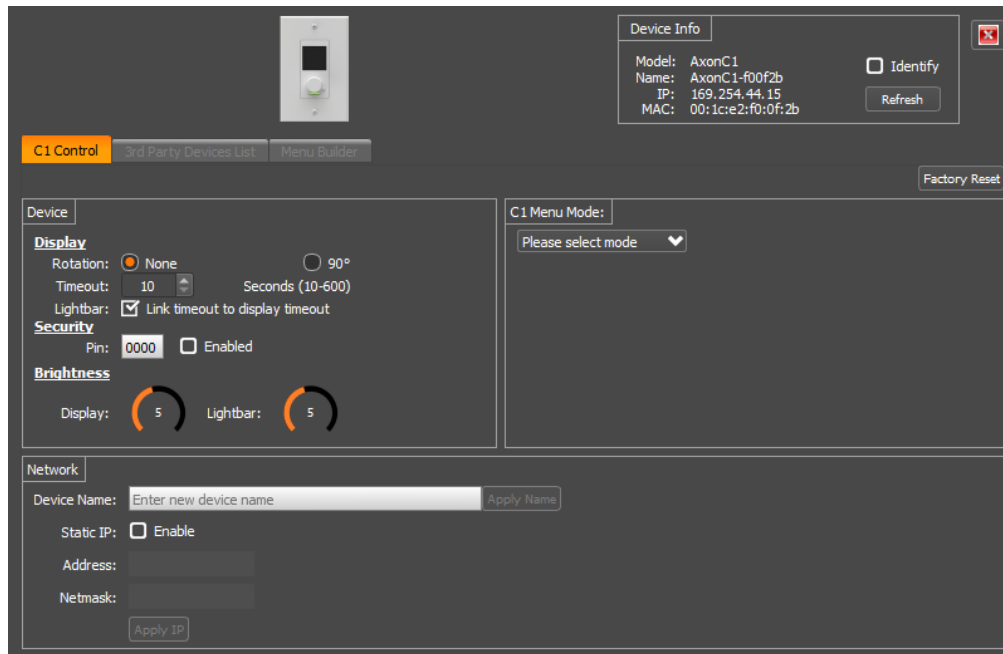# QSC®

ATTEROTECH®
by QSC®

unIFY Control Panel
Axon C1 Configuration

QSC, LLC • 1675 MacArthur Boulevard • Costa Mesa, CA 92626
Ph: 800/854-4079 or 714/957-7100 • Fax: 714/754-6174

www.qsc.com

The configuration form for the Axon C1 is organized into three key sections:

- C1 Control - Basic configuration options for the C1 such as menu mode brightness and IP address
- 3rd Party Devices List - Configuration for control of 3rd Party devices using UDP or TCP messaging
- Menu Builder - Configuration for the structure of menu events

C1 Control

Device
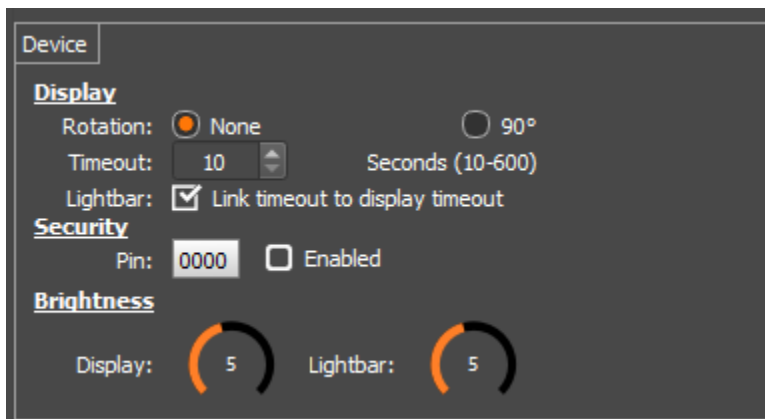
Display

Rotation
None - Used for standard vertical mounting.
90° - Rotates the display 90° to the right for horizontal mounting.

Timeout
Set the timeout for the screen to turn off. Values can be set from 10 seconds to 10 minutes. A lower value will help prevent potential damage to the screen from burn-in.

<u>Lightbar</u>

Checking the setting links the lightbar to the display timeout. Clearing the check mark allows meter response to continue independent of the display timeout.
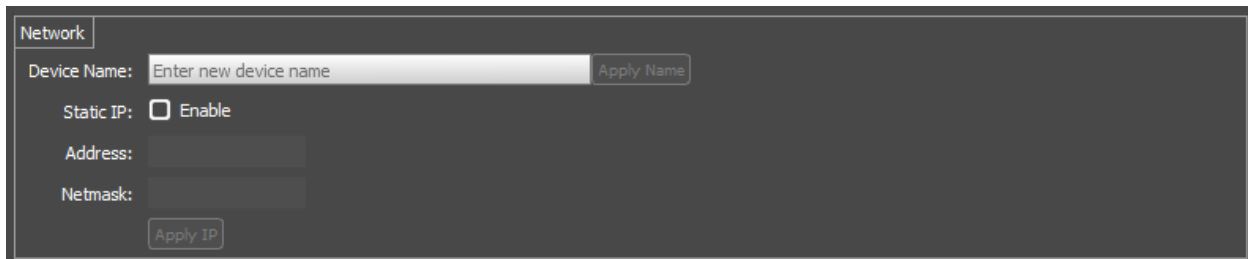
Security

Enable/Disable security on C1. When enabled the user is required to enter a 4-digit pin to access device functions. The user pin is also configurable. This can only be changed while the security option is disabled.

Brightness

Brightness levels can be set for the Display and Light bar. Use the slider to adjust the level from 1 (dim) to 10 (bright).
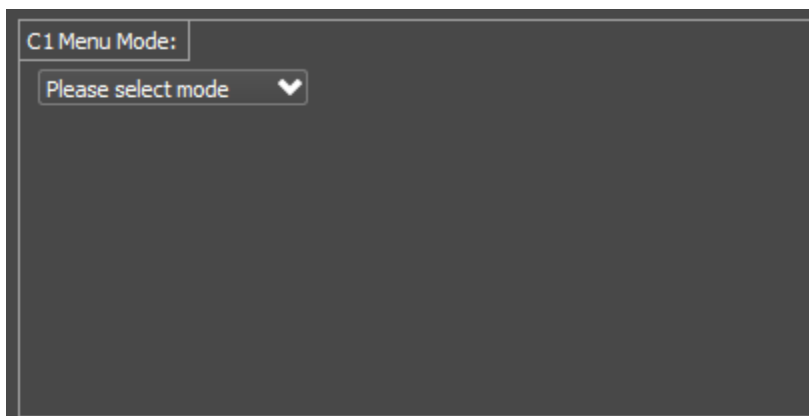
Network

The network section allows customization of the devices name. By default this is AxonC1-xxxxxx where xxxxxx is the last 6 digits of the devices MAC address. The custom name can be a maximum of 16 characters long and must be unique among the C1's on a system.

The C1's IP address is configurable. If the **Static IP** check box is clear, the device will use a "dynamic" IP address. This is the default. Users can assign a static IP by checking the **Static IP** check box and then filling in the **Address** and **Netmask** fields.

Menu Mode

Before any configuration can be done, the C1 Menu Mode must be selected. The options are either "Q-SYS" mode or "3rd Party" mode. Use "Q-SYS" mode when the C1 is to used with a Q-Sys Core DSP and will be married to a C1 plug-in using Q-Sys Designer. For everything else, select "3rd party".

Menu Structure

The menu structure for both "Q-SYS" mode and "3rd Party" mode are very similar. The only differences are what options can be selected as menu items. The main structure of the menus though is the same for both,

Each menu can can contain up to 8 items and can be up to four layers deep. Each item can be up to a maximum of 16 characters in length. The level of menu being displayed is indicated by the square markers above the menu with the left most marker indicating the root level. The same indication is shown on the display of the C1 itself.

Items are added to the structure by using the "+" icon in the list. Items will show up in red until their function has been defined. Once a function is defined for the item, the item text will turn white and an icon will appear to the right of the items name. An items function can always be defined as a "Menu" and has an arrow-type icon. Doing so creates a sub-menu. To access the level below, click the arrow-type icon. Other functions that can be assigned will depend on the "Mode" that the C1 is configured to.

Common features of Menu Builder

- **Menu Level** - This is show as a series of orange squares above the menu and shows how far into the menu structure the current menu that's being shown is. The top or root level is always shown as the left most square
- **Back Button** - Moves the displayed menu up to the previous level
- **Menu Title -** The menu title is editable. Changing this will change the name of the displayed menu.
- **Edit button** - Allows the menu order to be changed or items to be deleted (Note: Deleting a menu will delete *ALL* sub-menus and actions with that menu and any other menus within it).
- **Clear Menu** - Clears the menu configuration only within unIFY. This has no effect on the device's stored menu structure
- **Apply** - Updates the device menu structure to match the one in unIFY. This overwrites any previous menu structure stored on the device.

Menu Builder - Q-SYS Mode
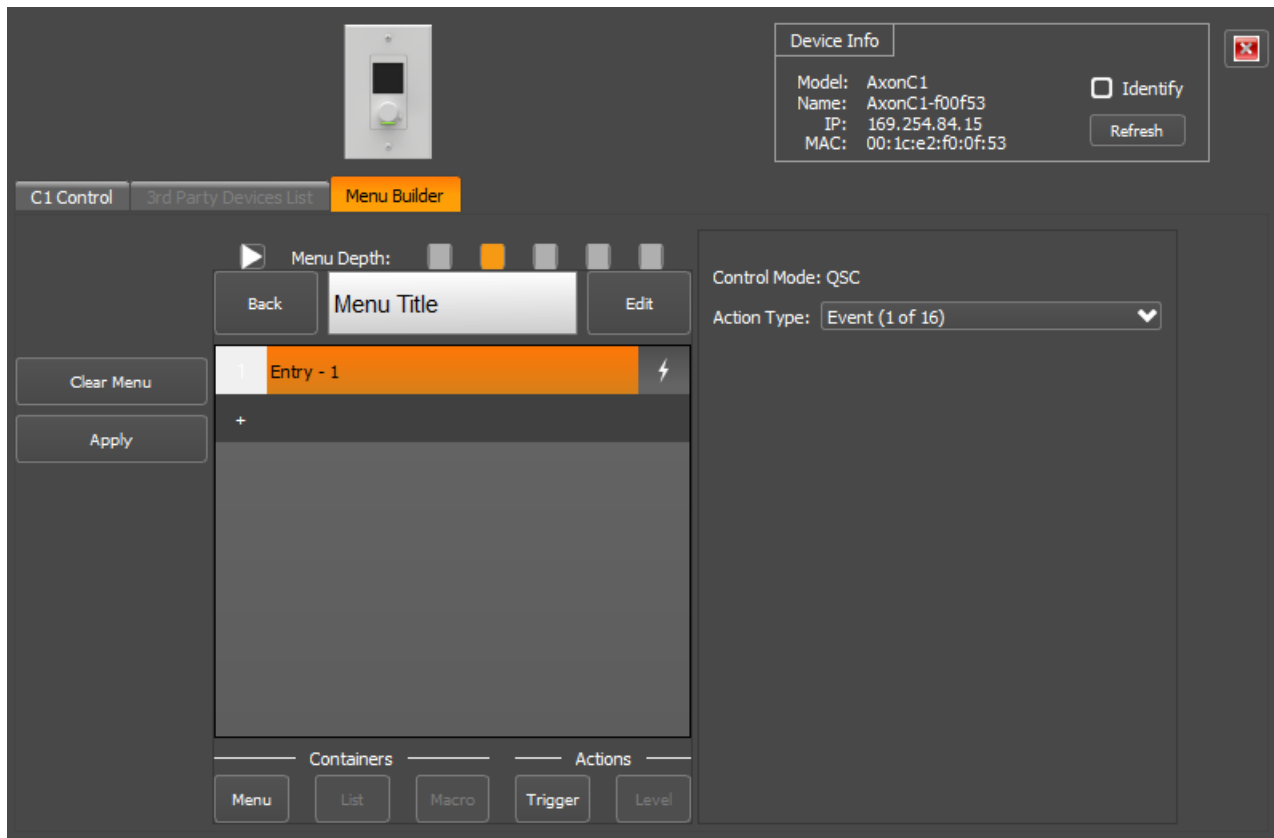
The menu builder allows the user to create a menu structure for events. The examples in this section refer to building a menu in Q-SYS mode.

The method the C1 uses for integrating with Q-SYS Core DSP's means much of the configuration is already taken care of. All that is required is to set up any menu structure. In Q-SYS mode, items in the menu can be assigned one of the following actions.

Available functions are:

Containers

- **Menu** - Creates a menu layer to store other items

Actions

- **Trigger -** Triggers a specific action in the Q-Sys plug-in. What is triggered is configured by the selecting the "Action" type

Action Type	Max Allowed	Associated Control in DSP Design	Description
Source Select	8	Router*	Selects audio source by controlling which input is selected on a router control in the DSP design. The router being controlled and the input each action controls is defined in the plug-in
Snapshot	8	Snapshot	Sets a pre-defined set of controls to pre-defined values by selecting a snapshot from a snapshot component in the DSP design. The snapshot component being controlled and the specific snapshot each menu action selects is defined in the plug-in.
Event	16	-	Alters the state of a control pin on the Q-SYS plug-in. The specific pin and what effect each event has on that the selected pin is defined in the plug-in

**These apply if the plug-in is in "normal" mode. If the plug-in is in "Room Combiner" mode the source select is done using the background music selections of the associated room combiner.

Once the menu structure is in place with all items defined, the menu can then be sent to the device and the remaining configuration completed in the Q-SYS plug-in.

3rd Party Control
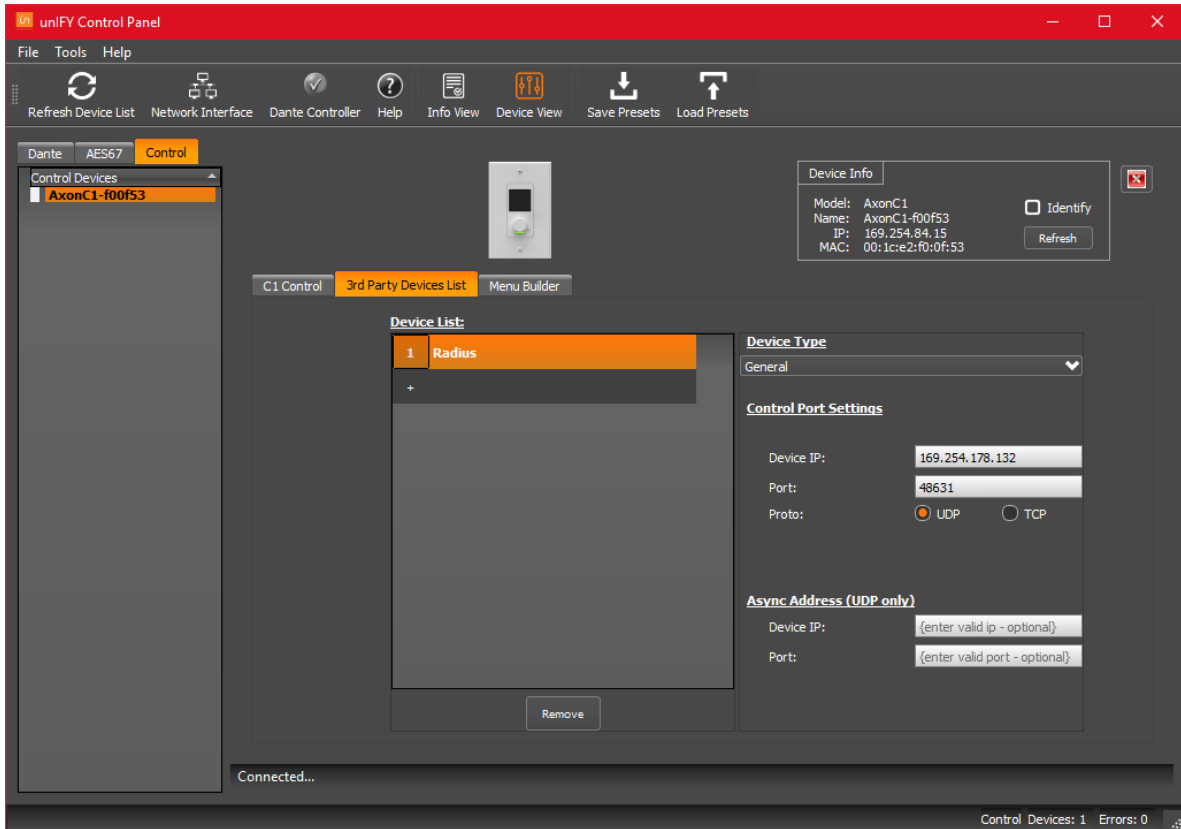
This allows a C1 to control a 3rd party device by sending UDP or TCP control messages to it. The exact makeup of those messages will be determined by the controlled device's API and the C1 will need to be programmed to send the correct command in the correct manner.

After selecting "3rd Party" mode for the menu structure, the 3rd Party Devices List becomes available.

3rd Party Control - Devices List
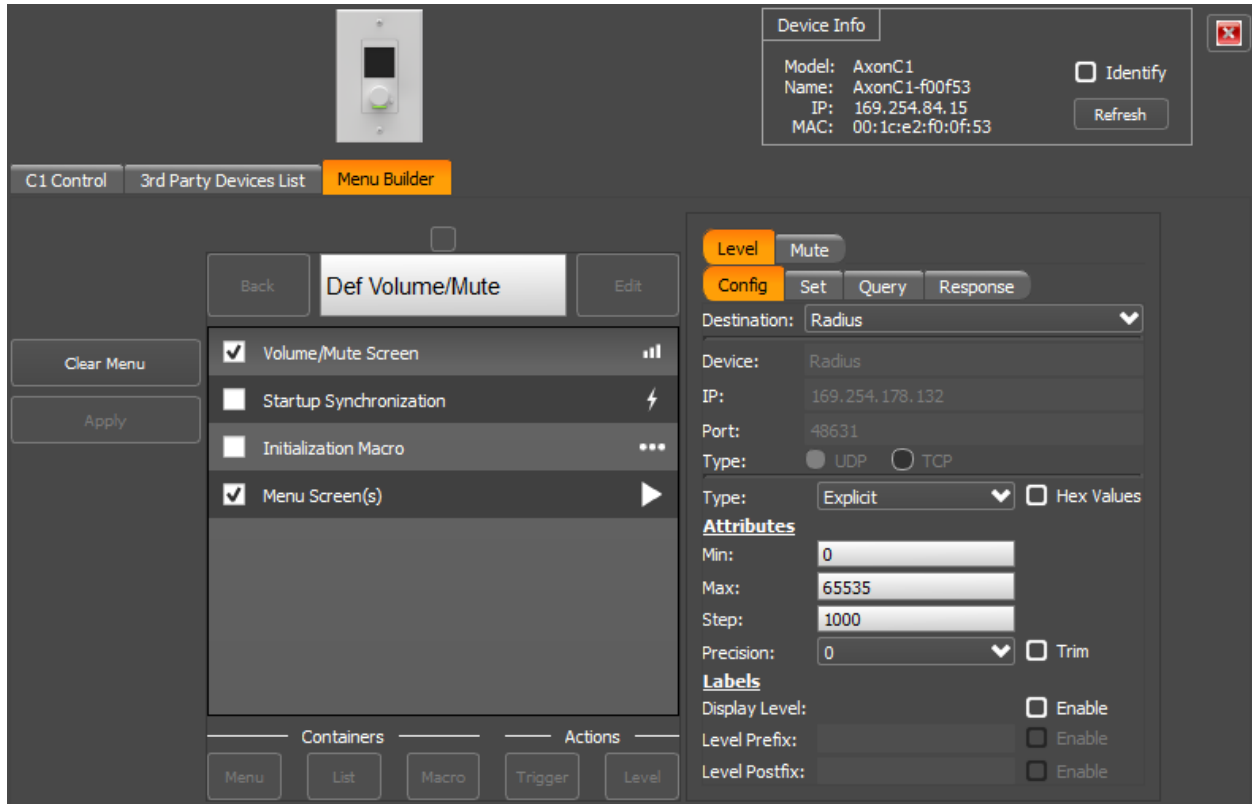
Each specific message the C1 sends is configured to be sent to a single specific destination. However the destination for different messages does not need to be the same. Essentially this allows the C1 to control different pieces of equipment if needed. The device list maintains a list of all the possible devices that a C1 needs to control. Each entry contains some basic information about how to communicate with that device.

Use the "**+**" icon to add a new device list. Devices can be added as required but there must always be at minimum of one device in the device list.

The fields each device have are as follows:

Device Type - Select "BSS" to allow the C1 to control a BSS device or "General" for anything else

Control Port Settings

- Device IP - set the IP address for the device to be controlled
- Port - Set the port used to control the device
- Proto - Sets the protocol used to communicate with the device to be controlled

Async Address (UDP only)

- Device IP - Set the IP used for async messaging
- Port - Set the port for async messaging

*Note: *Information for control port and async settings should be available in the API guide of the device to be controlled.*

3rd Party Control - Menu Builder

The menu builder allows the user to choose what functions the C1 will carry out:

- Volume/Mute - Show a volume as the root screen and allow control of a single volume and/or mute
- Start-up synchronization - Enable if C1 needs to check if the device is up and running before sending any commands
- Initialization Macro - Enable if the controlled device needs to be setup initially over the network in some way
- Menu Screen(s) - Enable if custom menu structure is needed.
- Items that are checked will be used. Items that remain unchecked will not.

*Note: *The information required to set up the C1 in 3rd party mode is determined by the API of the device being controlled. The API will indicate exactly what message format is needed to* carry out a specific function or control a specific action. While the C1 is flexible and can be programmed to control a wide range of devices there may be some instances where the options available do not cover what is required. If this is the case, please contact Attero Tech.*

Volume/Mute Configuration

Level and mute functions use the same basic operations and are split into four tabs: Config, Set, Query and Async.

Config
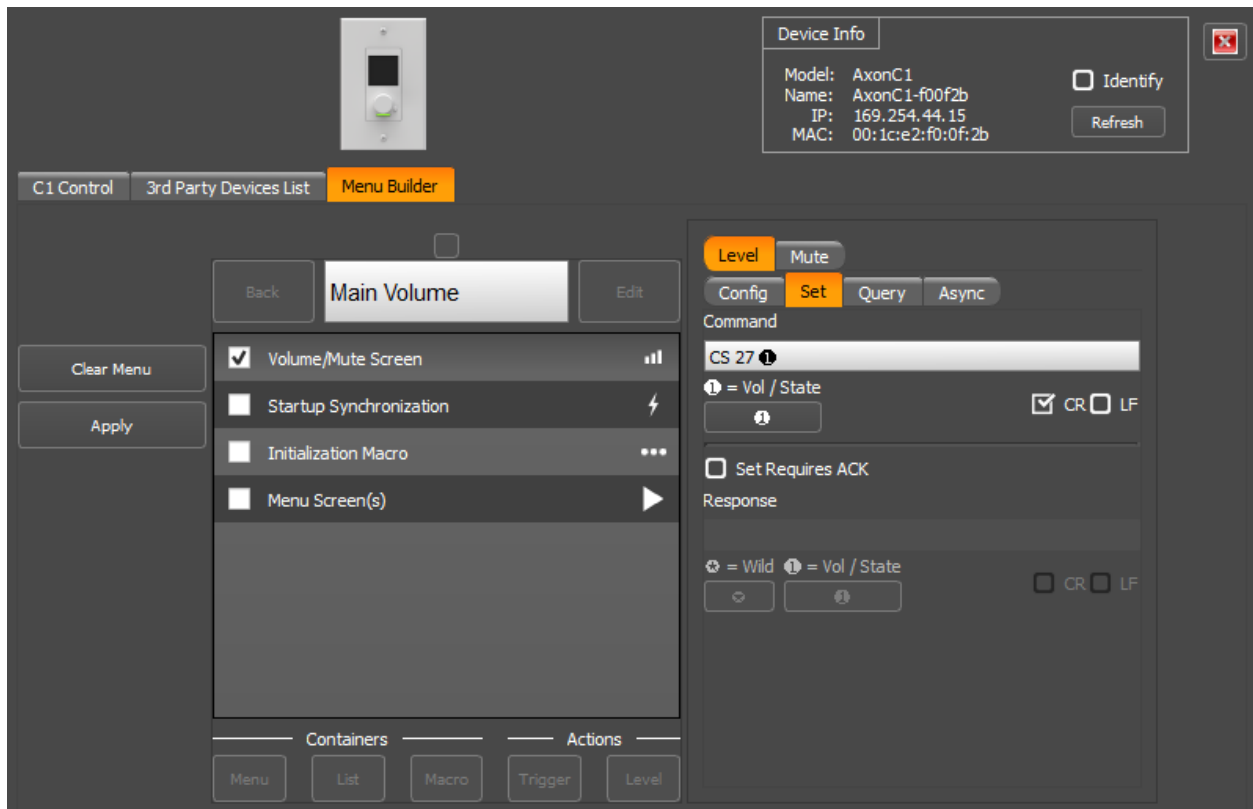
This section contains information on how the controlled device deals with volume or mute. The device information is the same for both.

- **Device -** Select the device (precious setup up on the device list screen) on which the volume is to be controlled
- **Type -** The type of volume control the C1 will deal with. Options are "Stateless" or "Explicit". Stateless indicates there is no specific volume value and the volume is simply raised or lowered. Explicit volumes have a known range and the current value will be an explicit number within this range.
- **Hex Values -** Sets whether the message is ASCII or binary in nature. Leave it unchecked for ASCII or check it to use binary

Note: When using binary mode, each data byte of the command data should be represented by a two digit hexadecimal number

The attributes for volume and mute functions are different.
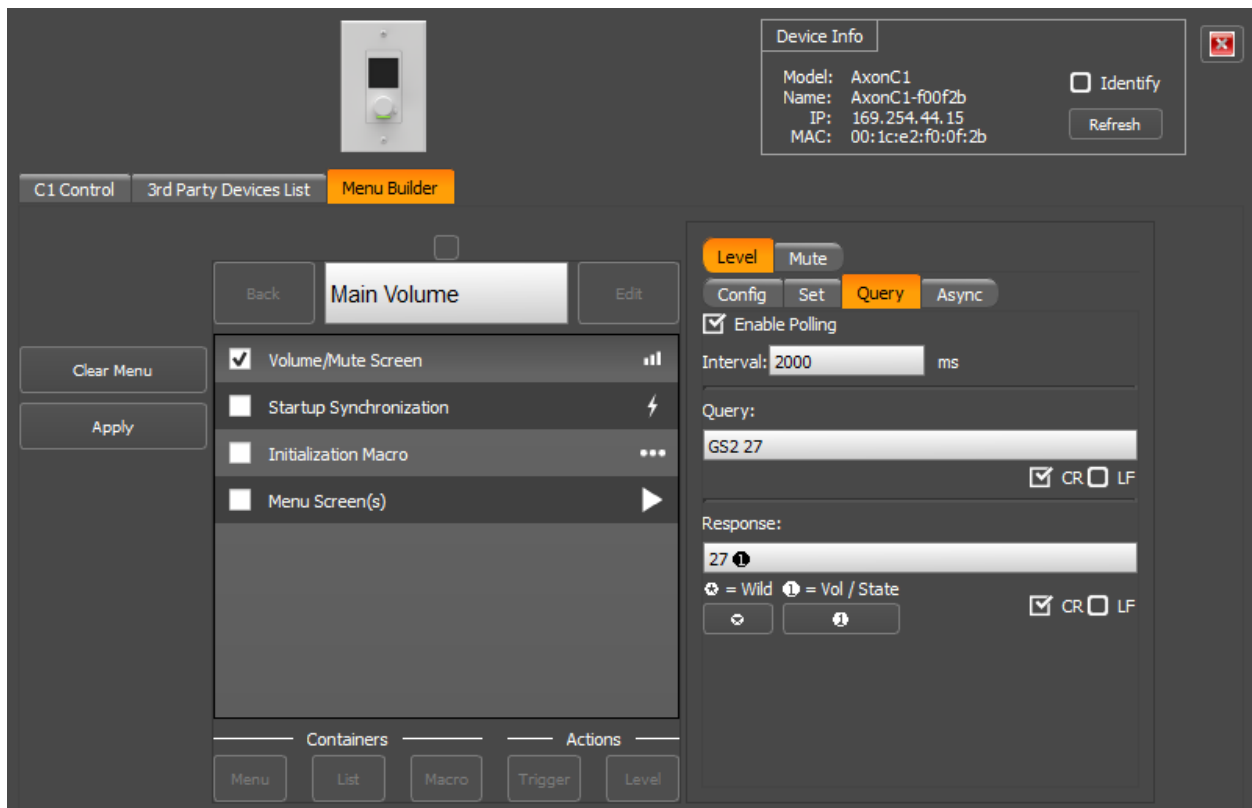
Volume Attributes

- **Decrement** (Stateless only) - The string used in the volume message to indicate the volume is moving down one step
- **Increment** (Stateless only)- The string used in the volume message to indicate the volume is moving up one step
- **Min** (Explicit only) - Minimum numeric value for volume
- **Max** (Explicit only) - Maximum numeric value for volume
- **Step** (Explicit only) - Step size the volume should move in
- **Precision Trim** (Explicit only) - Indicate how many decimal places are required?

Volume Labels

- **Display Label** - Indicates if the specific volume value is shown below the volume graph or not
- **Level Prefix** - Include a fixed string before the displayed value
- **Level Postfix** -Include a fixed string after the displayed value

- Mute Attributes
- **Inactive State** - The data that indicates the mute is off
- **Active State** - The data that indicates the mute is off

Set

This is the format of the actual command that gets sent when the volume or mute is changed. The location of the volume value/string is indicated by the wildcard character.

If sending the command creates a response, the C1 can be programmed to accept that response.

- **Command** - The command format to set volume/mute for the device to be controlled
- ❶ **Vol/State** - Click to insert where the volume or mute value/state is located in the command
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response
- **Set Required ACK** - If checked, the display will only change value if the correct set response is received from the target device
- **Response** - The expected response command format
- ↻ **Wild** - Click to include a wildcard section of unknown/unneeded values in the response string that need to be ignored

Query

In order to provide synchronization of the C1 parameter state with the target device state, the C1 will send an initial query. This section defines what that initial query command is and what the response to that command will be.

Continuing synchronization can then be done either by continuously polling the device at an interval set by the user or if the controlled device supports it, waiting for asynchronous update messages the device sends out and then updating the C1 settings based on what is received.

- **Enable Polling** - Click to enable query polling as the synchronization method
- **Interval** - Sets how often the query command is sent to update the state
- **Query** - The command format to retrieve the current volume/mute for the device to be controlled
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response
- **Response** - The expected response command format
- ⟳ **Wild** - Click to include a wildcard section of unknown/unneeded values in the response string that need to be ignored
- ❶ **Vol/State** - Click to insert where the volume or mute value/state is located in the command response

Async

The "Async" tab configures how the C1 responds to asynchronous messages sent from the controlled device.

- **Monitor Async Changes -** Click to enable asynchronous message monitoring
- **IP** - Indicates the IP address the asynchronous message will be sent to
- **Port** - Indicates the port (if configured) the asynchronous message will be received from
- **Type** - Indicates the format of the asynchronous message (UDP or TCP)
- **Src IP** - Indicates the IP address the asynchronous message will be sent from
- **Async Response** - The command format of the asynchronous mesasge
- ⟳ **Wild** - Click to include a wildcard section of unknown/unneeded values in the asynchronous message that need to be ignored

- ❶ **Vol/State** - Click to insert where the volume or mute value/state is located in the asynchronous message
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response

Startup Synchronization

Startup synchronization options are used if, during C1 startup, the C1 needs to check if the device it is controlling is up and running before it starts any other communication. This can be done by polling it with a specific command at a pre-determined rate and/or waiting for the device to send a specific asynchronous message out.
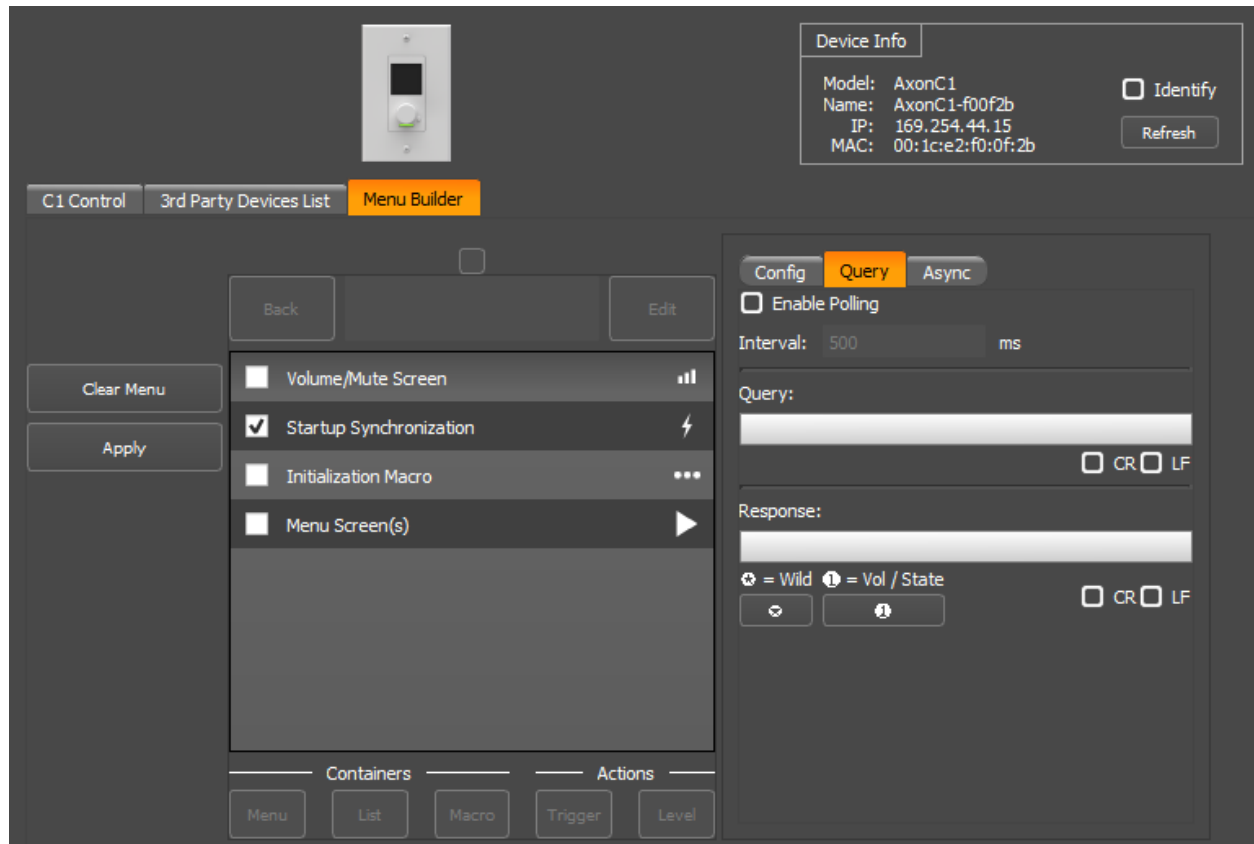
Config

- **Destination** - Select the configured target from the 3rd Party Devices List (Device, IP, Port, and type will populate based on the configuration saved in 3rd Party Devices List)
- **Hex Values -** Sets whether the message is ASCII or binary in nature. Leave it unchecked for ASCII or check it to use binary

Note: When using binary mode, each data byte of the command data should be represented by a two digit hexadecimal number

© QSC, LLC 2020

Attributes

- **Inactive State** - The data that indicates the mute is off
- **Active State** - The data that indicates the mute is off

Query

This screen sets up the message used to query the device if polling is used to check the controlled device is running.

- **Enable Polling** - Click to enable query polling as the synchronization method
- **Interval** - Sets how often the query command is sent
- **Query** - The command format of the message sent to make sure the controlled device is available
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response
- **Response** - The expected response command format
- ⟳ **Wild** - Click to include a wildcard section of unknown/unneeded values in the response string that need to be ignored
- ❶ **Vol/State** - Click to insert where the volume or mute value/state is located in the command response
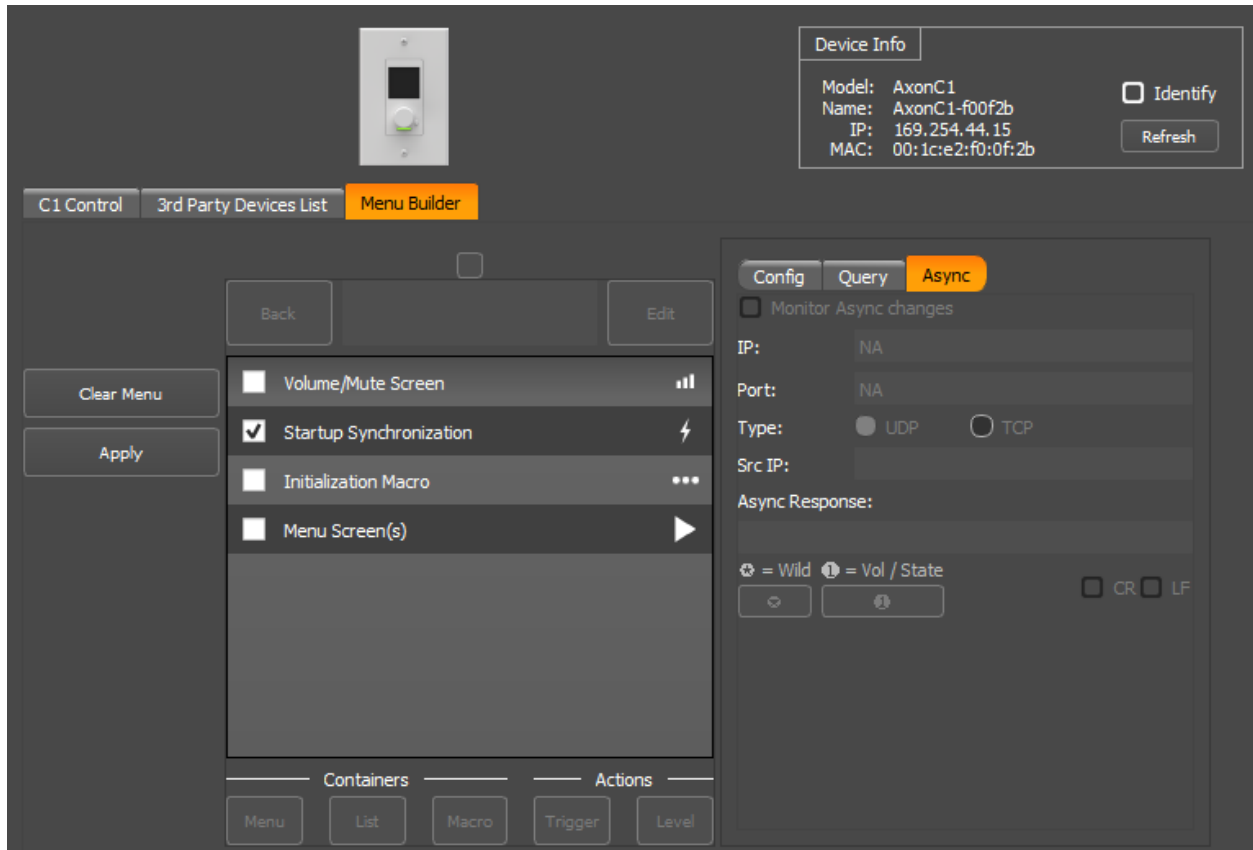
Async

The "Async" tab configures the asynchronous messages the C1 is looking for to indicate the device is up and running correctly.

- **Monitor Async Changes -** Click to enable asynchronous message monitoring
- **IP** - Indicates the IP address the asynchronous message will be sent to
- **Port** - Indicates the port (if configured) the asynchronous message will be received from
- **Type** - Indicates the format of the asynchronous message (UDP or TCP)
- **Src IP** - Indicates the IP address the asynchronous message will be sent from
- **Async Response** - The command format of the asynchronous message
- ♻ **Wild** - Click to include a wildcard section of unknown/unneeded values in the asynchronous message that need to be ignored
- ❶ **Vol/State** - Click to insert where the volume or mute value/state is located in the asynchronous message
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response

Building Menu screens (3rd Party mode)
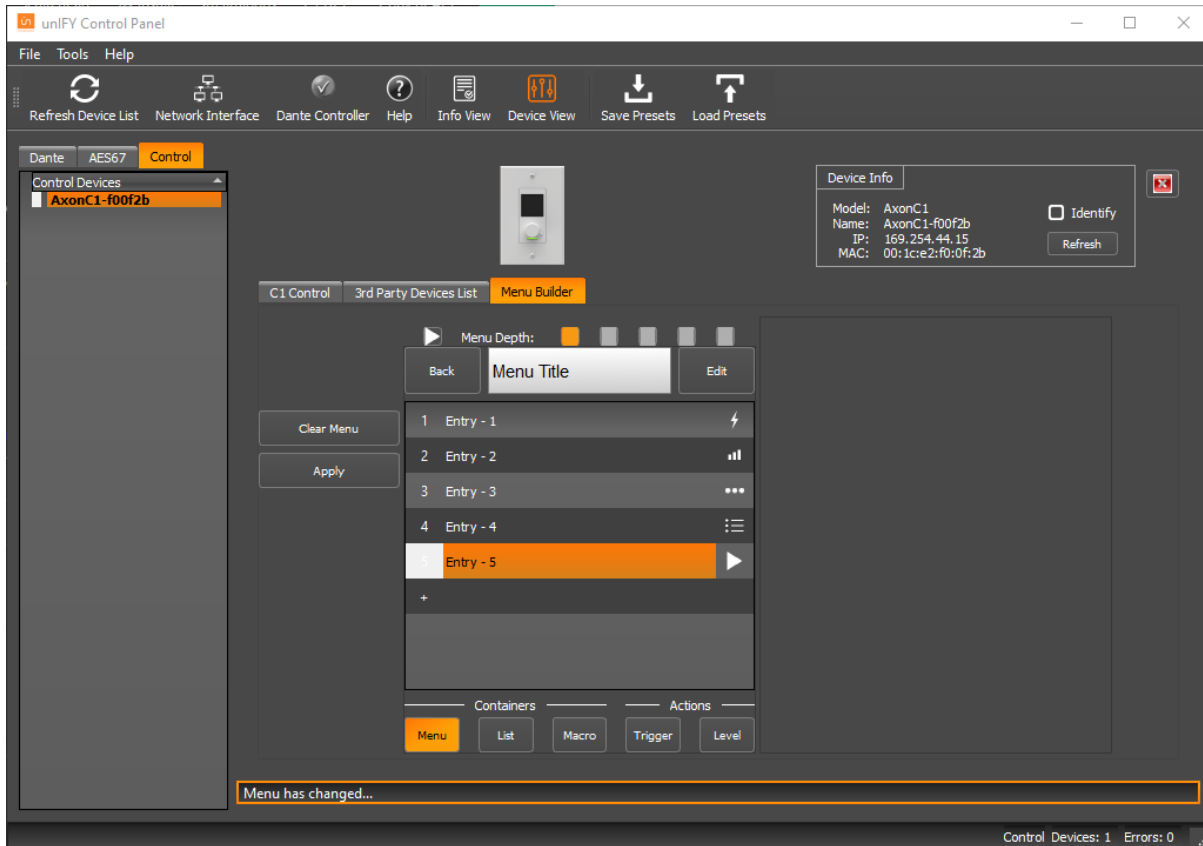
When building menus the following options are available:

## Containers

- **Menu** - Creates a submenu layer for further items
- **List** - Used to create a menu for a group of related triggers such as source selections. Use this when the user needs to close an option and there is feedback required as to which option is currently selected.
- **Macro** - Send one or more commands in sequence to tell the selected device to do a specific action. Each command has its own unique destination allowing macros to control multiple devices in different ways aka send a command to a projector to turn it on and then send a command to a screen to lower it.

Actions

- **Trigger** - Triggers a single action on a controlled device. Configure the UDP/TCP command message based on the controlled devices API to carry out the action required.
- **Level** - Control a specific level
- *Note:* Use Level/Mute setup steps above.

Trigger Configuration (Menu & Macros)
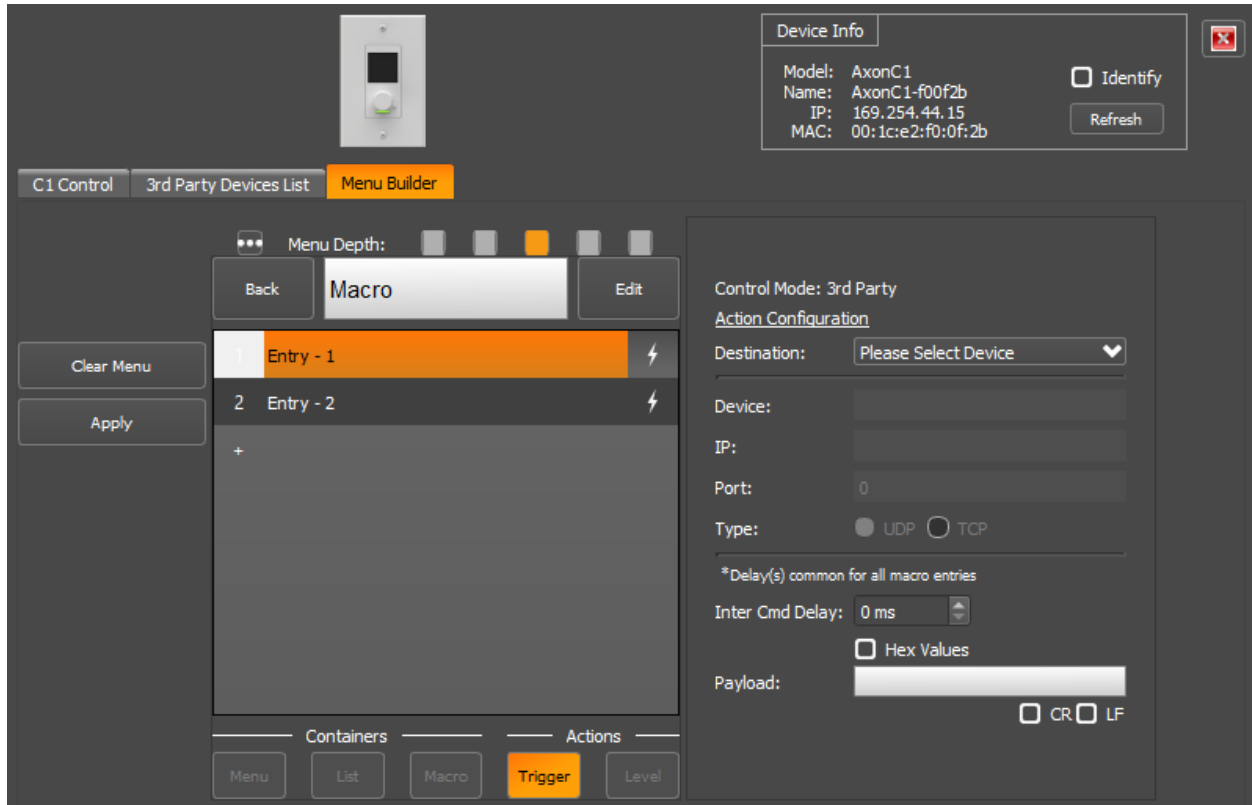
Triggers are used to send a single command to the specified target device to perform a desired action.

- **Destination** - Select the configured target from the 3rd Party Devices List (Device, IP, Port, and type will populate based on the configuration saved in 3rd Party Devices List)
- **Hex Values** - Sets whether the message is ASCII or binary in nature. Leave it unchecked for ASCII or check it to use binary
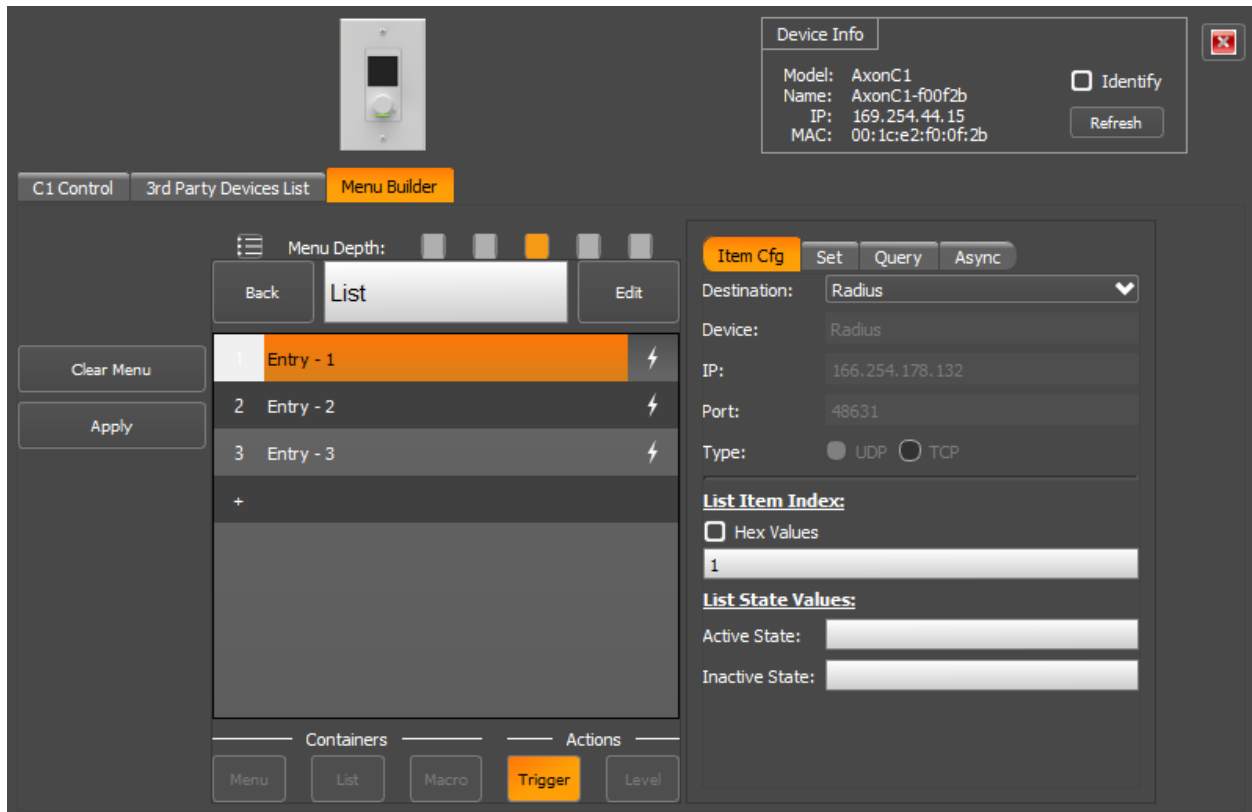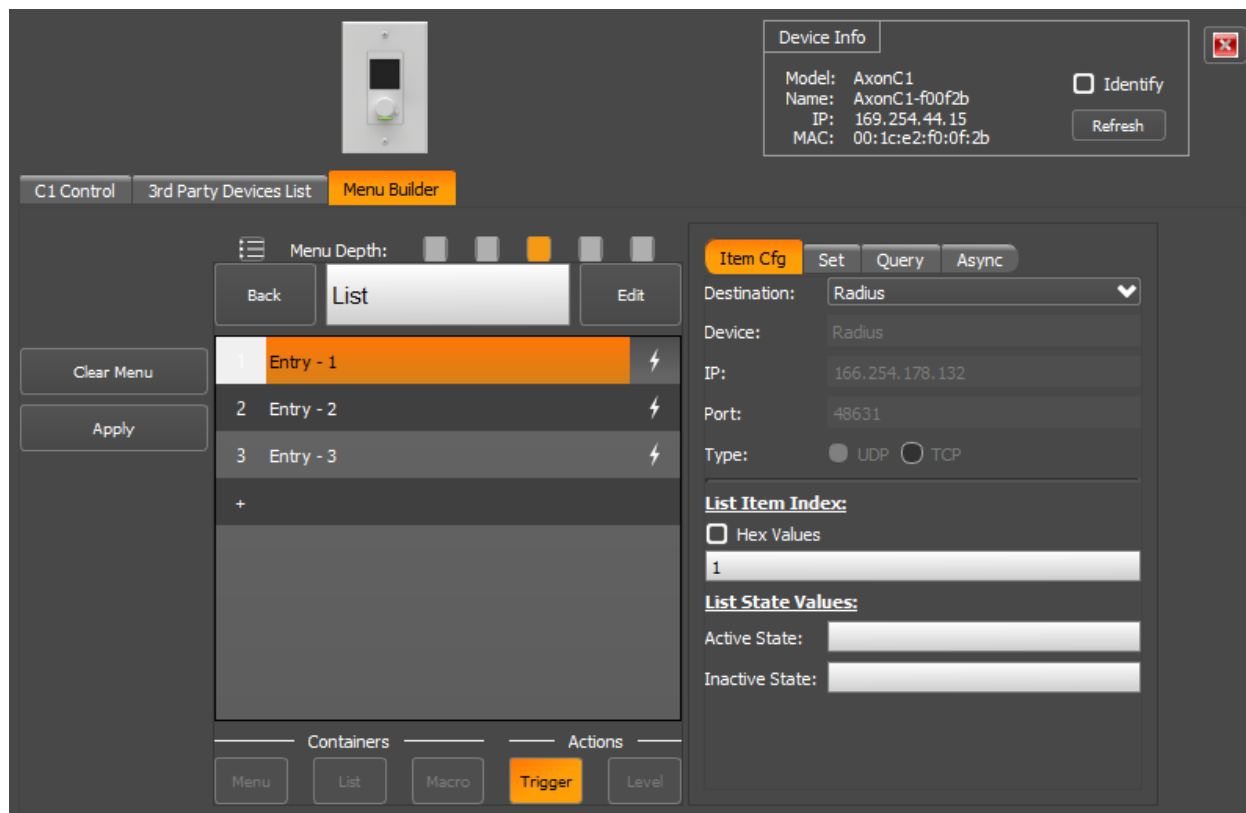
Note: When using binary mode, each data byte of the command data should be represented by a two digit hexadecimal number

- **Inter CMD Delay** (Macro ONLY) - Sets the delay between sending one command and the next
- **Payload** - The command signifying desired action
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response

Trigger Configuration (List)

Triggers in a list are used to synchronize feedback from the last sent command. An example would be source selection, to show the currently selected source in the list.

Item Cfg

- **Destination** - Select the configured target from the 3rd Party Devices List (Device, IP, Port, and type will populate based on the configuration saved in 3rd Party Devices List)

List Item Index

- **Hex Values** - Sets whether the message is ASCII or binary in nature. Leave it unchecked for ASCII or check it to use binary

    Note: When using binary mode, each data byte of the command data should be represented by a two digit hexadecimal number

List State Values

- Use these values if the list item index alone is not sufficient to determine the list item state.
- **Active State** - The data that indicates the list item is on
- **Inactive State** - The data that indicates the list item is off

Set

Sends the command which sets the specific list item that has been selected.

- **Command** - The command format to set list item for the device to be controlled
- ❶ **Item ID** - Click to insert where the item index is located in the message
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response
- **Set Required ACK** - If checked, the display will only change value if the correct set response is received from the target device
- **Response** - The expected response command format
- ↻ **Wild** - Click to include a wildcard section of unknown/unneeded values in the response string that need to be ignored
- ❶ **Item ID** - Click to insert where the item index is located in the message
- ❷ **Item State** - Click to insert where the item state is located in the message
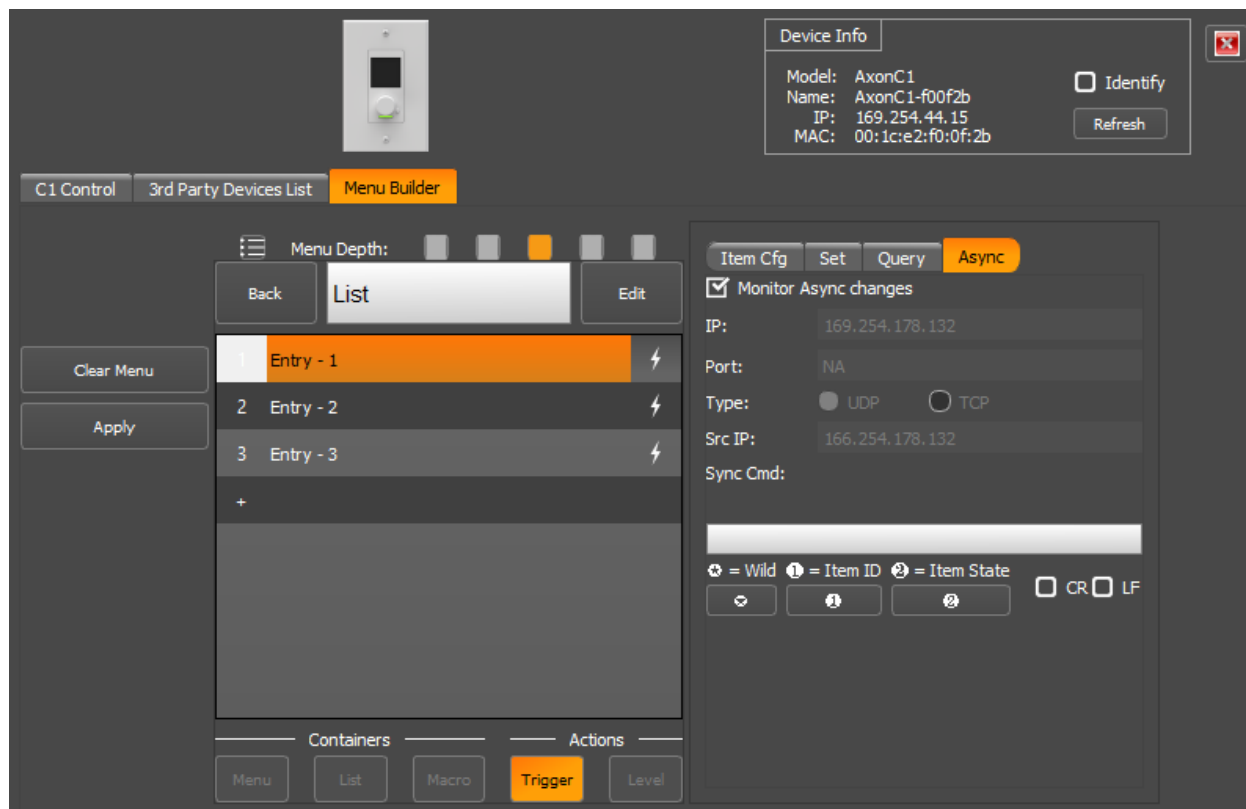
Query

This screen sets up the message used to query the device to determine which list item is currently selected. This can be done by polling it with a specific command at a pre-determined rate and/or waiting for the device to send an specific asynchronous message out.

- **Enable Polling** - Click to enable query polling as the synchronization method
- **Interval** - Sets how often the query command is sent
- **Query** - The command format of the message sent to make sure the controlled device is available
- **❶ Item ID** - Click to insert where the item index is located in the message
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response
- **Response** - The expected response command format
- **⟳ Wild** - Click to include a wildcard section of unknown/unneeded values in the response string that need to be ignored
- **❶ Item ID** - Click to insert where the item index is located in the message
- **❷ Item State** - Click to insert where the item state is located in the message

Async

The "Async" tab configures how the C1 responds to asynchronous messages sent from the controlled device.

- **Monitor Async Changes -** Click to enable asynchronous message monitoring
- **IP** - Indicates the IP address the asynchronous message will be sent to
- **Port** - Indicates the port (if configured) the asynchronous message will be received from
- **Type** - Indicates the format of the asynchronous message (UDP or TCP)
- **Src IP** - Indicates the IP address the asynchronous message will be sent from
- **Sync Cmd** - The command format of the asynchronous message
- ⟳ **Wild** - Click to include a wildcard section of unknown/unneeded values in the asynchronous message that need to be ignored
- ❶ **Item ID** - Click to insert where the item index is located in the message
- ❷ **Item State** - Click to insert where the item state is located in the message
- **CR** - Check to add a carriage return to the sent command or response
- **LF** - Check to add a linefeed to the response or response