



Overview

The Attero Tech Axon C1 remote is an excellent solution for simple in-wall control of Q-SYS Core-based AV systems. This document covers the integration features and the necessary steps required to include C1 controllers in a Q-SYS design.

***Note:** This guide does require the reader to have some familiarity with certain Q-SYS DSP features and functions.

To support the use of the C1 with Q-SYS DSP's, Attero Tech has developed a C1 control server plug-in, available through the Q-SYS Asset Manager, to supplement the C1 and make it easier to integrate.

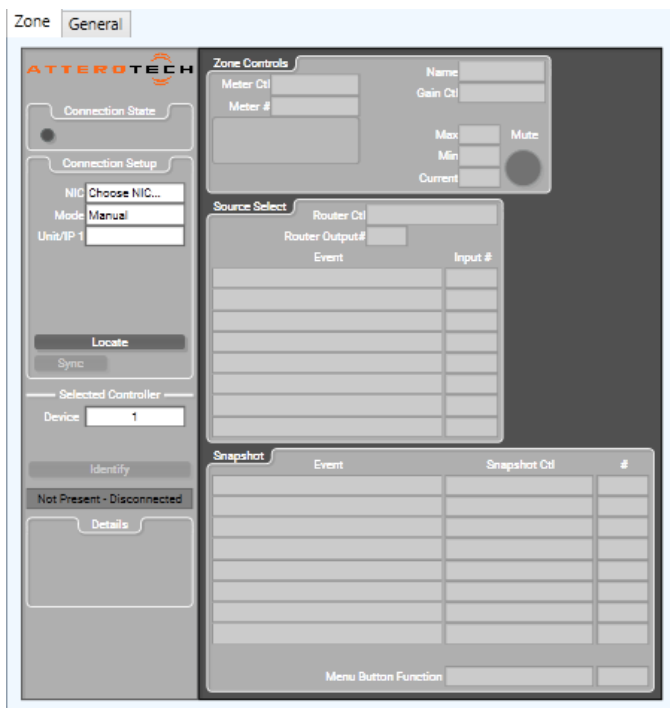


Figure 1 - C1 Control Server Plug-in

When using the C1 and plug-in, the following capabilities are supported within Q-SYS:

- Each C1 should be associated with a single plug-in.
- A plug-in can support up to four C1s with the plug-in keeping each of them synchronized. In this configuration all C1s must contain the same menu content/structure.
 - If more than four C1s are required to control the same elements within the design, multiple plug-in instances can be mapped to the same target controls.
- Each plug-in maintains its own separate configuration allowing C1's connected to different plug-ins to be configured differently.

The plug-in allows the control features of the C1 to control parts of the Q-SYS design. Each control feature is optional and can be enabled and used as required depending on the specific requirements of the application:

- The C1's volume and mute controls can be used to manipulate the volume and mute state of the zone it is assigned to.
- The C1 LED bar can be used for metering of the zones audio signal.
- The configurable C1 menu events can be used to control specific parts of the Q-SYS design with several specific options available.

When configuring the menus for use with Q-SYS, there are three menu event types available:

- Source selection events (maximum of 8)
- Preset events (maximum of 8)
- General control events (maximum of 16)

A "source select" event allows selection of a given audio input through manipulation of the "router" component in the design that is associated with the plug-in.

A "preset" event allows configuration of the system through manipulation of a "snapshot" components in the design that are associated with the plug-in.

A "general" control event is used to manipulate an associated output control pin that can then be wired to other blocks within the Q-SYS design to control them. Each general event can be configured to manipulate its associated control pin in one of the following ways:

- Turn the pin on
- Turn the pin off
- Toggle the pin state to its opposite state
- Apply a half second pulse.

Integration Workflow

Successful integration of the Axon C1 product will require both Attero Tech's unIFY Control Panel (UCP) software as well as Q-SYS Designer which has support for the Attero Tech Axon C1 control server plug-in.

The steps required are:

- Add plug-ins to the Q-SYS design and complete the initial plug-in configuration, which involves setting the number of C1s each plug-in will support, as well as the number of general control pins each C1 plug-in will need. The control pins can also be wired to other parts of the design. This can be done offline as it does not require the plug-in to have any C1 interfaces associated with it.
- Create the required menu structures that each C1 will be using and apply the structure to them using unIFY Control Panel.
- Back in the Q-SYS design, with everything hooked up and running, associate every C1 with their respective plug-in and synchronize their menus.
- Finalize the plug-in configuration by associating the plug-in with the necessary components of the Q-SYS design and completing setup for the defined events.

Once all configuration is complete, the C1 plug-ins can then be "locked" to prevent any accidental configuration changes.

Initial Plug-in Configuration

With the plug-ins placed, each will need to have their properties configured:

- Control Devices – The number of C1's associated with this particular plug-in/zone
- Control Pins – The number of general purpose output control pins the plug-in is going to use

Once the number of controls pins has been defined, they will then appear under the "Control Pins" section and can be enabled. If a pin is enabled, it will then appear under the main plug-in block in the design. They can then be wired to other control inputs on other components as needed. The wiring of the control pins can be done offline as it does not require the design to be emulated or any C1 to be present or associated with the plug-in.

The design will also need to include any components that are required by the plug-in to support the functions the C1 is going to control. These components will need to be "named components" otherwise the plug-in will not be able to identify them. This is done by changing the default name of the component. For more details creating "named components", see the Q-SYS Designer documentation.

Menu Creation

As every C1 used in the same zone ***MUST*** have identical menu setup, menu creation is best done by creating the menu structure for the first C1 in a zone, saving that configuration to a file and then applying that configuration file to the other C1s in the same zone.

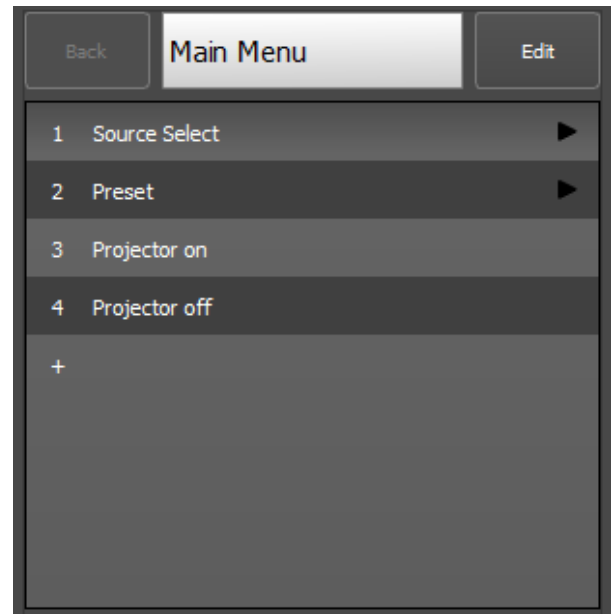
The first step of menu creation is to make sure "Q-SYS" mode is selected as the target mode.

When creating menus, the first step is to configure the types of features the C1 will be using. The C1 can be used for volume/mute control only, menu selectable events only, or both volume/mute control and menu selectable events.

If Volume/Mute only mode is selected, no further configuration is required.

For the other modes, the menu creation option will become visible. Creation of a menu structure must be done before further configuration of the plug-in can be completed.

The menu structure of the C1 supports up to a maximum of four layers with each item a maximum of 16 characters long. Each item added to the menu structure can be designated as a menu or an action. Menu items are used to build up the tiers of the menu structure. Actions are the events that actually control the Q-SYS Designer project via the plug-in. An action can be designated as "Source Select", "Snapshot", or "General".



Applying the Controller Menus

UCP is used to apply the settings to C1 controllers. For a single device, click the <Send to device> button to send it to the currently selected device.

For multiple devices, the settings will need to be saved as a file first using the <Save to File> button.

The generated file can then be applied to other units. For a small number of units, this can be done individually one at a time, by selecting each unit first, loading the menu configuration from a file using the <Load from file> button and then sending it to the device using the <Send to device> button.

Menu configuration can also be sent to multiple devices as a group by using the multiple preset load capabilities found under the "Tools" menu within UCP.

Q-SYS Project Integration

After successful configuration within UCP, the next step is to use Q-SYS Designer and the C1 control server plug-in to integrate and associate C1 controls.

Within Q-SYS Designer, each C1 will need to be associated with its plug-in based on their IP address (See the *plug-in manual for more details*). Once every C1 has been correctly associated, use the <Locate> button to initiate communication with them. The “Connection State” of detected devices should change from grey to yellow indicating communication has been established but the device menus are not in sync with the plug-in.



If any remain grey, communication was not possible with that C1 at its given IP address. If any turn red, the C1 in question is not setup in “Q-SYS” mode.

Once proper connections with all associated devices have been established and all connection state LED’s are yellow, the next step is to sync the menu structure by clicking the <Sync> button. This loads the menu configuration from device #1 and checks the menu configurations of all other associated C1’s to ensure they contain the same menu configuration. The connection indicators will confirm correct menu configuration by changing to green. If a device indicator remains yellow after the sync process, its menu structure doesn’t match that of device #1.

The final step is to associate the plug-in with elements of the design it is required to control where required. Control association is performed through the use of “Named Components” in the design. The plug-in filters available named components for each feature and shows only those components that are compatible for that specific feature.

Volume/Mute Mapping

Volume / Mute control requires a “Gain” component to be associated with the plug-in. Multiple C1 plug-ins can be associated with the same gain control enabling more than four C1 units to control the same volume/mute in a design if required.

***Note:** This can be left unassigned if the C1 is not required to control volume and mute.

Source Selection Mapping

Any event menu options on the C1 that are designated as “source select” will appear as a unique event in the source select section of the plug-in. For these events to operate correctly, the C1 plug-in must be associated with a “Router” component within the design and the specific output of the associated router the selected audio will appear out of must also be chosen.

***Note:** Both these settings can be left unassigned if no source select type events are defined in the C1 menu structure.

Each source select event then needs to be allocated a specific input of the associated router component. The input chosen for each event should correspond to the audio that needs to be used when that particular menu on the C1 is selected.

During configuration, changing the associated router component or selecting a different router component altogether may result in selections becoming invalid if those values are no longer supported by the associated router. When this happens they will be marked in red. For example, a plug-in is initially associated with router “A” which has eight inputs available. If the associated router component is then changed to router “B” which only

has three inputs, events associated with input 4 or above will be marked in red as those options no longer exist in router “B”.

Snapshot Mapping

Any event menu options on the C1 that are designated as “snapshot” will appear as a unique event in the snapshot section of the plug-in. For these type events to operate, the C1 plug-in must be associated with a “Snapshot” component of the design. This could be either a global snapshot bank or a user-defined bank. If the plug-in can set different snapshots, the selectable snapshots must be part of the same snapshot bank.

***Note:** This settings can be left unassigned if no snapshot type events are defined in the C1 menu structure.

Each snapshot event listed then needs to be allocated a specific snapshot number from the associated snapshot component. The snapshot chosen for a given event should correspond to the snapshot settings that need to be applied when that particular menu on the C1 is selected.

During configuration, changing the associated snapshot component or selecting a different snapshot component altogether may result in selections becoming invalid if those options are no longer supported by the associated snapshot. When this happens they will be marked in red. For example, a plug-in is initially associated with snapshot component “A” which has twelve snapshots available. If the associated snapshot component is then changed to snapshot component “B” which only has eight snapshots configured, events associated with snapshot 9 or above will be marked in red as those options no longer exist in bank “B”.

Meter Mapping

***Note:** This can be left unassigned if the C1 is not required to indicate audio level.

The LED bar on the C1 can be used to indicate audio level. To do so, the C1 plug-in must be associated with a “Level Meter” component. The specific channel of the “Level Meter” component also needs to be chosen. Assigning a meter component and choosing a channel will automatically activate the metering feature. The plug-in will then update the LED bar on the C1 with the audio level ten times a second. Removing the assigned component turns the metering off and will stop the level messages being sent.

General Events

Menu items configured as “General” events will appear on the “General” tab. These do not require association of any additional design components to work but each entry must be assigned which output control pin the event will operate on and in what way.

***Note:** Any attempt to activate an event on a C1 for which the plug-in has either not been fully configured or has indicated is invalid (marked in red) will be ignored by the plug-in.

Testing

At this point, everything should now be configured and can be tested to ensure the desired features operate as expected.

Menu Button Zone Select

The menu button can be configured as a zone select. This can only occur if the C1 is configured with no menus and is set to "Volume" only mode. In this mode, each time the menu button is pressed, it calls up a snapshot that reconfigures the C1 plug-in to control different components in the design.

To configure this operation,

- 1) Use the C1 to set the C1set in "Volume only" mode.
- 2) In Q-sys designer add a snapshot bank. Set the count to the number of zones the system has.
- 3) Add the controls from the C1 plug-in that the snapshot will change. This should include at least
 - "Zone Name" field
 - "Gain Ctl" or "Room #" (depending on plug-in mode)
 - Menu button snapshot #
- 4) Drag the "Component" onto the design and give it a custom name
- 5) Emulate or push the design to the core
- 6) Associate the C1 plug-in with the C1 on the network
- 7) Assign the menu button function "Snapshot Ctl" to the snapshot added in step (2)
- 8) Setup the fields in the C1 plug-in to control zone 1
- 9) Set the menu button "#" field to point to the next snapshot so for zone 1, this would be set to 2 and so on. If this is the last zone, this value should be 1
- 10) Save the setting in a snapshot.
- 11) Repeat steps 8 through 10 for each Zone, saving each group of settings as a different snapshot.

Once all snapshots are correctly configured for each zone, pressing the menu button on the C1 should then step through each zone one at a time.

Application Example

The following example highlights a sample hospitality application where the C1 controllers provide a simple yet flexible solution for user control of the system.

System Design:

The application has four separate zones. Each zone supports up to four C1 controllers installed in each shared space which are synchronized to each other. Each C1 in a zone will control zone volume, source selection and zone presets with its zone.

A single Q-SYS touch panel is included for global zone control and system monitoring. The C1 controllers will respond to and synchronize with this control system as well.

A mic input are provided in each zone by an Attero Tech Mic/Line wall plate. There is also a Bluetooth audio connection provided by an Attero Tech Bluetooth wall plate. BGM is provided via a player connected via USB audio in a remote rack. There is also an input for a paging mic for system announcements.

Source Select:

Each zone has a source select options where the user can choose either the zone's mic, the zone's Bluetooth connection or BGM as audio for that zone.

System Snapshots:

The system has two presets that can be configured.

Party Mode - Output Volume: -10 dB, Paging allowed Bluetooth input active

Meeting Mode - Output volume: 0dB Paging disabled, Mic Inputs Active

Other menu actions:

Each zone has a display/projector, whose power state may be controlled over the network. The C1 interfaces have a menu action item to turn on or turn off the projector.

C1 Menu setup

The menu structure has a "Source Select" menu with three sub-options (one for each source), a "Preset" menu with two sub-options for each preset plus two general events for turning the projector on and off.

The "source select" sub options are all be configured as "source select" type events and given appropriate names. The preset sub-options are configured as "snapshot" type events and given appropriate names. The projector events are simply configured as "General" events.

As each zone is the same, the same menu configuration can be applied to all C1 devices, regardless of which zone they are actually in.