advanced electrophysiology solutions

Configuration Assistant

User's Manual

A web application to aid in generating configuration files for Neuralynx Acquisition Devices.

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1 Document Overview

This document covers the registration, login, and general use of the Configuration Assistant software.

2 Configuration Assistant Specifications

Configuration Assistant is a web application that is used to assist in generating configuration files for Neuralynx machines. The software offers an easy to use interface that allows for quick and easy creation of configuration files. The application will work best on the newest version of the Chrome browser

Use the latest Chrome or Edge browser for the best results!

3 Quick Start

Instructions on how to set up and test your **Configuration Assistant**.

3.1 Configuration Assistant User Setup

The Configuration Assistant is a web-based application and requires an account to use. Configuration Assistant uses Zendesk to authenticate users, meaning you can use a Google account or a Neuralynx support account to login. However, in order to use the application, you must be an authorized user. Neuralynx support, support@neuralynx.com, can be contacted to be given access to the application.

3.1.1 Logging into Configuration Assistant

To log into Configuration Assistant, navigate to apps.neuralynx.com. Click "Login" and you will be redirected to the Neuralynx Zendesk login page. Login here using your Zendesk credentials or Google account. The authentication process may take a few seconds, but once it's finished you will be redirected the Configuration Assistant generator page. If you're not an authorized user, you will be redirected back to the home page.

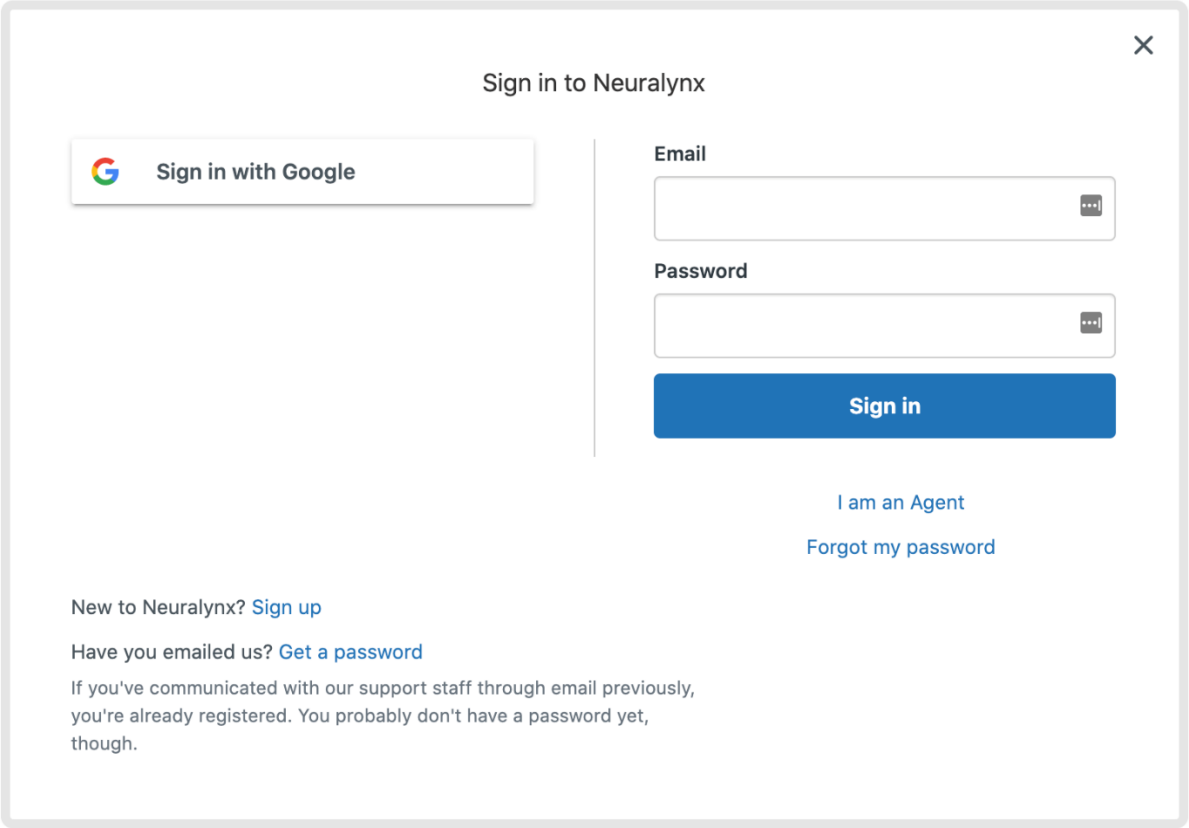


Figure 1. Zendesk Login page

3.2 Generator Quick Start

The main functionality of the Configuration Assistant software is to generate configuration files. The process is broken down into four steps: System Settings, Acquisition Entities, Display, and Review.

3.2.1 System Settings Tab

The system settings tab is where you can set up the initial settings for your configuration file. These settings include the Acquisition System, Video Camera Tracker, Input Board Type, Channel Count, Global Reference, Active Ground Input, Low and High Cut Filter, and the Base Sampling Rate. Certain fields, such as the Base Sampling Rate, have restrictions based on the Acquisition System, so make sure to familiarize yourself with your harware. Similarly, values in fields such as the Active Ground Input are dependent on channel count, so make sure to **always set the Acquisition System and Channel Count Fields first.**

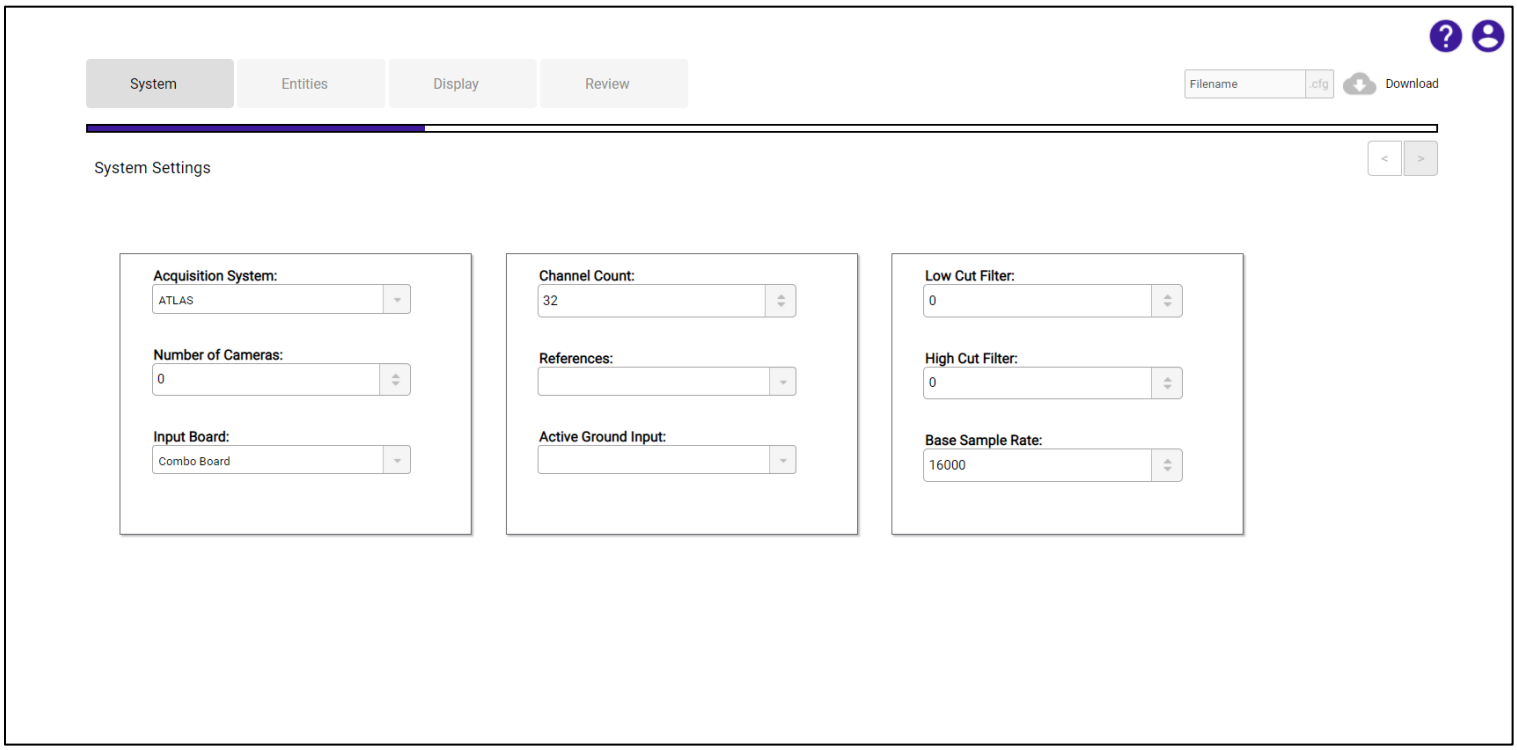


Figure 2. Full System Settings Page

3.2.1.1 Configuring a Camera

In order to configure Video Tracking, you must first select the number of cameras you wish to set up. Again, the available options for both the max number of cameras and camera types are dependent on the acquisition system (1 for clinical systems, 2 for non-clinical setups).

For clinical setup (i.e. ATLAS), you will only be able to configure live video, as this is the only camera supported for clinical solutions. For this option, make sure to correctly fill out the correct IP Address, as well as the username and passwords. For non-clinical configuration (i.e. Digital Lynx SX, LabLynx, and FreeLynx), you simply need to select the camera type – the fields needed for Live Video will be disabled.

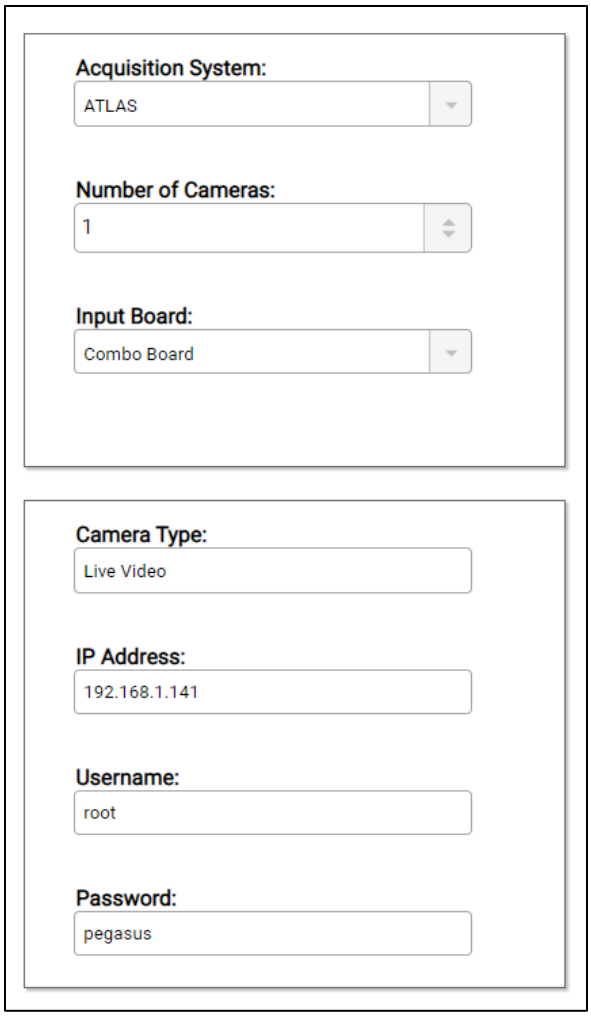


Figure 3. Clinical Camera Setup

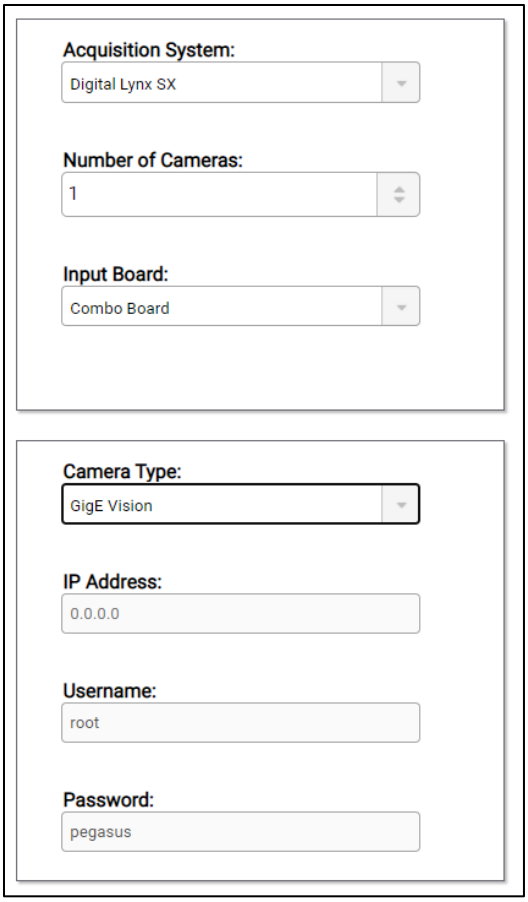


Figure 4. Research Camera Setup

3.2.2 Acquisition Entities Tab

The Acquisition Entities tab is where you can configure acquisition entities for each channel on your system. For any given channel, you can set a label that's seven (7) characters in length and a contact count that can be up to five (5) digits in length. For each channel, you may configure one CSC entity and one Spike entity. Once an entity is created for a given channel, you will be able to select the channel, or group of channels, in the acquisition entity table at the bottom of the page. To select an individual channel, you simply need to click its row in the table. To select multiple, you can use Ctrl-Click on Windows, ⌘-Click on Mac, and Shift-Click on either. For each channel, you may also duplicate either the CSC or Spike entity, but not both. **You must also create the entity you wish to duplicate and select the entity in the channel table before the Duplicate Entity form will be available.**

3.2.2.1 System Visual

When viewing the acquisition entities page, you will be provided with a visualization of your chosen machine. These visualizations will be shown to represent what channels are available

and will be interacted with to select which block of channels you will be configuring. For ATLAS and DigitalLynx SX you will be shown one input board for every 32 channels you have selected. For the wireless acquisition devices (i.e. LabLynx and FreeLynx), you will be shown the whole system, but only one set of 64 channels selected in the systems page. To configure acquisition entities for a given block of channels, you must first select the settings icon for the board that has the desired range of channels. For both types of machines, you can disable and/or enable boards (except for the first one) if you wish to decrease the number of available channels without moving back to the systems settings page. If you disable a board, you will not be able to configure acquisition entities for it. The features of both toggling boards and selecting them are displayed in the figures below. *Note that selected boards are given different stylings to indicate that they're active.

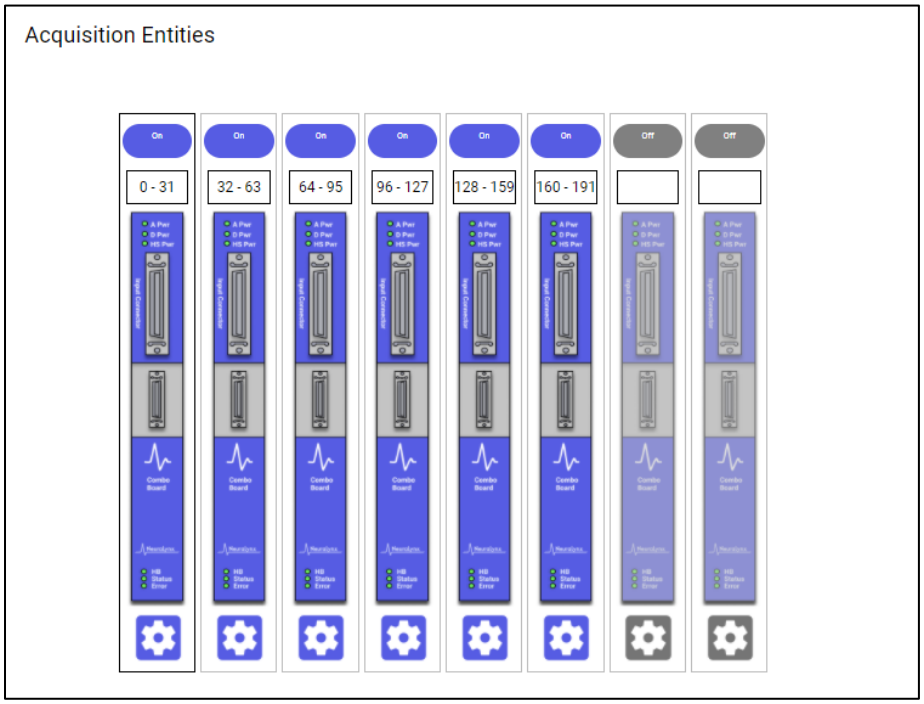


Figure 5. ATLAS Acquisition Entity Visualization

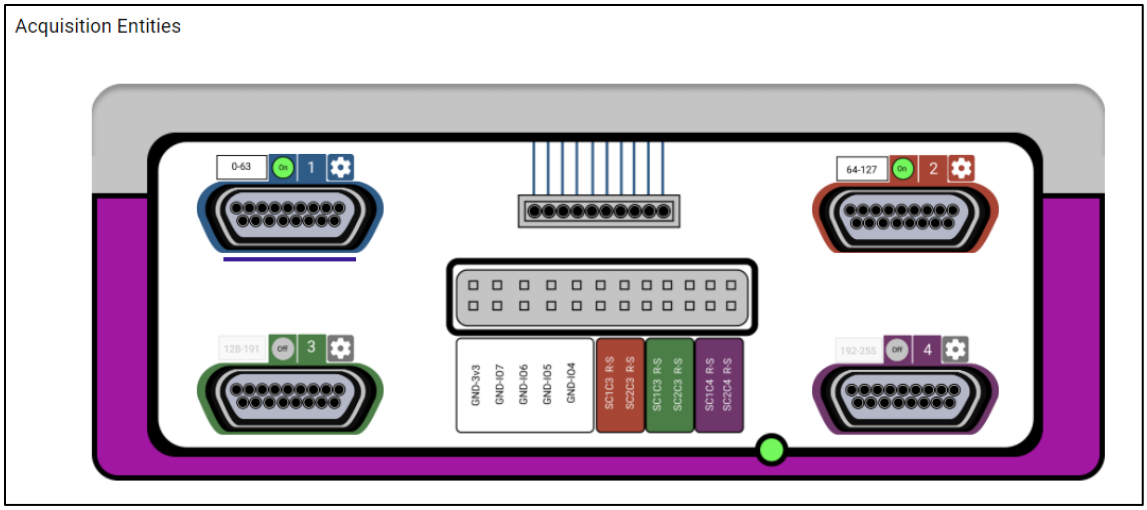


Figure 6. LabLynx Acquisition Entity Visualization

3.2.2.2 Creating Entities

To create any acquisition entities, you must first have a board selected from the acquisition system visual. Once a board is selected, you may create up to 32 entities for a selected ATLAS or DSX board or 64 for LabLynx and FreeLynx. CSC entities will be given a default label of "*CSC*" and the contact count will be given a default value of "1". Spike entities will be given the same default contact count and a default label of "*SE*". The label can be replaced with a custom label up to seven (7) characters in length and the contact count can be replaced with any value up to five (5) digits in length. Even though you can set a global high-cut and low-cut filter values in the system settings page, you may also set a new filter values for each group of entities created. **NOTE: If you enter any non-ASCII characters for a label, they will be replaced with ASCII equivalents. You will be notified when this occurs.**

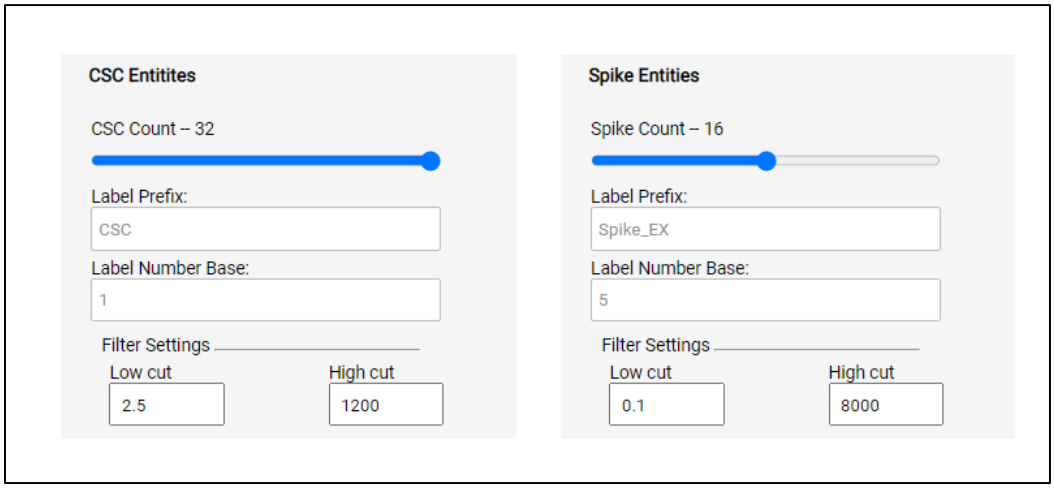


Figure 7. Acquisition Entity Creation

3.2.2.3 The Acquisition Entity Table

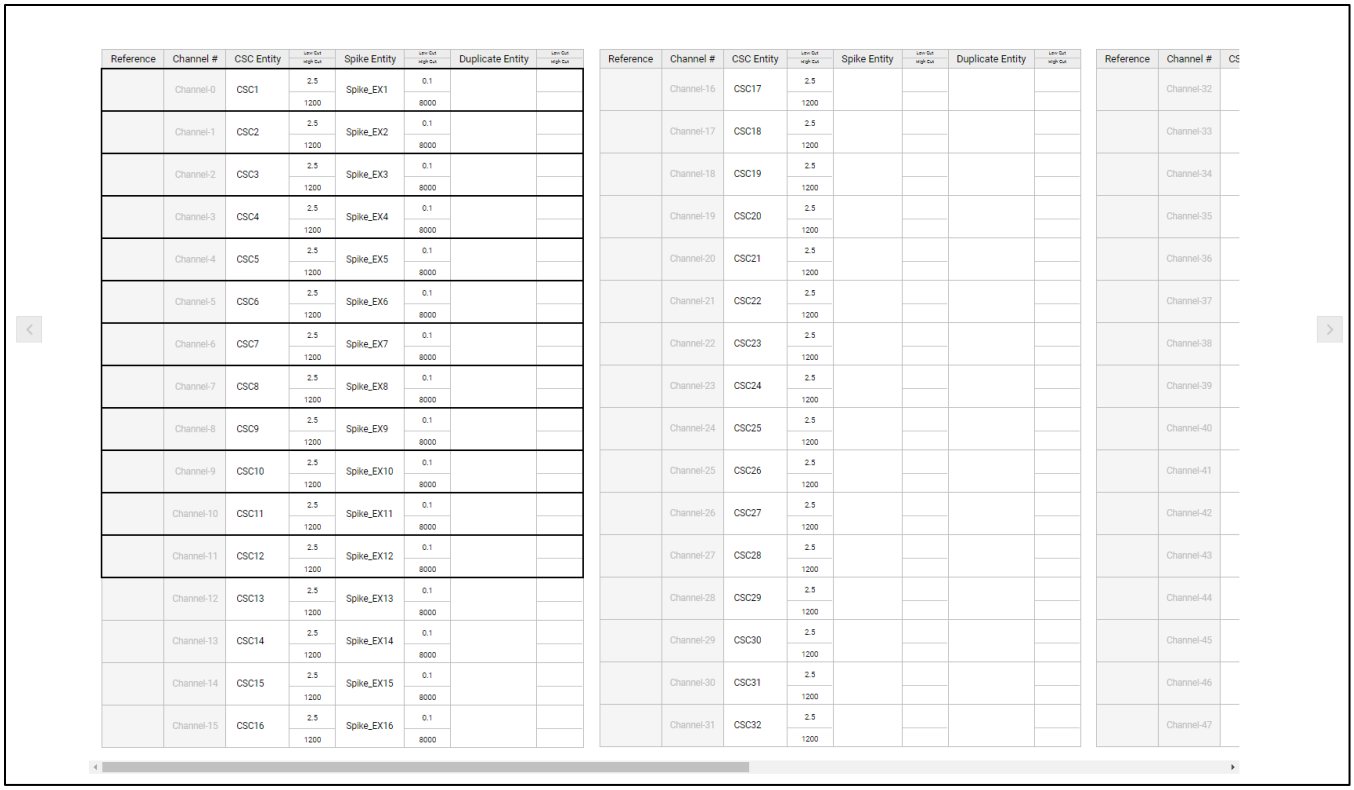
At the bottom of the acquisition entities page, you will find a table that displays all of the currently created acquisition entities for all of the available input boards. The table displays the reference, channel number, label, low cut, and high cut filter values for each entity. These values update in real time as you configure your acquisition entities. Additionally, the table allows you to select any channel or group of channels, as long as there's at least one created entity for the channel/group of channels. To select a group of channels, you must use Ctrl-Click for Windows, ⌘-Click for Mac, or Shift-Click for either. When a channel or group of channels is selected, they will become highlighted. **This indicates that any values set in the entities form will now be applied ONLY to the selected entities (including labels, contact counts, local reference, or cut filters).**

Reference	Channel #	CSC Entity	Low Cut / High Cut	Spike Entity	Low Cut / High Cut	Duplicate Entity	Low Cut / High Cut
	Channel-0	CSC1	2.5 / 1200	Spike_EX1	0.1 / 8000		
	Channel-1	CSC2	2.5 / 1200	Spike_EX2	0.1 / 8000		
	Channel-2	CSC3	2.5 / 1200	Spike_EX3	0.1 / 8000		
	Channel-3	CSC4	2.5 / 1200	Spike_EX4	0.1 / 8000		
	Channel-4	CSC5	2.5 / 1200	Spike_EX5	0.1 / 8000		
	Channel-5	CSC6	2.5 / 1200	Spike_EX6	0.1 / 8000		
	Channel-6	CSC7	2.5 / 1200	Spike_EX7	0.1 / 8000		
	Channel-7	CSC8	2.5 / 1200	Spike_EX8	0.1 / 8000		
	Channel-8	CSC9	2.5 / 1200	Spike_EX9	0.1 / 8000		
	Channel-9	CSC10	2.5 / 1200	Spike_EX10	0.1 / 8000		
	Channel-10	CSC11	2.5 / 1200	Spike_EX11	0.1 / 8000		
	Channel-11	CSC12	2.5 / 1200	Spike_EX12	0.1 / 8000		
	Channel-12	CSC13	2.5 / 1200	Spike_EX13	0.1 / 8000		
	Channel-13	CSC14	2.5 / 1200	Spike_EX14	0.1 / 8000		
	Channel-14	CSC15	2.5 / 1200	Spike_EX15	0.1 / 8000		
	Channel-15	CSC16	2.5 / 1200	Spike_EX16	0.1 / 8000		

Reference	Channel #	CSC Entity	Low Cut / High Cut	Spike Entity	Low Cut / High Cut	Duplicate Entity	Low Cut / High Cut
	Channel-16	CSC17	2.5 / 1200				
	Channel-17	CSC18	2.5 / 1200				
	Channel-18	CSC19	2.5 / 1200				
	Channel-19	CSC20	2.5 / 1200				
	Channel-20	CSC21	2.5 / 1200				
	Channel-21	CSC22	2.5 / 1200				
	Channel-22	CSC23	2.5 / 1200				
	Channel-23	CSC24	2.5 / 1200				
	Channel-24	CSC25	2.5 / 1200				
	Channel-25	CSC26	2.5 / 1200				
	Channel-26	CSC27	2.5 / 1200				
	Channel-27	CSC28	2.5 / 1200				
	Channel-28	CSC29	2.5 / 1200				
	Channel-29	CSC30	2.5 / 1200				
	Channel-30	CSC31	2.5 / 1200				
	Channel-31	CSC32	2.5 / 1200				

Reference	Channel #	CS
	Channel-32	
	Channel-33	
	Channel-34	
	Channel-35	
	Channel-36	
	Channel-37	
	Channel-38	
	Channel-39	
	Channel-40	
	Channel-41	
	Channel-42	
	Channel-43	
	Channel-44	
	Channel-45	
	Channel-46	
	Channel-47	

Figure 8. Acquisition Entity Table with No Selected Channels



Reference	Channel #	CSC Entity	Low Cut / high Cut	Spike Entity	Low Cut / high Cut	Duplicate Entity	Low Cut / high Cut
	Channel-0	CSC1	2.5 / 1200	Spike_EX1	0.1 / 8000		
	Channel-1	CSC2	2.5 / 1200	Spike_EX2	0.1 / 8000		
	Channel-2	CSC3	2.5 / 1200	Spike_EX3	0.1 / 8000		
	Channel-3	CSC4	2.5 / 1200	Spike_EX4	0.1 / 8000		
	Channel-4	CSC5	2.5 / 1200	Spike_EX5	0.1 / 8000		
	Channel-5	CSC6	2.5 / 1200	Spike_EX6	0.1 / 8000		
	Channel-6	CSC7	2.5 / 1200	Spike_EX7	0.1 / 8000		
	Channel-7	CSC8	2.5 / 1200	Spike_EX8	0.1 / 8000		
	Channel-8	CSC9	2.5 / 1200	Spike_EX9	0.1 / 8000		
	Channel-9	CSC10	2.5 / 1200	Spike_EX10	0.1 / 8000		
	Channel-10	CSC11	2.5 / 1200	Spike_EX11	0.1 / 8000		
	Channel-11	CSC12	2.5 / 1200	Spike_EX12	0.1 / 8000		
	Channel-12	CSC13	2.5 / 1200	Spike_EX13	0.1 / 8000		
	Channel-13	CSC14	2.5 / 1200	Spike_EX14	0.1 / 8000		
	Channel-14	CSC15	2.5 / 1200	Spike_EX15	0.1 / 8000		
	Channel-15	CSC16	2.5 / 1200	Spike_EX16	0.1 / 8000		

Reference	Channel #	CSC Entity	Low Cut / high Cut	Spike Entity	Low Cut / high Cut	Duplicate Entity	Low Cut / high Cut
	Channel-16	CSC17	2.5 / 1200				
	Channel-17	CSC18	2.5 / 1200				
	Channel-18	CSC19	2.5 / 1200				
	Channel-19	CSC20	2.5 / 1200				
	Channel-20	CSC21	2.5 / 1200				
	Channel-21	CSC22	2.5 / 1200				
	Channel-22	CSC23	2.5 / 1200				
	Channel-23	CSC24	2.5 / 1200				
	Channel-24	CSC25	2.5 / 1200				
	Channel-25	CSC26	2.5 / 1200				
	Channel-26	CSC27	2.5 / 1200				
	Channel-27	CSC28	2.5 / 1200				
	Channel-28	CSC29	2.5 / 1200				
	Channel-29	CSC30	2.5 / 1200				
	Channel-30	CSC31	2.5 / 1200				
	Channel-31	CSC32	2.5 / 1200				

Reference	Channel #	CS
	Channel-32	
	Channel-33	
	Channel-34	
	Channel-35	
	Channel-36	
	Channel-37	
	Channel-38	
	Channel-39	
	Channel-40	
	Channel-41	
	Channel-42	
	Channel-43	
	Channel-44	
	Channel-45	
	Channel-46	
	Channel-47	

Figure 9. Acquisition Entity Table with Several Selected Channels

3.2.2.4 Creating Duplicate Entities

When any number of channels are selected in the acquisition entity table, you have the option to duplicate any associated entity with those channel(s). If you have multiple channels selected, each channel must have an associated entity of the type you wish to duplicate. Example: If you have twelve selected channels and you wish to duplicate their spike entities, but only eleven of them have associated spike entities, you will not be able to create duplicate spike entities. When duplicating entities, they will receive the same label, but prefixed with *"dc_",* as well as the same contact count. These values, as well as the filter settings, may be changed, but the channel number will remain the same.

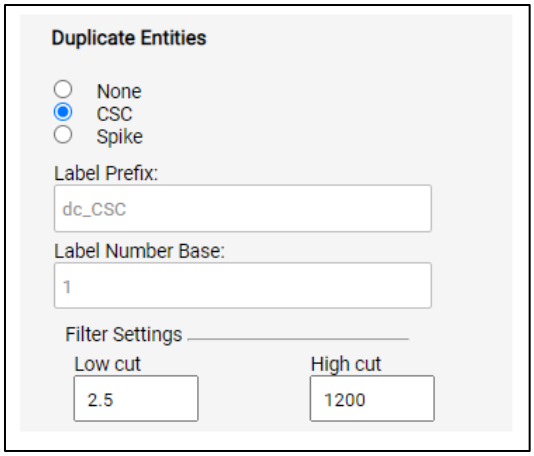


Figure 10. Duplicate Entity Creation

3.2.3 Display Tab

The display page is where you can create a number of "Time Window" and "Spike Window" plots. You can create up to ten (10) windows for each type of entity you have, including duplicate entities. For Time Windows, you may set the name, position, size, and background color for each window, as well as a trace color for each associated entity. For Spike Windows, you may set the same properties, with the exception of background and trace colors. To add windows, simply use the plus (+) symbol and to remove them use the minus (-) symbol. To move between the windows you want to configure, simply select their name from the list of windows. To associate an entity with a given window, select the range it is in from the drop-down menu and select it in the loaded table.

Figure 11. Example Time Window Configuration

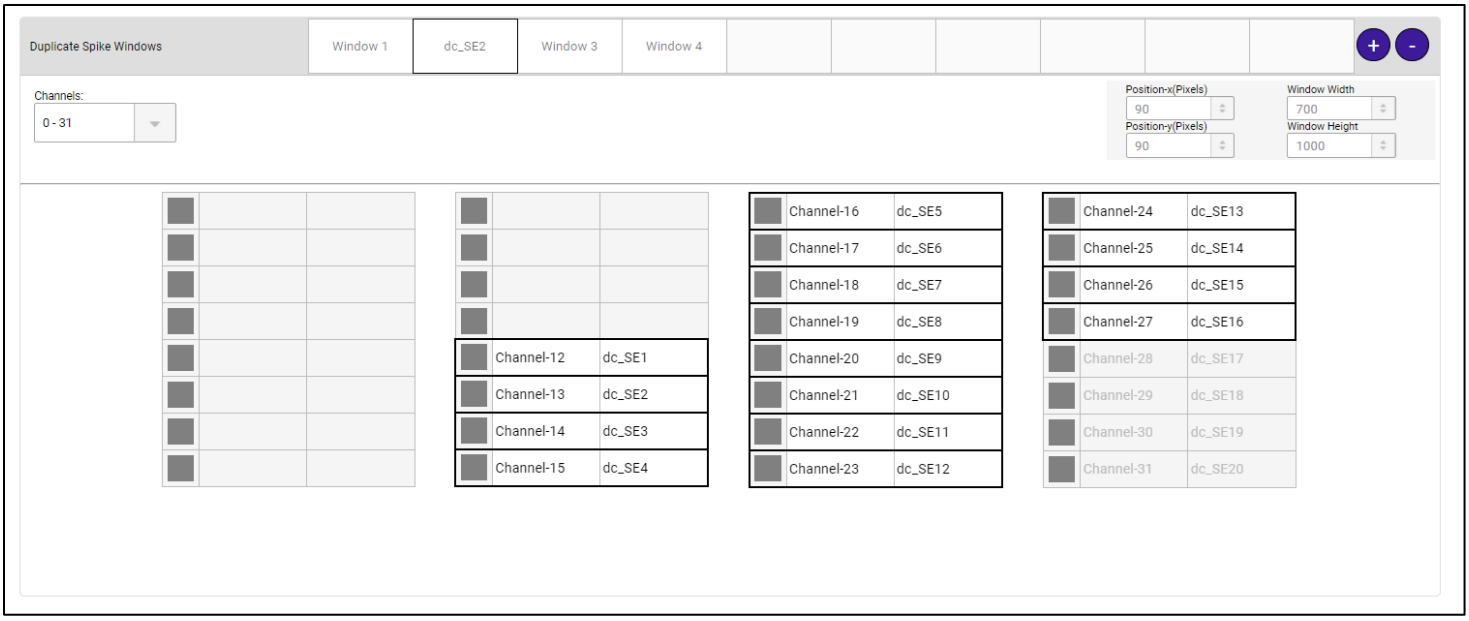


Figure 12. Example Duplicate Spike Window Configuration

3.2.4 Review Tab

Before you will be able to download your configuration file, you will need to make sure that all of your settings are configured as expected. The review page is broken into two sections: the system settings review and acquisition entity review. When reviewing the acquisition entities, you have the option to either review the entities in blocks of 32 channels or by label. Both the system settings review tab and acquisition entities review tab can be collapsed by clicking on the gray header. You must check both the system settings and acquisition entities review tabs before you are able to set a filename and download the configuration (see Figure 20 for a completely checked review page). If you move back to any of the previous pages, you will have to review and check your configuration again before downloading.

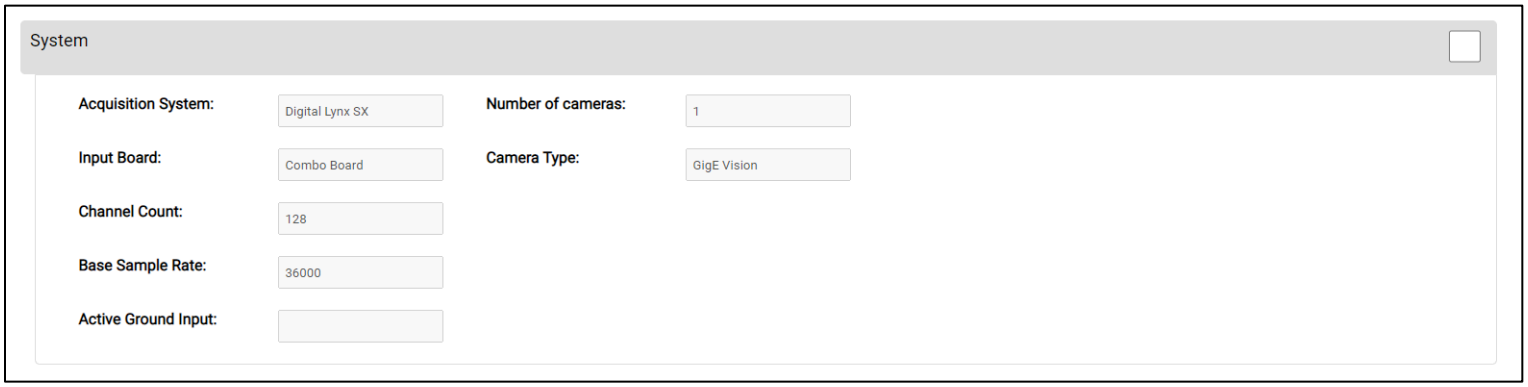
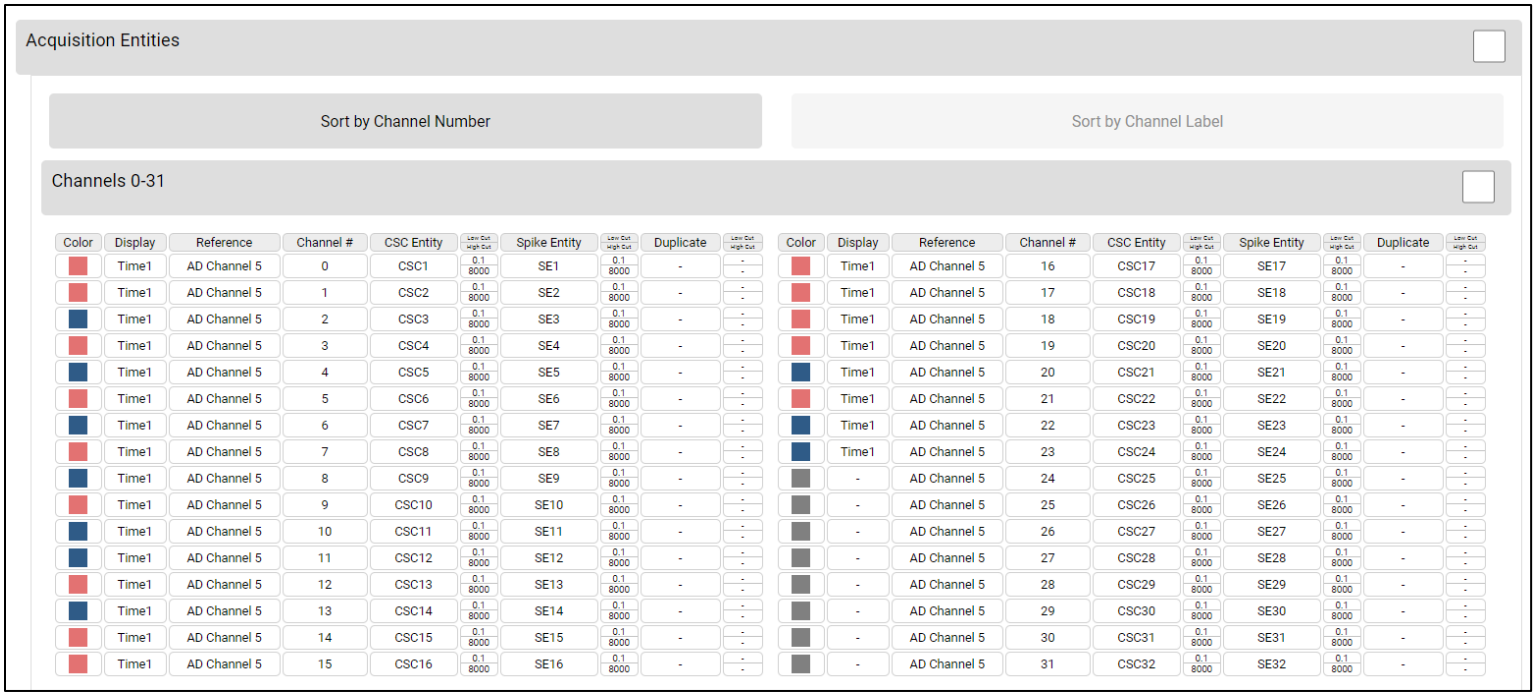


Figure 13. Unchecked System Settings Review Tab



Color	Display	Reference	Channel #	CSC Entity	Low Cut / High Cut	Spike Entity	Low Cut / High Cut	Duplicate	Low Cut / High Cut
	Time1	AD Channel 5	0	CSC1	0.1 / 8000	SE1	0.1 / 8000	-	- / -
	Time1	AD Channel 5	1	CSC2	0.1 / 8000	SE2	0.1 / 8000	-	- / -
	Time1	AD Channel 5	2	CSC3	0.1 / 8000	SE3	0.1 / 8000	-	- / -
	Time1	AD Channel 5	3	CSC4	0.1 / 8000	SE4	0.1 / 8000	-	- / -
	Time1	AD Channel 5	4	CSC5	0.1 / 8000	SE5	0.1 / 8000	-	- / -
	Time1	AD Channel 5	5	CSC6	0.1 / 8000	SE6	0.1 / 8000	-	- / -
	Time1	AD Channel 5	6	CSC7	0.1 / 8000	SE7	0.1 / 8000	-	- / -
	Time1	AD Channel 5	7	CSC8	0.1 / 8000	SE8	0.1 / 8000	-	- / -
	Time1	AD Channel 5	8	CSC9	0.1 / 8000	SE9	0.1 / 8000	-	- / -
	Time1	AD Channel 5	9	CSC10	0.1 / 8000	SE10	0.1 / 8000	-	- / -
	Time1	AD Channel 5	10	CSC11	0.1 / 8000	SE11	0.1 / 8000	-	- / -
	Time1	AD Channel 5	11	CSC12	0.1 / 8000	SE12	0.1 / 8000	-	- / -
	Time1	AD Channel 5	12	CSC13	0.1 / 8000	SE13	0.1 / 8000	-	- / -
	Time1	AD Channel 5	13	CSC14	0.1 / 8000	SE14	0.1 / 8000	-	- / -
	Time1	AD Channel 5	14	CSC15	0.1 / 8000	SE15	0.1 / 8000	-	- / -
	Time1	AD Channel 5	15	CSC16	0.1 / 8000	SE16	0.1 / 8000	-	- / -

Color	Display	Reference	Channel #	CSC Entity	Low Cut / High Cut	Spike Entity	Low Cut / High Cut	Duplicate	Low Cut / High Cut
	Time1	AD Channel 5	16	CSC17	0.1 / 8000	SE17	0.1 / 8000	-	- / -
	Time1	AD Channel 5	17	CSC18	0.1 / 8000	SE18	0.1 / 8000	-	- / -
	Time1	AD Channel 5	18	CSC19	0.1 / 8000	SE19	0.1 / 8000	-	- / -
	Time1	AD Channel 5	19	CSC20	0.1 / 8000	SE20	0.1 / 8000	-	- / -
	Time1	AD Channel 5	20	CSC21	0.1 / 8000	SE21	0.1 / 8000	-	- / -
	Time1	AD Channel 5	21	CSC22	0.1 / 8000	SE22	0.1 / 8000	-	- / -
	Time1	AD Channel 5	22	CSC23	0.1 / 8000	SE23	0.1 / 8000	-	- / -
	Time1	AD Channel 5	23	CSC24	0.1 / 8000	SE24	0.1 / 8000	-	- / -
	-	AD Channel 5	24	CSC25	0.1 / 8000	SE25	0.1 / 8000	-	- / -
	-	AD Channel 5	25	CSC26	0.1 / 8000	SE26	0.1 / 8000	-	- / -
	-	AD Channel 5	26	CSC27	0.1 / 8000	SE27	0.1 / 8000	-	- / -
	-	AD Channel 5	27	CSC28	0.1 / 8000	SE28	0.1 / 8000	-	- / -
	-	AD Channel 5	28	CSC29	0.1 / 8000	SE29	0.1 / 8000	-	- / -
	-	AD Channel 5	29	CSC30	0.1 / 8000	SE30	0.1 / 8000	-	- / -
	-	AD Channel 5	30	CSC31	0.1 / 8000	SE31	0.1 / 8000	-	- / -
	-	AD Channel 5	31	CSC32	0.1 / 8000	SE32	0.1 / 8000	-	- / -

Figure 14. Unchecked Acquisition Entity Review by Channel Number

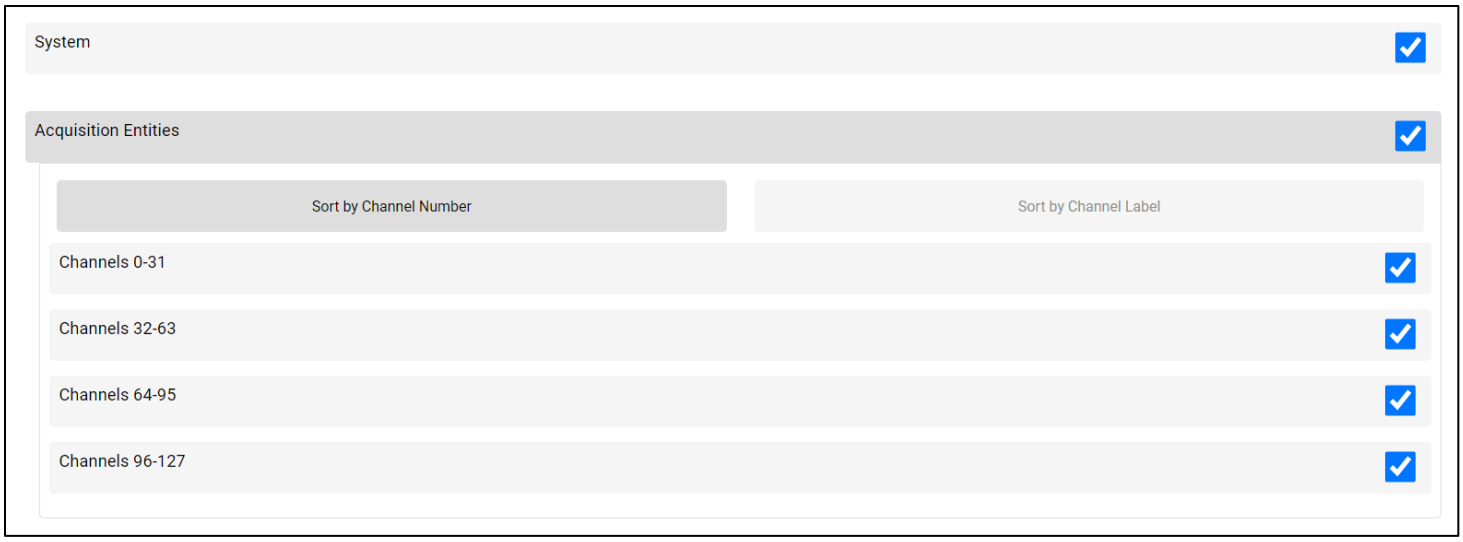


Figure 15. Completely Checked and Collapsed Review Form.

Figure 16. Disabled download and filename

Figure 17. Enable download and filename

3.2.5 Configuration File Loading

Configuration Assistant allows you to load previously created configuration files. By using the "Load Configuration" page, you can upload a valid configuration file and have it loaded into the generator. This allows you to make edits to a configuration file, without starting from scratch. **The process works best with configuration files that have been created by Configuration Assistant.** If a field in your uploaded configuration file is not recognized by the Configuration Assistant software, it will not be included in the new file.

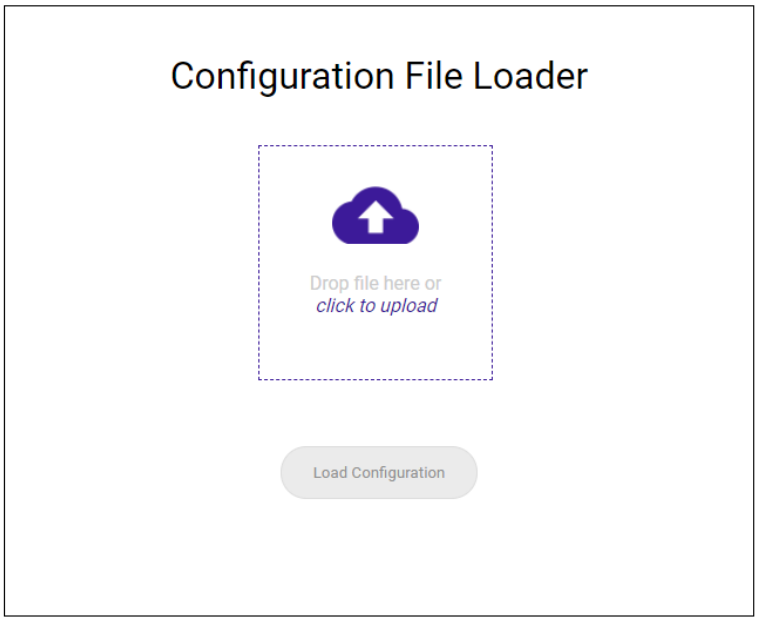


Figure 18. Empty Loading Page

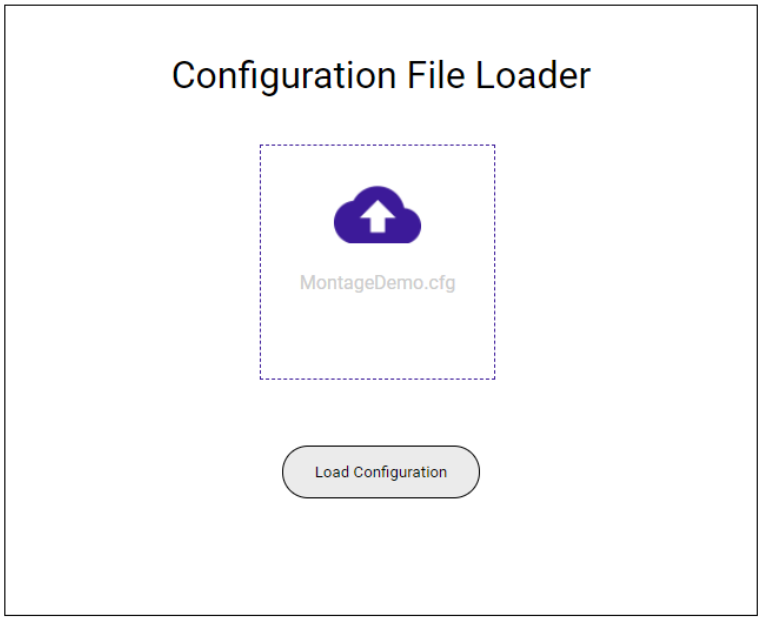


Figure 19. Loading Page with File

4 Glossary

***Acquisition Entity* –** An acquisition entity (AE) is an object that is responsible for manipulating, saving and distributing data throughout the Neuralynx Cheetah and Pegasus software.
***CMD* –** Acronym for the Apple "Command" key (⌘)
***CSC* –** Neuralynx acronym for Continuously Sampled Channel.
***DSX* –** Neuralynx acronym for Digital Lynx SX.

5 Neuralynx Contact

To get registration credentials for the Configuration Assistant software, contact sales@neuralynx.com. For assistance in using the Configuration Assistant software or for any issues registering/logging in, contact support@neuralynx.com.