## Enobio/Starstim integration with Neuroguide

## **Enobio/Starstim setup**

Since Neuroguide's neurofeedback requires linked mastoids reference, you need to place the cable labeled as Oz to the left earlobe using an earclip (or to the left mastoid using a sticker electrode). CMS and DRL should be connected using another earclip to the right earlobe (or sticker electrodes to the right mastoid), as shown in the images below. All the other electrodes should be connected using gel, dry or solidgel electrodes to the corresponding position, as indicated in the labels.



EARCLIP

**STICKTRODE** 

Refer to these user manuals for further information

Enobio manual Starstim user manual Electrodes manual NIC software manual

All of them could be downloaded from the following link:

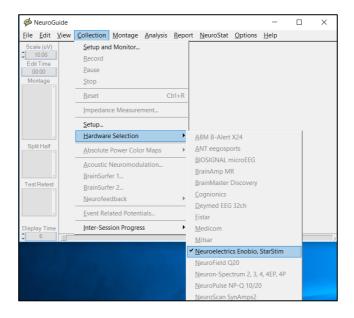
https://www.neuroelectrics.com/documentation/

## **NIC-Neuroguide setup**

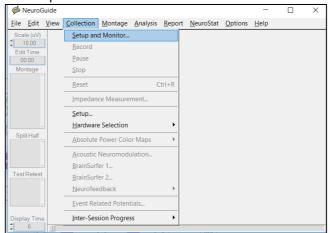
- 1- Download and install NIC 2.0 (www.neuroelectrics.com/downloads)
- 2- Launch NIC and select Bluetooth, Wifi or USB devices depending on the type of device connection you have and click "Scan". When your device is detected, click "Use this device" and wait for it to connect. Note that Neuroguide only works with Enobio or Starstim with 20 or 32 channels (not with 8).
- 3- Once connected, create a new protocol with the default positions as explained in NIC software user manual
- 4- Go to Settings of that protocol and make sure that the name of the "Outlet for Lab Streaming Layer" is NIC. Load the protocol.

File formats			SD File .EDF+ File
Output Directory C:/Users/St	tarlab/D	ocuments/NIC/	
Key Markers			
Key 1		Key 6	
Key 2		Key 7	
Key 3		Key 8	
Key 4		Key 9	
Key 5			
TCP Server Activate TCP Server Marker	2	Activat	e TCP Server Timestamp
LSL Server Outlet for Lab Streaming Layer	NIC		
Markers Lab Streaming Layer	Hase		
Markers Lab Streaming Layer			
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- 5- In the same computer, install and launch Neuroguide. You'll also need the "The NC collection module for Enobio/Starstim" (<u>http://www.appliedneuroscience.com/Order.htm</u>)
- 6- Go to Collection → Hardware Selection, and select "Neuroelectrics, Enobio, Starstim"



7- Go to Collection  $\rightarrow$  Setup and Monitor



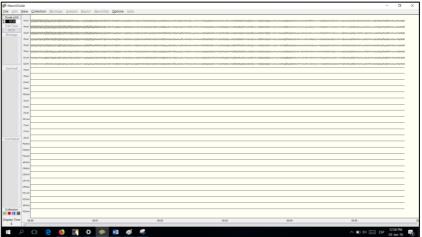
8- Select the device that you have (Enobio20/32 or Starstim 20/32) for Collection and Display montage

🍻 Neuro	Guide							-		$\times$
<u>F</u> ile <u>E</u> dit	<u>V</u> iew	Collection	<u>M</u> ontage	<u>A</u> nalysis	<u>R</u> eport	<u>N</u> euroStat	Options	<u>H</u> elp		
Scale (uV)		🎺 Neuroe	lectrics Coll	ection Par	ameters			×	-	
00:00 Montage	•	Collection Enobio StarStin		Disc Enot			Sampling Ra 500 Display Time 6			
Split Half	<u>v</u>	T5-A1 P4-A1 Cz-A1 P2-A1 P3-A1 T6-A1	on Order	T5-A P4-A Cz-A P3-A T6-A	1 1 1 1		ow Pass Fil 60 Hz <u>Q</u> K	ter		
Test Retes	v it < v	01-A1 02-A1 T4-A1		01-A 02-A T4-A	1		<u>C</u> ancel			
Display Tim	ne									
0 6										

9- Introduce data of subject and click OK

ǿ Subject Datab	ase		×
New Subject Existing Subject	<u> </u>	 rebbeca xe JAVI 00001	
First Name Middle Initial Last Name Subject ID Date of Birth Gender Handedness Clinician Technician Medication Subject			Browse
	<u>O</u> K	<u>C</u> ancel	

10- EEG data will start streaming automatically



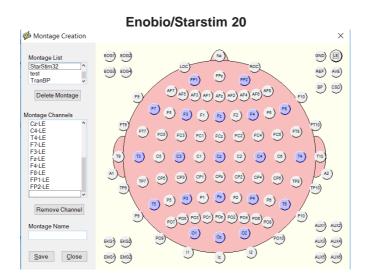
11- When the recording finishes, if you want you can re-reference it to linked ears by going to the control on the left side of the edit panel called "Montage". Then double click on the "LinkEars" list ítem, as shown below.

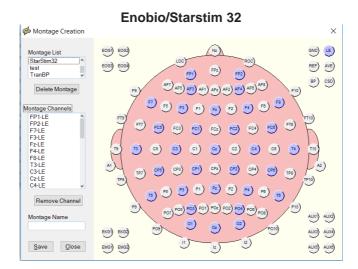
Note that the following electrodes are labeled differently in NIC and Neuroguide:

-NIC 2.0 T7 → Neuroguide T3 -NIC2.0 T8 → Neuroguie T4

-NIC2.0 P7→Neuroguide T5

-NIC2.0 T6 → Neuoguide P8





If you experience any technical issues with Neuroguide, please contact Neuroguide's customer service: <u>http://www.appliedneuroscience.com/Customer\_Service.htm</u>

If you experience any technical issues with Enobio/Starstim or NIC, please contact Neuroelectrics' customer service by filling in this form: <u>http://www.neuroelectrics.com/support</u>