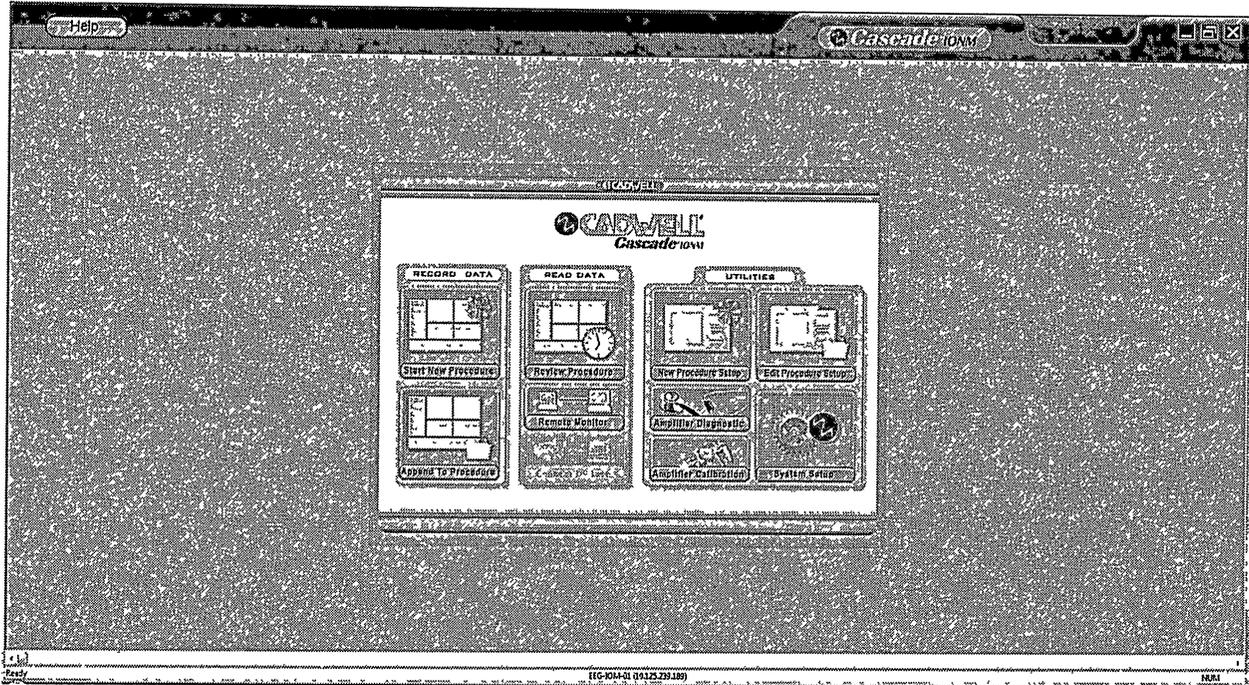


Cascade Layout Basics

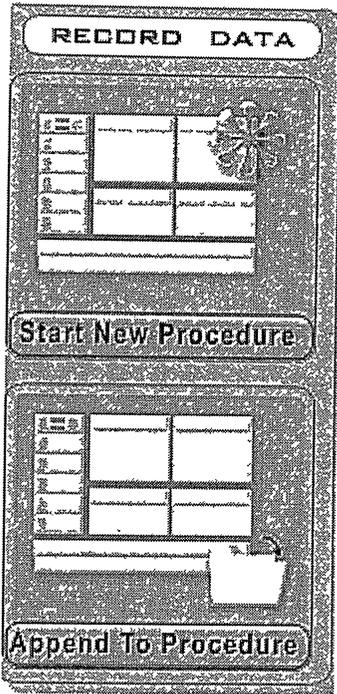
Elizabeth Creel, CNIM

1. Opening screen - The Basics



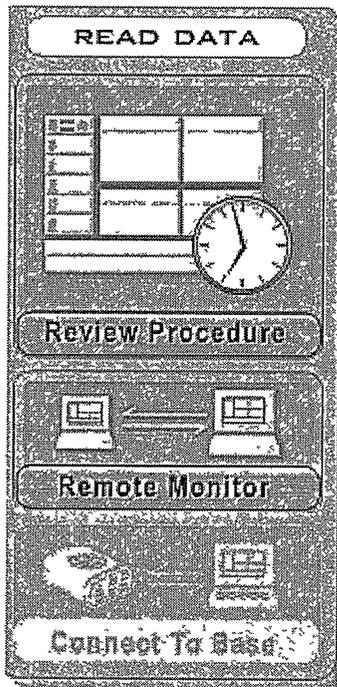
a. RECORD Data :

- a. Start New Procedure = how to start up a new program to monitor a patient
- b. Append to Procedure = Should you exit a procedure, this allows you to go back and continue recording for that particular patient



b. Read Data :

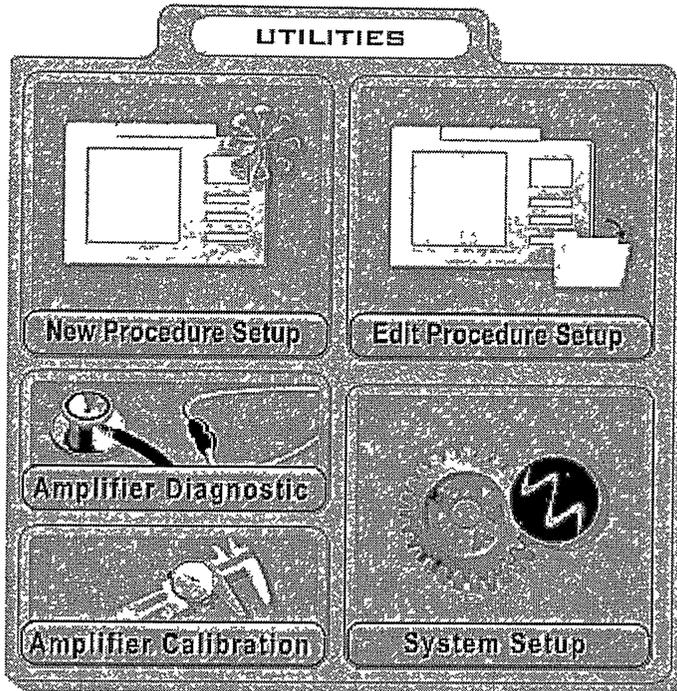
- a. Review Procedure = should you want to go back and look at a particular patient's study (clicking this option will NOT allow you to edit the procedure or continue recording for this patient, but simply review it)
- b. Remote Monitor = you will not use this option



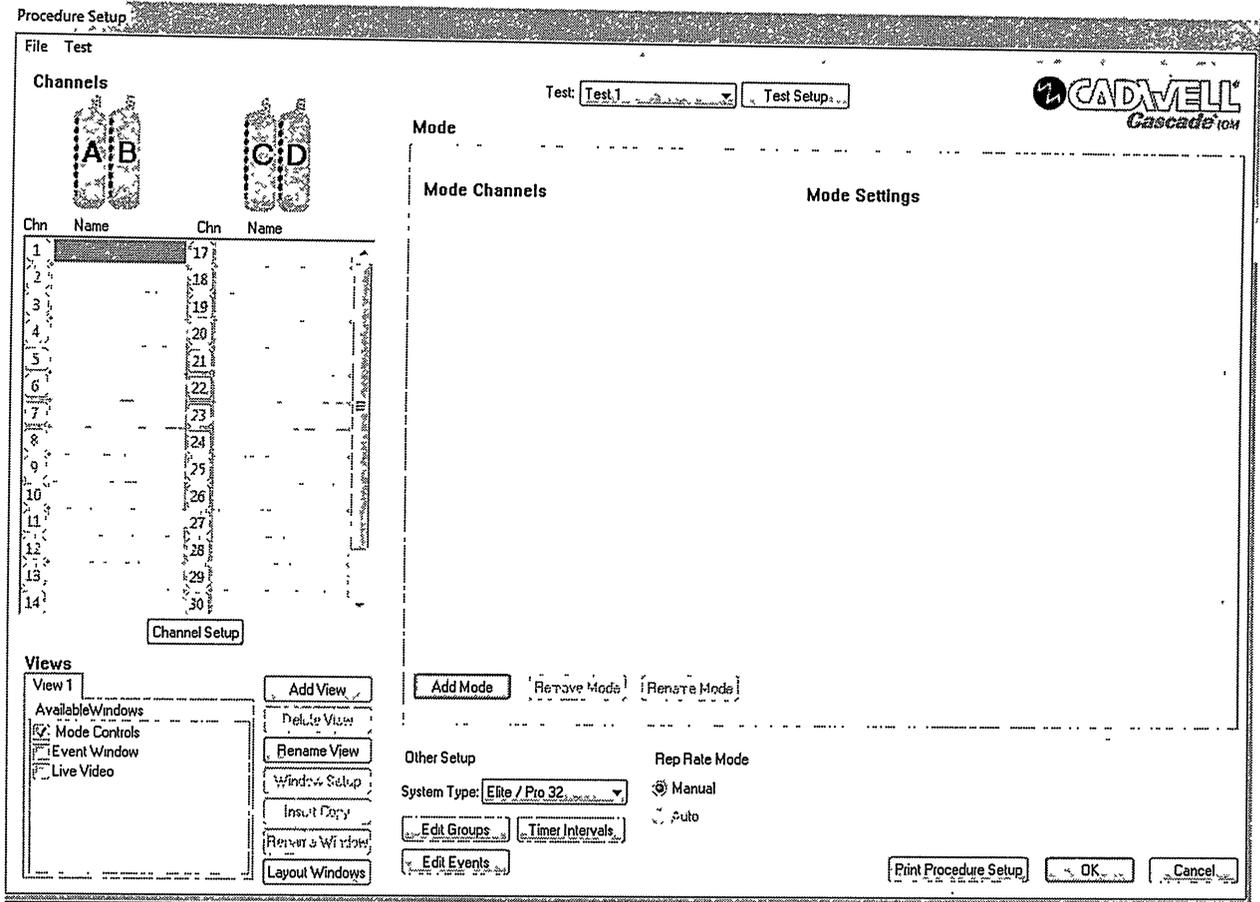
c. Utilities

- a. New Procedure Set Up: this option allows you to create an entirely new program from scratch. You will need to know filter settings for all modalities you add

- b. Edit Procedure Set Up: this option is if you already have a program built and you would like to edit that program
- c. Amplifier Diagnostics: this option will diagnose any troubles that are occurring with your amplifier – this option is not often used
- d. Amplified Calibration: this option will calibrate your amplifier should you need it
- e. System Set Up: sort of like a settings option for cascade



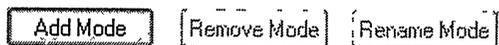
2. New Procedure Set Up:



- a. Once you click on this option in the Utilities section of the homescreen, it will pull up this screen for Procedure setup (seen at the top left)
- b. What you'll need to do first is to decide what modalities, or modes, you would like to monitor

Mode Channels

Mode Settings



- a. At the bottom left of this you will see three different options, seen below



- b. To add modes/modalities, click on the “add mode” option
- i. Should you need to delete a mode you created, select the “Remove Mode” option
 - ii. Should you need to rename a mode you created, select the “Rename Mode” option
- c. This will pop on your screen after clicking. You will need to name your mode/modality (i.e.: Left UE SEP, LE MEP, EEG, etc)

Create New Mode X

Name

Type

Copy

Copy Channels

Copy Channel Names

Copy Mode Setup

Copy Stim

Copy Cursor Table

- d.
- e. after you have named your modality, you will need to select a type, this will allow the program to know what basic set up to give you to edit
- i. Types given are EEG, EMG, EP, MEP, and TOF
 - ii. So for example, if you select the type EEG, it will give you (for that mode channel) a basic set up for EEG

Create New Mode X

Name

Type

Copy

Copy Channels

Copy Channel Names

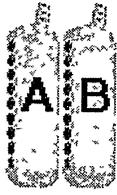
Copy Mode Setup

Copy Stim

Copy Cursor Table

- iii.
- f. Once you have made your selection, you will hit ok and it will add your mode

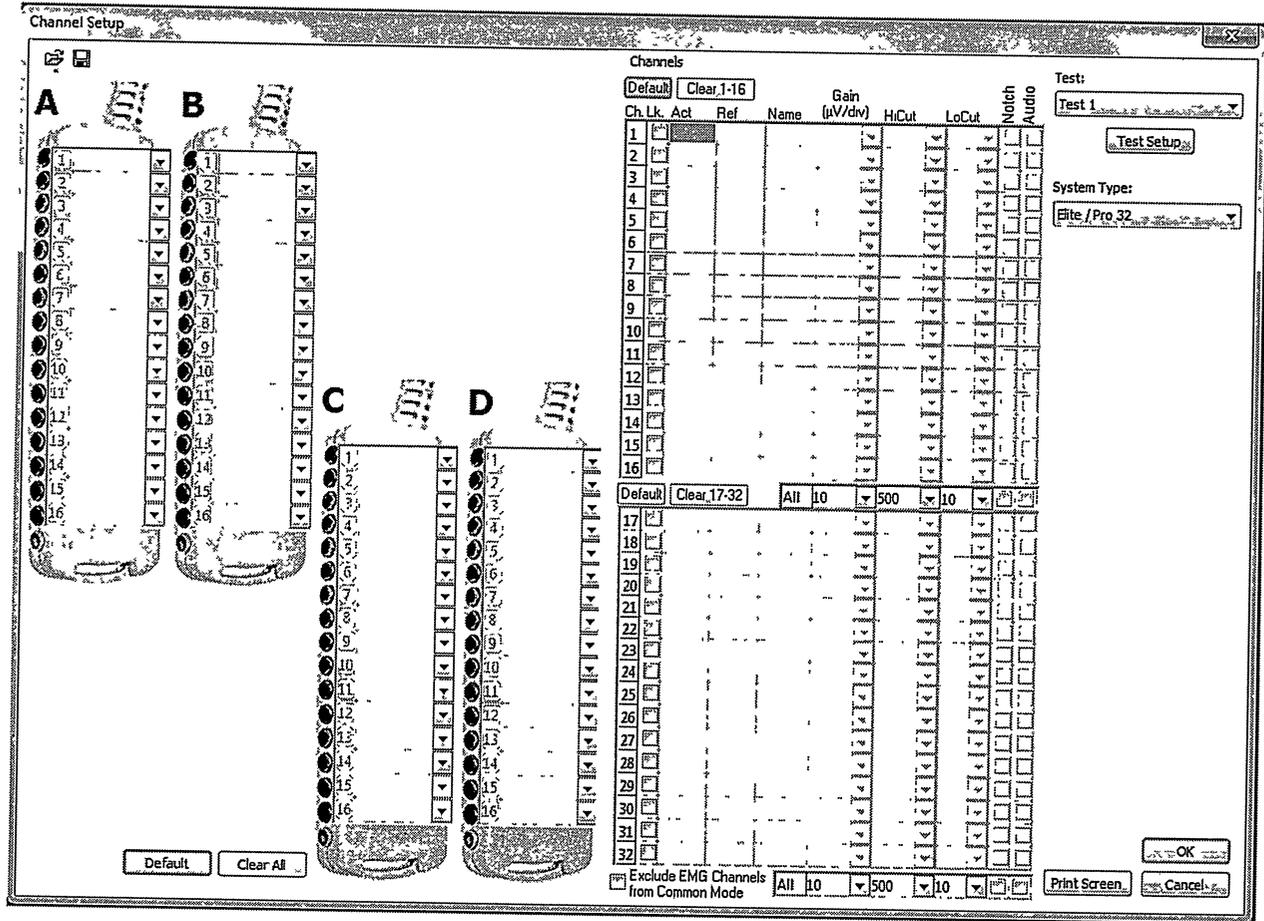
Channels



Chn	Name	Chn	Name
1		17	
2		18	
3		19	
4		20	
5		21	
6		22	
7		23	
8		24	
9		25	
10		26	
11		27	
12		28	
13		29	
14		30	

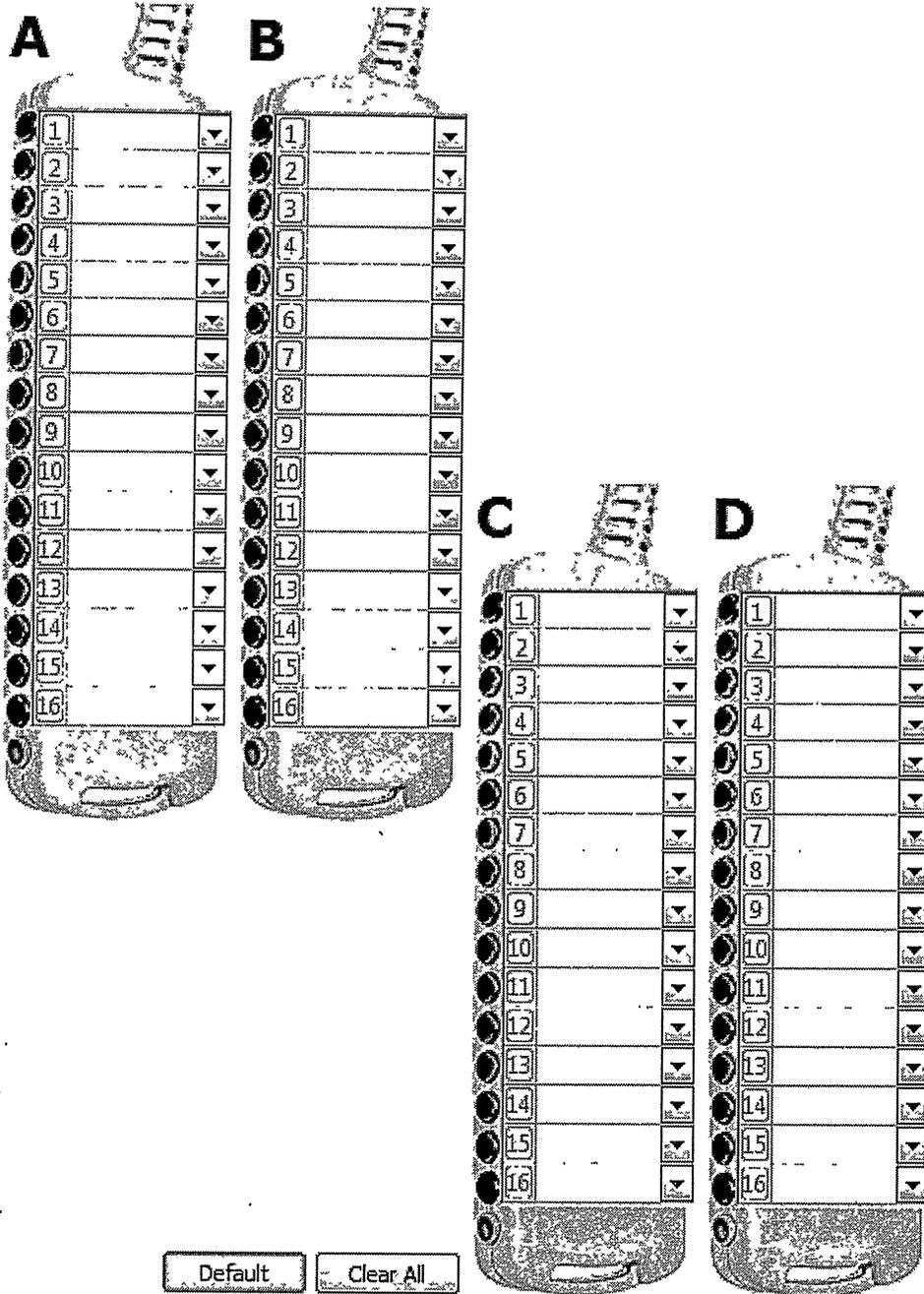
Channel Setup

- a. Select channel set up and it will take you to this window



- b. This window will allow you to add all of the electrodes that you will need for the modalities you have chosen

- c. The machine I am using now is a 32 channel program, meaning that there are four pods (labeled above as A, B, C, and D) with 16 channels each.



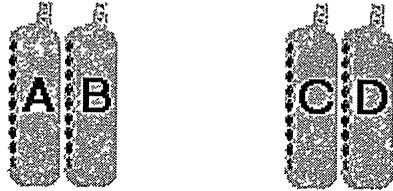
Channels

Default		Clear 1-16		Gain		HiCut		LoCut		Notch		Audio	
Ch.	Lk.	Act	Ref	Name	($\mu\text{V}/\text{div}$)								
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>											
2	<input type="checkbox"/>	<input type="checkbox"/>											
3	<input type="checkbox"/>	<input type="checkbox"/>											
4	<input type="checkbox"/>	<input type="checkbox"/>											
5	<input type="checkbox"/>	<input type="checkbox"/>											
6	<input type="checkbox"/>	<input type="checkbox"/>											
7	<input type="checkbox"/>	<input type="checkbox"/>											
8	<input type="checkbox"/>	<input type="checkbox"/>											
9	<input type="checkbox"/>	<input type="checkbox"/>											
10	<input type="checkbox"/>	<input type="checkbox"/>											
11	<input type="checkbox"/>	<input type="checkbox"/>											
12	<input type="checkbox"/>	<input type="checkbox"/>											
13	<input type="checkbox"/>	<input type="checkbox"/>											
14	<input type="checkbox"/>	<input type="checkbox"/>											
15	<input type="checkbox"/>	<input type="checkbox"/>											
16	<input type="checkbox"/>	<input type="checkbox"/>											
Default		Clear 17-32		All	10	500	10			<input type="checkbox"/>	<input type="checkbox"/>		
17	<input type="checkbox"/>	<input type="checkbox"/>											
18	<input type="checkbox"/>	<input type="checkbox"/>											
19	<input type="checkbox"/>	<input type="checkbox"/>											
20	<input type="checkbox"/>	<input type="checkbox"/>											
21	<input type="checkbox"/>	<input type="checkbox"/>											
22	<input type="checkbox"/>	<input type="checkbox"/>											
23	<input type="checkbox"/>	<input type="checkbox"/>											
24	<input type="checkbox"/>	<input type="checkbox"/>											
25	<input type="checkbox"/>	<input type="checkbox"/>											
26	<input type="checkbox"/>	<input type="checkbox"/>											
27	<input type="checkbox"/>	<input type="checkbox"/>											
28	<input type="checkbox"/>	<input type="checkbox"/>											
29	<input type="checkbox"/>	<input type="checkbox"/>											
30	<input type="checkbox"/>	<input type="checkbox"/>											
31	<input type="checkbox"/>	<input type="checkbox"/>											
32	<input type="checkbox"/>	<input type="checkbox"/>											
<input type="checkbox"/>	Exclude EMG Channels from Common Mode			All	10	500	10			<input type="checkbox"/>	<input type="checkbox"/>		

- d. 2 pods make up each of the "channels" located on the right of where the pods are (seen above). However there are machines that utilize a 16 channel program, meaning that the pods will only accommodate 8 channels each and therefore will only fit into the top section of the channels
- e. So, pods A and B are able to fit channels in the 1-16 channels above, while the C and D pods are above to fit channels in the 17-32 channels

- g. Your channels will be filled on the Left of your screen and are ready for you to select and add to your modalities.
- a. You may opt to edit the channel names (like the EMG channels for example) to ease your visualization for these channels. To do this, simply click on the channel name you would like to change, and edit it the way you would like

Channels

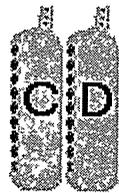


Chn	Name	Chn	Name
1	Cpz-Fpz	17	L HAND
2	CP3-CP4	18	L ILIO-L ILIO
3	CP4-CP3	19	L QUAD-L QUAD
4	Cpz-CP3	20	L HAM-L HAM
5	Cpz-CP4	21	L AT-L AT
6	CP4-LEP	22	L MG-L MG
7	CP3-REP	23	L FOOT-L FOOT
8	LEP-REP	24	R HAND-R HAND
9	REP-LEP	25	R ILIO-R ILIO
10	LPFD-LPFP	26	R QUAD-R QUAD
11	RPFD-RPFP	27	R HAM-R HAM
12	FP1-C3'	28	R AT-R AT
13	C3'-O1	29	R MG-R MG
14	FP2-C4'	30	R FOOT-R FOOT

Channel Setup

- ...
- b. Edit all of the channels you like (I would personally recommend editing just your EMG/MEP channels as editing your SEP channels will likely confuse you and your IP)

Channels



Chn	Name	Chn	Name
1	Cpz-Fpz	17	L HAND
2	CP3-CP4	18	L ILIO
3	CP4-CP3	19	L QUAD
4	Cpz-CP3	20	L HAM
5	Cpz-CP4	21	L AT
6	CP4-LEP	22	L MG
7	CP3-REP	23	L FOOT
8	LEP-REP	24	R HAND
9	REP-LEP	25	R ILIO
10	LPFD-LPFP	26	R QUAD
11	RPFDP-RPFP	27	R HAM
12	FP1-C3'	28	R AT
13	C3'-O1	29	R MG
14	FP2-C4'	30	R FOOT

Channel Setup

- c. So an example of a "fully edited" channel will look like the example above
- h. After you have made any changes to your channel names you may have made, you can now select them to add to your modes. To do this, it is similar to how earlier you had to add your electrodes into the channel set up
 - a. So for example, I will fill my "Left LE SEP" mode first with channels. The first step is to simply select this mode on your mode set up side (right) of your screen

n. When you click on the type drop-box, you will have a variety of types to choose from, and depending on what you are monitoring, you will need to select the specific type you need. (for example: ES-IX, TCS, Electrical, etc)

a. So for example, for my Left UE SEP modality, I know that I have an ES-IX box used for this, so I will select this option in the type and this will appear. Some older machines use an older version of an ES-IX stimulator and you will therefore need to select the “Electrical” option

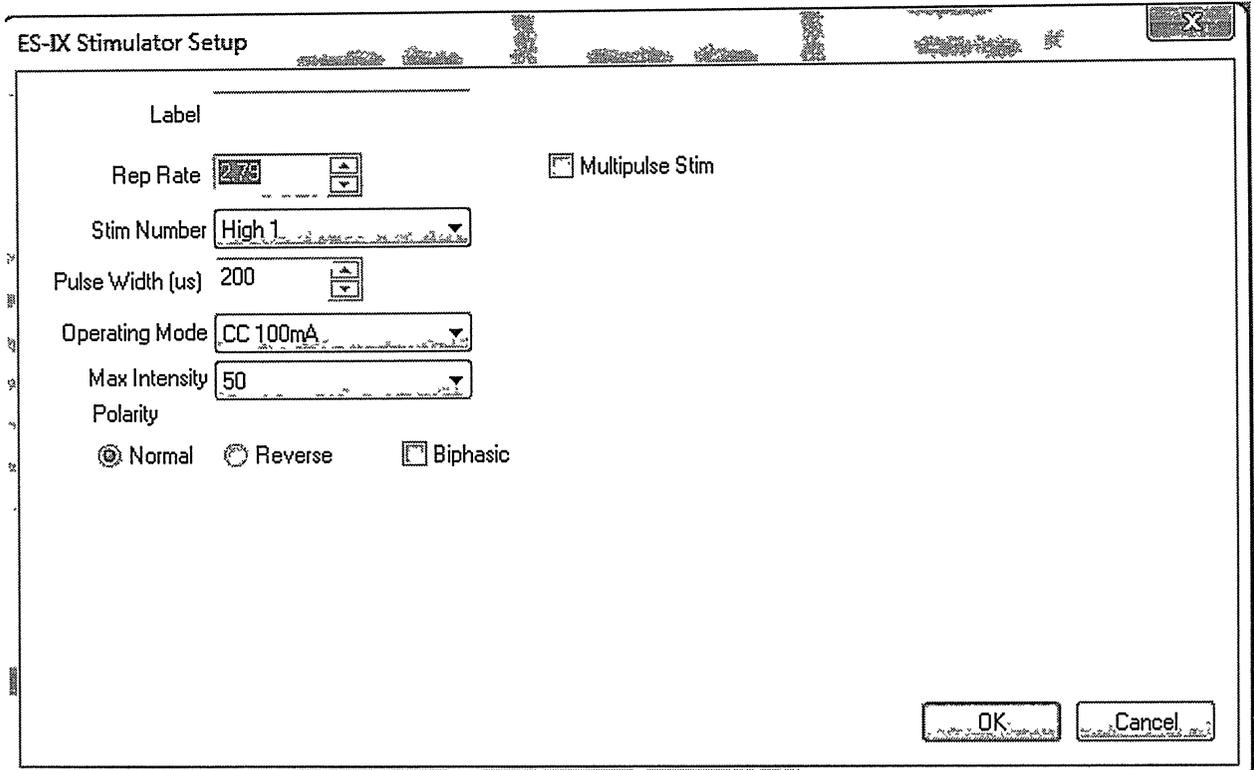
Stimulator

Stim Type: ES-IX
Label:
Stim Output: High 1
Rep Rate: 2.79 Hz
Pulse Width: 200 μ S
Pulse Count: 1
Max Intensity: 50

Type

b. An easy way for you to know that you have selected the wrong stim type (particularly for ES-IX and Electrical types) an error will show up when you turn your stimulation on (which we will later discuss). This is an excellent tool as it basically tells you “hey, I’m not stimulating where I’m supposed to be, fix me please!”

o. After you’ve made your selection, you will see that the empty white box you’d seen previously, is now filled with a bunch of information. You will need to open this up in order to correctly assign each modality to the correct space. To do this, click on the “Setup Stimulator” button below the “Type” drop-box



- p. When you do, this screen will pop up, and in this case as I've selected the "ES-IX" type, it will be displayed as the "ES-IX Stimulator Setup"
- q. There are several different things you will need to know in order to set ES-IX up properly
- a. Firstly, the very first thing you will see at the top is going to be the "Rep Rate" – the typical 'starting' rep rate for SEP's is going to be 2.79 which is displayed above. This is typically an automatic setting and unless you need to decrease it in order to optimize your signals, you will not need to do much with this
 - i. An important thing to note for this: the Rep Rate must be exactly the same for ALL SEP modes (Left UE, Left LE, Right UE, and Right LE). So if you need to change one rep rate, you will need to change ALL of them. You may do this here for each individual mode, OR you can opt to change all of them at the same time under another option once you are actually monitoring
 - b. Next, and probably the most important for this particular section, is the "Stim Number" located just below the Rep Rate. This option is essential, as it basically tells your program which slot on your ES-IX box you will be placing for that mode.
 - i. So for example, I have selected the Left UE SEP mode. I would like this to be in the first slot, "High 1" so that once I am placing electrodes, I will know that I will need to place the Left Ulnar electrode into this slot
 - ii. If I wanted to then place my Right UE SEP mode, I will know that "High 1" is taken and is being used for the Left UE SEP. The next available slot would be "High 2" which I can place my Right Ulnar electrode.
 1. Should you forget to change this option, all of your SEP modes will read off of one stimulator (meaning, for this example, that all of

your SEPs will read off of the Left Ulnar electrode) so it is important to edit this and assign them to their own slots

- iii. If you need to stimulate pedicle screws/nerves, you would also use the ES-IX box for you to plug in your stimulating probe and grounding electrode. Depending on what kind of stimulation you will be doing, you will place it in one of two stimulator types
 1. The stim numbers are split into High and Low. The most abundant are the high stimulator inputs as they allow for you stimulate higher. This is vital for SEPs as you will typically be stimulating anywhere from 10 mA and up. This is also vital for pedicle screw stimulation, as you will likely be asked to stimulate these screws up to approximately 20 mA
 2. Should you need to stimulate a nerve and need to be able to have a lower stimulation, you will put it into one of the Low Inputs, as these allow you to stimulate at a lower interval (ex: 0.1 mA)
- c. The next option on this set up is the "Pulse Width". This option will typically automatically select 200 us for you as this is the typical pulse width that is used at the start. But should you need to increase the pulse width to optimize signals, this is where you would change that. Unlike the rep rate, the pulse width does not need to be the same universally
- d. "Max Intensity" is the next option I will draw your attention to, as you will not need to change the "Operating Mode" option.
 - i. This option is basically a cap on how high you are able to stimulate a particular slot. So for example, on the screen shot above, the max intensity is set to 50. This means that at 50 mA, I am no longer able to go any higher
 - ii. Should for some reason you need to go higher, as in a patient requires higher stimulation (which should be discussed with your IP first), then you would click on the drop-box option for this and select a higher value. The other values you may select are 75, 100, or even 25. So these mean that if 75 is selected, you can stimulate UP to 70 mA, or if 100 is selected you can stimulate UP TO 100 mA and so on
- e. "Polarity" is the next option that you see and unless asked by your IP, this should remain as "normal" instead of "reverse" as this will do just as it indicates, it will reverse the polarity of this montage.
- r. If you are on an "EMG" mode you've created, you will not need to assign a stimulator to it, unless it is EMG that you would like to stimulate. If it is an EMG mode you are stimulating (will be a separate mode, as you would then have a free-running EMG mode and a stimulated EMG mode) you will repeat the same process as for the SEP mode for the ES-IX stimulator set up. You will simply just select a stim number not currently in use (high or low depending again on type of stimulation)

- s. MEP modes are different for stimulator set up's as they use the TCS box – as you did for selecting the ES-IX on the stimulator option type, you will instead selected “TCS” on the Type , as seen below. This will generate this image seen in the white box

Stimulator

Stim Type: TCS

Label:

Channel: 1

Double Train: Off

ITI: n/a

Pulse Width: 50 μ S

Train Length: 4

Type TCS

Setup Stimulator

- a. Select “set up stimulator” in order to edit this – which will then pop up as seen below as the “Transcranial Stimulator Set Up”

Transcranial Stimulator Setup

Channel 1 Label

Channel 2 Label

Channel 3 Label

Channel 4 Label

Max Intensity (V) 1000

Output Channel 1

Train 1

Train Length 4

Polarity Normal

Interstimulus Interval (ms) 2

Pulse Width (μ S) 50

Double Train Stimulation

Inter-train Interval (ms) 30

Use Train 1 Settings for Train 2

OK Cancel

- b. The Channel 1-4 Labels you will not use, as you can only assign one slot on the TCS box at a time. Predominately, unless you have multiple head electrodes you are using for MEP stimulation, you will not need to assign multiple slots
- i. However should you desire to use multiple electrodes (other than the conventional C3 and C4 electrodes), to assign then to the different TCS inputs, go to the “Output Channel” option as seen above. Click on the drop-down menu to select different inputs should you need them there

- c. The Max Intensity option seen is similar to the one seen on the ES-IX box, as it just indicates the maximum amount of intensity you are able to stimulate with. This option in particular should not be increased unless explicitly discussed with the surgeon and IP – as you should not need to stimulate more than even 800 V
- d. For most MEP stimulation, you will only need one train in order to elicit responses

Train 1

Train Length

Polarity

Interstimulus Interval (ms)

Pulse Width (uS)

- i. Items typically changed here are the “Train Length” and the “Pulse Width” options
 - 1. Train length is very typically set to 7-8 for just Train 1, and Pulse Width is typically set to 50 or 75 uS
 - ii. “Interstimulus Interval” is typically set to 2 and “Polarity” is often set to Normal, so if you need to change either, discuss with IP first
- e. You do have the option, however, if one train is simply not enough to elicit a response from a patient called “Double Train Stimulation” seen below

Double Train Stimulation

Inter-train Interval (ms)

Use Train 1 Settings for Train 2

- i. To activate this, simply check the box next to it. When you do, the “Use Train 1 Settings for Train 2” will be available. What this means is that, should you want to have the second train identical to the first train, it will use the same settings seen in the Train 1 option.
- ii. However, research has shown that for double train stimulation, the best settings are when the Train 1 Length is 2 and Train 2 Length is 7 (to equal a total train length of 9) – in order to get to this option, uncheck the “Use Train 1 Settings for Train 2” when it is highlighted, and it will be up a second settings seen below

Train 1

Train Length

Polarity

Interstimulus Interval (ms)

Pulse Width (uS)

Train 2

Train Length

Polarity

Interstimulus Interval (ms)

Pulse Width (uS)

- iii. With this Train 2 option open, you can then change your Train Lengths to the appropriate settings.
- t. Once your stimulator set up is complete, you will click OK, and it will take you back to the Procedure set up. You will need to repeat this process for all of the modes that you have
- u. EEG will be an outlier in terms of your Mode settings, as it will show up like seen below

Mode Channels

Amp Chn	Name	Invert	Amp Chn	Name	Invert
12: FP1-...	FP1-C3'	<input type="checkbox"/>			<input type="checkbox"/>
13: C3'-O1	C3'-O1	<input type="checkbox"/>			<input type="checkbox"/>
14: FP2-...	FP2-C4'	<input type="checkbox"/>			<input type="checkbox"/>
15: C4'-O2	C4'-O2	<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>
		<input type="checkbox"/>			<input type="checkbox"/>

Mode Settings

Mode Type

Epoch Length (seconds)

Run Mode

- a. "Epoch Length" will automatically be set to 8 seconds and "Run Mode" as manual
 - i. This simply means that that, in terms of Run Mode, that you have to manually turn on the stimulation. You will want to keep this option as you will not want your EEG running unless you tell it to
- v. The next item in your procedure set up you will need to set up is the View windows, as seen below.

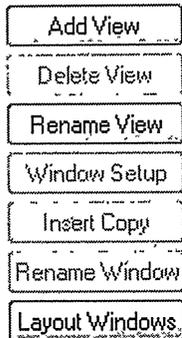
Views

View 1

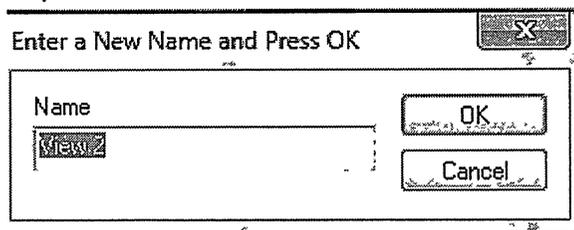
Available Windows

- Mode Controls
- EEG: EEG
- EEG: EEG Analysis
- EMG: EMG
- EMG: Stacked EMG
- Event Window
- Left LE SEP: 3D Trend
- Left LE SEP: Average

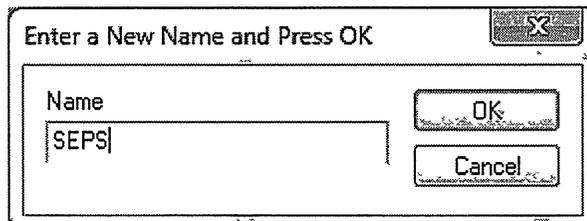
- w. These options essentially tell you where everything you've programmed will be displayed and what modes/modalities you will see on a given window
- x. To the left of the "Available Windows", you will see the options seen below



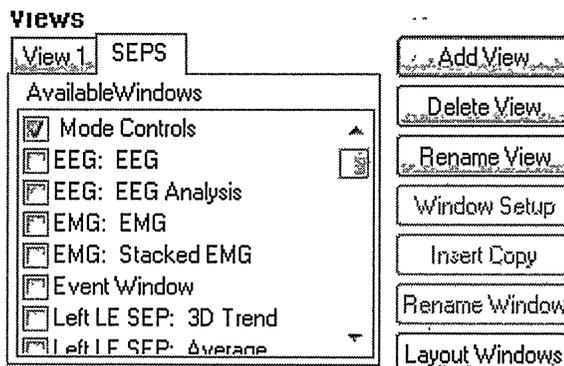
- y. This area will allow you to add views, delete view, rename view and so on
- z. Renaming Views and Deleting Views will rename or delete whatever view you have selected
- aa. In order to add a view, selected the "add view" option as seen above and the following will pop up on your screen:



- a. Name your view to whatever you would like displayed, for this example I will add an "SEP" window



- b. Select OK when you have finished naming your view and it will show up in your available views



- c. You will then need to decide what you would like displayed under this view

d. For this example, I will again select options that you would need for an "SEP" view



i. You will want the AVERAGE of whatever mode you want displayed for SEPs as this will display what you are stimulating actively. Should you select the Summary option (as seen below) it will only show you a summary of what you have been stimulating, so this option should be saved for a STACKED view that displays all of your summary data for the case



e. You will want the following to be displayed for you (in this example): Mode Controls, Left LE SEP: Average, Right LE SEP: Average, Right UE SEP: Average, Left UE SEP:

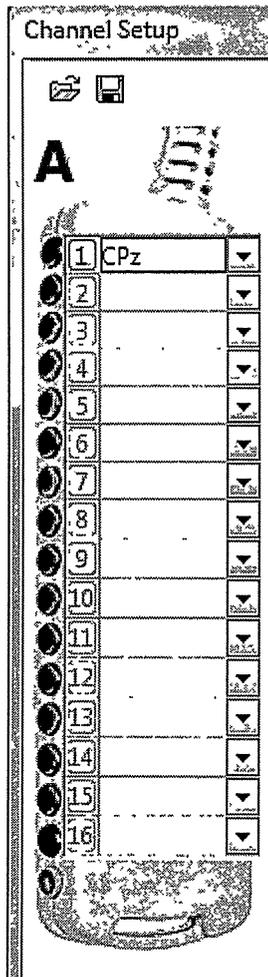
Average,

i. If you are monitoring MEPs, then on an MEP View you will want to select the option seen below in order to see what MEP you trigger

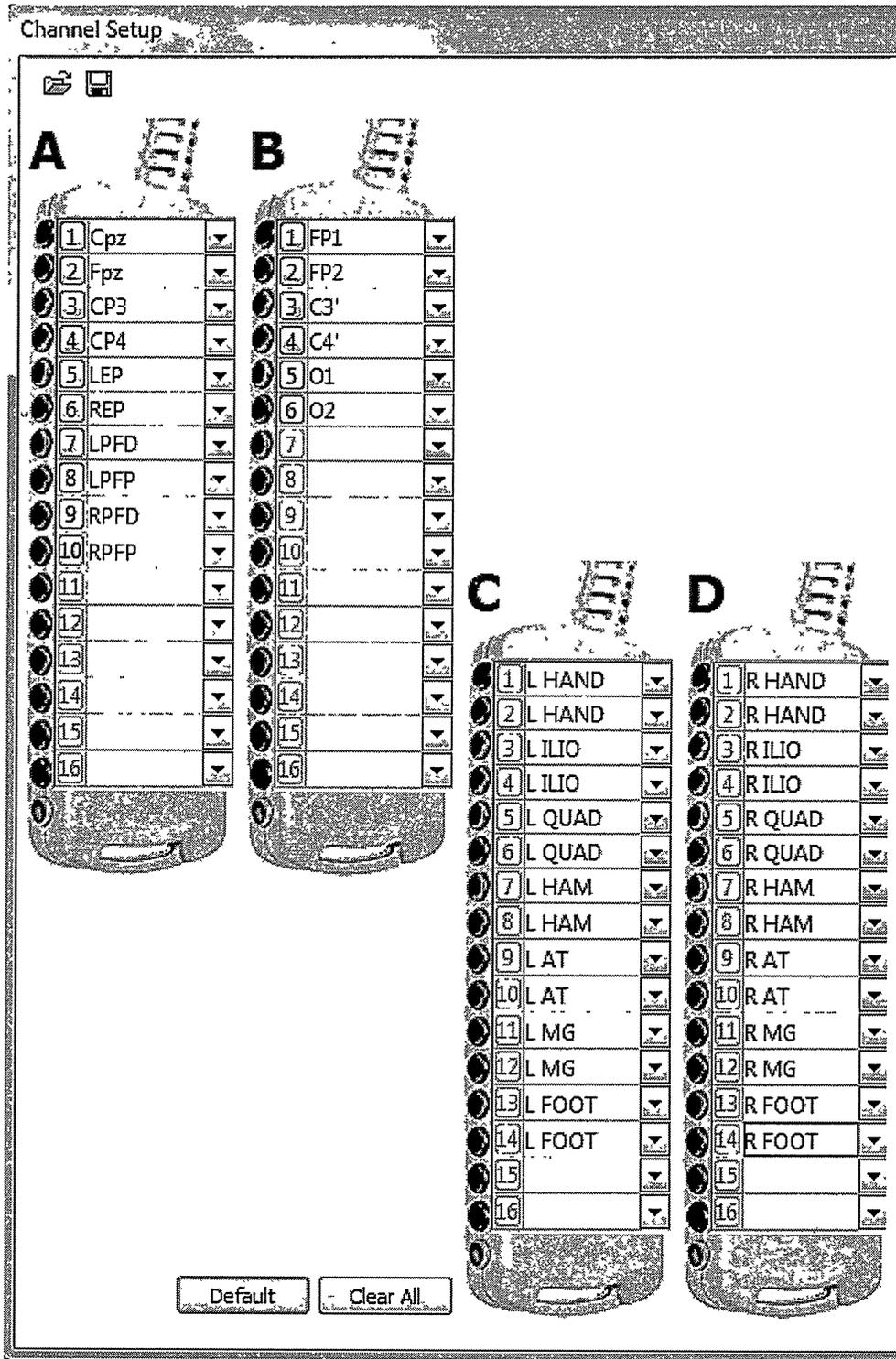


bb. Once you've created all of the Views you want as well as the correct Available Windows in them, you have successfully created a brand new procedure! Look over your program a few times to make sure everything is in its correct place, and then selected OK at the bottom Right corner, save it to a location where you will be able to easily access it again, and it will take you back to the Main Homescreen

- f. To add an electrode, click on an empty space on the pod you would like to utilize, and type in the electrode name – in this example I will add in my CPz electrode



- g. Once added, you can then either click onto the second spot on the pod, or you can press tab and it will automatically send you to the next slot. Continue adding channels onto the pod until it is full/there are no more channels you need on this pod. Once one pod is full, move onto the next pod and fill that up until you have added all of the channels you need for monitoring
- h. Your pods will look a little something like this after completion



- i. Now that your pods are filled, you will need to create your channels to add to your modes (channel set up below)

Channels

Default Clear 1-16

Ch.	Lk.	Act	Ref	Name	Gain ($\mu\text{V}/\text{div}$)	HiCut	LoCut	Notch	Audio
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>							
2	<input type="checkbox"/>								
3	<input type="checkbox"/>								
4	<input type="checkbox"/>								
5	<input type="checkbox"/>								
6	<input type="checkbox"/>								
7	<input type="checkbox"/>								
8	<input type="checkbox"/>								
9	<input type="checkbox"/>								
10	<input type="checkbox"/>								
11	<input type="checkbox"/>								
12	<input type="checkbox"/>								
13	<input type="checkbox"/>								
14	<input type="checkbox"/>								
15	<input type="checkbox"/>								
16	<input type="checkbox"/>								

Default Clear 17-32 All 10 500 10

17	<input type="checkbox"/>								
18	<input type="checkbox"/>								
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28	<input type="checkbox"/>								
29	<input type="checkbox"/>								
30	<input type="checkbox"/>								
31	<input type="checkbox"/>								
32	<input type="checkbox"/>								

Exclude EMG Channels from Common Mode All 10 500 10

- j. To add a channel, you will refer back to your pods and select the number next to your electrode

Cpz (the number 1 for this example)

- k. You will see on the channel set up that for each channel, there is an "act." And a "ref" column. These refer to what your active electrode and what your reference

electrode. So when you are setting up your channels, you will need to know the appropriate “montage” for each modality.

- i. For example: We know that to monitor an UE SEP, we will need to monitor CPc-CPI – so if we wanted to monitor Left UE SEP we know that CPc will be CP4 and CPI is CP3. Therefore your channel for this will be CP4-CP3
- l. You will select which electrode will be your active and which will be your reference utilizing the numbers on the pods

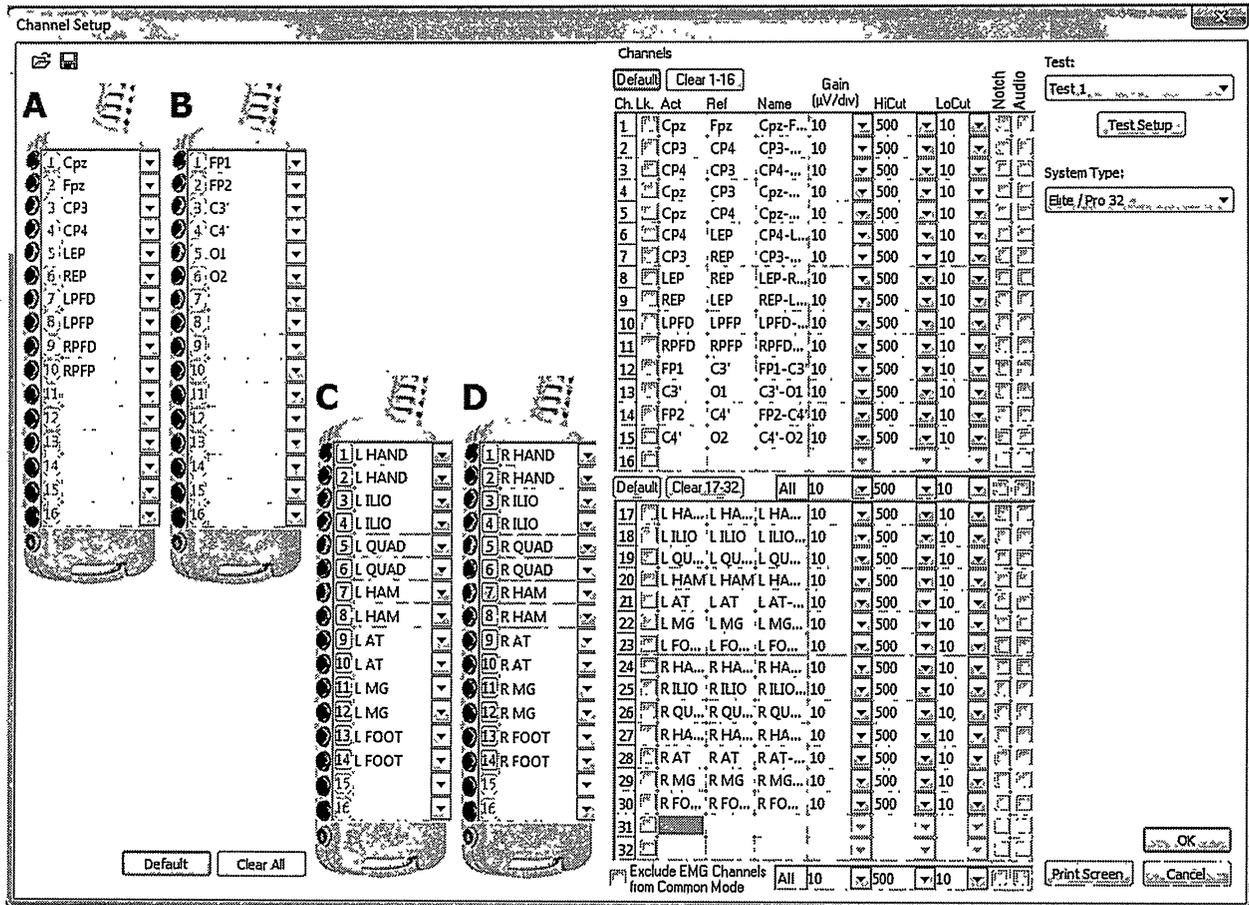
- i. For this example, I have added the first and second electrode on Pod A, using CPz as my active electrode and FPz as my reference electrode

Ch.	Lk.	Act	Ref	Name	(μ V/div)	HiCut	LoCut	Z	AU
1	<input type="checkbox"/>	Cpz	Fpz	Cpz-F...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>

- ii.
- iii. You will notice some numbers off to the side that pop up once you have completely added a channel, keep these columns in mind as we will discuss that momentarily
- m. Continue selecting your electrodes for active and reference to fill your channels for all the modes you are monitoring
 - i. REMEMBER: Pods A and B will ONLY correspond with Channels 1-16 and Pods C and D will ONLY correspond with Channels 17-32, so be mindful when making a larger program to select only the vital channels you need, or you may run out of room
 - ii. Your SEP channels will be a little trickier once you first start setting programs up as you will have to remember very distinctly which electrodes you will use as your active and which you will use as your reference.
 - iii. Your EMG/MEP electrodes will be a tad bit easier, as you will simply be referencing your electrodes to one another, so they will resemble this:

17	<input type="checkbox"/>	LHA...	LHA...	LHA...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
18	<input type="checkbox"/>	LILIO	LILIO	LILIO...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
19	<input type="checkbox"/>	LQU...	LQU...	LQU...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	LHAM	LHAM	LHA...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
21	<input type="checkbox"/>	LAT	LAT	LAT-...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
22	<input type="checkbox"/>	LMG	LMG	LMG...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
23	<input type="checkbox"/>	LFO...	LFO...	LFO...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	RHA...	RHA...	RHA...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
25	<input type="checkbox"/>	RILIO	RILIO	RILIO...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
26	<input type="checkbox"/>	RQU...	RQU...	RQU...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
27	<input type="checkbox"/>	RHA...	RHA...	RHA...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
28	<input type="checkbox"/>	RAT	RAT	RAT-...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
29	<input type="checkbox"/>	RMG	RMG	RMG...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
30	<input type="checkbox"/>	RFO...	RFO...	RFO...	10	500	10	<input type="checkbox"/>	<input type="checkbox"/>
31	<input type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>
32	<input type="checkbox"/>							<input type="checkbox"/>	<input type="checkbox"/>

- n. Once you have added all of your channels, your program will look a little something like this



- i. To make the visual a little easier, I have kept my "SEP" related electrodes in the A Pod, my "EEG" related electrodes in the B Pod, and my "EMG" related electrodes in the C and D Pods
- d. You've finished setting up your channels, congrats! Now comes the fun part of remembering your filter settings for each modality type. This is great practice if you are studying up for your CNIM, as these are settings you will need to remember
- Remember those numbers to the right of your channels that I told you we'd come back to? Well this is the time in which you will edit those numbers to match what channels you have placed there
 - Gain (uV/div) HiCut LoCut Notch Audio
 - You have your Gain (uV/Div), your Hi Cut, and you Lo Cut
 - Refer to what your filter settings are for each montage, and change them in the appropriate sections
 - So, for example, your SEP filters will look like this:

1	<input type="checkbox"/>	Cpz	Fpz	Cpz-F...10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	CP3	CP4	CP3-... 10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	CP4	CP3	CP4-... 10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	Cpz	CP3	Cpz-... 10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	Cpz	CP4	Cpz-... 10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	CP4	LEP	CP4-L...10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	CP3	REP	CP3-... 10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	LEP	REP	LEP-R...10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	REP	LEP	REP-L...10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	LPFD	LPFP	LPFD-...10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	RPFDP	RPFPP	RPFDP... 10	▼	3000	▼	30	▼	<input type="checkbox"/>	<input type="checkbox"/>

ii. Your EEG filters will look like this:

12	<input type="checkbox"/>	FP1	C3'	FP1-C3' 100	▼	70	▼	0.5	▼	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	C3'	O1	C3'-O1 100	▼	70	▼	0.5	▼	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	FP2	C4'	FP2-C4' 100	▼	70	▼	0.5	▼	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="checkbox"/>	C4'	O2	C4'-O2 100	▼	70	▼	0.5	▼	<input type="checkbox"/>	<input type="checkbox"/>
16	<input type="checkbox"/>				▼		▼		▼	<input type="checkbox"/>	<input type="checkbox"/>

iii. And your EMG filters will look like this

17	<input type="checkbox"/>	LHA...	LHA...	LHA... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
18	<input type="checkbox"/>	LILIO	LILIO	LILIO... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
19	<input type="checkbox"/>	LQU...	LQU...	LQU... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	LHAM	LHAM	LHA... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
21	<input type="checkbox"/>	LAT	LAT	LAT-... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
22	<input type="checkbox"/>	LMG	LMG	LMG... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
23	<input type="checkbox"/>	LFO...	LFO...	LFO... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	RHA...	RHA...	RHA... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
25	<input type="checkbox"/>	RILIO	RILIO	RILIO... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
26	<input type="checkbox"/>	RQU...	RQU...	RQU... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
27	<input type="checkbox"/>	RHA...	RHA...	RHA... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
28	<input type="checkbox"/>	RAT	RAT	RAT-... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
29	<input type="checkbox"/>	RMG	RMG	RMG... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>
30	<input type="checkbox"/>	RFO...	RFO...	RFO... 100	▼	3000	▼	10	▼	<input type="checkbox"/>	<input type="checkbox"/>

e. After you've added all the channels you would like, and have adjusted the filters to their proper settings, it's time to add them to the mode channels (or modalities) you have decided to monitor – so click accept and the lower right of your Channel Set up screen