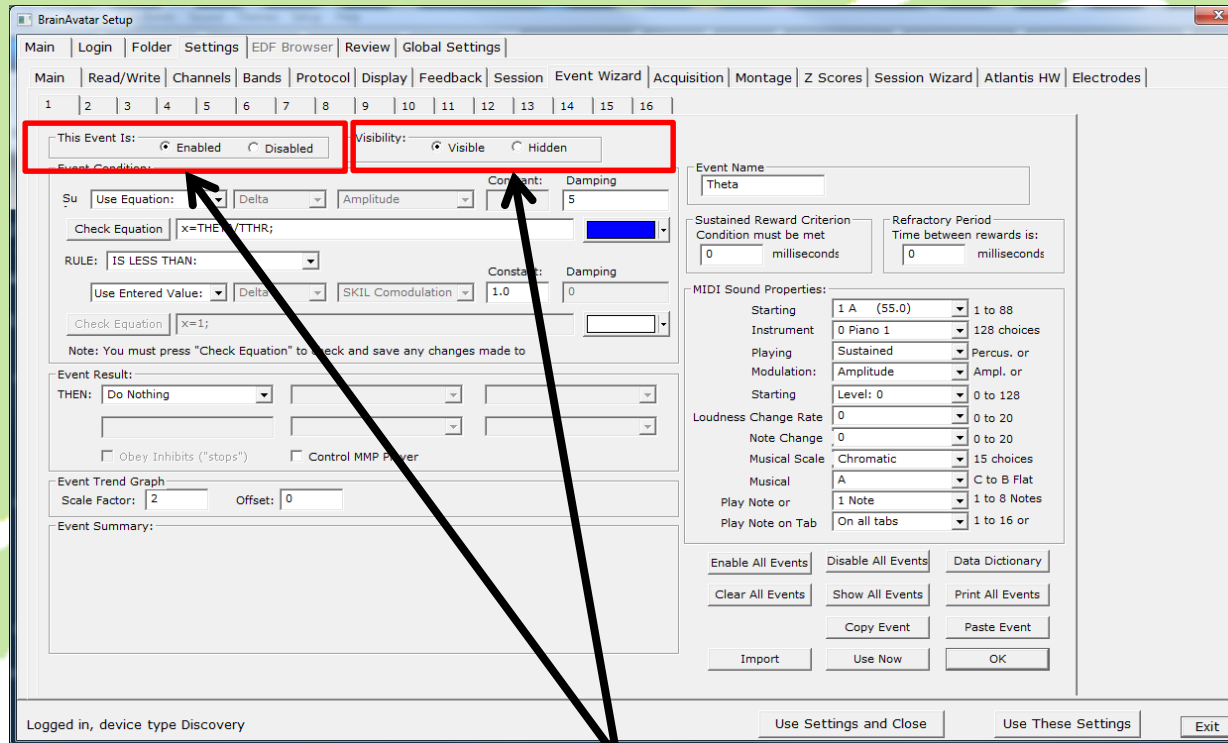
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ALERT

- As a matter of convention, when performing traditional neurofeedback (as opposed to Zscore Training), it is a good practice to reserve the first 5 events of the Event Wizard to be analogous to the 5 events of the digital filter. In other words;
 - Event 1: Slow Frequency Inhibit
 - Event 2: Alpha, SMR or Beta Reward
 - Event 3: HiBeta Inhibit
 - Event 4: A formula to tally points and;
 - Event 5: A mechanism to operate feedback options such as games, videos, music and the like
- Since Alert is a traditional protocol, this shall be demonstrated in this module.

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ALERT



- The “This Event Is: Enabled or Disabled” check box enables or disables the event.
- The “Visibility Box” allows an event to be visible or not. This means an event may be enabled and made invisible on the screen if so desired.

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ALERT

BrainAvatar Setup

Main | Login | Folder | Settings | EDF Browser | Review | Global Settings

Main | Read/Write | Channels | Bands | Protocol | Display | Feedback | Session | Event Wizard | Acquisition | Montage | Z Scores | Session Wizard | Atlantis HW | Electrodes

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

This Event Is: ☒ Enabled ☐ Disabled Visibility: ☒ Visible ☐ Hidden

Event Conditions:

Su Use Equation: Delta Amplitude Constant: Damping

Check Equation x=THETA/TTTHR;

RULE: IS LESS THAN: Constant: Damping

Use Entered Value: Delta SKIL Comodulation 1.0 0

Check Equation x=1;

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

Event Result:

THEN: Do Nothing

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

Event Trend Graph

Scale Factor: 2 Offset: 0

Event Summary:

Event Name: Theta

Sustained Reward Criterion: Condition must be met 0 milliseconds

Refractory Period: Time between rewards is: 0 milliseconds

MIDI Sound Properties:

Starting: 1 A (55.0) 1 to 88

Instrument: 0 Piano 1 128 choices

Playing: Sustained Percus. or

Modulation: Amplitude Ampl. or

Starting: Level: 0 0 to 128

Loudness Change Rate: 0 0 to 20

Note Change: 0 0 to 20

Musical Scale: Chromatic 15 choices

Musical: A C to B Flat

Play Note or: 1 Note 1 to 8 Notes

Play Note on Tab: On all tabs 1 to 16 or

Enable All Events Disable All Events Data Dictionary

Clear All Events Show All Events Print All Events

Copy Event Paste Event

Import Use Now OK

Use Settings and Close Use These Settings Exit

- Brainmaster Technologies has simplified the 5 parts of the development of an event by providing a simple visual structure for an If \rightarrow Then statement rather than using lengthy logical computer language coding.

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ALERT

Event Condition:

Supposition: Use Equation: Δ Amplitude Constant: Damping

Check Equation $x = \text{THETA} / \text{TTHR};$ 5

RULE: IS LESS THAN: Δ SKIL Comodulation Constant: Damping

Use Entered Value: Δ 1.0 0

Check Equation $x = 1;$

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

Event Result:

THEN: Do Nothing

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

- The first statement is the Supposition or “If Statement”. For example, the above formula states, “If $x = \text{THETA} / \text{TTHR}$ ” (If the Theta Amplitude divided by the Theta Threshold). If you think about it, if the theta amplitude is greater than the threshold a number greater than 1 will be returned. Conversely, if the theta amplitude is less than the theta threshold a number less than 1 will be returned.

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ALERT

Event Condition:

Su Use Equation: Delta Amplitude Constant: Damping

Check Equation x=THETA/TTHR; 5

RULE: IS LESS THAN: IS GREATER THAN: IS LESS THAN: GOES UP AND IS ABOVE: GOES DOWN AND IS BELOW: SKIL Comodulation Constant: Damping

1.0 0

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

Event Result:

THEN: Do Nothing

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

- The Rule provides a condition that compares the first part of the equation with the second. We have chosen "Is Less Than" for our choice. So now our equation is "If Theta Amplitude divided by the theta threshold is less than"...is less than what?

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ALERT

Event Condition:

Su Use Equation: Delta Amplitude Constant: Damping 5

Check Equation x=THETA/TTTHR;

RULE: IS LESS THAN:

Use Entered Value: Delta SKIL Comodulation Constant: 1.0 Damping 0

Check Equation x=1;

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

Event Result:

THEN: Do Nothing

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

- ... is less than the "Use Entered Value" or the "Constant" = 1.0. So now our equation has been built to say, "If (A) the theta amplitude divided by the theta threshold is less than (B) the entered value of 1...then what?..."

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ALERT

Event Condition:

Su Use Equation: Delta Amplitude Constant: Damping 5

Check Equation x=THETA/TTHR;

RULE: IS LESS THAN:

Use Entered Value: Delta SKIL Comodulation Constant: Damping 1.0 0

Check Equation x=1;

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

Event Result:

THEN: Do Nothing

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

- ... then in this case “Event Result...Do Nothing”. And so you can see this equation portrays a theta inhibit by saying “If condition A, theta amplitude divided by the theta threshold is less than condition B, use entered value 1.0 then do nothing. Of course if you wanted this equation to play a sound when true you would simply choose a sound in the Event Result area.

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ALERT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

This Event Is: ☒ Enabled ☐ Disabled Visibility: ☒ Visible ☐ Hidden

A Event Condition:

Sub Use Equation: Delta Amplitude Constant: Damping

Check Equation $x = \text{BETA} / \text{BTHR};$

RULE: IS GREATER THAN:

B Use Entered Value: Delta SKIL Comodulation Constant: Damping

Check Equation $x = 0;$

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

Event Result:

THEN: Do Nothing

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

- If we look at Event 2 we can understand how the reward condition appears. If Event Condition A, beta amplitude divided by beta threshold is greater than 1 then do nothing. This one is a reward because the true statement occurs when the beta amplitude is greater than the beta threshold.

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ALERT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

This Event Is: ☒ Enabled ☐ Disabled Visibility: ☒ Visible ☐ Hidden

Event Condition:

A Su Use Equation: Delta Amplitude Constant: Damping
 Check Equation x=HIBETA/HTHR; 5

RULE: IS LESS THAN:
 Use Entered Value: Delta SKIL Comodulation Constant: Damping
 Check Equation x=0; 1.0 0

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

Event Result:

THEN: Do Nothing

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

- If we look at Event 3 we can understand how the other inhibit condition appears. If Event Condition A, hibeta amplitude divided by hibeta threshold is greater than 1 then do nothing. This one is an inhibit because the true statement occurs when the hibeta amplitude is lower than the hibeta threshold. If, again, you are wondering why we do nothing over the first three events, this will be answered for you next.

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ALERT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

This Event Is: ☒ Enabled ☐ Disabled Visibility: ☐ Visible ☒ Hidden

Event Condition:

A Su Use Equation: Theta Amplitude Constant: Damping 0

Check Equation x=POINTS/100;

RULE: IS GREATER THAN:

B Use Entered Value: Delta Amplitude Constant: Damping 0.0 0

Check Equation x=0;

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

Event Result:

THEN: Do Nothing

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

- If we look at Event 4 which we use to control points, the equation states if $x = \text{POINTS}/100$ is greater than 0 then do nothing. The reason for $\text{POINTS}/100$ is because the software processor delivers points in the 100's and must be divided by 100 to give single points. Again, the results are we did nothing....Mmmmm.

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ALERT

The screenshot displays the ALERT software interface with a grid of 16 event slots at the top. Event 5 is selected. The configuration for Event 5 is as follows:

- This Event Is:** ☒ Enabled ☐ Disabled
- Visibility:** ☒ Visible ☐ Hidden
- Event Condition:**
 - Su:** Use Equation: [dropdown] Lobeta [dropdown] Amplitude [dropdown] Constant: [input] Damping: 0
 - Check Equation:** x=ALLOK;
 - RULE:** IS GREATER THAN: [dropdown]
 - Use Entered Value:** [dropdown] Lobeta [dropdown] Amplitude [dropdown] Constant: 0.0 Damping: 0
 - Check Equation:** x=0;
- Note:** You must press "Check Equation" to check and save any changes made to
- Event Result:**
 - THEN:** Play MIDI Sound [dropdown] [input] [dropdown]
 - [input] [dropdown] [input] [dropdown]
 - ☐ Obey Inhibits ("stops") ☒ Control MMP Player

If we look at Event 5 which we use to control feedback (i.e. games and videos) the equation states that if $x=ALLOK$ is greater than 0 then Play MIDI Sound and Control the MMP (Multimedia Player). The ALLOK formula produces a 1 if all parameters are met (theta and hibeta are below threshold and beta is above threshold) and a zero if any one of the parameters is not met. With regards to the MMP, if a 1 is returned to the MMP it advances the game or video and if a 0 is returned then feedback ceases. Place this bit of information in the back of your mind. When controlling the MMP player or flash games, the software will only work when receiving a 1 or a 0.

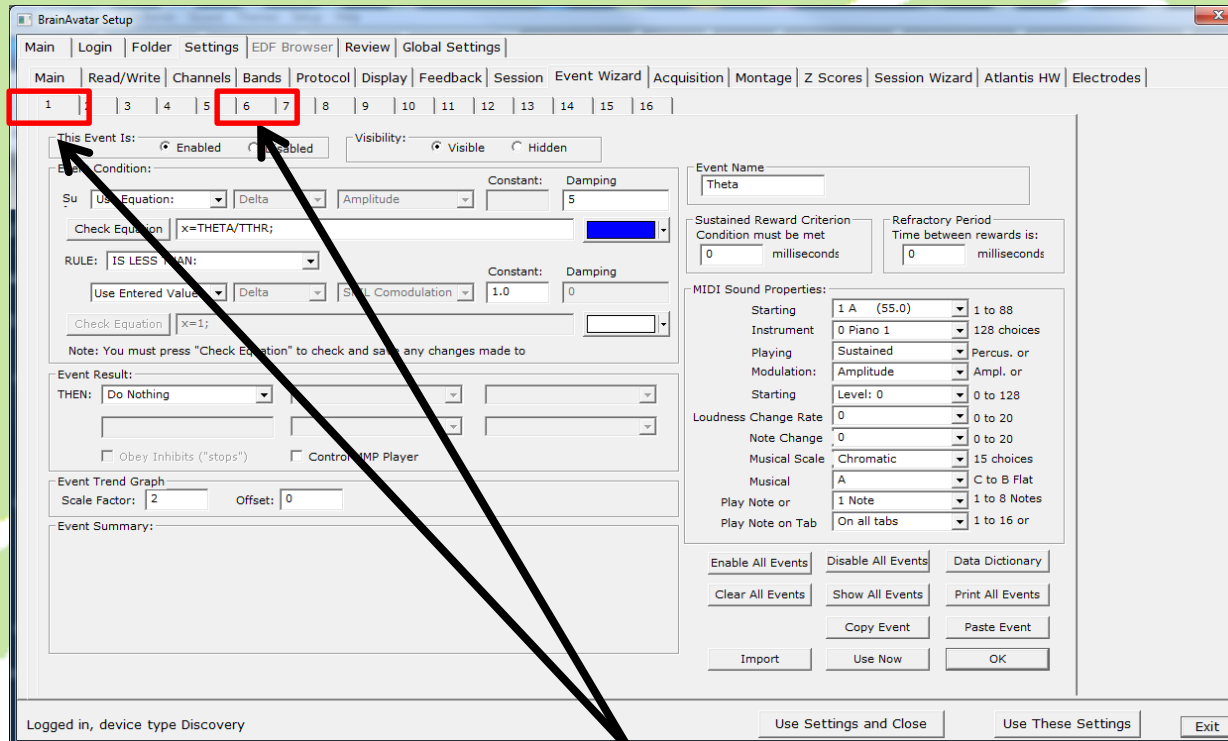
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ALERT

- The Event Wizard exercise we just reviewed provided 5 events which correlate to the objects used in the built in digital filter used in Level 1 and Level 2 Alert Protocols.
- It follows the convention below;
 - Event 1: Slow Frequency Inhibit
 - Event 2: Alpha, SMR or Beta Reward
 - Event 3: HiBeta Inhibit
 - Event 4: A formula to tally points and;
 - Event 5: A mechanism to operate feedback options such as games, videos, music and the like
- Let us now modify the 3 reward and inhibit events in order to perform the single channel alert protocol in another way which allows us to manually control thresholds using the mouse rather than the keyboard.
- We are going to use events 6, 7, 8 for the modification so we can compare the changes and be able to use the panel wizard to define the objects (training screen components, i.e. thermometers, labels, meters and trend graphs.

All protocols are for demo and research purposes only. Clinicians must determine protocol choices. All protocols must be used within scope of practice and scope of competence.

ALERT



- So let's venture to tab 1 and tab 6 of the Event Wizard Screen.

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ALERT

Event Condition:

Sub: **Use Equation:** Delta Amplitude Constant: Damping

Check Equation: $x = \text{THETA} / \text{TTHR};$

RULE: IS LESS THAN: **Use Entered Value:** Delta SKIL Comodulation Constant: Damping

Check Equation: $x = 1;$

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

Event Result:

THEN: Do Nothing

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

1. Go to event 6 where we can change "Use Equation" from Event 1 to "Channel 1, Theta, Amplitude". Adjust the Damping to 5 so that meters and thermometers move a bit slower for ease of viewing.

Event Condition:

Sub: **Channel 1:** Theta Amplitude Constant: Damping

Check Equation: $x = \text{THETA} / \text{TTHR};$

RULE: IS LESS THAN: **Channel 1:** Theta **Threshold** Constant: Damping

Check Equation: $x = 1;$

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

Event Result:

THEN: Do Nothing

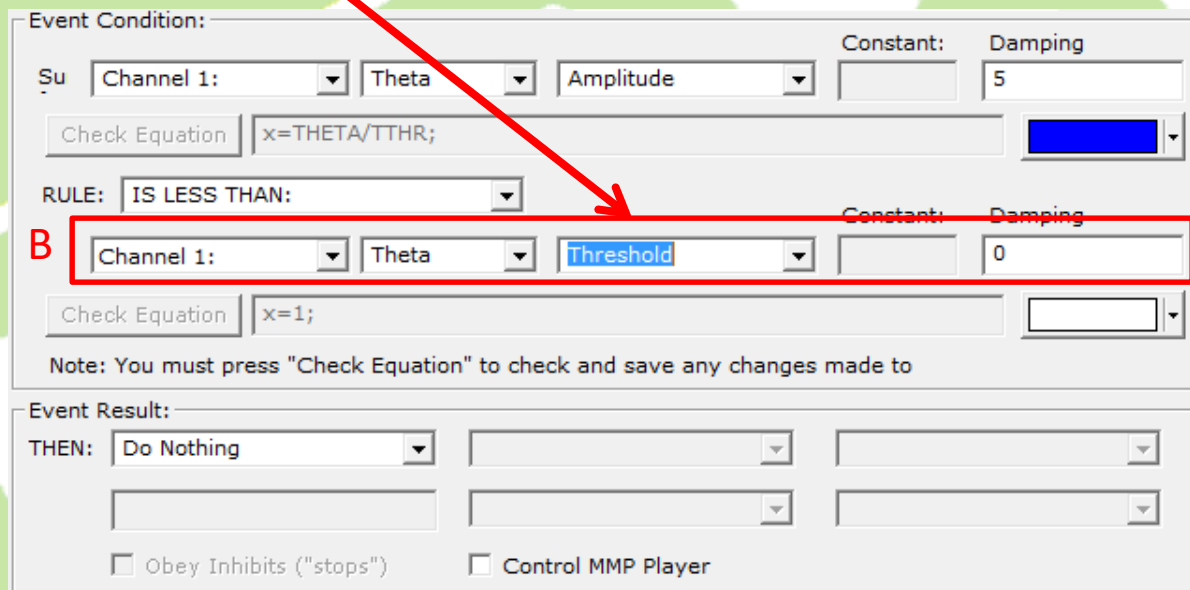
☐ Obey Inhibits ("stops") ☐ Control MMP Player

2. In Event 6 change "Use Entered Value" from Event 1 to "Channel 1, Theta, Threshold." Take a moment to think about these changes.

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ALERT

- Do you understand that event 1 and event 6 accomplish exactly the same task.
- The only difference is that by adjusting the B section of event 6 to “Channel 1 Theta Threshold” this allows you to use the mouse to adjust the theta threshold.



The screenshot shows the 'Event Condition' dialog box. It has two main sections: 'Event Condition' and 'Event Result'. In the 'Event Condition' section, there are two rows. The top row is labeled 'Su' and has dropdowns for 'Channel 1:', 'Theta', and 'Amplitude', with a 'Constant' field set to 5 and a 'Damping' field set to 5. Below this is a 'Check Equation' button and a text field containing 'x=THETA/TTHR;'. The bottom row is labeled 'B' and has dropdowns for 'Channel 1:', 'Theta', and 'Threshold', with a 'Constant' field set to 0 and a 'Damping' field set to 0. Below this is another 'Check Equation' button and a text field containing 'x=1;'. A red arrow points from the text 'adjust the theta threshold' in the list above to the 'Threshold' dropdown in the 'B' section. A red box highlights the 'B' section. At the bottom of the dialog, there is a note: 'Note: You must press "Check Equation" to check and save any changes made to'. The 'Event Result' section has a 'THEN:' label and three dropdown menus, with the first set to 'Do Nothing'. There are also two checkboxes: 'Obey Inhibits ("stops")' and 'Control MMP Player'.

Event Condition:

Su Channel 1: Theta Amplitude Constant: Damping 5

Check Equation x=THETA/TTHR;

RULE: IS LESS THAN:

B Channel 1: Theta Threshold Constant: Damping 0

Check Equation x=1;

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

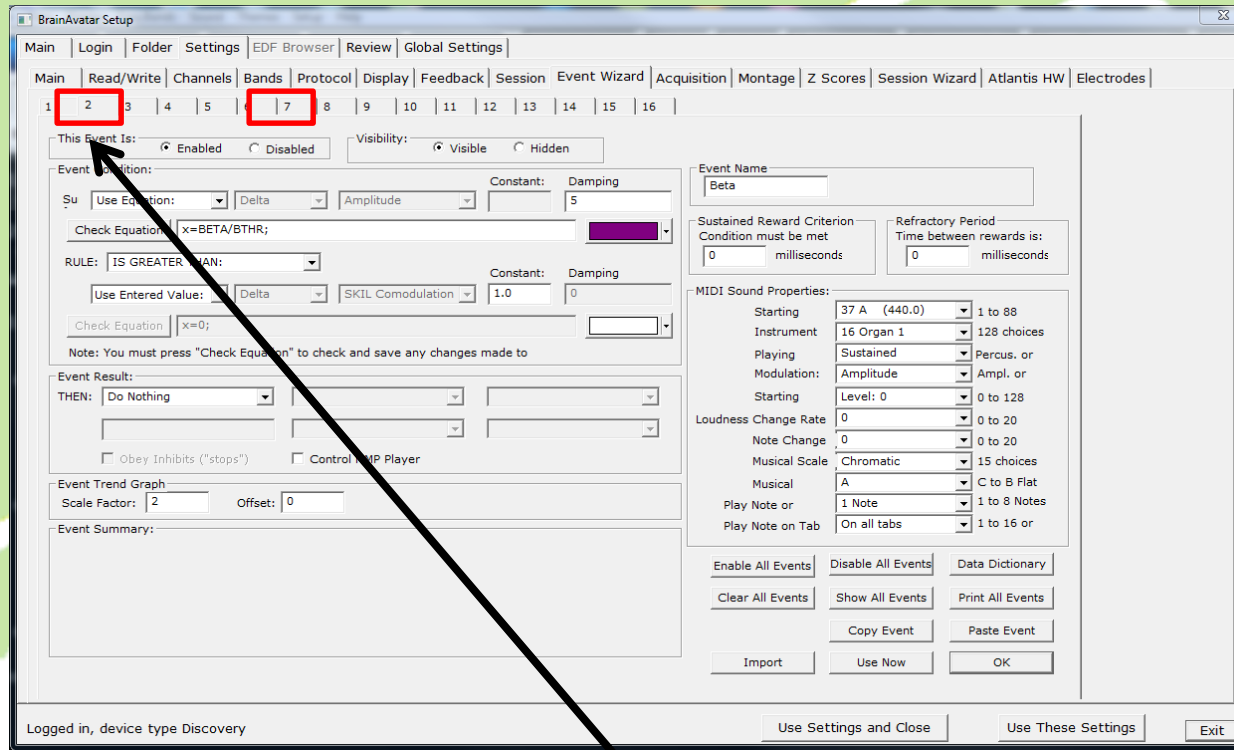
Event Result:

THEN: Do Nothing

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

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ALERT



- Now let's venture to tab 2 and tab 7 of the Event Wizard Screen.

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ALERT

Event Condition:

Su **Use Equation:** Delta Amplitude Constant: Damping 5

Check Equation x=BETA/BTHR;

RULE: IS GREATER THAN: **Use Entered Value:** Delta SKIL Comodulation Constant: Damping 1.0 0

Check Equation x=0;

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

Event Result:

THEN: Do Nothing

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

1. Go to event 7 where we can change "Use Equation" from Event 2 to "Channel 1, Beta, Amplitude". Adjust the Damping to 5 so that meters and thermometers move a bit slower for ease of viewing.

2. In Event 7 change "Use Entered Value" from Event 2 to "Channel 1, Beta, Threshold." Take a moment to think about these changes.

Event Condition:

Su **Channel 1:** Beta Amplitude Constant: Damping 5

Check Equation x=BETA/BTHR;

RULE: IS GREATER THAN: **Channel 1:** Beta **Threshold** Constant: Damping 1.0 0

Check Equation x=0;

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

Event Result:

THEN: Do Nothing

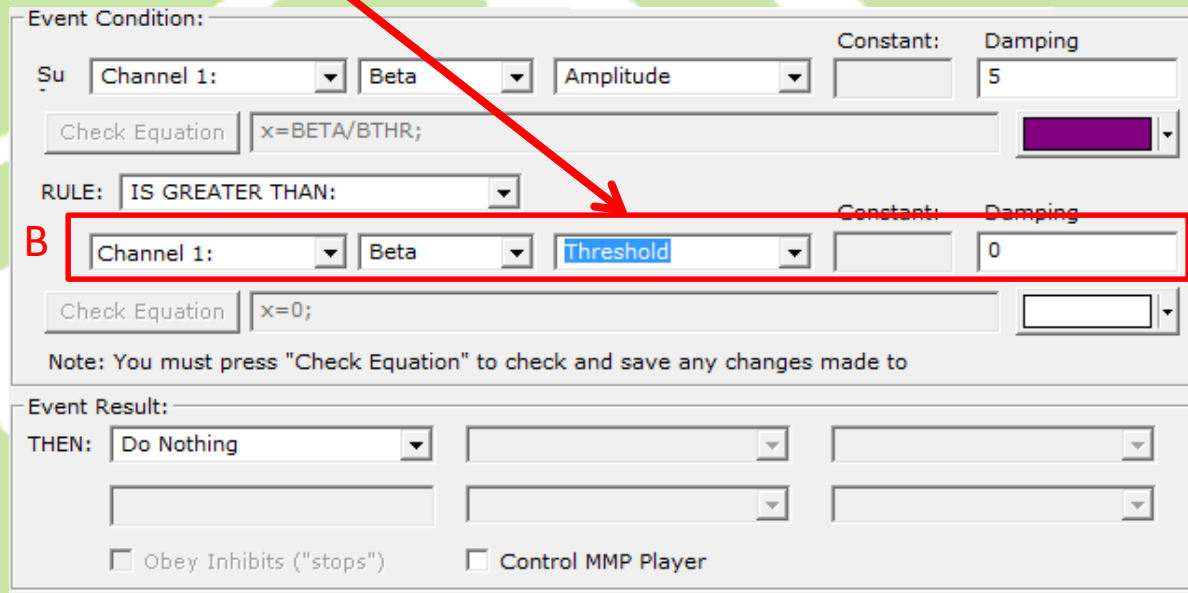
☐ Obey Inhibits ("stops") ☐ Control MMP Player

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ALERT

The Protocol is now ready for Modification

- Do you understand that event 2 and event 7 accomplish exactly the same task.
- The only difference is that by adjusting the B section of event 7 to “Channel 1 Beta Threshold” this allows you to use the mouse to adjust the Beta threshold.



The screenshot shows a software interface for configuring an event condition. It is divided into two main sections: 'Event Condition' and 'Event Result'.

Event Condition:

- Section A:** Includes dropdowns for 'Su' (Channel 1), 'Beta', and 'Amplitude'. It has a 'Constant' field and a 'Damping' field set to 5. A 'Check Equation' button is present with the equation $x = \text{BETA} / \text{BTHR}$.
- Section B:** Labeled with a red 'B' on the left, it includes dropdowns for 'Channel 1', 'Beta', and 'Threshold'. It also has 'Constant' and 'Damping' fields, with 'Damping' set to 0. A 'Check Equation' button is present with the equation $x = 0$.

A red arrow points from the text 'adjust the Beta threshold' in the list above to the 'Threshold' dropdown in Section B.

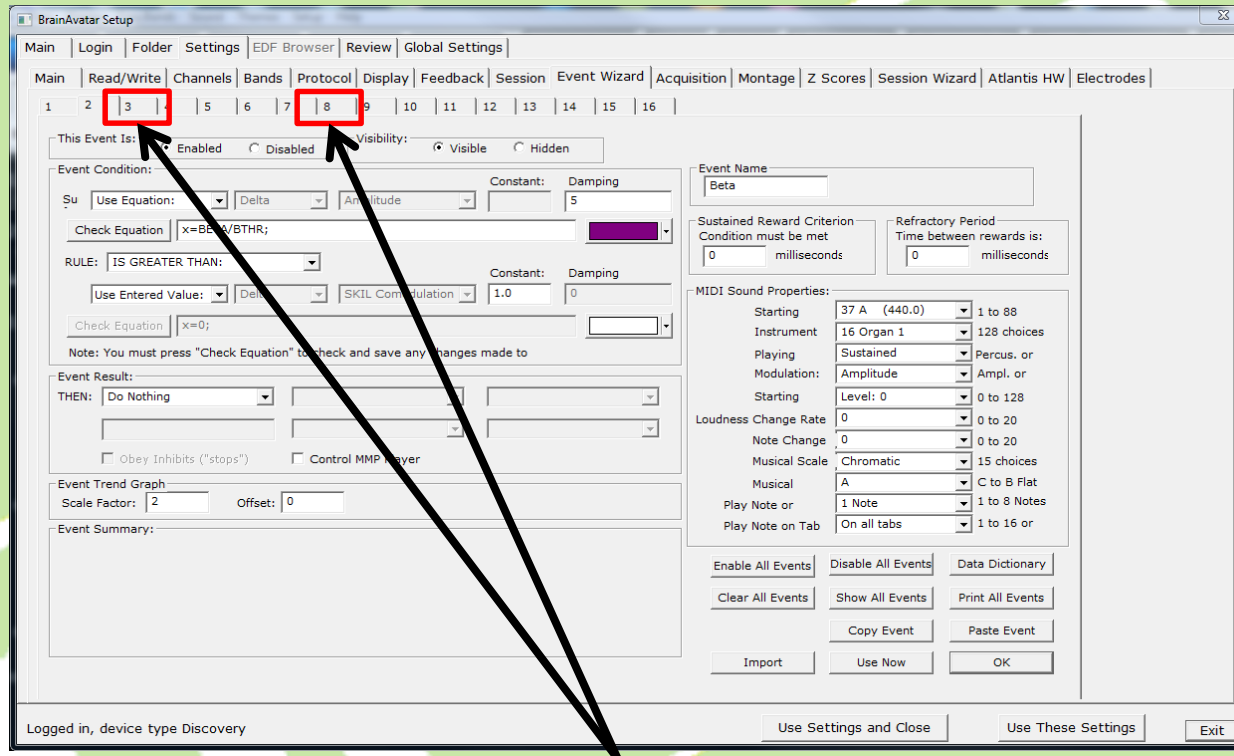
Event Result:

- THEN:** Includes three dropdown menus, the first of which is set to 'Do Nothing'.
- At the bottom, there are two checkboxes: 'Obey Inhibits ("stops")' and 'Control MMP Player'.

A note at the bottom of the 'Event Condition' section states: 'Note: You must press "Check Equation" to check and save any changes made to'.

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ALERT



- Now let's venture to tab 3 and tab 8 of the Event Wizard Screen.

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ALERT

The Protocol is now ready for Modification

Event Condition:

Su **Use Equation:** Delta Amplitude Constant: Damping 5

Check Equation $x = \text{HIBETA} / \text{HTHR};$

RULE: IS LESS THAN: Use Entered Value: Delta SKIL Comodulation Constant: Damping 1.0

Check Equation $x = 0;$

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

Event Result:

THEN: Do Nothing

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

1. Go to event 8 where we can change "Use Equation" from Event 3 to "Channel 1, Hibeta, Amplitude". Adjust the Damping to 5 so that meters and thermometers move a bit slower for ease of viewing.

2. In Event 8 change "Use Entered Value" from Event 3 to "Channel 1, Hibeta, Threshold." Take a moment to think about these changes.

Event Condition:

Su Channel 1: Hibeta Amplitude Constant: Damping 5

Check Equation $x = \text{HIBETA} / \text{HTHR};$

RULE: IS LESS THAN: Channel 1: Hibeta Threshold Constant: Damping 0

Check Equation $x = 0;$

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

Event Result:

THEN: Do Nothing

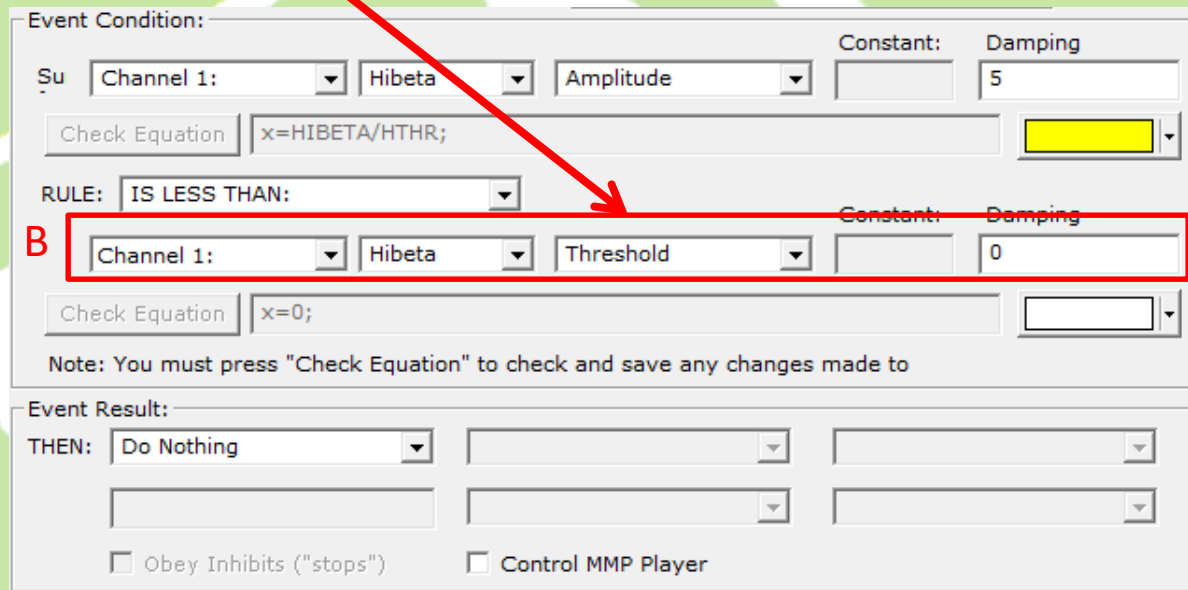
☐ Obey Inhibits ("stops") ☐ Control MMP Player

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ALERT

The Protocol is now ready for Modification

- Do you understand that event 3 and event 8 accomplish exactly the same task.
- The only difference is that by adjusting the B section of event 8 to “Channel 1 Hibeta Threshold” this allows you to use the mouse to adjust the Hibeta threshold.



The screenshot shows the 'Event Condition' dialog box. A red arrow points from the text 'adjust the Hibeta threshold' in the list above to the 'B' section of the dialog. The 'B' section is highlighted with a red rectangle. It contains the following fields:

- RULE:** IS LESS THAN:
- Channel 1:** Channel 1
- Hibeta:** Hibeta
- Threshold:** Threshold
- Constant:** 0
- Damping:** 0

Below the 'B' section, there is a 'Check Equation' button and a text box containing 'x=0;'. A note at the bottom of the dialog states: 'Note: You must press "Check Equation" to check and save any changes made to'.

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ALERT

The Protocol is now ready for Modification

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

This Event Is: ☒ Enabled ☐ Disabled Visibility: ☐ Visible ☒ Hidden

Event Condition:

Su Use Equation: Theta Amplitude Constant: Damping

Check Equation x=POINTS/100;

RULE: IS GREATER THAN:

Use Entered Value: Delta Amplitude Constant: 0.0 Damping 0

Check Equation x=0;

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

Event Result:

THEN: Do Nothing

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

Event 4 and Event 5 remain the same with no changes.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

This Event Is: ☒ Enabled ☐ Disabled Visibility: ☒ Visible ☐ Hidden

Event Condition:

Su Use Equation: Lobeta Amplitude Constant: Damping

Check Equation x=ALLOK;

RULE: IS GREATER THAN:

Use Entered Value: Lobeta Amplitude Constant: 0.0 Damping 0

Check Equation x=0;

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

Event Result:

THEN: Play MIDI Sound

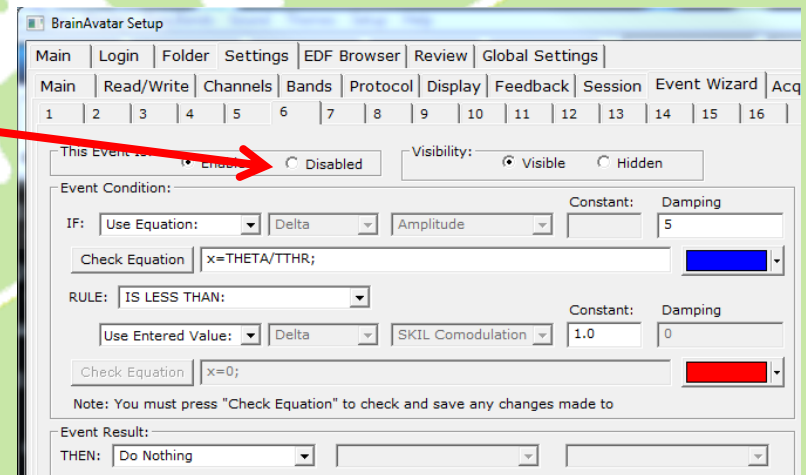
☐ Obey Inhibits ("stops") ☒ Control MMP Player

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ALERT

The Protocol is now ready for Modification

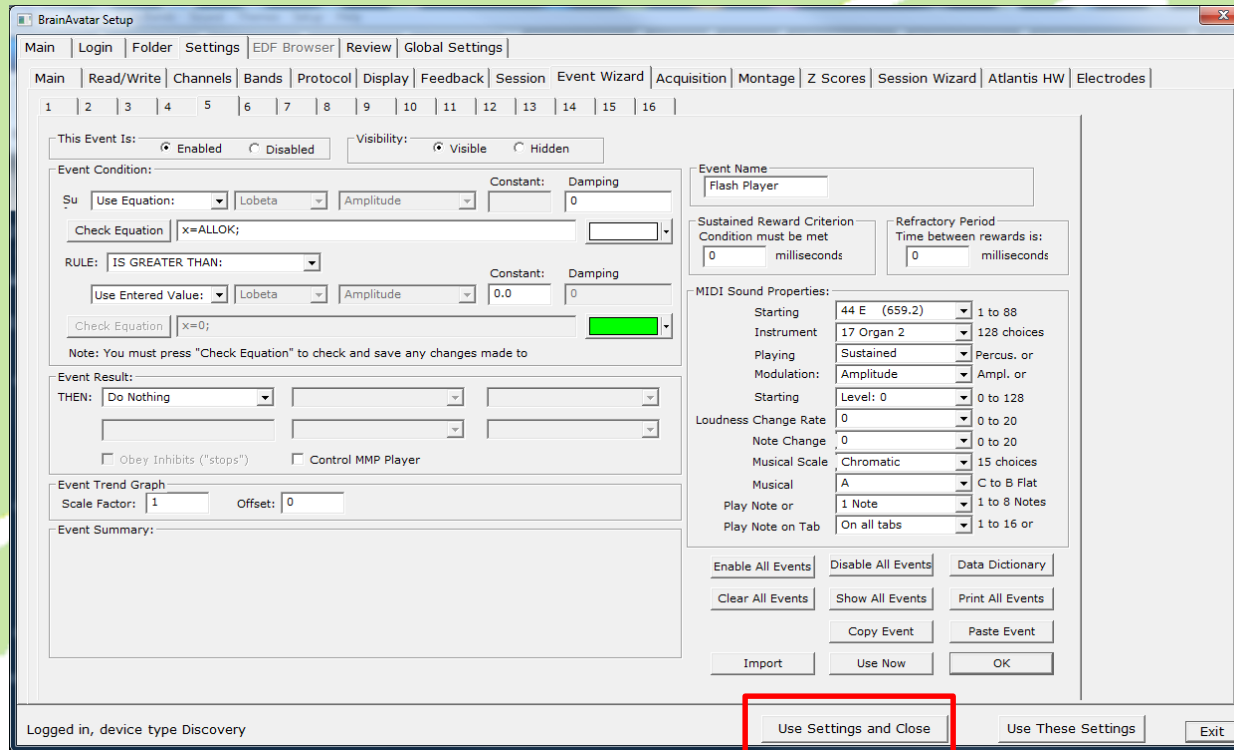
- One last step must be accomplished. Since we have given control of the protocol over to events 6, 7 and 8 instead of 1, 2 and 3, the first 3 events should be disabled.
- Proceed to Event 1 of the Event Wizard (by now you should know how to access and navigate within the Event Wizard)
- Click the “Disabled” Radio Button to Disable Event 1.
- Do the same for Events 2 and 3.



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ALERT

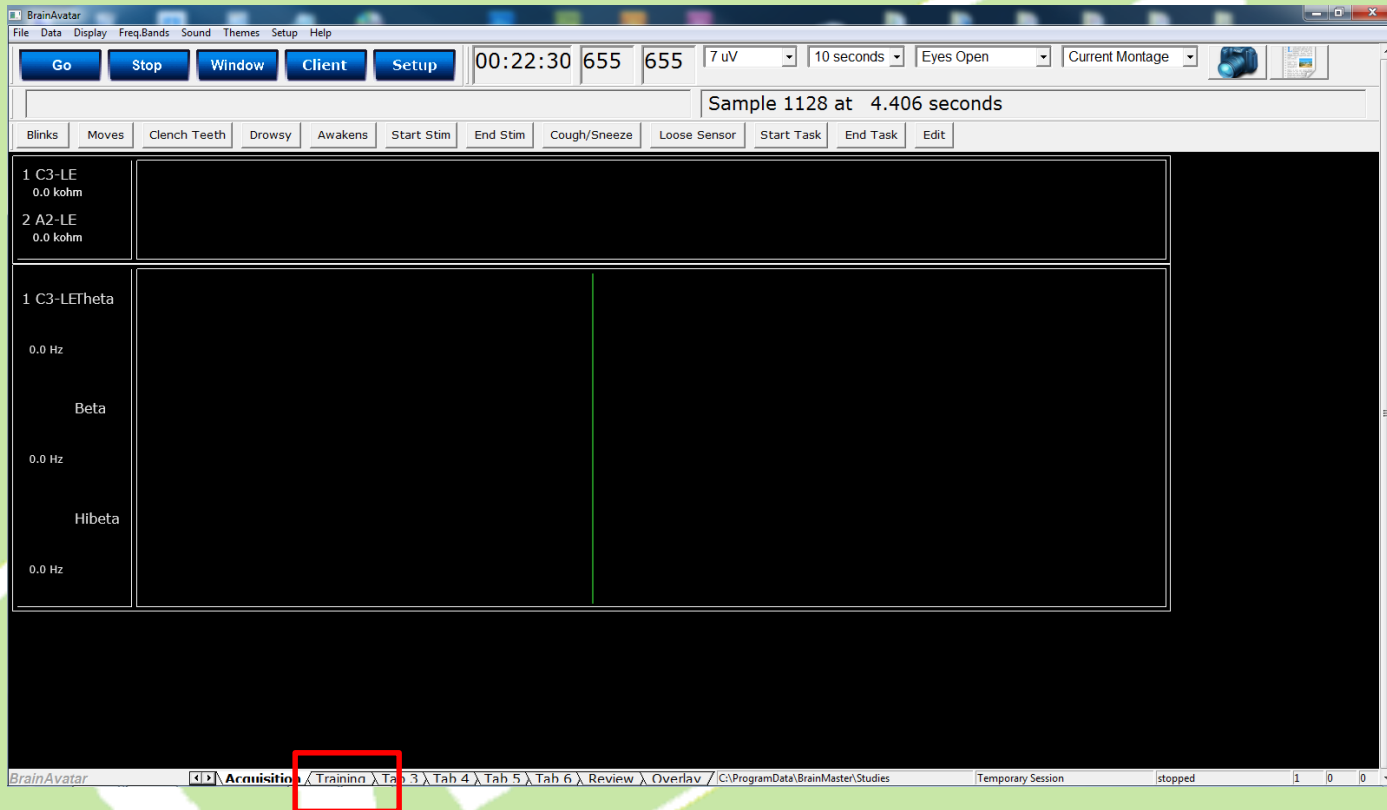
The Protocol is now ready for Modification



- Click “Use Settings and Close” to save the changes.

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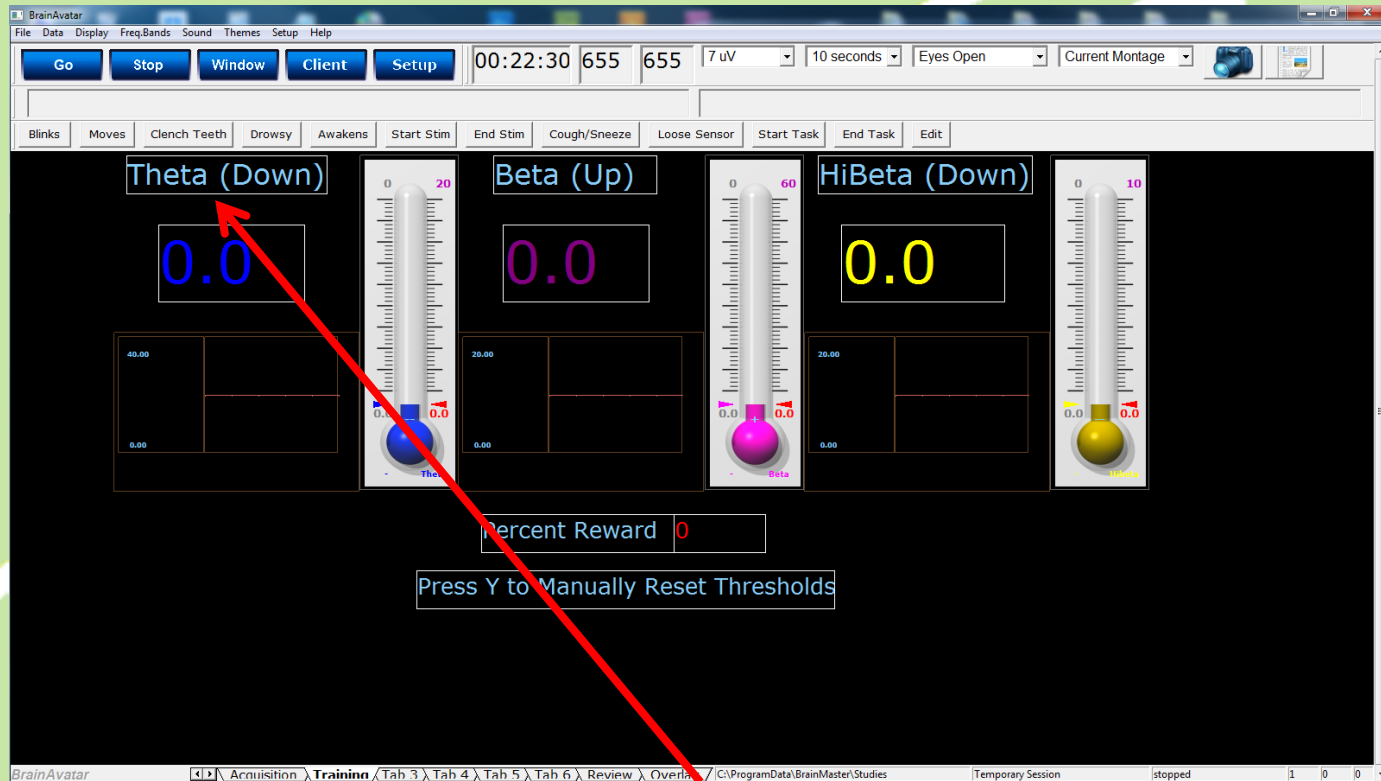
ALERT



- We are not quite finished. Now that we have changed control of the protocol from the digital filters to the Event Wizard, we have to let the objects on the screen know this. Please click the Training Tab at the bottom.

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ALERT

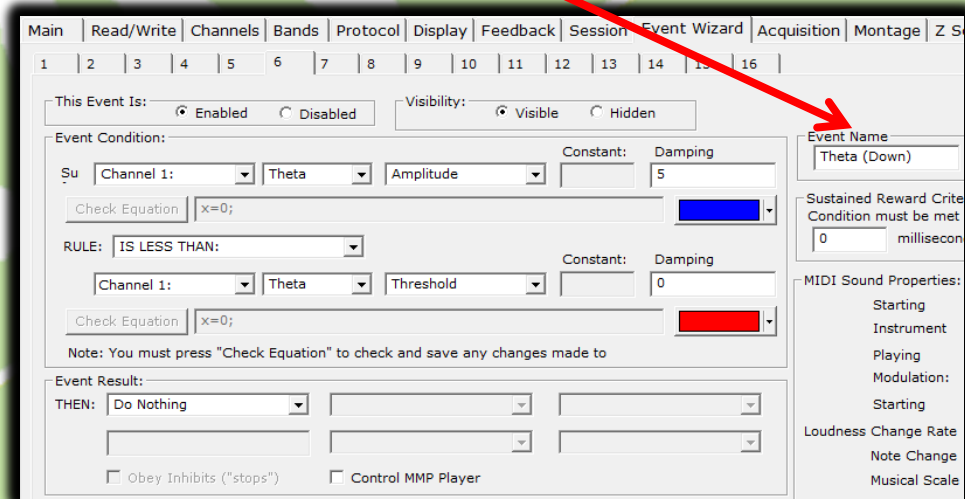
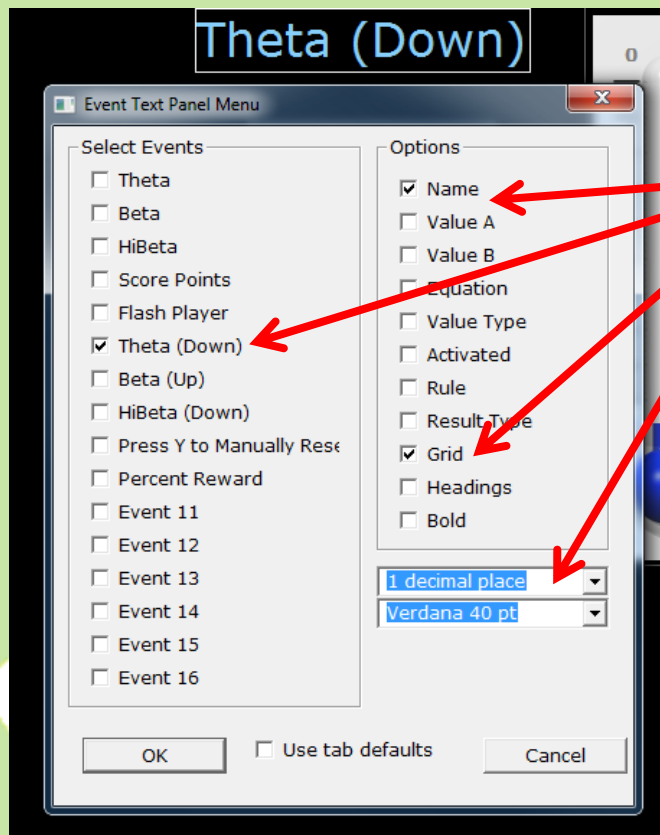


- Each object of the training screen has a menu associated with it. Let's start at the top and right-click the "Theta (Down)" Label in order to open its associated "Event Text Panel Menu".

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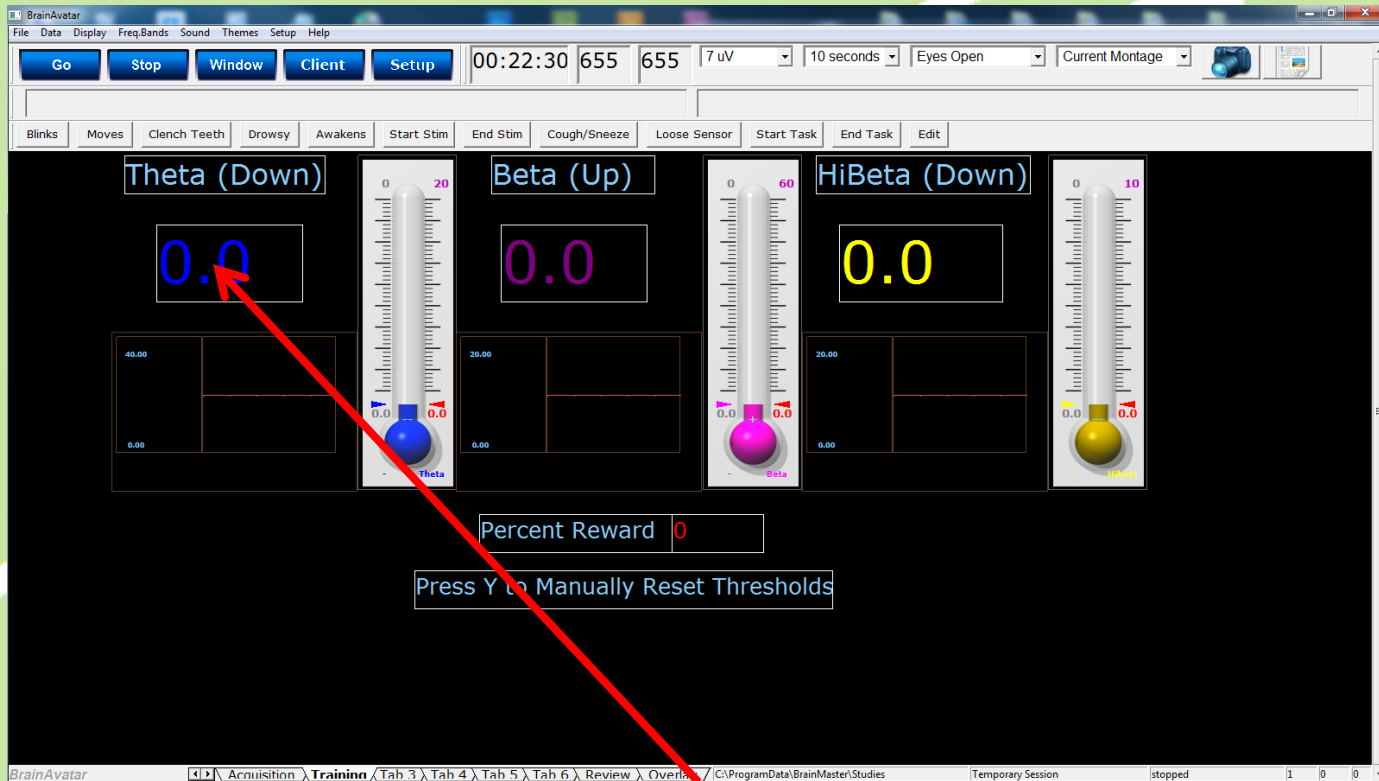
ALERT

- The event which controls the Theta (Down) Label object is now the 6th Event. We asked that the Name of the event, Theta (Down), be listed as well as a Grid bounding the event. It is produced with a Verdana 40 pt. Font. When finished reviewing this please click OK on the “Event Text Panel Menu”.



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ALERT



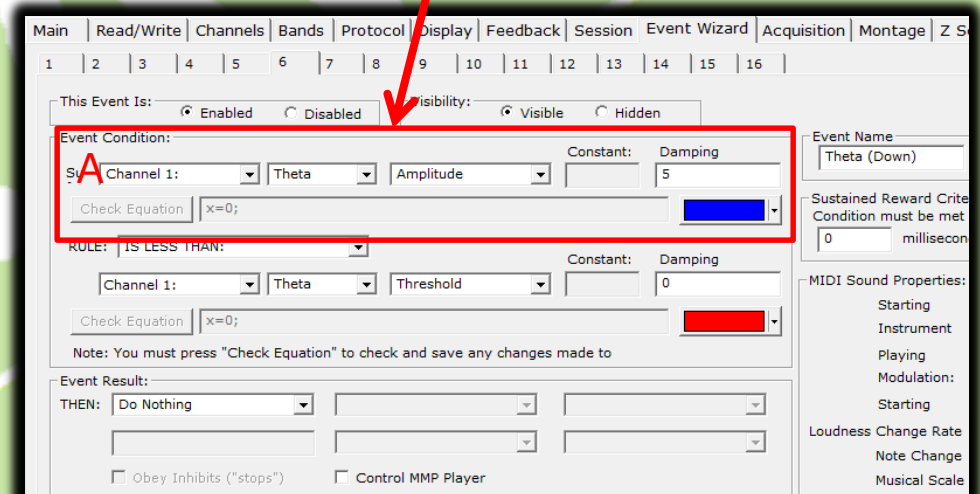
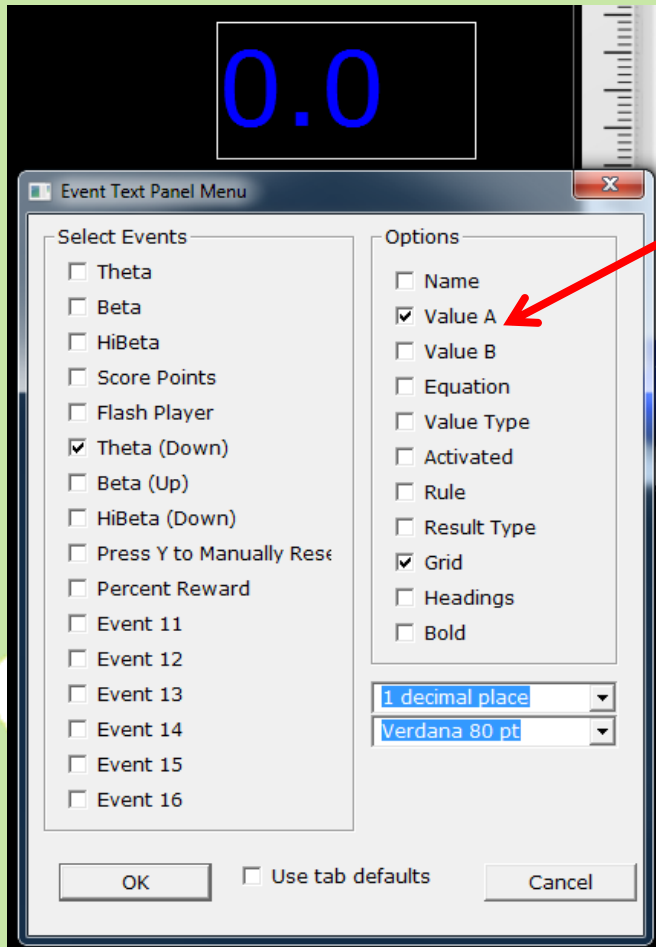
- Next, let's look at the blue meter underneath the Theta (Down) label. Right-click the Meter in order to open its associated "Event Text Panel Menu".

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ALERT

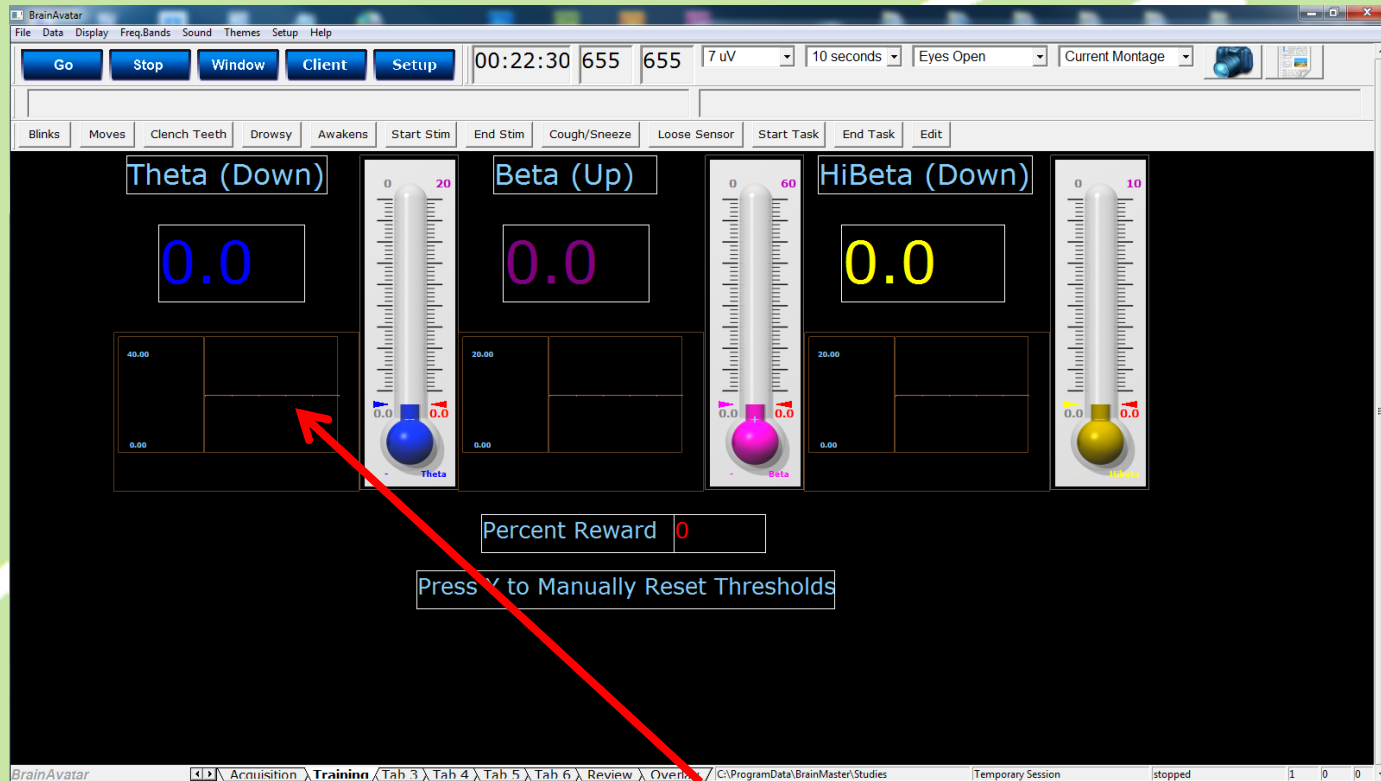
The Protocol is now ready for Modification

- The event which controls the Theta (Down) Meter object is again the 6th Event. We asked that the Value A (Theta Amplitude) of the event be listed as well as a Grid bounding the event. It is produced with a Verdana 80 pt. Font. When finished reviewing this please click OK on the “Event Text Panel Menu”.



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ALERT



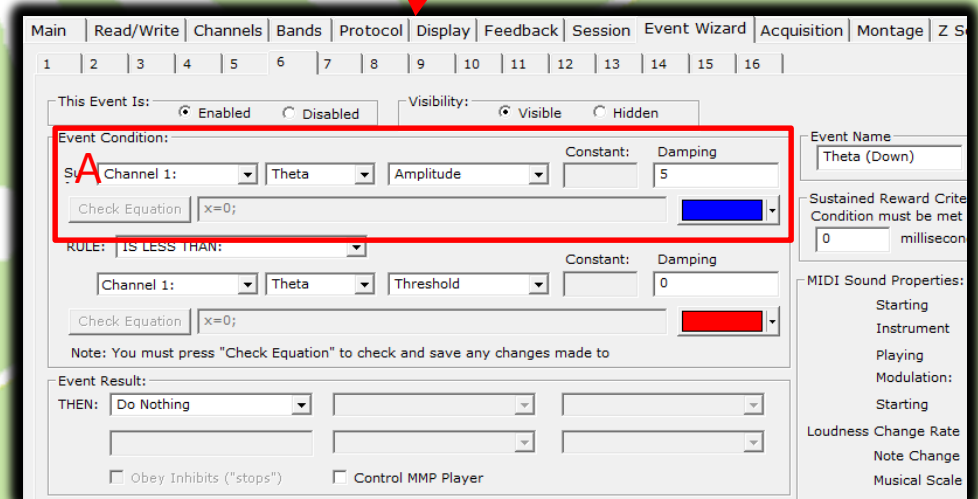
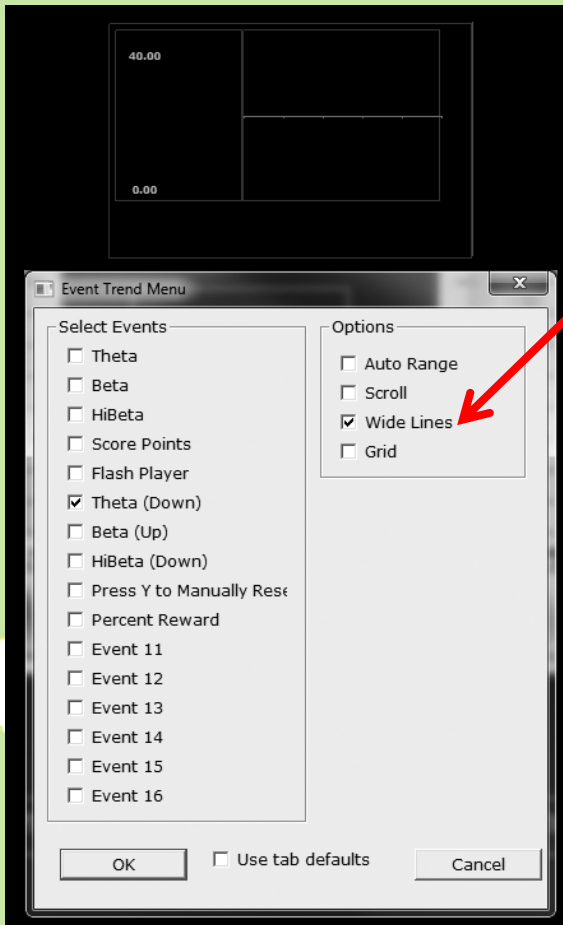
- Next let's look at the Wide Trend Event Graph underneath the blue meter. Right-click the Wide Trend Event Graph in order to open its associated "Event Trend Menu".

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ALERT

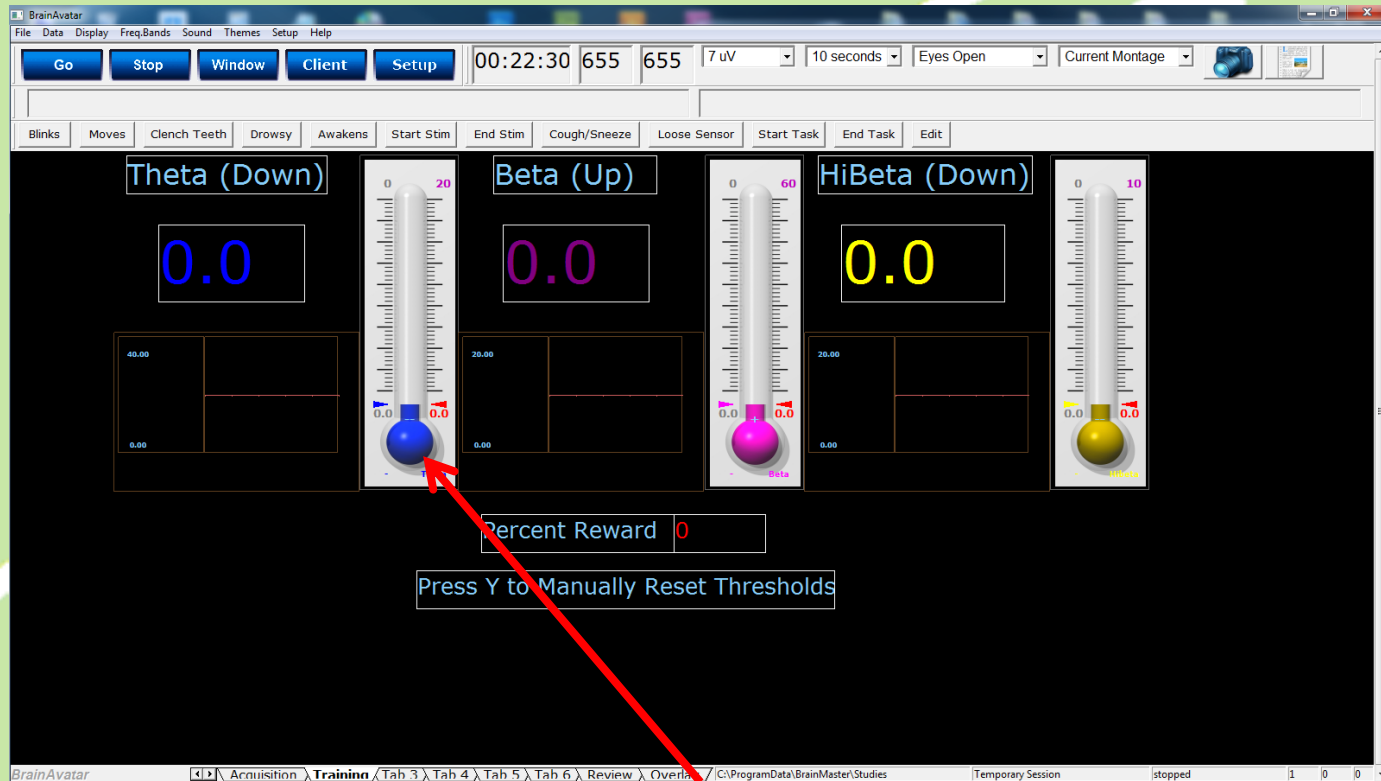
The Protocol is now ready for Modification

- The event which controls the Theta (Down) Event Trend Graph is again the 6th Event. We asked that Wide lines be used.



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ALERT

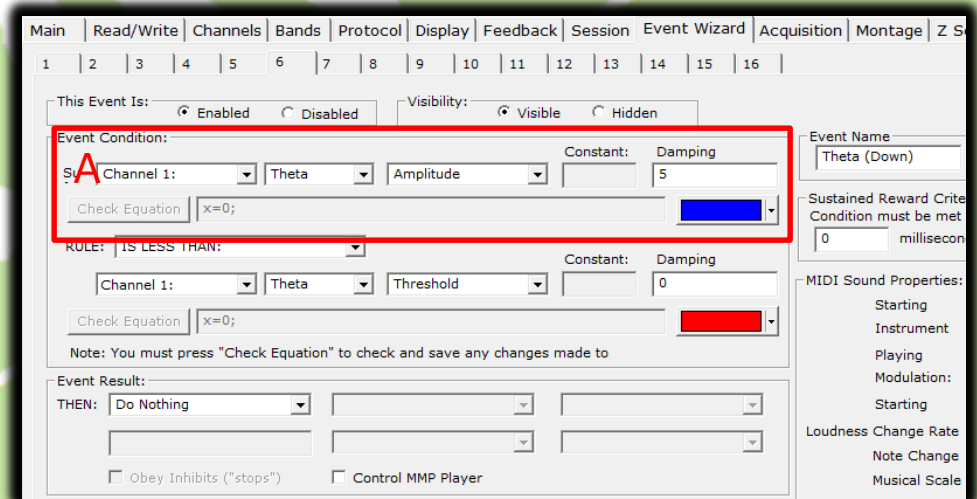
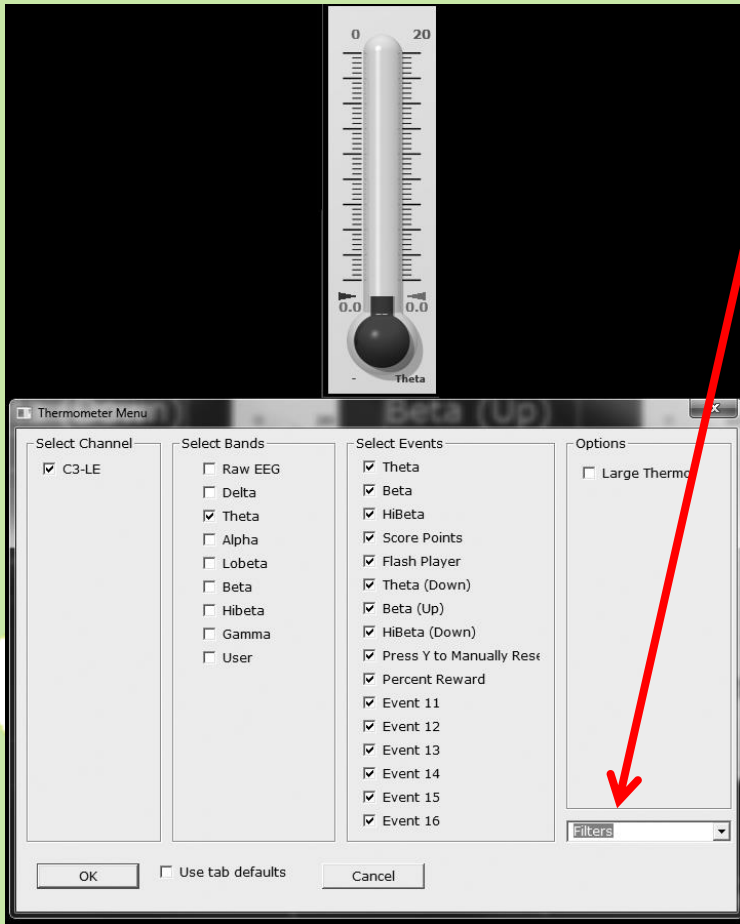


- Next let's finally look at the Blue Thermometer. Right-click the Thermometer in order to open its associated "Thermometer Menu".

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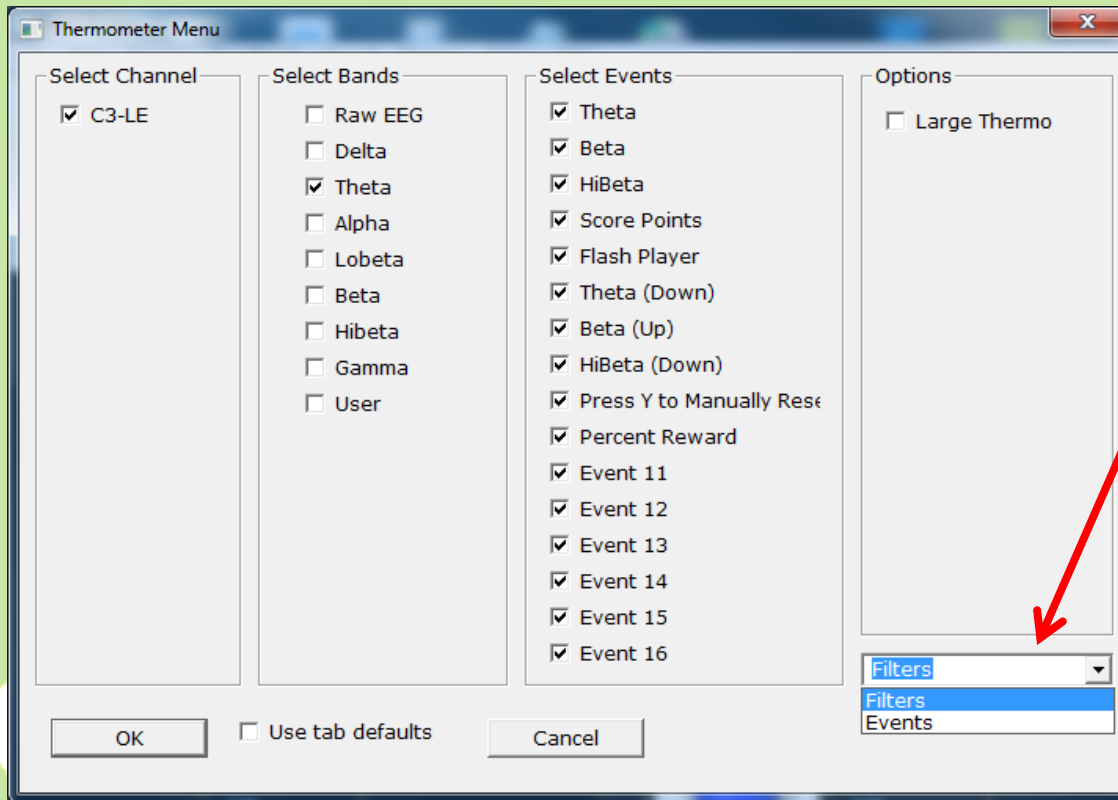
ALERT

- The event which controls the Theta (Down) Thermometer should again be the 6th Event. If you notice in the dropdown menu it says “Filters” which means the digital filters are in control of this thermometer. Let’s now switch control over to Event 6 rather than the digital filtering in event 1.



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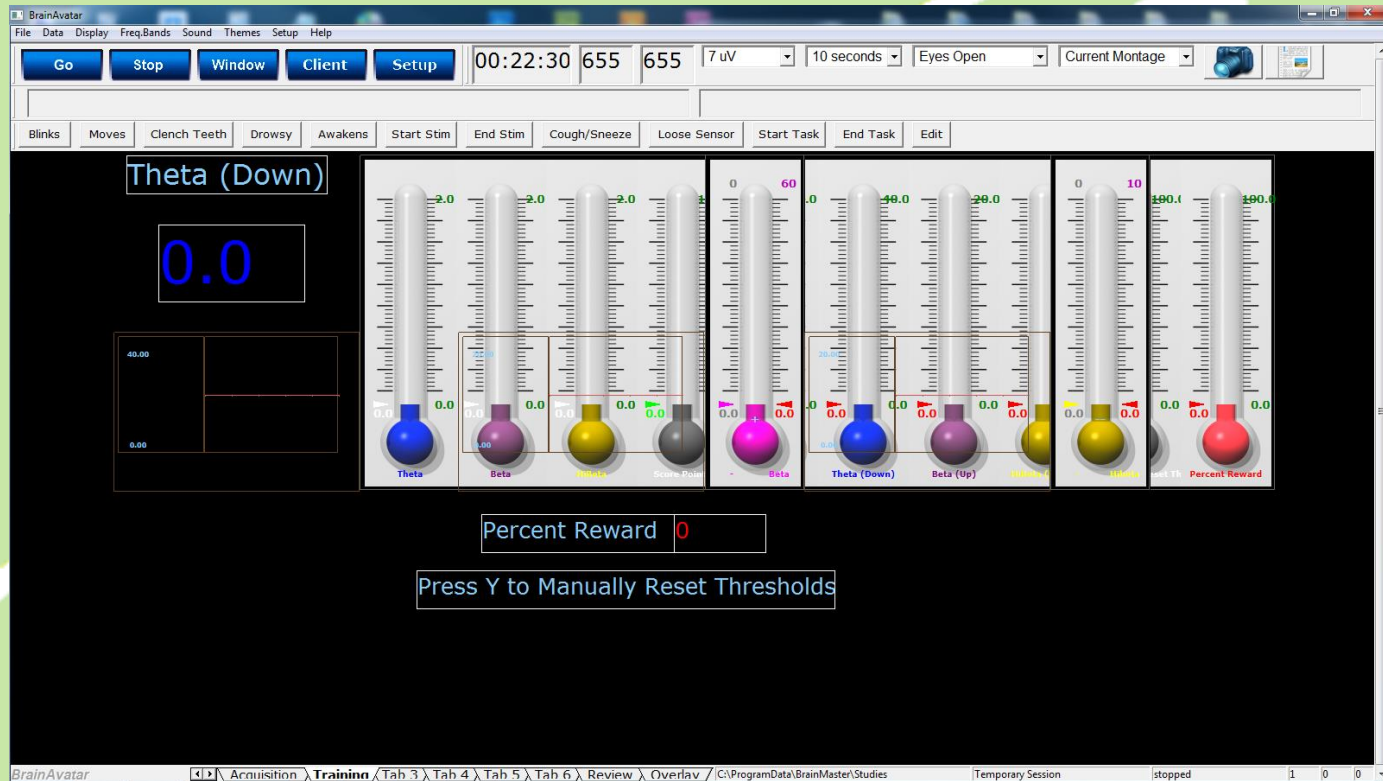
ALERT



If you select the dropdown arrow you will notice there are two choices; 1) Filters and 2) Events. The Filters choice activates the Select Channel column all the way to the left and the Select Bands Column to the right of the first one. When Events are selected than the Select Events Column becomes active. Notice by default all 16 of the events are selected.

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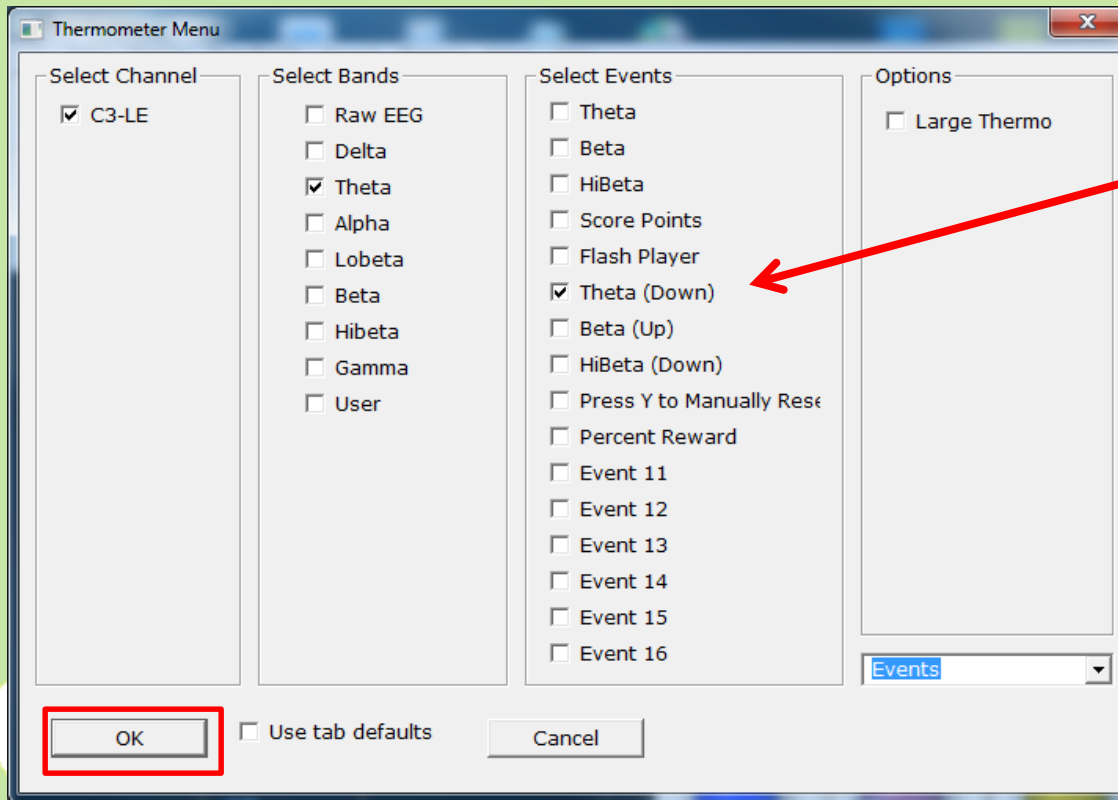
ALERT



- Because all 16 events are selected by default, 16 thermometers will appear on the screen. DON'T BE DISTURBED BY THIS.

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ALERT



Thermometer Menu

Select Channel

- ☒ C3-LE

Select Bands

- ☐ Raw EEG
- ☐ Delta
- ☒ Theta
- ☐ Alpha
- ☐ Lobeta
- ☐ Beta
- ☐ Hibeta
- ☐ Gamma
- ☐ User

Select Events

- ☐ Theta
- ☐ Beta
- ☐ HiBeta
- ☐ Score Points
- ☐ Flash Player
- ☒ Theta (Down)
- ☐ Beta (Up)
- ☐ HiBeta (Down)
- ☐ Press Y to Manually Rese
- ☐ Percent Reward
- ☐ Event 11
- ☐ Event 12
- ☐ Event 13
- ☐ Event 14
- ☐ Event 15
- ☐ Event 16

Options

- ☐ Large Thermo

Events

OK

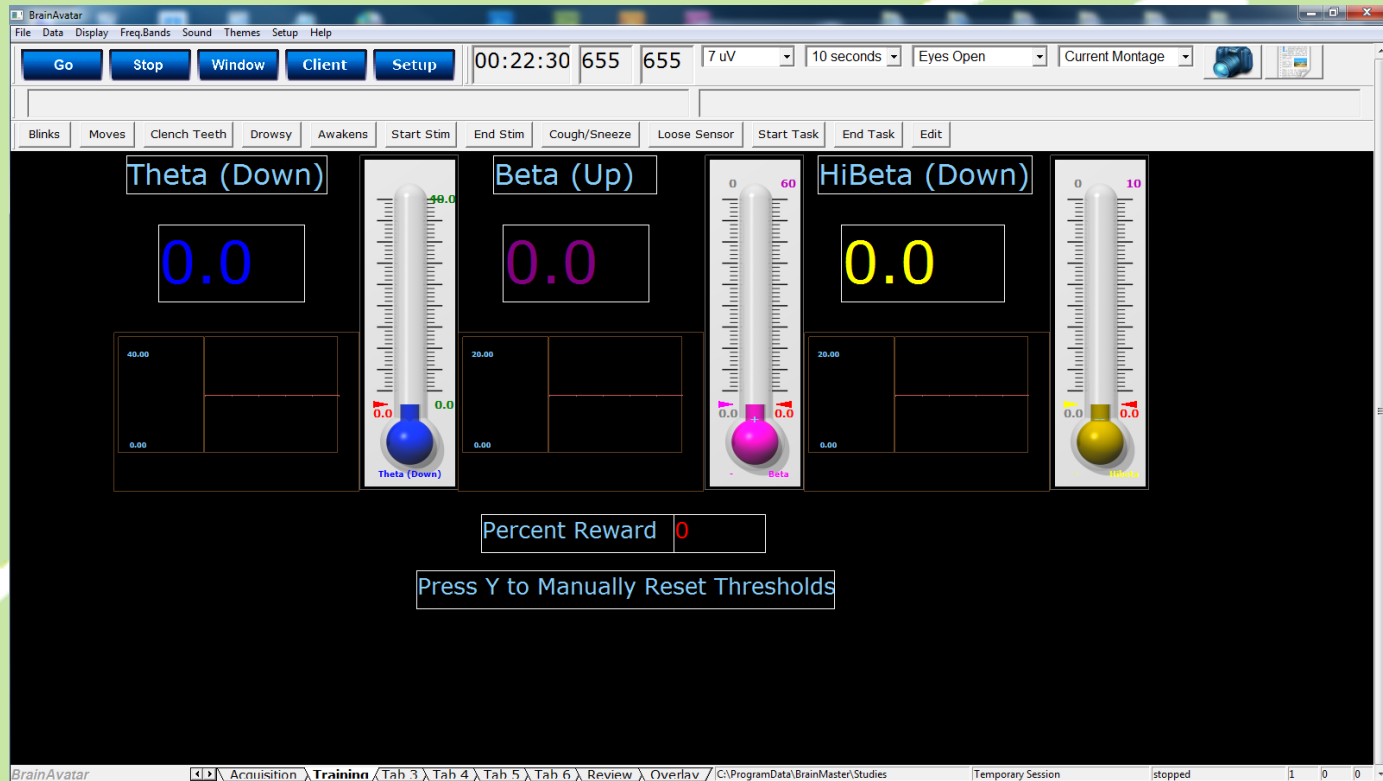
☐ Use tab defaults

Cancel

Choose the event that you would like represented by clicking off all of the events except for the one required for 6th event, Theta (down). Then click OK.

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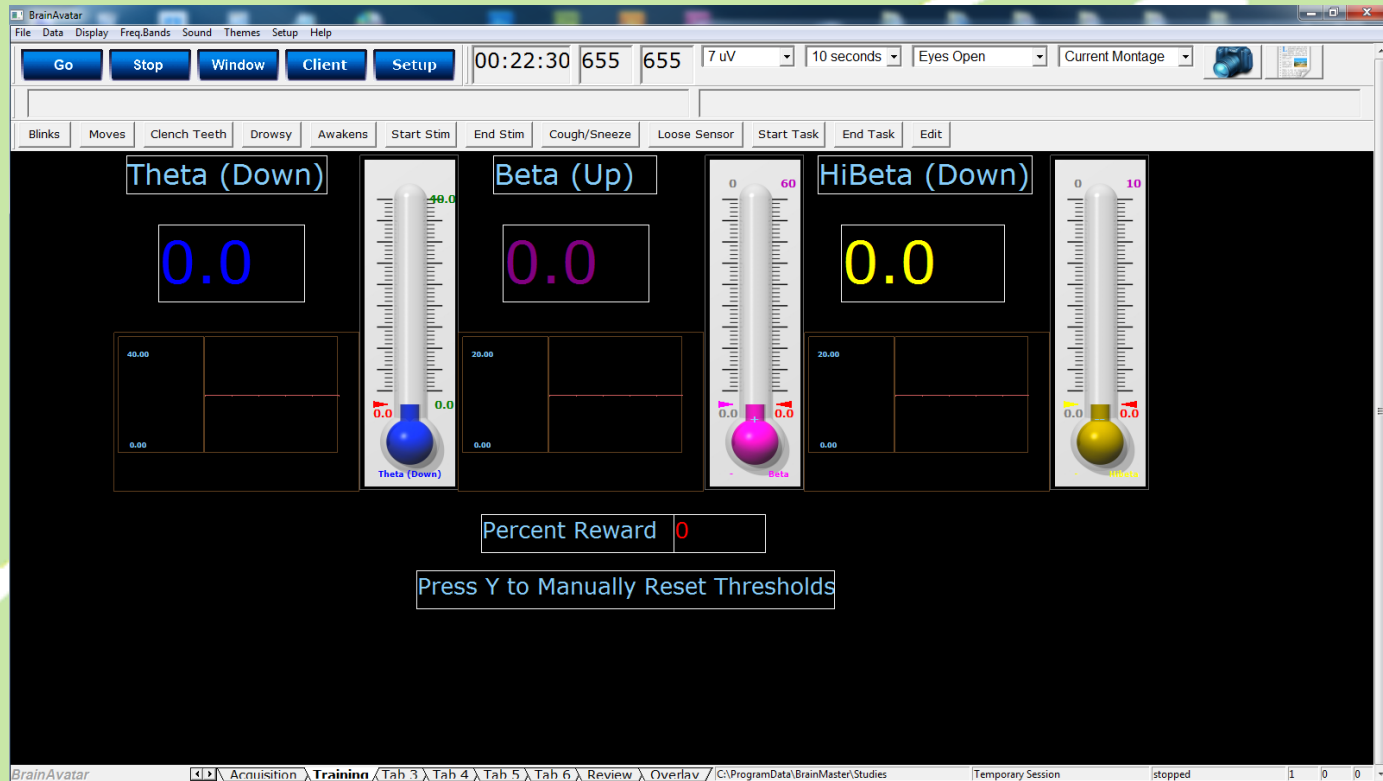
ALERT



- Notice, all but one of the thermometers have been eliminated, the Theta (Down) thermometer.

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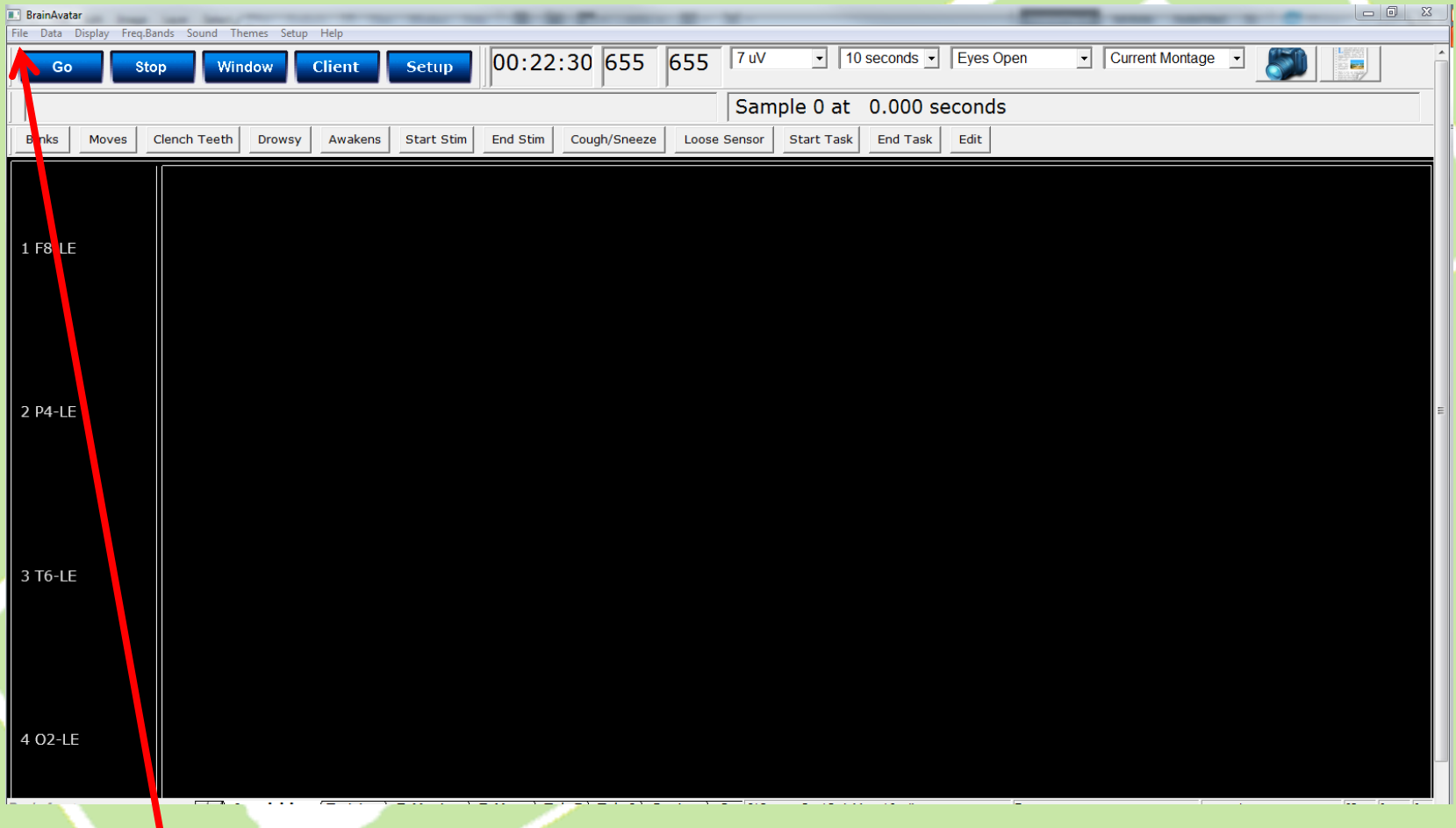
ALERT



- You may practice viewing and changing the specifications for the labels, meters, event graphs and thermometers for Beta (Up), event 7 and HiBeta (Down) event 8 using the panel wizard and repeating the previous steps.

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ALERT



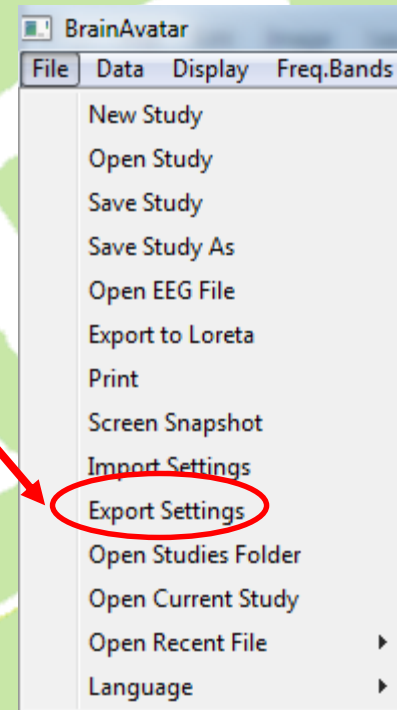
If you would like to save this modified setting click “File”

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ALERT

Level 3

Next click “Export Settings”.

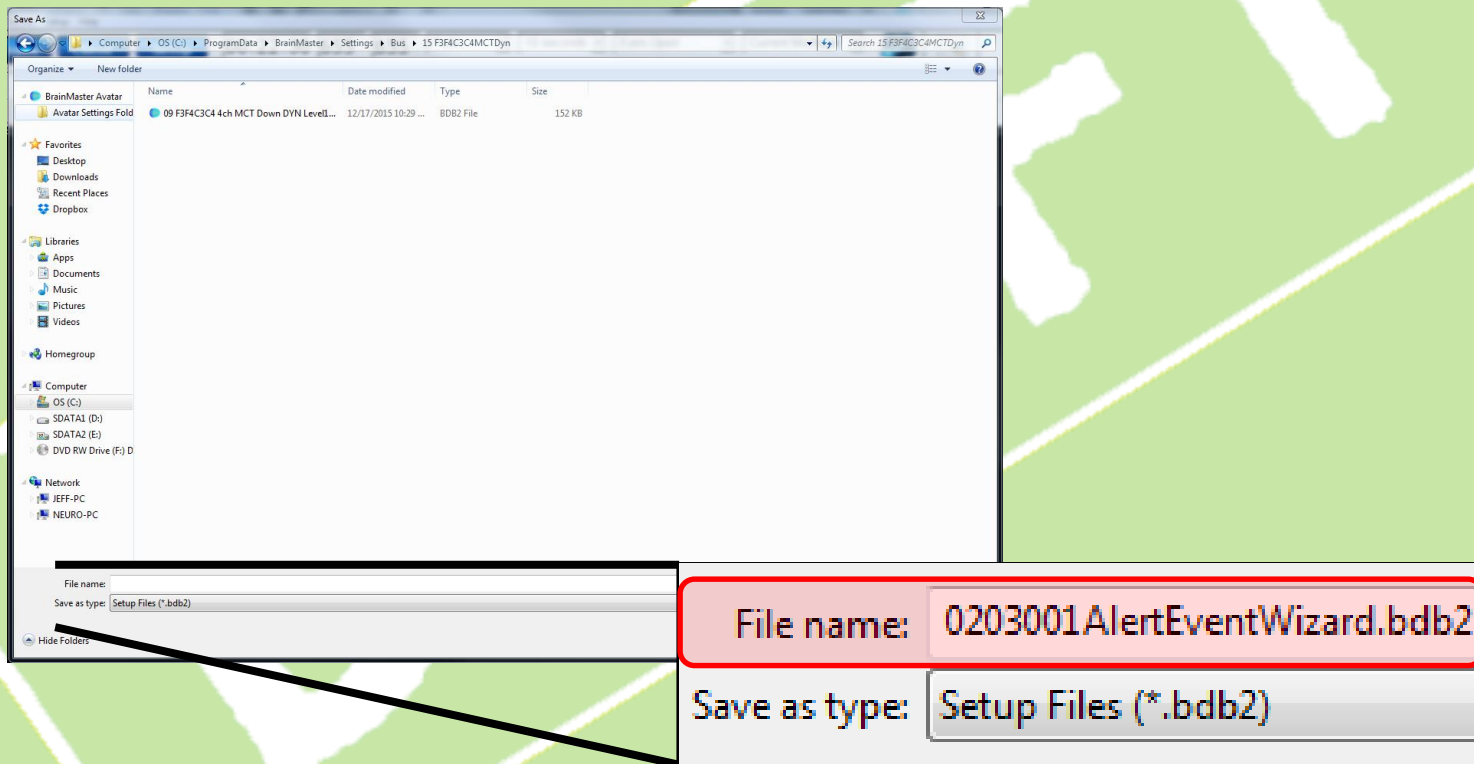


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ALERT

Level 3

Find the folder where you keep these settings and name the file appropriately in the “File Name:” window.

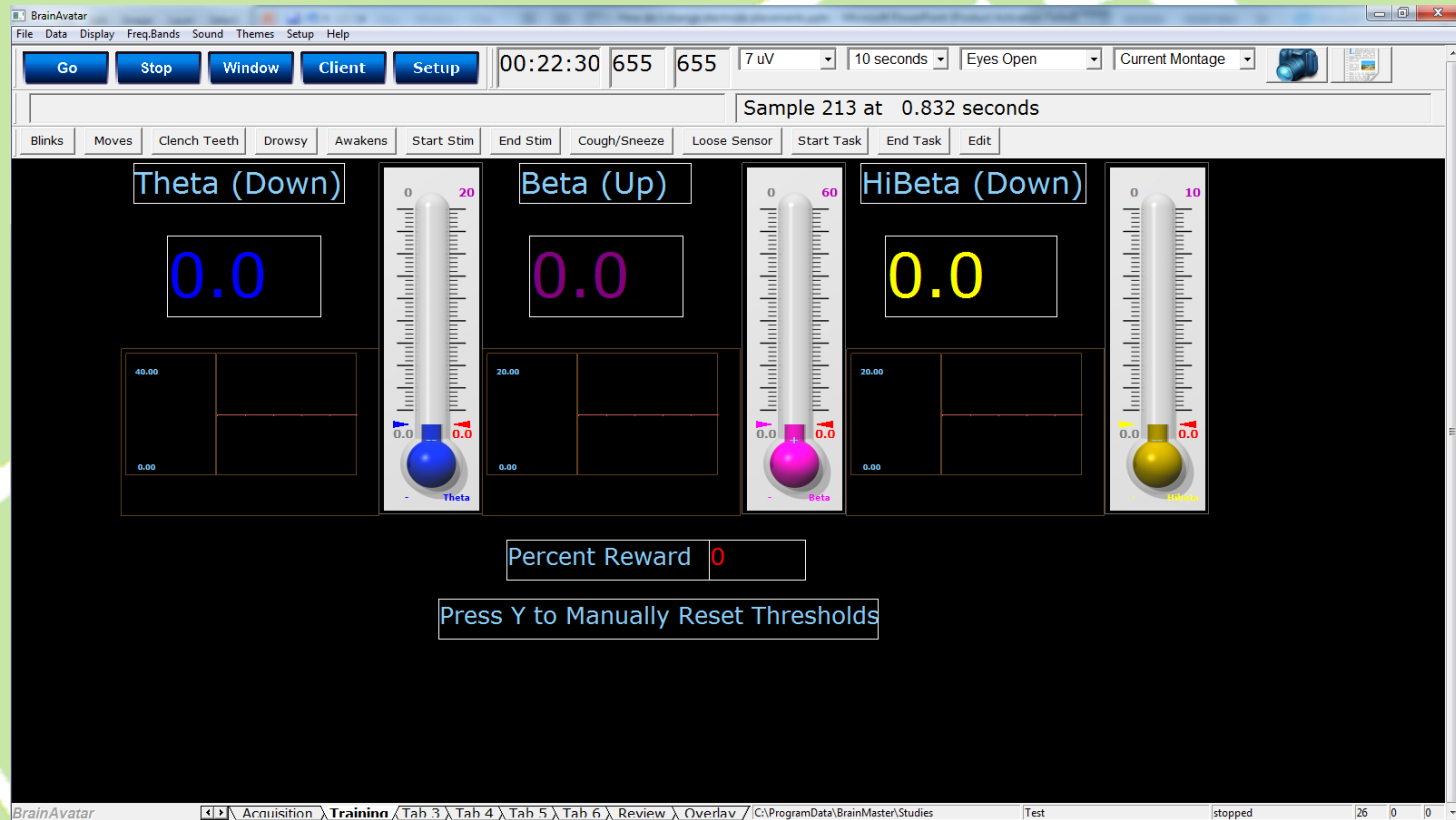


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ALERT

Level 3

The Protocol is now ready to run with the revisions made.



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Power Point Manual

Get On The
BUS



BrainMaster
Universe
Simplified



“Alert”
level 3