ClearOne®

CONSOLE AI

Supports Version 7.3.0.x

Notices

CONSOLE AI User Manual

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Contents

Chapter 1 - Introduction

This chapter contains some basic concepts and tasks important to understanding and using the CONSOLE AI application.

CONVERGE Product Family Overview

Congratulations! You have purchased a ClearOne® CONVERGE® Pro 2 (CP2) or CONVERGE Huddle audio conferencing solution. The CONVERGE Pro and CONVERGE Huddle product families represents a revolutionary advance in state-of-the-art audio technology for both large- and small-scale conferencing applications. ClearOne products are used in the most demanding conferencing applications, where they consistently deliver industry-leading audio quality and unsurpassed reliability. ClearOne's proprietary Acoustic Echo Cancellation® (AEC) technology forms the foundation of the CONVERGE Pro and CONVERGE Huddle product families, and provides optimal audio quality for today's distributed

conferencing environments. In addition to AEC, other ClearOne innovations – including noise cancellation, automatic gain and level control, advanced microphone gating, adaptive ambient, and ClearEffect™ wideband audio emulation–produce crystal clear audio that is equivalent to conference participants being in the same room.

Applications

The CONVERGE Pro and CONVERGE Huddle product families provides scalable conferencing solutions for any size venue. Some common applications include:

- Boardrooms
- Training rooms
- Courtrooms
- Multimedia rooms
- Distance learning
- Auditoriums
- Houses of worship
- Sound reinforcement
- Large meeting venues
- Huddle rooms
- Telemedicine Theaters

Models

The CP2 product family and associated products include the following:

- CONVERGE Pro 2 128
- CONVERGE Pro 2 128D
- CONVERGE Pro 2 128T
- CONVERGE Pro 2 128TD
- CONVERGE Pro 2 128V
- CONVERGE Pro 2 128VD
- CONVERGE Pro 2 128VT
- CONVERGE Pro 2 128VTD
- CONVERGE Pro 2 48T
- CONVERGE Pro 2 48V

- • CONVERGE Pro 2 48VT
- • CONVERGE Pro 2 48VTD
- • CONVERGE Pro 2 120
- • CONVERGE Pro 2 012
- • CONVERGE Pro 2 128SR
- • CONVERGE Pro 2 128SRD
- • CONVERGE COLLABORATE Versa USB
- • CONVERGE GPIO Expander
- • CONVERGE Bluetooth Expander
- • CP2 Touch Panel Controller
- • Beamforming Microphone Array 2
- • BMA CT
- • BMA 360

The CONVERGE Huddle product family and associated products include the following:

- • CONVERGE Huddle
- • BMA CTH
- • Bluetooth Expander

CONVERGE Pro 2 Feature Matrix

CONVERGE Pro 2	Conferencing														Sound Reinforcement	
	128	128D	128T	128TD	128V	128VD	128VT	128VTD	48T	48V	48VT	48VTD	120	012	128SR	128SRD
Mic/Line Inputs	12	12	12	12	12	12	12	12	4	4	4	4	12	✗	12	12
Mic/Line Outputs	8	8	8	8	8	8	8	8	8	8	8	8	✗	12	8	8
AEC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
C-Link Expansion Bus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P-Link Peripheral Bus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
USB Audio Interface	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ethernet, RS-232, GPIO Interface	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Built-in USB for PC-based Conferencing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Built-in Telco for Teleconferencing	✗	✗	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✗	✗	✗	✗

Feature															
Built-in VoIP for VoIP Conferencing	✗	✗	✗	✗	✓	✓	✓	✓	✗	✓	✓	✓	✗	✗	✗	✗
Sound Reinforcement Applications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Built-in Dante for Audio Networking	✗	✓	✗	✓	✗	✓	✗	✓	✗	✗	✗	✓	✗	✗	✗	✓
Beamforming Microphone Array 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
BMA CT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
BMA 360	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
DIALOG 20 Wireless Mic System	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GPIO Expander	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
COLLABORATE Versa USB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bluetooth Expander	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CONSOLE AI Software	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dialer App-Win, Mac, iOS, Android	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Touch Panel Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Third-party Control Modules	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Common Benefits

Each product in the CONVERGE Pro 2 product family offers the following benefits:

- Superior audio quality
- ClearOne's next generation signal processing algorithms
- Field-proven conferencing technology
- Flexible configuration and expandability
- Improved configuration and management software
- Simplified programming
- Reduced installation times
- Best-in-class processing speed
- ClearOne's world-class technical support and field engineering services

Common Features

The leading-edge features in the CONVERGE Pro 2 family include:

- USB connector on front panel for easy connectivity with a laptop or PC

📝 **Note:** The USB connector on the front panel can be used for network connectivity and programming but cannot be used for audio.

- Ethernet port

- Pair of RJ-45 ports for C-Link Expansion bus to connect multiple CONVERGE Pro 2 units

- Pair of RJ-45 ports for P-Link Peripheral bus to connect peripheral devices like Beamforming Mic Array 2, BMA CT, BMA 360, DIALOG 20 Receiver, CP2 COLLABORATE Versa USB, CP2 GPIO Expander, Bluetooth Expander, etc.

- RS-232 serial port (up to 115200 BPS)

- Mini-phoenix audio input/output connectors (color-coded by channel type)

- Differential inputs and outputs

Installing CONSOLE AI

You can install the CONSOLE AI on any Windows 7 (or greater) PC that meets the following requirements:

- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor

- 1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit) To install the CONSOLE AI application:

1. Run the installation application, Setup_ConsoleAI_Vx.x.x.x.exe (where the x's represent the version number).

2. If you receive a User Account Control message from Windows asking you if you want to allow the installation program to make changes to your computer, click Yes.

   The CONSOLE AI Setup wizard begins, and the Setup License Agreement screen appears:

3. Read the license agreement.

4. If you agree to the terms, select the **I accept the agreement** option, and then click **Next**. The Dialer Installation Wizard opens and completes.
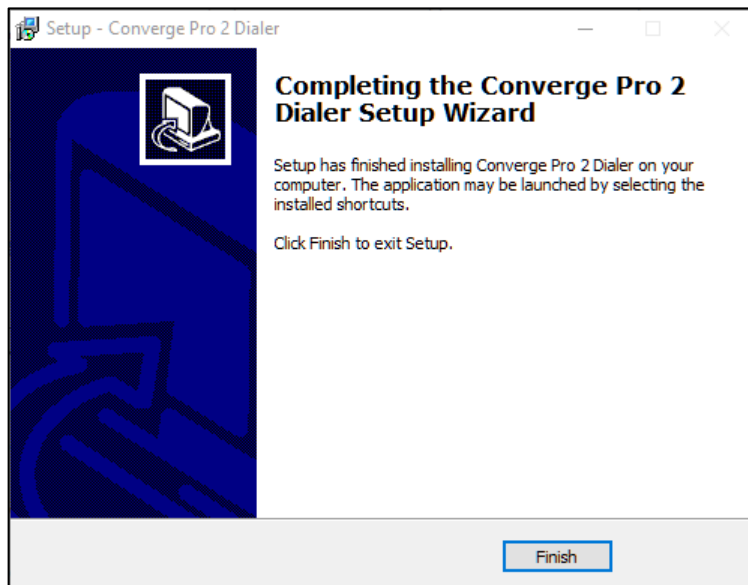
5. Click **Finish**.

    The Device Driver Installation Wizard opens:
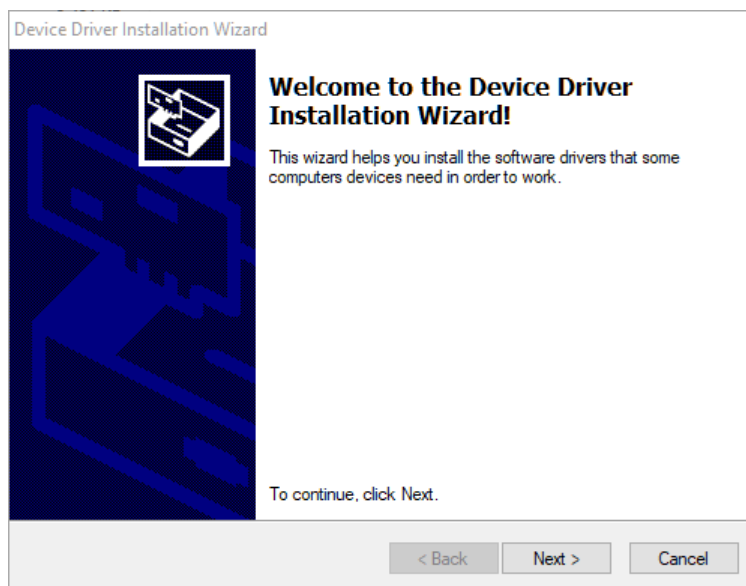
6. Click **Next** to start install the necessary device drivers.

    When the device driver installation is complete, the following screen appears:
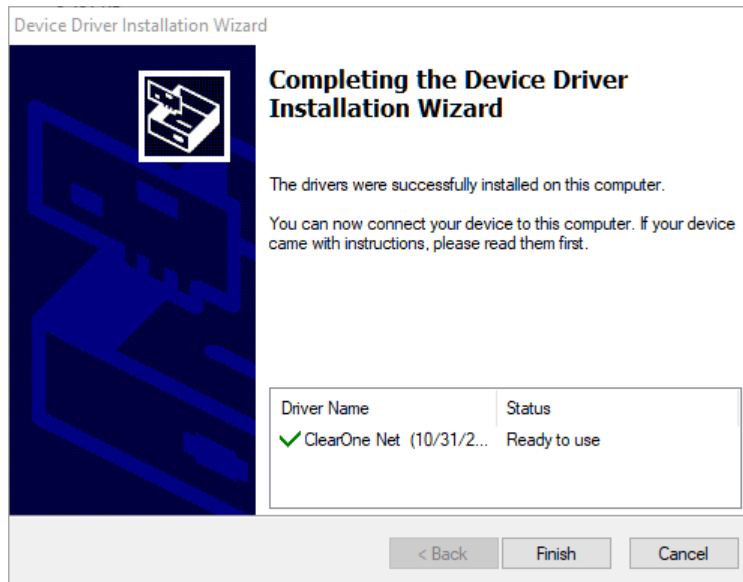
7. Click **Finish**.

   The Installing screen appears. When the CONSOLE AI installation is complete the following screen appears:
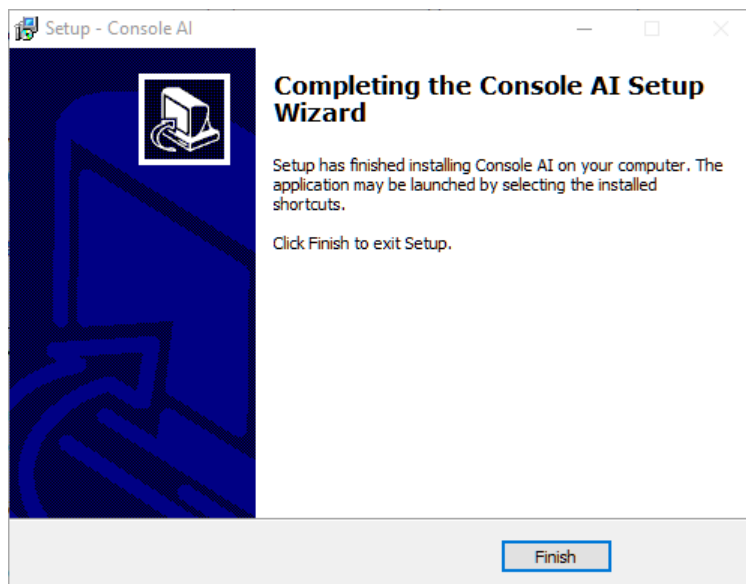
8. Click **Finish**. Setup is complete.

About Projects

The CONSOLE AI application Allows you change the settings for a CONVERGE Pro 2 or CONVERGE Huddle device, to specify how they interact with audio and control devices.

These settings can be saved together as a *project*. A project contains all the settings for one or more devices. In the case of a CONVERGE Pro 2, you can save the settings for a single CP2 device or for a stack of CP2 devices, along with related peripherals (Beamforming Microphone Array 2 mics, DIALOG 20 mics, BMA CT, BMA CTH and BMA 360 mic/speakers, or Expanders). In the case of Huddle, a project contains only the settings for one Huddle device. The settings are saved in a project file. You can create and save multiple projects and then load them in the CONSOLE AI application as needed.

Project File Versions

When you are working in the CONSOLE AI application, there is not just one version of a project file. For any given project file, three versions of the file could exist, and they may not always be synchronized with one another:

Version	Description	How to Change
On a Drive	If you have saved a project file, a version of the file exists on a local hard drive or network drive, depending on where you have saved the file.	Use Save or Save As to save the version of the project in the CONSOLE AI to the drive.
CONSOLE AI application (offline mode)	When you create a new project file or load an existing project file from disk, a version of that project file exists loaded within the CONSOLE AI application.	Make changes to the project settings while in CONSOLE AI. 📝 **Note:** Changes you make to this project file have no effect unless the project is loaded to a CP2 or Huddle device.
CP2 Device/Huddle Device	When you commit a project file to a CONVERGE Pro 2 or Huddle device, a version of the project file exists on the device and is reflected in the CONSOLE AI online mode.	There are a few changes you can make while in online mode (connected to a device), but you cannot make many of the same changes as you can while in offline mode. Use Commit to hardware to load changes you have made in CONSOLE AI to a device. See *Commit Changes to Hardware (CP2)* for more information. Use Save Project + Changes to save the state of a project in the device to disk, along with any changes you have made while connected to the device.

The following illustration shows the relationships between the various project file versions, and the ways you can use to synchronize these versions with one another:
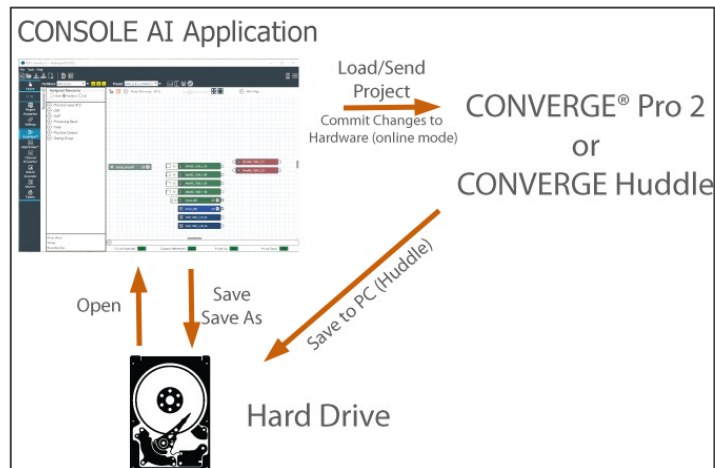
Online Mode vs. Offline Mode

The CONSOLE AI application can be in one of two possible modes: online mode (connected to a device or stack) or offline mode (not connected to a device or stack). When you start CONSOLE AI, it begins in offline mode. In order to see online mode, you have to connect to a Huddle or CP2 device or stack. See *Connecting to a Device or Stack (CP2)* and *Connecting to a Device (Huddle)* for more information.

📒 **Note:** It's important to understand that the CONSOLE AI application does not have all the same interface options available in online mode that it has in offline mode. Some interface options are available in both modes; other options are unique to one or the other of the two modes.

Online Mode

The CONSOLE AI application is in online mode when you have connected to a Huddle or CONVERGE Pro 2 device and the application is actively communicating with the device or device stack.

⚠ **Important:**

- When you're in online mode, you see the state of the device or devices to which you are connected.

- When you make changes in online mode, you make changes to the device(s) to which you are connected. Those changes are not automatically synchronized to the version of the project that is loaded in the CONSOLE AI application.

- More information about the different versions of a project file and how to synchronize online mode changes to a project is available in *About Projects* and *Commit Changes to Hardware (CP2)*.

Online mode provides some capabilities that are not available in offline mode. For example, here is the channel properties block for a Mic/Line Input AEC channel named MIC1:
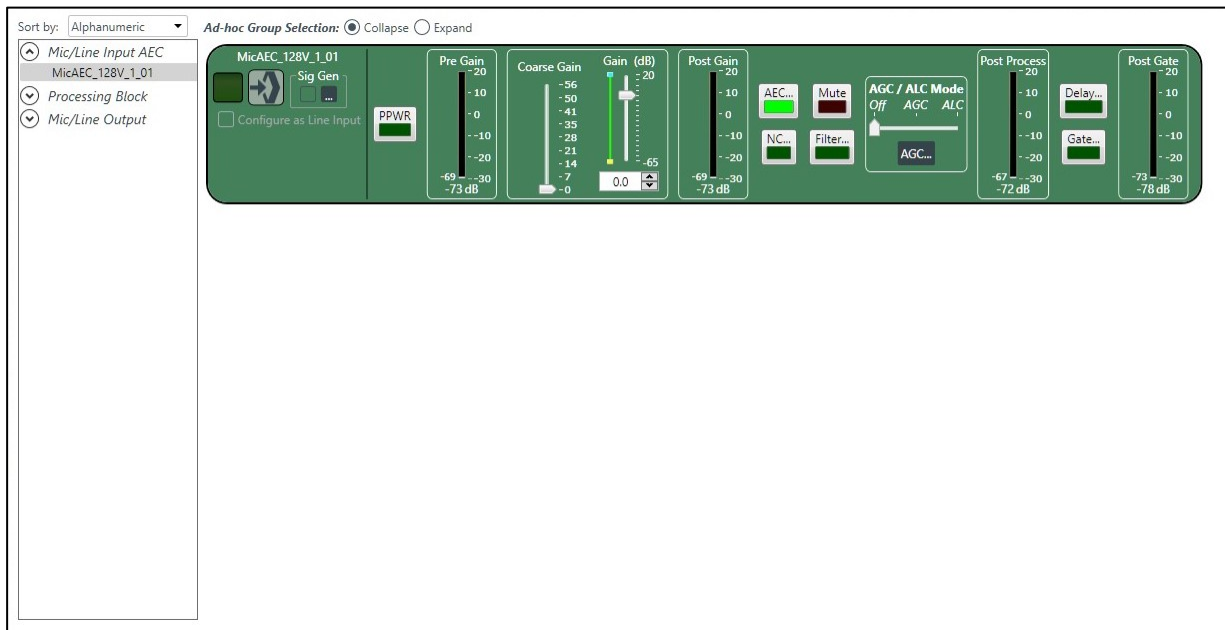
Notice that the property block is surrounded by a dashed light green border, which tells you that the CONSOLE AI application is in online mode. This properties block has several meters to help you make properties adjustments. For example, it has a Pre-Gain meter immediately after the PPWR button and a Post-Gain meter immediately after the Coarse Gain and Gain sliders. These meters are designed to let you see the effect of making gain changes, before and afterwards. These meters appear, however, only if you are in online mode.

Offline Mode

The CONSOLE AI application is in offline mode when you have opened a project file but are not connected to a device.

⚠ **Important:** When you're in offline mode, you are seeing the state of the project as loaded in the CONSOLE AI application. When you make changes to a project while in offline mode, those changes are not reflected on any device unless you load the changes to the device or stack.

For more information about the different versions of a project file and how to synchronize project changes, see *About Projects* and *Commit Changes to Hardware (CP2)*.

The following figure shows the same channel properties block, for a Mic/Line Input AEC channel, but in offline mode:
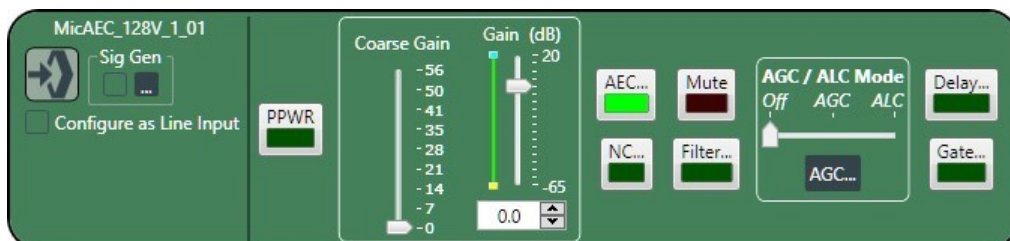
Notice that the meters are missing, because the application can't display any meter information when it isn't connected to a device.

When in offline mode, several features are not available. However, some features are available only when in offline mode.

About Workflow Checklist (CP2)

The Workflow Checklist gives you a simple way to:

- See the workflow used to configure a project
- Access the areas of CONSOLE AI to complete each step
- Keep track of steps you have completed by checking them off

📋 **Note:** The Workflow Checklist is available only for CONVERGE Pro 2 projects, not Huddle projects.

For information about how to use the Workflow Checklist, see *Using Workflow Checklist (CP2)*.

About Room Partitions

Rooms that have dividers can be divided into multiple room segments, called *partitions*. The following illustration shows a top view of a room with two dividers:
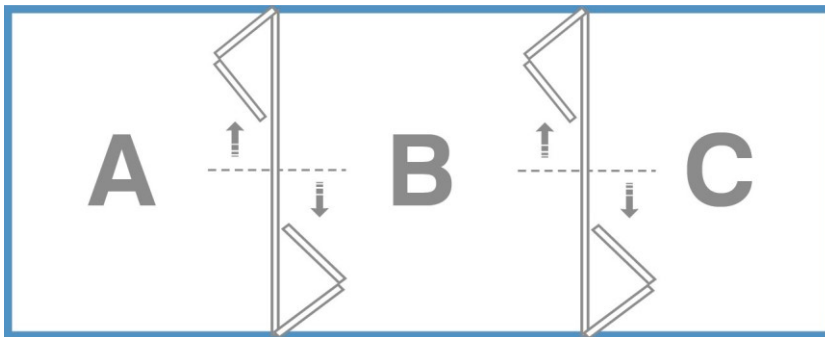
By opening and closing the dividers, this room can be divided into six possible room partitions: ABC, AB, BC, A, B, and C.

A room with three dividers has 10 possible room partitions: ABCD, ABC, BCD, AB, BC, CD, A, B, C, and D.

CONSOLE AI allows you to specify the number of partitions in a room. To do this, you must switch the Operation Mode to Advanced Room (as opposed to Simple Room, which does not use partitions).

More information about configuration of an Advanced Room and managing partitions is available in *Using Partition Manager (CP2)*. In Advanced Room mode with partitions, when you add assets, you add them to a particular partition. When you want to connect assets, in FlowView or MatrixView, you can create different configurations for different partitions.

More information about the use of GPIO logic input pins to set divider states is available in *Changing GPIO Configuration*.

About Channel Groups

Channel groups let you group channels together. They are a convenient way to configure related or similar audio assets. A change to the configuration of a group changes the configuration of all assets in that group. To make audio routing simpler, you can create audio paths for the entire group.

You can apply a meaningful name to a channel group. For example, if you have a conference room with several microphones, you can create a group for podium mics, another for ceiling mics, and another for handheld mics. Alternatively, you can create a group for mics in the front of the room, and another for the mics in the back of the room.

About References

Acoustic Echo Cancellation (AEC) uses audio references to determine which signals to cancel. When you want to cancel some channels but permit the use of others, you can use custom references.

Related Information:

Adding standard references to a room partition: *Adding Standard References (CP2)* and *Adding Custom References (CP2)*.

Making reference associations (between inputs and outputs): *Assigning References (CP2)*.

> **Note:** CONVERGE Huddle uses only standard references, and has the references already created, but you can make standard reference assignments.
>
> Information about Standard References with Huddle is available at: *Assigning Standard References (Huddle)*

Echo and AEC Explained

Acoustic echo occurs when audio from a remote source comes out of the speakers in a room, is picked up by the microphone(s) in a room, and sent back to the remote source, as shown in the diagram below:
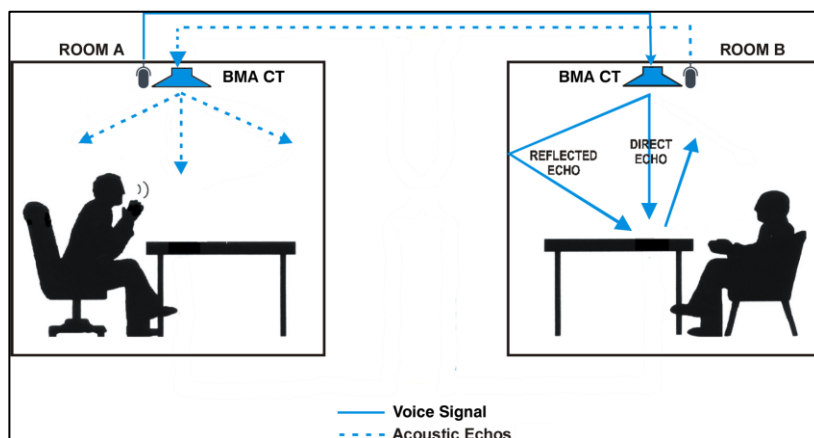
In the diagram above, the speaker in ROOM A speaks into a microphone, and the signal is carried across a network or telephone line to ROOM B and is played from the BMA CT speaker at the top of ROOM B, as shown by the solid blue line. The BMA CT mic in ROOM B picks up the signal from the speaker and sends it back to ROOM A, where it's played from the speaker in ROOM A, as shown by the dotted blue line. The dotted blue line represents the echo. Acoustic Echo Cancellation is designed to recognize and cancel the kind of echo represented by the dotted blue line in the diagram.

Standard and Custom References

Standard References

AEC works by knowing which output signal to exclude from a particular input. This is called a *standard reference*.

In the diagram above, to eliminate the echo, we would add the BMA CT speaker at the top of ROOM B (which we'll call SPEAKER 1) as a reference for the microphone in the BMA CT in ROOM B (which we'll call MIC 1). This tells the system to eliminate the signal from SPEAKER 1 when it's picked up by MIC 1, so that the signal does not get returned to ROOM A.

Custom References

There are times, however, when you want to create a reference but exclude certain channels from being suppressed. To continue with the simple example shown in the diagram above, we may have a BMA CT in ROOM B, and we want to create a standard reference as described earlier, to keep the output from the BMA CT from going right back in to the BMA CT speakers, but we may have in the same room a handheld mic that gets passed from speaker to speaker. In this case, we might want to create a custom reference for the BMA CT speaker that excludes (or in other words does not block) the signal for the input channel coming from the handheld mic. As we can see in this example, standard and custom references can be used in the same room.

About Gating Groups

You can use gating groups to control the way microphones behave in relation to one another.

For example, when you are using several microphones, you may want only the mic into which someone is currently speaking to be active (i.e., gated on), and for the rest of the microphones to be temporarily attenuated down (i.e., gated off), to avoid introducing extraneous noise (a gating group feature called First Mic Priority). Gating groups let you control these kinds of relationships between several microphones.

Some gating settings are set on each microphone channel (see *Changing Channel Properties - Mic/Line Input AEC (CP2)* for more information) and some are set using the gating group settings (see *Changing Gating Group Properties (CP2)* for more information).

About Macros

A macro is a group of CONVERGE Pro 2 actions (called commands) stored together under a name you choose. You can then execute all the commands stored in the macro. See *Live Control (CP2)* for more information.

Related Information

- Execute macros at a specified time, or times, via a Timer: *About Timers*

Command Types

The following list shows the kinds of commands that can be included in a macro:

- Set a route between audio devices (such as a microphone and a speaker) or groups of devices
- Change the properties of a channel
- Run another macro
- Wait a specified amount of time
- Delete a route between audio devices or groups of devices

Ways to Create Macros

There are three ways to create macros:

- Record macro commands (see *Recording Macros* for more information)

  📝 **Note:** Recording macro commands is the easiest way to create macros, and the way that ClearOne recommends.

- Use the Command Wizard (see *Adding Macros* for more information)
- Type macro commands (see *Adding Macros* for more information)

About Timers

Timers allow you to run macros or reset a stack at a specified date and time. You can set timers to run once or at specified intervals. You can also specify an expiration date for recurring timers.

Related Information:

- Creating and modifying timers: *Adding and Modifying Timers*.

- Executing a timer at any point: *Live Control (CP2)*

About Presets

Presets are groups of settings that apply to all the devices in one partition. After configuring all the devices in a partition, you can save those settings as a preset, and you can store multiple presets to be loaded later.

📝 **Note:** Presets are available only for CONVERGE Pro 2 devices, not for CONVERGE Huddle.

Related Information:

- Creating presets: *Adding or Modifying Presets (CP2)*

About Digital Inputs/Outputs

CONVERGE Pro 2 supports the use of digital audio signals for both inputs and outputs. For example, you can use Dante™ channels as either inputs or outputs, and you can also use DIALOG 20 wireless microphones as digital inputs.

Certain CONVERGE Pro 2 devices (the ones with a "D" in the model name) support the Dante networking technology. If you have a device that supports Dante, you can add Dante input and output channels as resources and then specify that Mic/Line Input channels or Output channels use digital inputs/outputs as their sources.

CONVERGE Pro 2 devices that have Mic input channels (every model except the 012) can use DIALOG 20 digital input for Mic/Line Input channels (if you have attached a DIALOG 20 Wireless Mic system to the CP2 via a P-Link connection).

📝 **Note:** Using a Dante or DIALOG 20 channel as an input for a Mic/Line Input channel permits the use of AEC on digital channels, since AEC cannot be applied to raw digital channels directly.

For information about adding a DIALOG 20 Wireless Mic system to a CP2, see *Adding a DIALOG 20 Wireless Mic*.

For more information about adding Dante or DIALOG 20 Mic channels to a room partition, see *Adding Channels to a Project*.

For more information about using digital sources for Mic/Line Input channels, see *Changing Channel Properties - Mic/Line Input AEC or Mic/Line Input AEC Group (CP2)*.

BMA 360 Beam Report Output for Camera Tracking

When a CONVERGE Pro 2 is connected to a BMA 360, it sends, via serial port, a Beam Report that a 3rd party camera tracking application can use. Information about BMA 360 Beam Report capabilities is available in the CONVERGE Pro 2 Serial Commands Reference Manual.

About Gain Optimization

This topic describes some general principles for optimizing gain values using the CONVERGE Pro 2 and CONVERGE Huddle.

📝 **Note:** Specific information about optimizing gain for specific channel types can be found in the topics for changing channel properties.

Keep the following principles in mind as you adjust gain across the system to achieve the desired result:

•   **Simplicity**. Avoid complex gain structures. For example, avoid boosting the gain of an input audio at one point along its audio path, then dropping it as another point, and boosting it again at a later point. Also avoid unnecessarily complex audio routing, such as routing an audio signal through multiple processing or fader blocks.

•   **Unity Gain**. It is always best to set inputs to a similar gain level and maintain that same gain level through the system, with a few exceptions:

   •   When mics are routed to local speakers for sound reinforcement this audio will typically need to be reduced at crosspoints or on a processing block to prevent local feedback. Care should be taken to keep this routing separate from the routing of mics to the far end of a teleconference.

   •   When audio is routed from a line output to a video conferencing system input, the line output gain will need to be adjusted according to the requirements of the input on the video conferencing system.

•   **Optimization Order**. ClearOne recommends optimizing gain of your entire audio system in the following order:

   1. Microphones

   2. Line Inputs

   3. Audio/Video Conferencing Inputs

   4. Amplifiers

   5. Voice Lift

•   **User Gain Control**. User control of room audio levels should be done within the CONVERGE Pro 2 or Huddle. If the volume is controlled at an external amplifier or other external device, volumes changes are likely to cause far end echo, at least until the system converges.

About Dialer

A Dialer application is available to CONVERGE Pro 2 users who have a telco-capable (a model that has a "T" at the end of the name) or VoIP-capable (a model that has a "V" at the end of the name) device.

Using the Dialer application, you can:

   •   Place and receive calls via a SIP server

   •   Store contact information

   •   Designate contact favorites

   •   Forward calls

   •   Make conference calls

   •   View call logs

For more information about downloading the Dialer setup, see *Checking for Updates*.

For more information about launching the Dialer, see *Launching the CONVERGE Pro 2 Dialer (CP2)*.

For more information about using the Dialer application, see the *CONVERGE Pro 2 Dialer for Windows & Mac User Manual*.

For information about upgrading the Touch Panel Controller or Conference Controller Firmware from CONSOLE AI, see *Updating Touch Panel Controller and Conference Controller Firmware*.

About CONVERGE Expanders

CONVERGE expanders can be used to add USB, GPIO, and Bluetooth channels to a CONVERGE Pro 2 (in the case of the Versa USB Expander, GPIO Expander, and Bluetooth Expander) or CONVERGE Huddle (Bluetooth Expander only).

Using ClearOne's proprietary P-Link connection, you can daisy-chain up to 12 P-Link devices per CONVERGE Pro 2 to add microphones (the BMA2, BMA CT, and the DIALOG 20 Wireless Mic) and expander units (Versa USB Expander, GPIO Expander, and Bluetooth Expander).

- Adding a Versa USB Expander adds four extra USB audio channels: two input channels (left and right stereo) and two output channels (also for left and right stereo). See *Adding a GPIO Expander or Versa USB Expander* for more information.

  📝 **Note:** When you add a COLLABORATE Versa USB Expander, additional USB channels are added to the Available Assets list under Resource & Partition Mgt. These channels are designated as xUSB channels, to distinguish them from the USB channels associated with the USB port on the back panel of the CP2.

- Adding a GPIO Expander adds one GPIO port with 12 input and 12 output pins. See *Adding a GPIO Expander or Versa USB Expander* for more information.

  📝 **Note:** GPIO pins added using a GPIO Expander can be used as Logic Input and Open Collector Output types, but, unlike the GPIO pins on a CP2, they cannot be used as Powered Logic Output type.

- Adding a Bluetooth Expander adds three extra Bluetooth audio channels: two input channels (left and right stereo) and one output channel. See *Adding a BMA2, BMA CT, BMA 360 or Bluetooth Expander* for more information.

About P-Link Devices and Channels

Several devices, the BMA2, BMA CT, BMA 360, DIALOG 20 Wireless Mic System, GPIO Expander, USB, and Bluetooth Expander, can be attached to a CONVERGE Pro 2 using ClearOne's proprietary P-Link connections. The BMA CTH and the Bluetooth Expander can be attached to a CONVERGE Huddle using the P-Link connections.

📝 **Note:** If you are using Long-distance P-Link, you can attach only BMA2 and BMA CT P-Link devices. See *About Long-distance P-Link* for more information.

Adding P-Link Devices

After you have attached any devices to a CP2 via the physical P-Link connection, you must add them to a project. See the following topics for more information:

- *Adding a BMA2, BMA CT, BMA 360, and BlueTooth Expander*

- *Adding a DIALOG® 20 Wireless Mic*

- *Adding a GPIO Expander and Versa USB Expander*

Adding P-Link Assets to a Project

After you have added the device(s) to the project, their assets become available but are not automatically added to the project. You must add the assets to the project in order to route them to other devices or process their audio channels (see *Adding Channels to a Project* for more details). Depending on which type of P-Link device you have added, the following assets become available to add to your project, making the specified channel types available:

P-Link Device	Asset Type	Channels Added
Beamforming Mic Array 2	Beamforming Mic Array 2	Beamforming Mic
BMA CT	BMA CT	BMA CT Mic and 2 BMA CT Speakers (R & L)
DIALOG 20 Wireless Mic System	Dialog Mics	Dialog Microphones
CONVERGE Pro 2 GPIO Expander	GPIOs	N/A
CONVERGE Pro 2 USB Expander	USB	USB (R & L) Rx USB (R & L) Tx
CONVERGE Pro 2 Bluetooth Expander	Bluetooth	Bluetooth (R & L) Rx Bluetooth Tx

For information about adding assets to a partition, see *Adding Channels to a Project*.

Using P-Link Device Channels

Once you have added assets to a partition, its device channels become available for routing and processing, just as with any other audio channel. You can change the channel names (see *Naming Channels using Channel Names/Naming Tool (CP2)*), add the channels to groups (see *Assigning Channels to Channel Groups*), and route and process the channels (see *Connecting Channels Using FlowView® (CP2)* and *Connecting Channels Using MatrixView (CP2)*). When you add a CP2 GPIO Expander, additional GPIO pins become available, and you can set Logic Input Triggers and Output Pin Actions for those pins.

📝 **Note:** GPIO pins added using a GPIO Expander can be used as Logic Input and Open Collector Output types, but, unlike the GPIO pins on a CP2, they cannot be used as Powered Logic Output type pins.

Loading the Project to the Device

As with any changes you make to a project in CONSOLE AI, the changes don't become active until you have loaded the project to the stack. See *Loading a Project File to a Device or Stack (CP2)* for more information.

About Long-distance P-Link

Using long-distance P-Link lets P-Link devices be separated from a CONVERGE Pro 2 and from one another by up to 650 feet (198m).

Things to keep in mind:

- You can turn long-distance P-Link on or off in the Device Settings dialog box. See *Changing CP2 Device Settings* for more information.

- Long-distance P-Link applies only to Beamforming Microphone Array 2 and BMA CT devices, and not to any other P-Link devices.

- Connect the devices using CAT6, 550MHz, 23AWG solid conductor Ethernet cable. Do not use Copper Clad Aluminum (CCA) Ethernet cable.

- Any CP2 units being connected using long-distance P-Link must have firmware 5.0.13.0 or newer.

- Any Beamforming Microphone Array 2 units being connected using long-distance P-Link must have firmware 1.0.3.12 or newer.

- You can connect no more than three Beamforming Microphone Array 2 or BMA CT channels to one CP2 when using Long-distance P-Link. Each speaker channel uses one of those three channels, along with the mic channels.

About Templates

When you make adjustments to channel properties for a particular channel type, you can save all the settings together as a template. You can save as many templates as you want and then later apply them again when using the same channel property type in the future. Using templates is a fast, easy way to adjust channel properties without having to repeat the same steps.

There are basically three ways to create and use channel property templates:

1. Save or apply templates from the channel properties block in FlowView or MatrixView by right-clicking anywhere in the block and choosing **Apply Template** or **Save As Template**

2. Open a channel property block from the Channel Properties screen and then right-click anywhere in the block and choose **Apply Template** or **Save As Template.**

3. Use the Template Editor to manage templates (for more information, see *Using Template Editor*)

Checking for Updates

You can check for updates to the CONSOLE AI, firmware updates for ClearOne devices, CONVERGE Pro 2 , or other software ClearOne makes available.

📝 **Note:** You must have Internet access to use the Check for Updates feature.

To check for updates:

1. From the **Help** menu, choose **Check for updates**. The Download from Web dialog box appears:
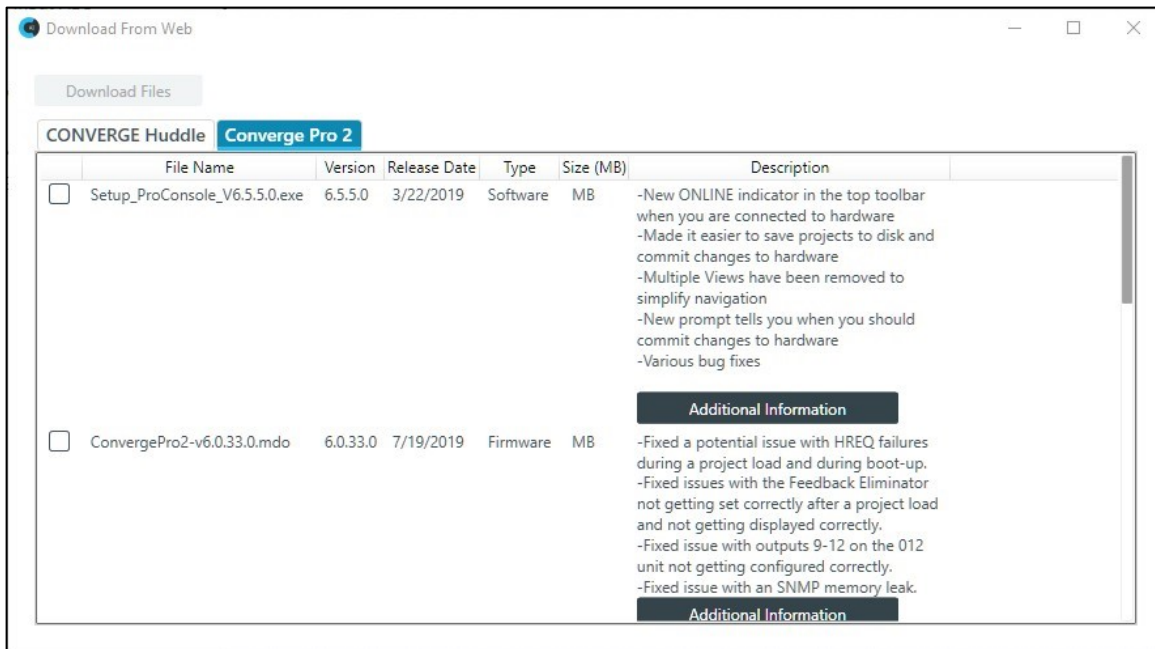
2. Check the boxes next to any items you want to download.

3. (Optional) You can click **Additional Information** next to a download in some cases to see the Release Notes for that download. The Release Notes provides detailed information about changes made for software or firmware release.

4. Click **Download Files**.

   Firmware updates are downloaded to the following location on your computer:

   {Documents}\ClearOne\Equipment\{Product}\Firmware (where {Documents} refers to your Windows Documents directory for the current user, which is a variable location, and {Product} refers to the name of the product for which the firmware applies). Applications are downloaded to your Windows Download folder for the current user.

📝 **Note the following**

- Downloading updates makes them available to you, but does not execute them for you.

- For example, downloading a new version of the Dialer application makes the installer program available in the Updates folder, but does not run the installer program to install the Dialer.

- To run executable updates, you must navigate to the Updates folder in Windows Explorer and run the executable.

Chapter 2 - Interface

This chapter contains information about the CONSOLE AI user interface.

Choosing Active Products

You can choose which products you will be using with the CONSOLE AI application, the first time the application is run, or, after your initial selection, anytime thereafter in the Options.

To choose active products:

1. Run the CONSOLE AI application.

   If it is the first time the application has been run, a dialog box appears to let you choose which CONVERGE products you will be using:
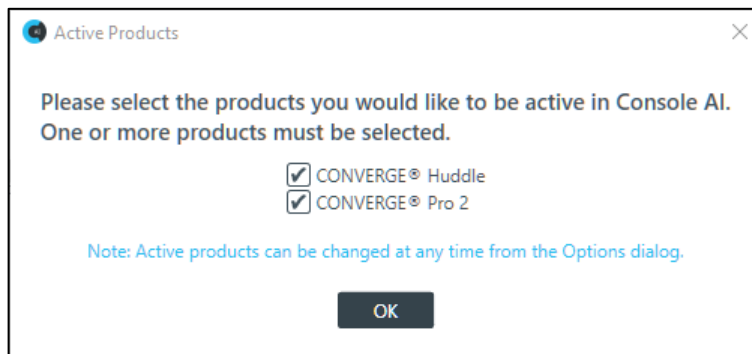
2. Check which of the products you intend to use.

   You must choose at least one product. You can always change your choice later, as described in the step below.

3. After the first time the product has been run, to choose active products, from the **File** menu, choose

Options.

   The Options dialog box appears (it can appear in one of two ways, depending on what was chosen as active products the first time the application was run).

4. Select the products you want to be active or deselect products you no longer want to be active.

   The CONSOLE AI application is restarted to show the appropriate interface for the product(s) you have selected.

About CONSOLE AI Interface

> 📝 **Note:** Since CONSOLE AI supports both CONVERGE Pro 2 and CONVERGE Huddle, the appearance of the interface depends on which of these products is currently active. For information about choosing which products are active, see *Choosing Active Products*.
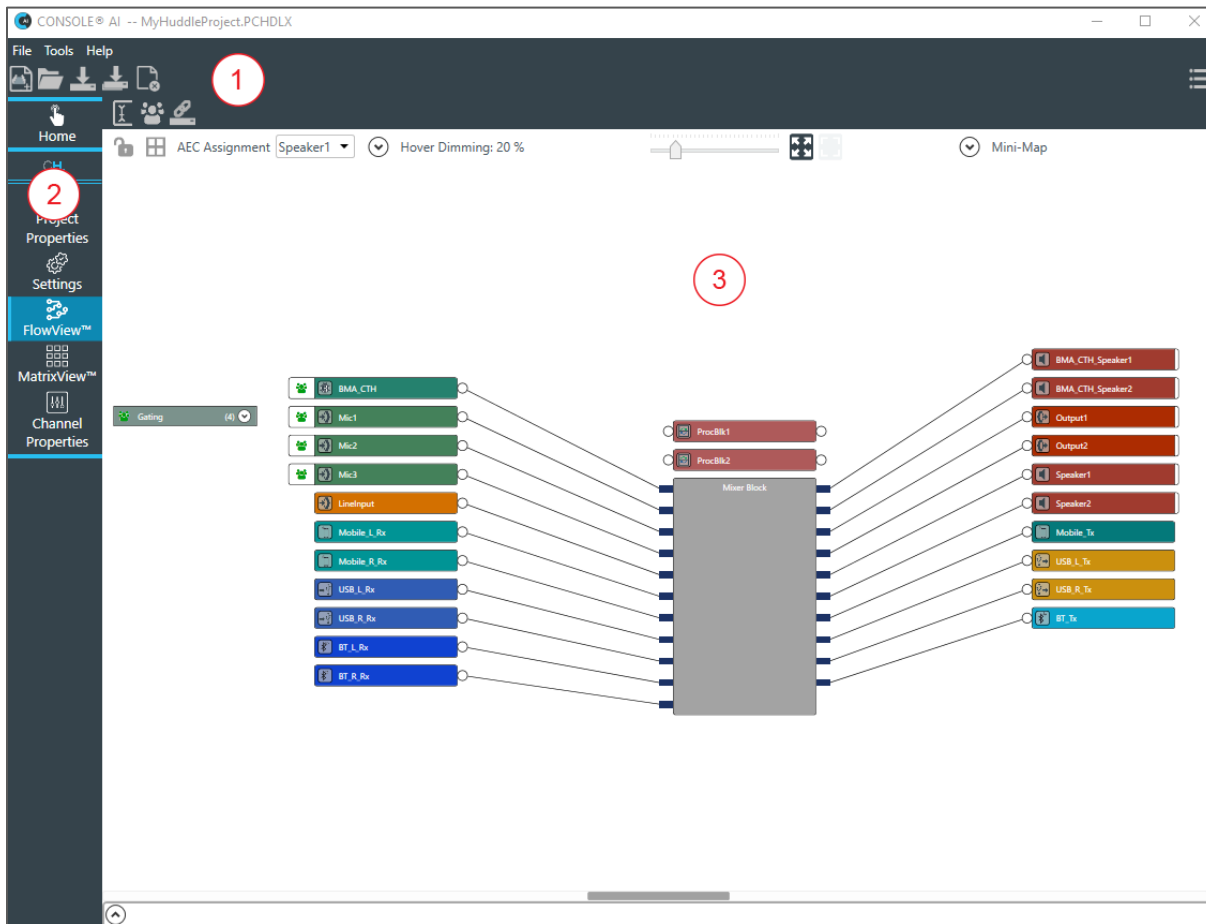
Interface Layout (CP2)
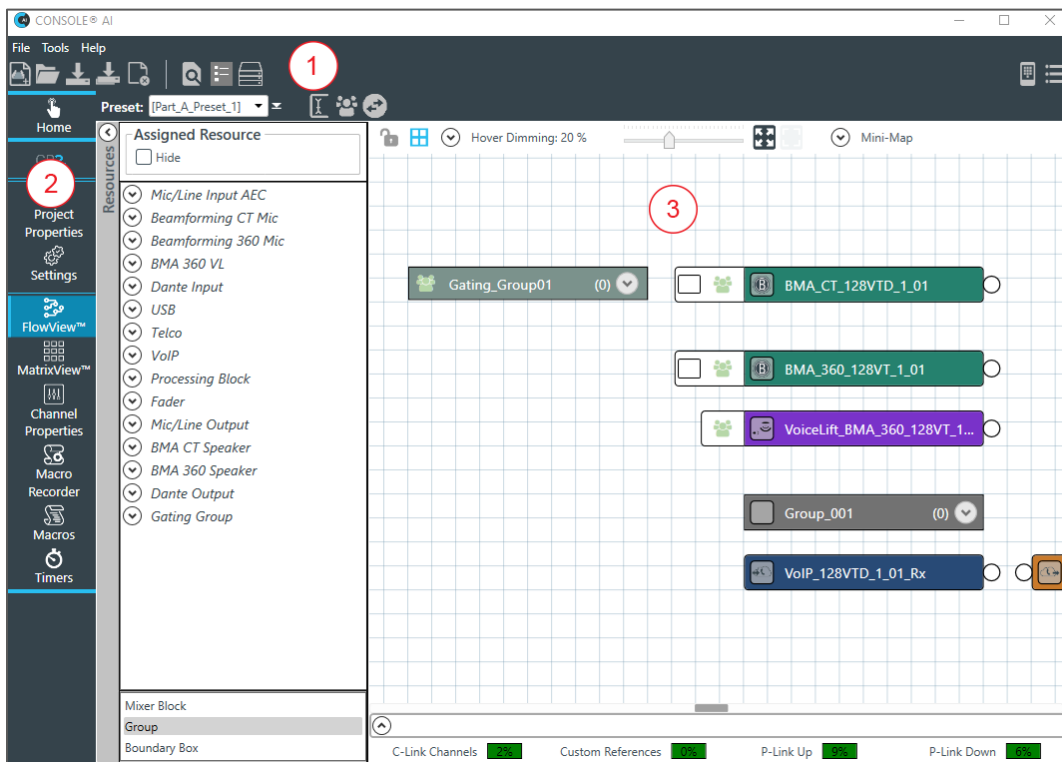
1. The Toolbar shows tools that give you access to essential features.

2. The Navigation Panel Allows you choose different screens.

3. The interface screen allows you to make changes to features. The contents of the interface screen change depending on what you have selected in the Navigation Panel.

Interface Layout (Huddle)

1. The Toolbar shows tools that give you easy access to essential features.

2. The Navigation Panel allows you choose different screens.

3. The interface screen area allows you to make changes to features. The contents of the interface screen change depending on what you have selected in the Navigation Panel.

Text Fields

Unless otherwise specified, text fields in the CONSOLE AI interface can contain up to 64 characters.

Names, such as device names, may contain alphanumeric characters (a-z, uppercase and lowercase, and 0-9), hyphens (-) and underscores (_) but may not contain spaces or special characters, such as !, @, #, $, etc. Other limitations may apply as appropriate (for example, email addresses must be in the form of an email address).

Changing the CONSOLE AI Interface Language

You can change the language used in the CONSOLE AI user interface. You can choose any of the following languages:

- Arabic
- Chinese
- English

- French
- German
- Japanese
- Korean
- Russian
- Spanish

To change the CONSOLE AI user interface language:

1. From the **Help** menu, choose **Language**. A sub-menu appears.
2. Choose a language from the sub-menu.

   The Change Language dialog box appears, to confirm that you want to restart the CONSOLE AI and change the user interface language:
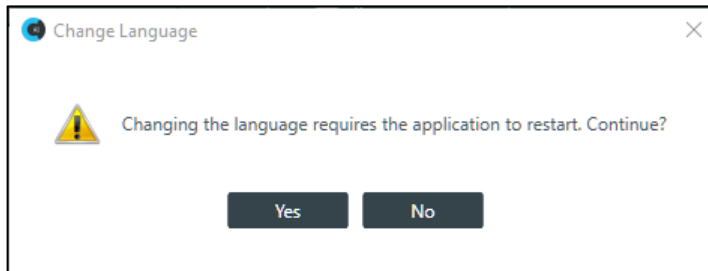
3. Click **Yes**.

   The CONSOLE AI application is restarted and its user interface will be shown using the selected language.

Changing CONSOLE AI Preferences

The CONSOLE AI Preferences allows you to change the following:

- Active Products (choose CONVERGE Pro 2 or CONVERGE Huddle or both)
- General - Change several general settings
- FlowView - Change FlowView options
- Warnings - Specify which warnings to show
- Network Filters - Specify which network interfaces and properties to display
- Communication Timeouts - Specify timeout values for various CONSOLE AI communications functions
- Diagnostics - Specify the logging level.

You can access the Preferences screen by either of the following two methods:

1. In the upper-left area of the CONSOLE AI screen, from the **File** menu, choose **Preferences**.
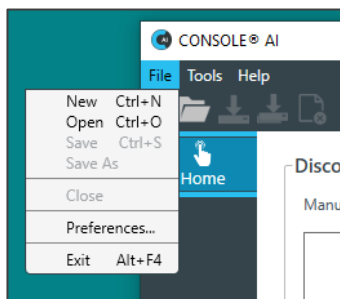
2. In the upper-right area of the CONSOLE AI screen, click the Preferences icon, ▤ .

The system displays the Preferences screen, with the General tab window active:
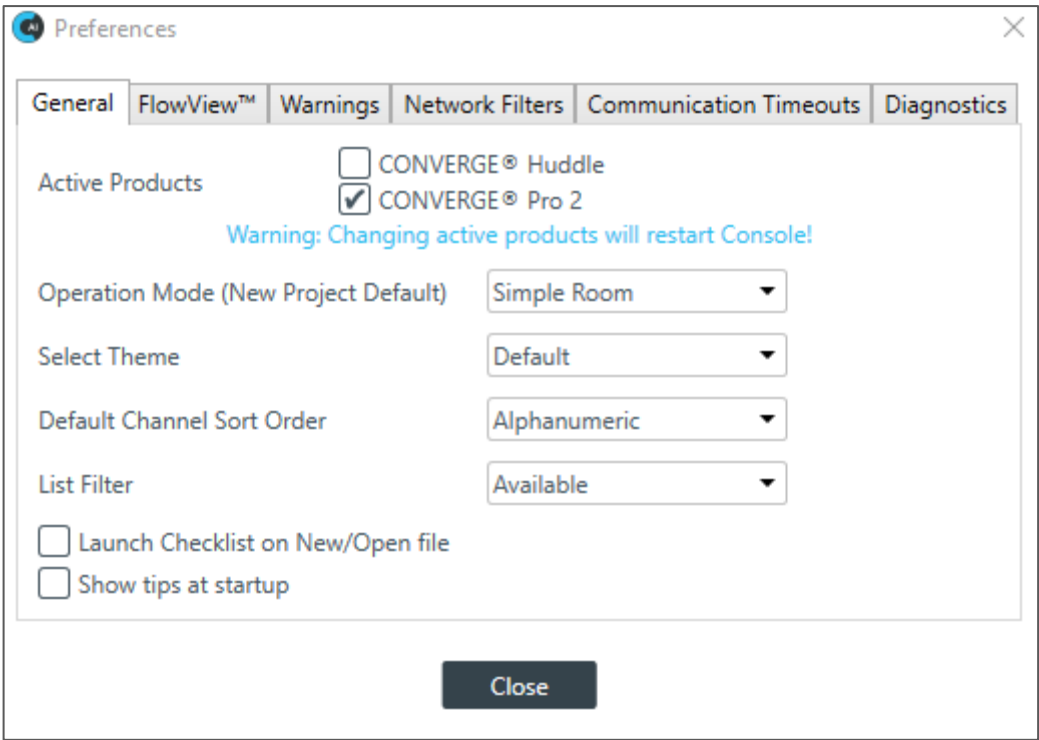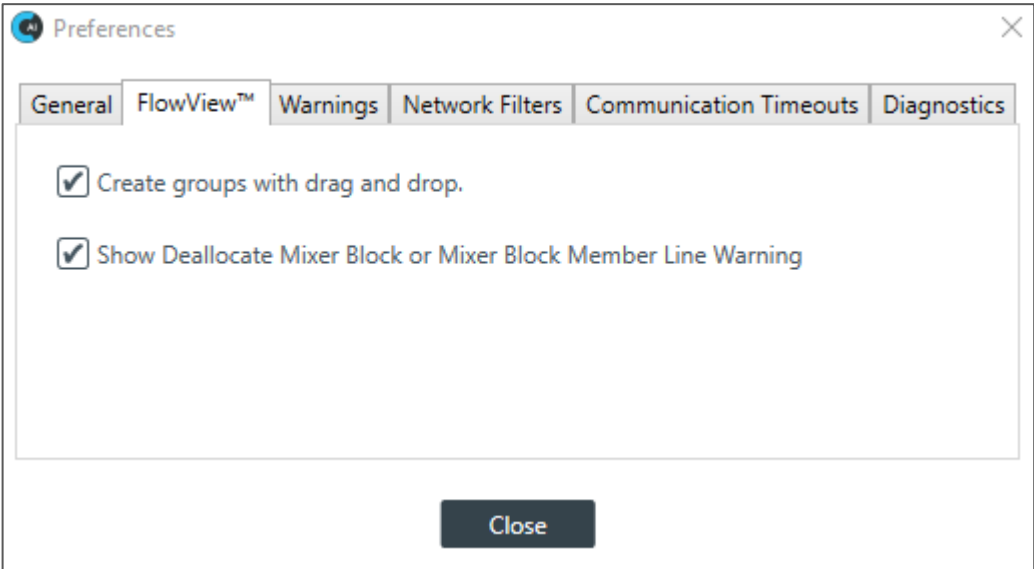

General Settings

(Optional) Change which products you want to be active (CONVERGE Huddle and/or CONVERGE Pro 2).

Note the message: Warning: Changing these options causes the CONSOLE AI application to restart.

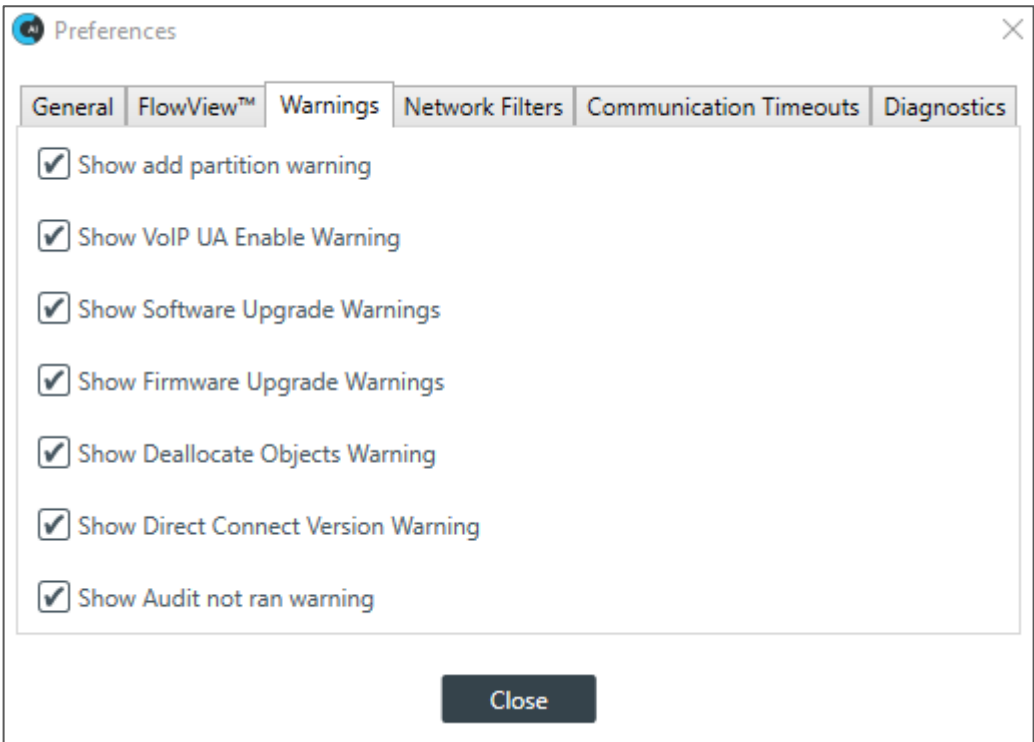(Optional) Change any of the options, as described in the following table:

Option	Description
Operation Mode (New Project Default)	Specify whether new projects, when created, use Simple Room operation mode (no partitions) or Advanced Mode operation mode (using partitions).
Select Theme	Change the appearance of the CONSOLE AI user interface to be dark or light (default).
Default Channel Sort Order	In screens that list channels, specify whether the default sort order for listing channels is Alphanumeric or by Device & Connector.
List Filter	Specify whether the default list filter is Available or All.
Launch Checklist on New/ Open File	Specify whether to launch the Workflow Checklist when creating a new project or opening a project.

FlowView Settings

● Preferences	✕
General · FlowView™ · Warnings · Network Filters · Communication Timeouts · Diagnostics	
☑ Create groups with drag and drop.	
☑ Show Deallocate Mixer Block or Mixer Block Member Line Warning	
	Close

Warnings Settings

(Optional) Select which warnings appear, as described in the table below:

● Preferences	✕
General · FlowView™ · Warnings · Network Filters · Communication Timeouts · Diagnostics	
☑ Show add partition warning	
☑ Show VoIP UA Enable Warning	
☑ Show Software Upgrade Warnings	
☑ Show Firmware Upgrade Warnings	
☑ Show Deallocate Objects Warning	
☑ Show Direct Connect Version Warning	
☑ Show Audit not ran warning	
	Close

Option	Description
Show add partition warning	Show a warning about the results of adding a partition each time a partition is added.

Option	Description
Show VoIP UA Enable Warning	Show a warning regarding how many concurrent calls can be placed, based on how many UAs have been enabled.
Show Software Upgrade Warnings	Show warnings about the implications of upgrading the CONSOLE AI software.
Show Firmware Upgrade Warnings	Show warnings about the implications of upgrading the CP2 firmware.
Show Deallocate Objects Warning	Show warnings when objects are deallocated.
Show Direct Connect Version Warning	Show warnings when objects are deallocated. Using Direct Connect requires firmware version 6.0.29.0 or greater, and by default, a warning about this is shown. You can deselect this check box to not have this warning shown.

Network Filters Settings:

Communication Timeouts tab.

Change any of the communication timeout values, or click Restore Defaults to change all timeouts to their default values. See the table below for details:

Item	Description
Connection	Maximum time the CONSOLE AI application attempts to make a connection to a CP2 device.
Configuration	Maximum time for the configuration load process to complete.
Retrieve Live Values	Maximum time for the CONSOLE AI to request and receive live values from a CP2 device.
Previous Configuration Removal	Maximum time for an existing configuration file to be removed from a stack.
File Transfer	Maximum transfer time (between CONSOLE AI and a CP2 device) for any single file.
Get Project	Maximum time to request and process a CONSOLE AI project file.

Diagnostics Settings
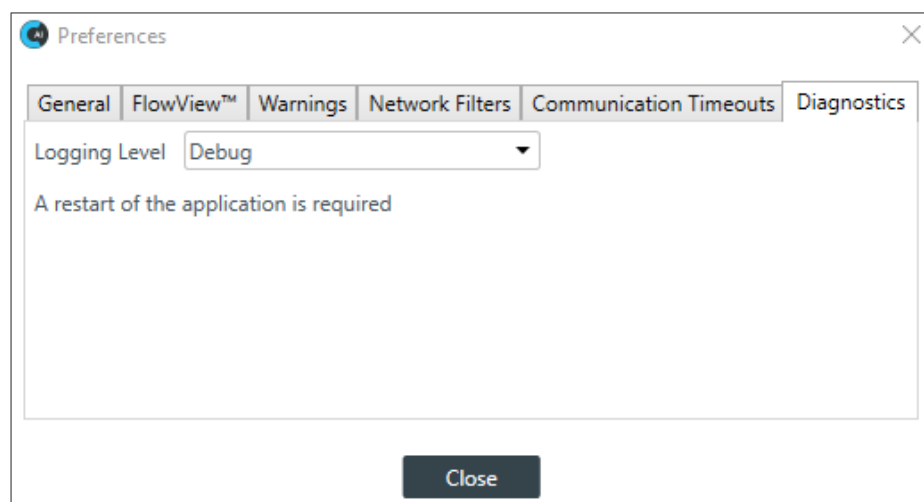
Note the following:

- As the on-screen message indicates, a change to the logging level requires a restart of CONSOLE AI.

- This logging relates to CONSOLE AI events, not to SIP. Information about SIP logging is available in the *Changing CP2 Device Settings – VoIP > SIP Log Level* section of this manual.

From the dropdown, select an option.
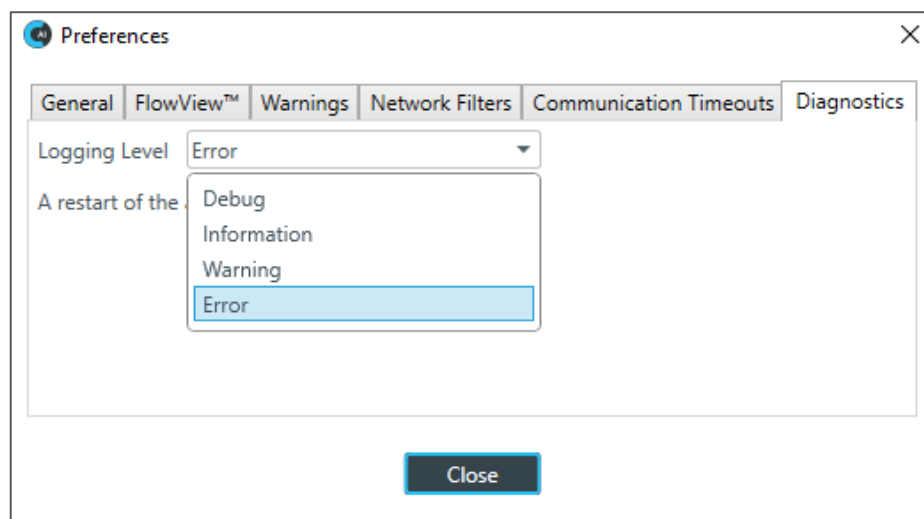
The following table indicates the information each logging level records:

Logging Level	Recorded Information
Debug	Detailed data. The data may help ClearOne technical support troubleshoot a problem.
Information	Normal system events that may be of interest. It does **not** indicate an error.
Warning	Unexpected system events. The system can continue to operate.
Error	A harmful system event. This requires intervention to continue to use the system.

Launching the CONVERGE Pro 2 Dialer (CP2)

If you have installed the CONVERGE Pro 2 Dialer, you can launch it from the CONSOLE AI toolbar. See *About Dialer* for more information about the Dialer.

See *Checking for Updates* for more information about using Check for Updates to download and install the Dialer. See *CONVERGE Pro 2 Dialer User Manual* for more information about using the Dialer. To launch the Dialer

From the Toolbar, click ▥ at the upper right of the CONSOLE AI interface. The Dialer application is launched.

Updating DIALOG 20 Transmitter Firmware

You can upgrade the firmware of a DIALOG 20 transmitter using the CONSOLE AI application.

To upgrade the firmware for a DIALOG 20 transmitter:

1. From the **Tools** menu, choose **Dialog 20 Transmitter Updater**. The Dialog 20 Transmitter Firmware Updater appears:
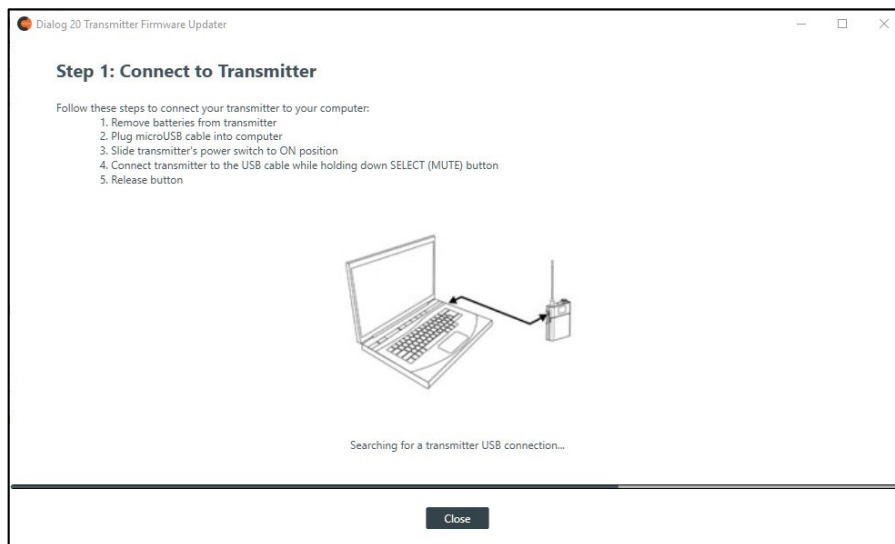
2. Using a USB cable with a Mini USB connector on one end (to connect to the D20 transmitter) and a Type A USB connector on the other end (to connect to a PC), connect the DIALOG 20 Transmitter to the PC where CONSOLE AI is installed.

   Once the transmitter is located, the updater advances to Step 2:
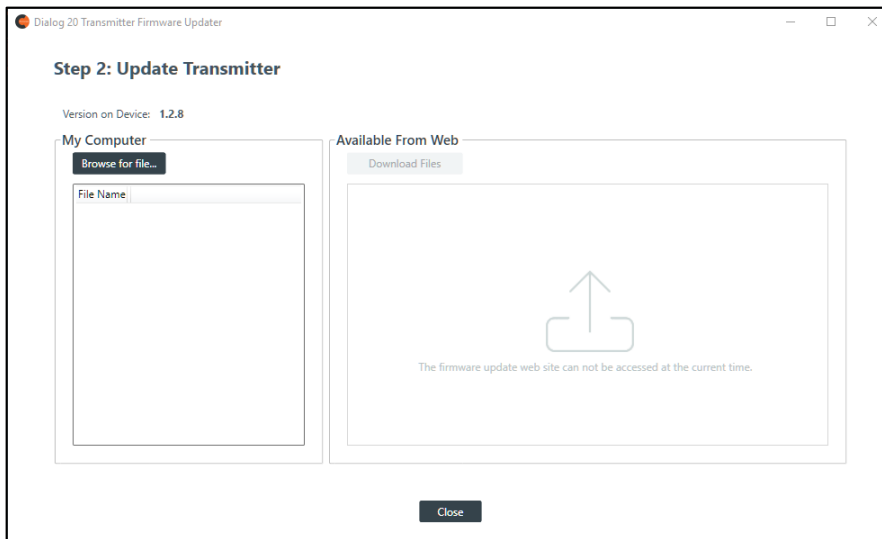
3. If any updated firmware files can be located from the ClearOne updater web site, they appear in the Available From Web area. Select a file to download and click Download Files.

    Once the file is downloaded, the update begins.

4. If you aren't connected to the Internet, or if the firmware file you want to use to update the transmitter is already on your hard drive, click **Browse for File**.

    An Open dialog box appears to let you choose a file. Once you have chosen a file, the update begins.

5. When the update is complete, the following screen appears:
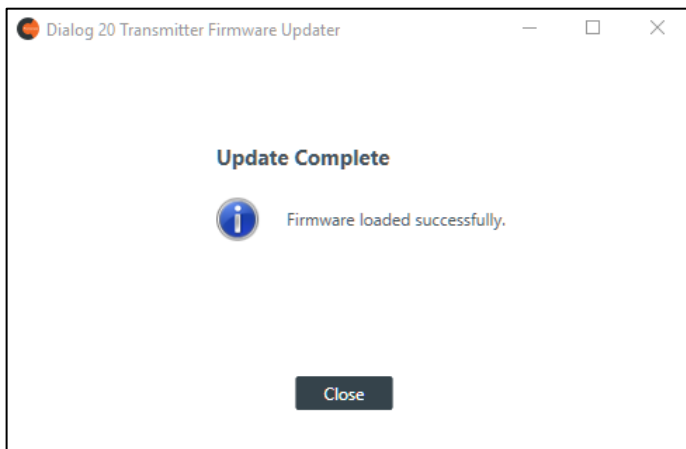
6. Click **Close**.

Using the Log Viewer

If you have retrieved log files from a Huddle or CP2 device, you can use the in-application Log Viewer tool to view them. For more information about retrieving Huddle log files, see *Retrieving Log Files (Huddle)*. For more information about retrieving CP2 log files, see *Retrieving Log Files (CP2)*.

To use the Log Viewer:

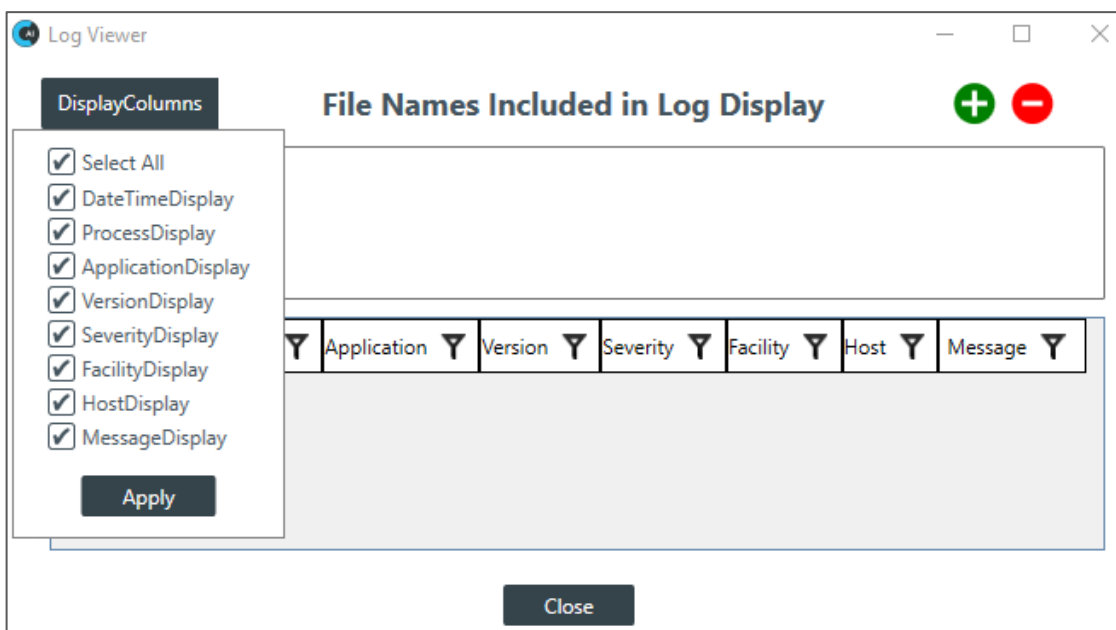1. From the **Tools** menu, choose **Log Viewer**.
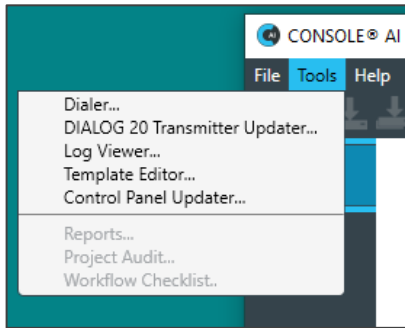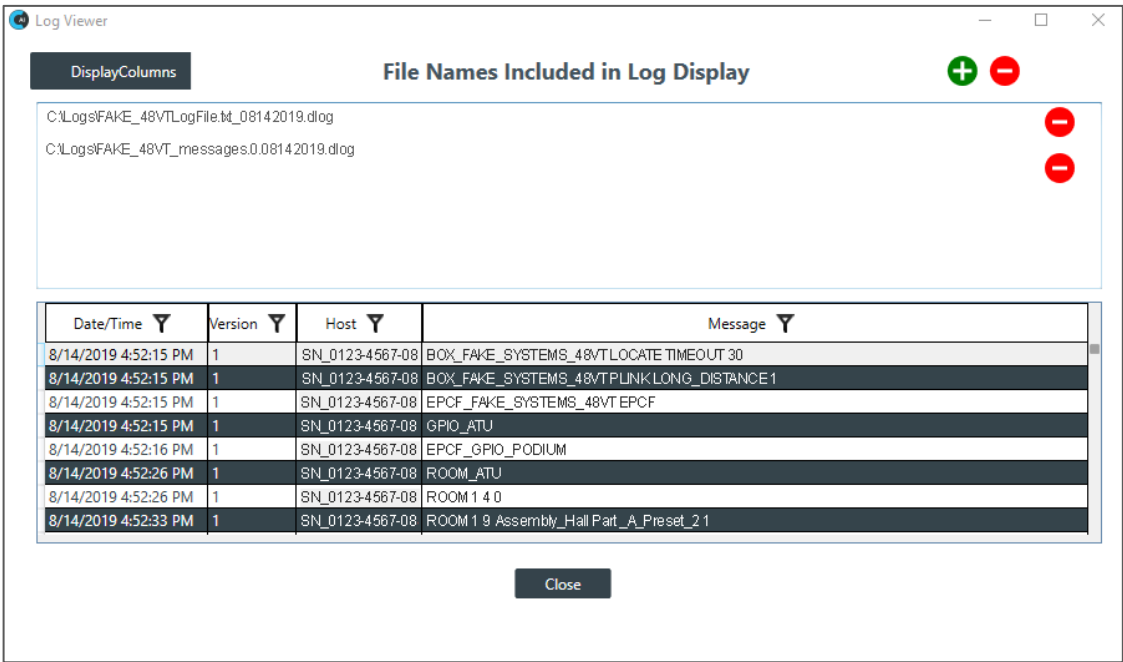

The Log Viewer appears:
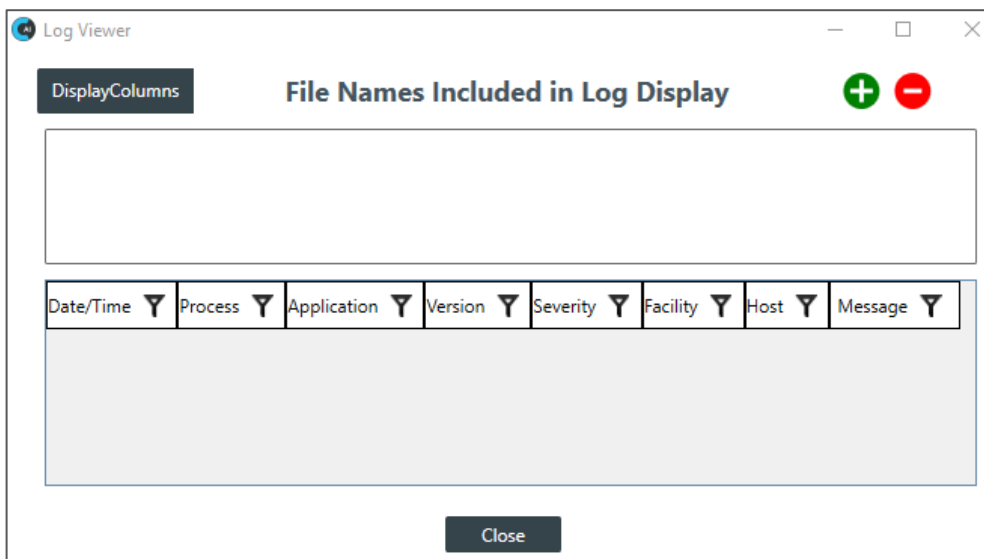
To change the attribute columns that the Log Viewer displays, in the upper-left, click DisplayColumns.

The Log Viewer provides a list of the attributes. Click the checkboxes to select/deselect attributes.

To select one or more log files to view, click the **green icon**, ➕ .

The system presents a dialog box that lists log files at the default location where log files are placed when retrieved from a device.

Note: To remove a log file, click the corresponding red icon, ⛔ .

To sort and/or filter the information in the log file based on a particular column, click the column's sort/filter

icon, ▼ .., and select your sort and filter parameters.
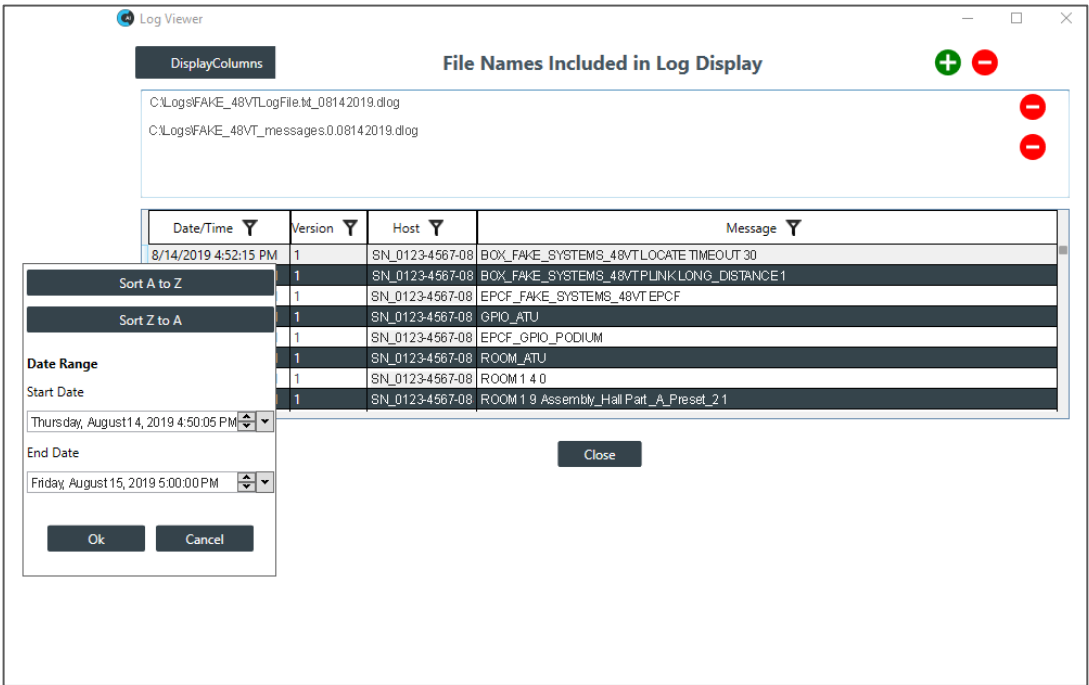
You can filter the Message column for a particular text string. To do so, click the ▼ in the Message column, then in the Search box, type the text string.
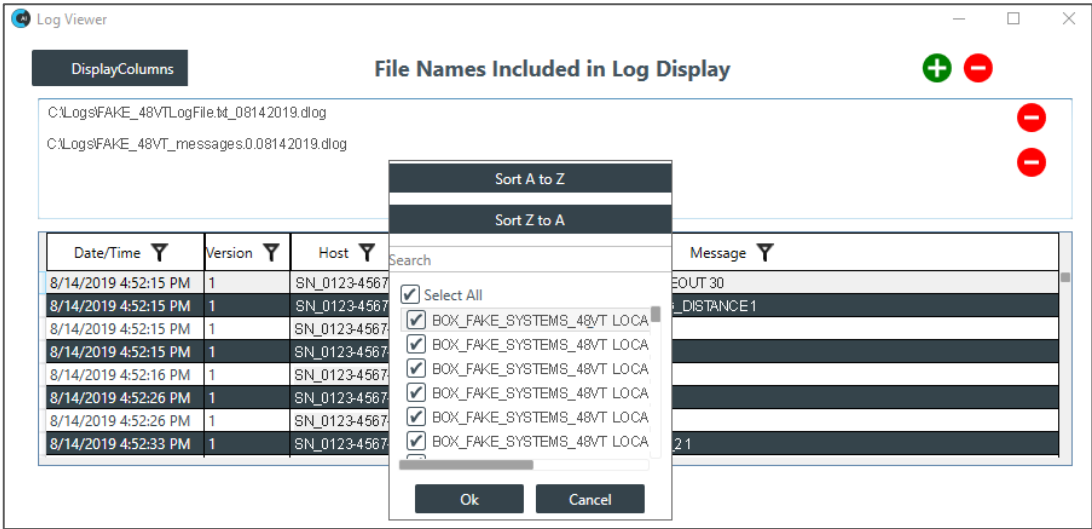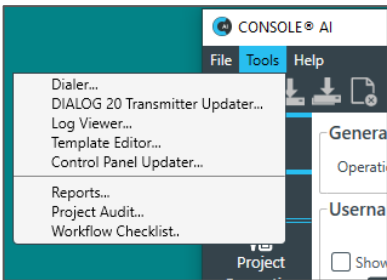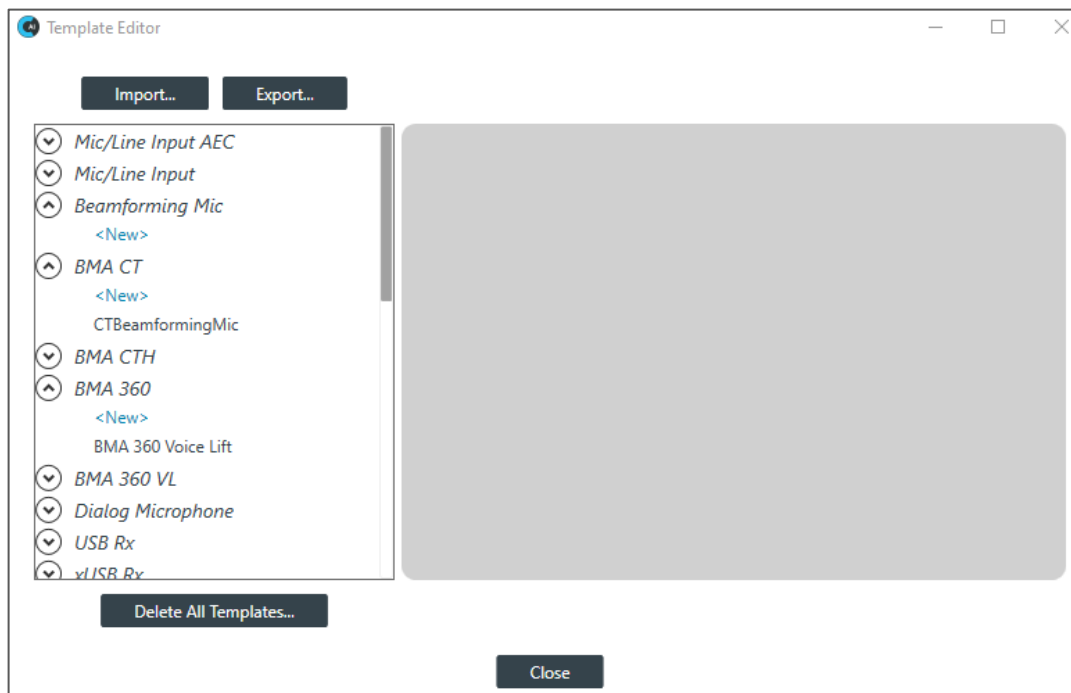

Using Template Editor

You can use the Template Editor to create and modify templates. More information about templates is available in the About Templates section.

To use the Template Editor:

1. From the **Tools** menu, choose **Template Editor**.

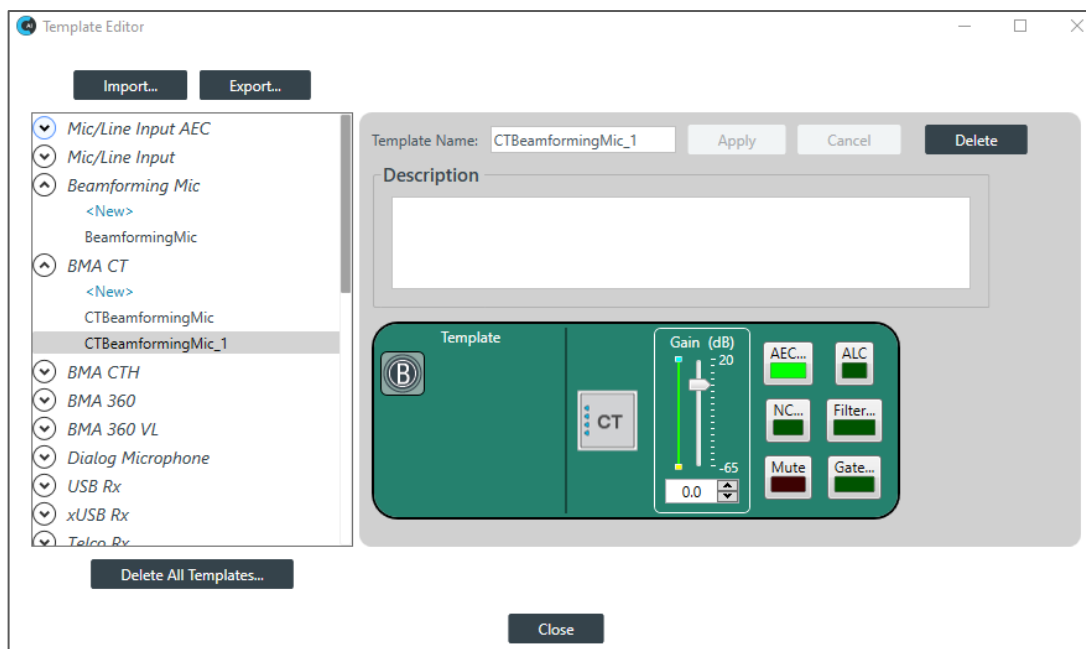CONSOLE AI displays the Template Editor:

2. On the left, click a channel property type in the list.

Any existing templates are listed below the channel property type.

3. Select an existing template or <New> to create a new template.

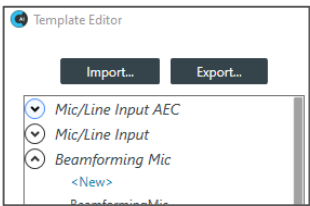The system displays the channel property block.

Note: As you make changes to the channel properties, the Apply and the Cancel buttons darken.

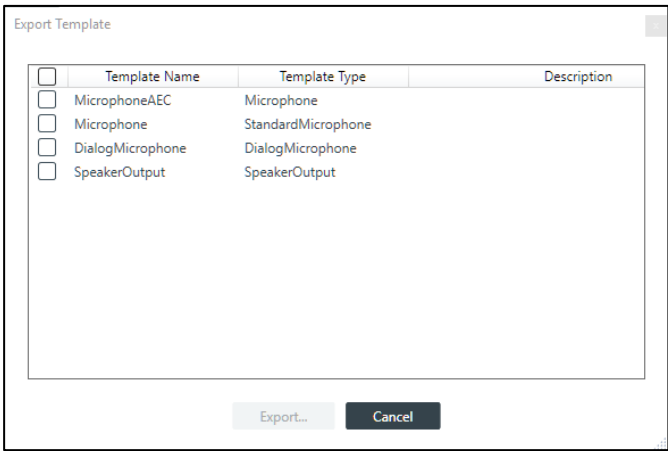4. To save the changes to the template, click **Apply**.

Export Templates

To export templates as a file,

    1.   Click Export.

The system displays the Export Template dialog box:

    2.   To select/deselect templates, click the template's checkbox. To select all templates, click the box at the top of the list (on the row of column headings).

    3.   Click Export.

        A Save As dialog box appears.

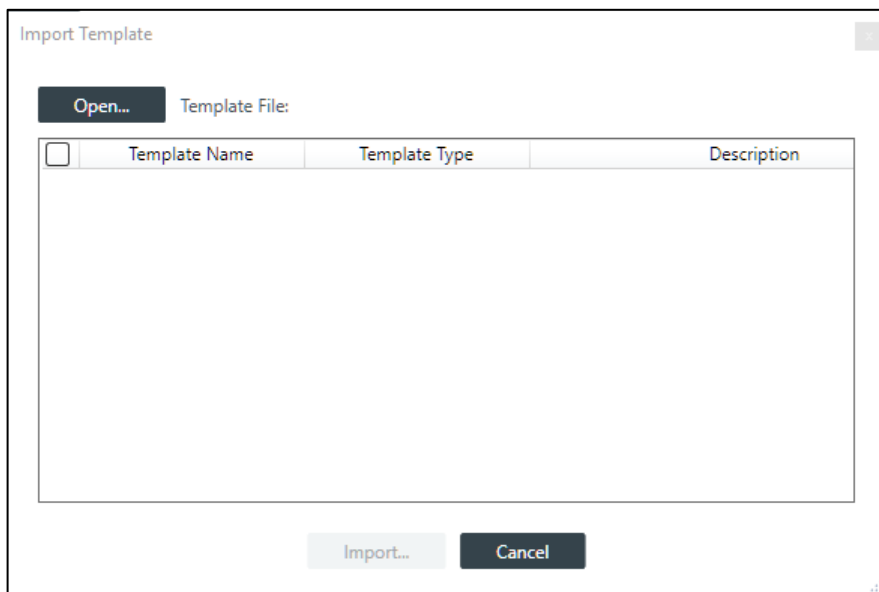   Specify the name and location of the template file, then click Save.

Import Templates

To import a template file,
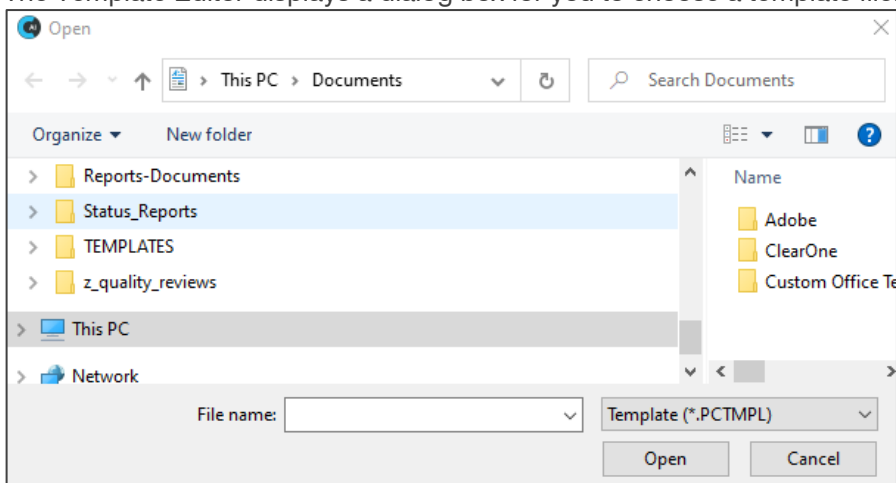
    1.   Click **Import**.

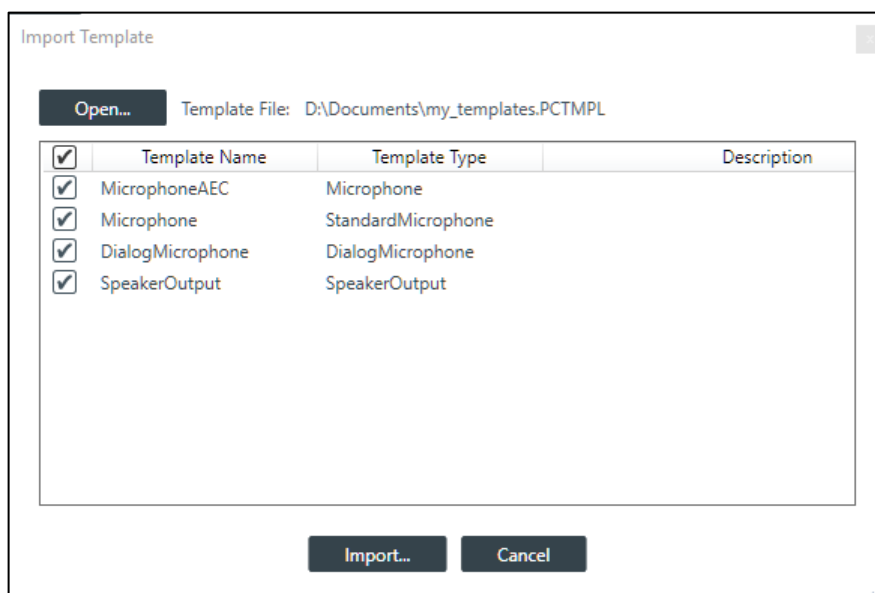The Import Template dialog box appears:

2. Click Open.

   The Template Editor displays a dialog box for you to choose a template file.
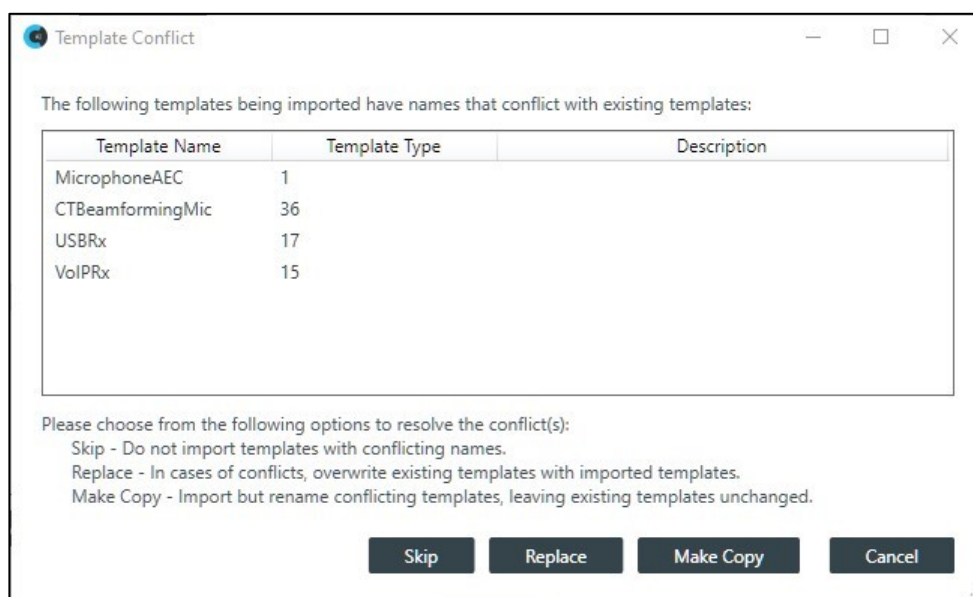

3. Choose a file and then click **Open**.

   All templates in the file are shown in the list:

4. To select/deselect templates, click the checkbox of a template, then click **Import...**

   If any imported template has the same name as an existing template, the following warning appears:

5. To skip the import of templates with conflicting names, click **Skip**.

   To replace the existing templates with those being imported, click **Replace**.

   To keep existing templates and import the templates with the conflicting names under a different name, click **Make Copy**
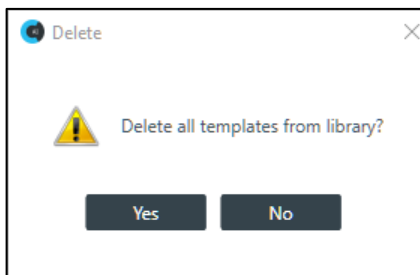
   The Template Editor imports the templates.

Delete All Templates

6. To delete all existing templates, click **Delete All Templates**.
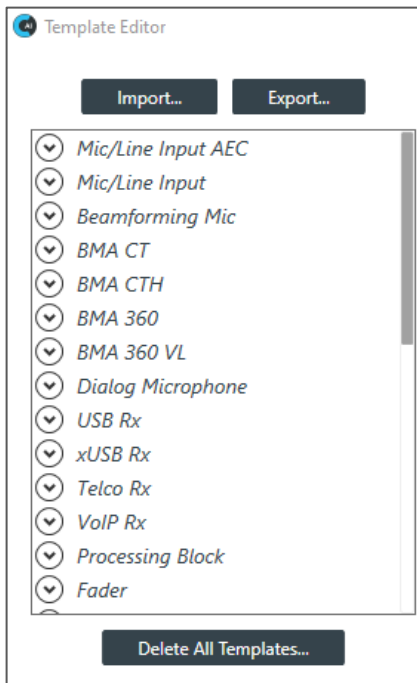
The system presents the following confirmation dialog box:

7. To delete, click **Yes**.

Updating Touch Panel Controller and Conference Controller Firmware

You can use CONSOLE AI to update the firmware for both the Touch Panel Controller and the Conference Controller.

⚠️ **Caution:** Updating the Touch Panel Controller firmware removes all settings, phone book entries, contacts, connections, or other data stored in the device.

To update the firmware, complete the following steps:

1. Connect the Controller to a PC which has CONSOLE AI installed.

For the Touch Panel Controller:

Use a USB cable with a Mini USB connector on one end (to connect to the TPC) and a Type A USB connector on the other end (to connect to a PC) to connect the Controller to a PC.
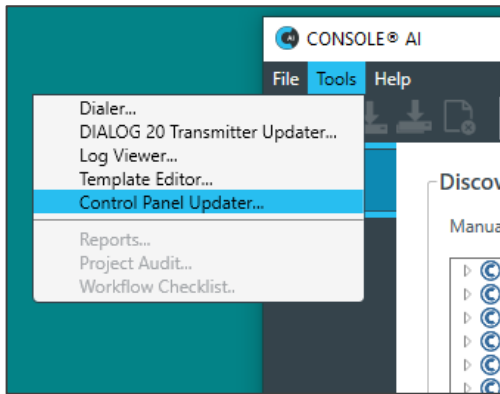
For the Conference Controller:

Use the USB slave connector to connect the Controller to a PC:

2. If it's not already open, launch the CONSOLE AI application.

3. From the **Tools** menu, choose **Touch Panel Controller Updater...**.

CONSOLE AI displays the **Control Panel Updater Firmware Update Utility**:
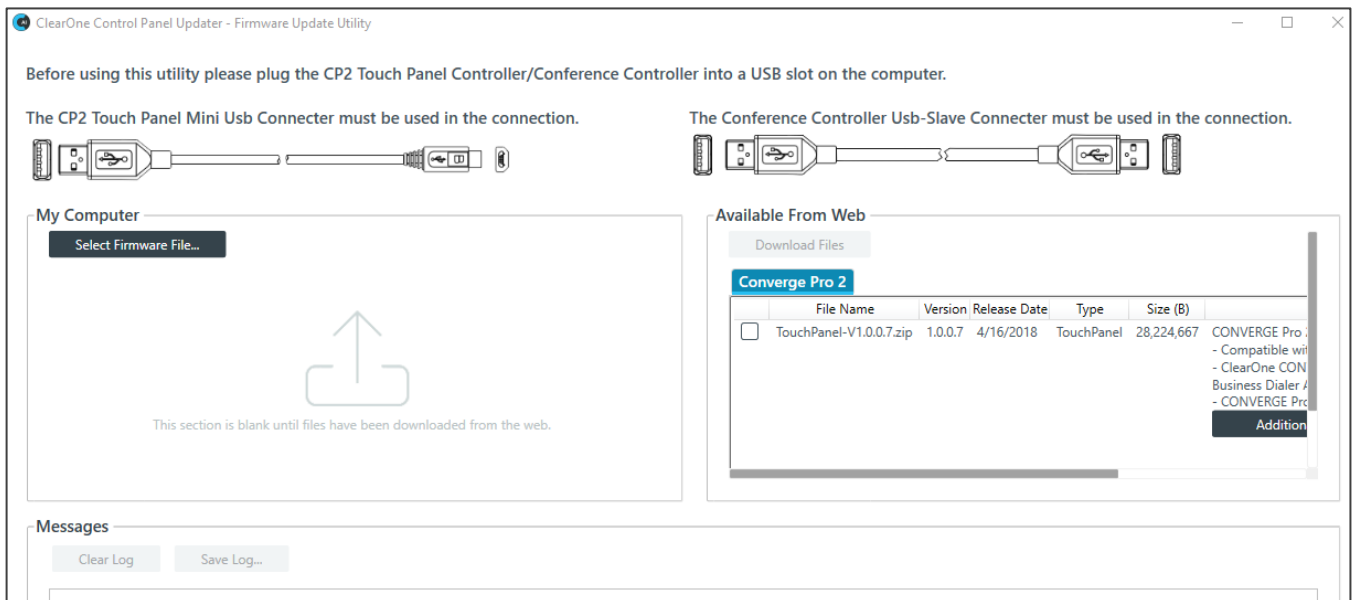
Two methods are available to update the firmware, based on the location of the update file:

- On ClearOne's website. (the right side of the screen above)

- On your computer (the left side of the screen above)

If any firmware update files are available from ClearOne's website, the system lists them in the **Available From Web** section.

To use an update file from ClearOne's website, go to step 4.

To use an update file on your computer, go to step 7.

4. Click the checkbox next to the file you want to download, then click **Download Files**.
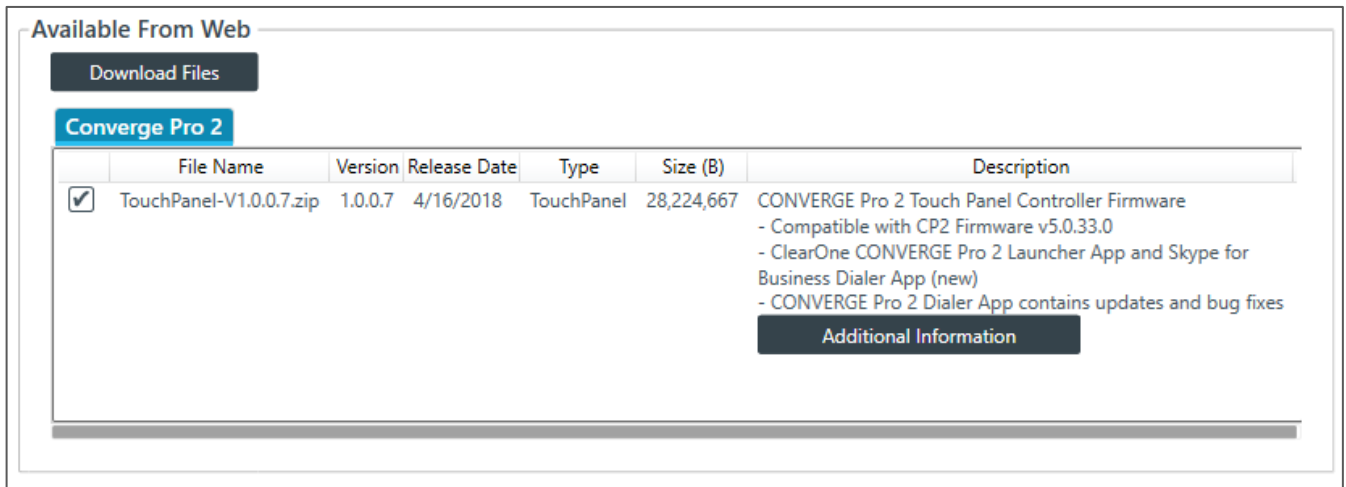
The selected file appears in the My Computer area.
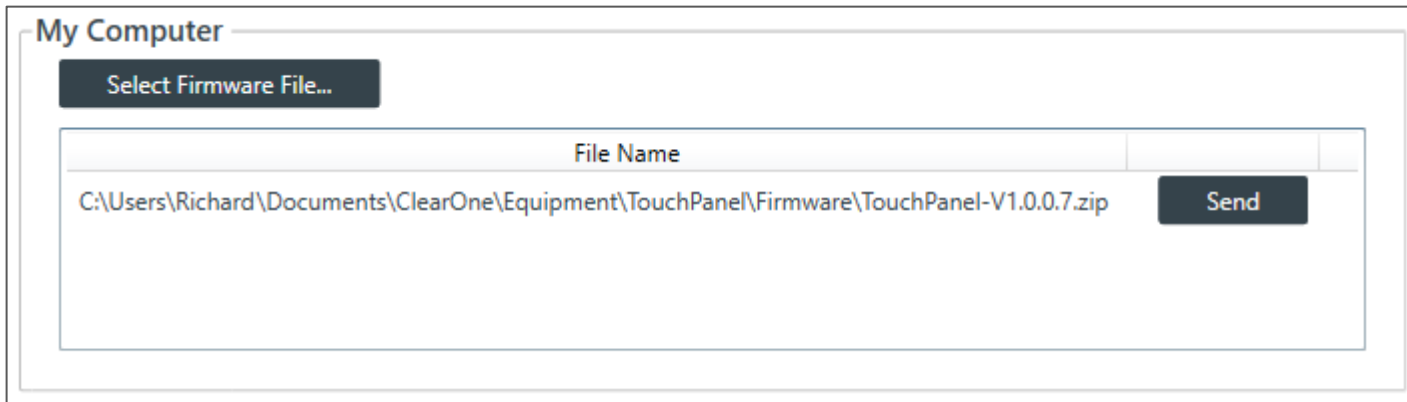
5. Click **Send.**

The system presents the following dialog box:
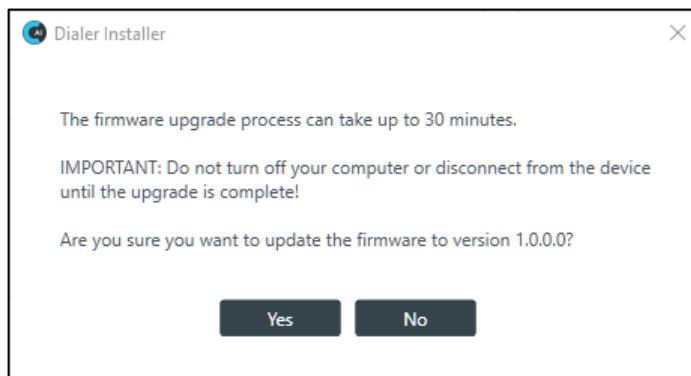
6. Click **Yes**.

Go to step 10.

7. To use a firmware file from your computer, in the My Computer area, click **Select Firmware File…**
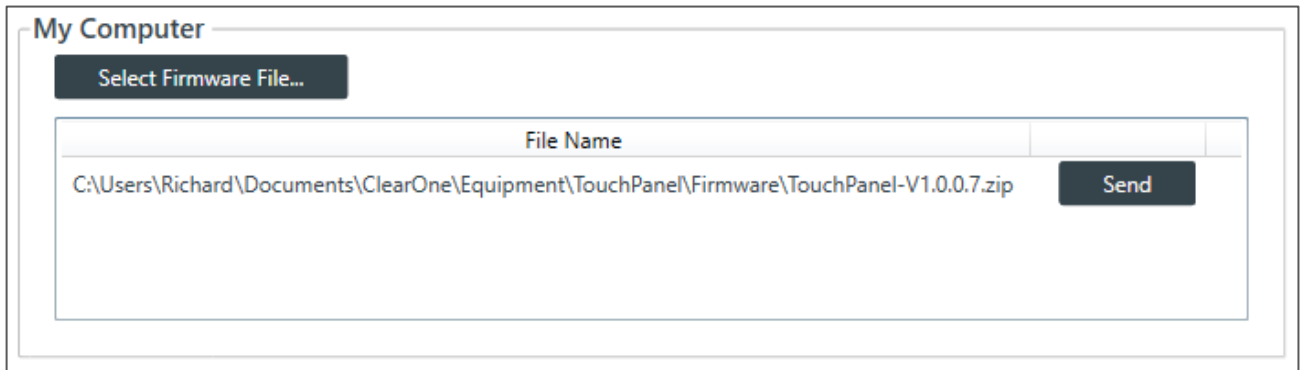
The system presents an Open dialog window.
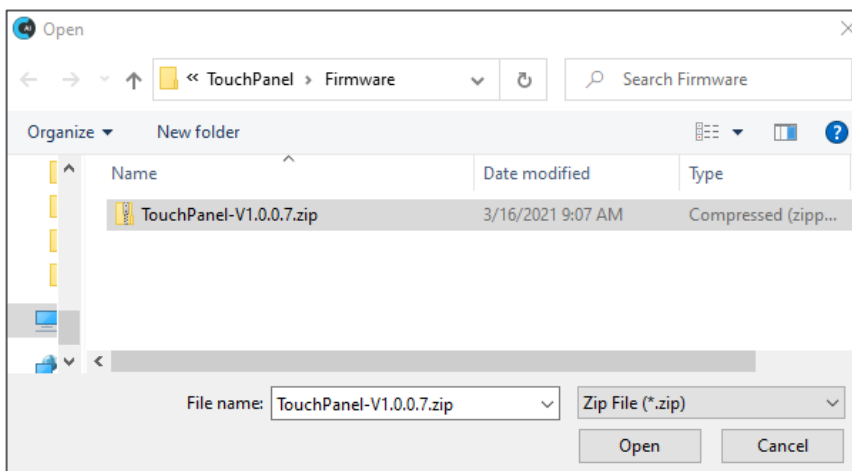
8. Click **Open**.
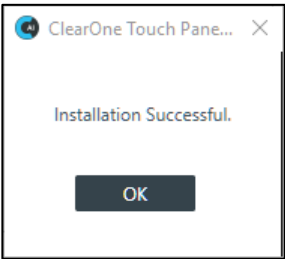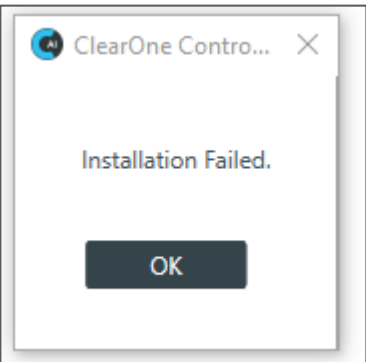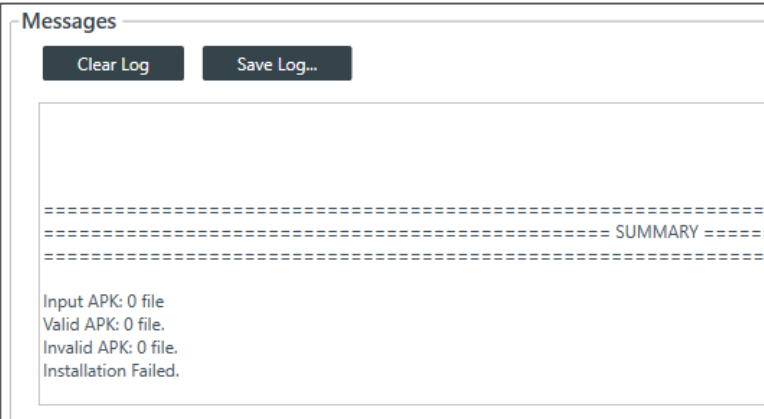
The system presents the following dialog box:
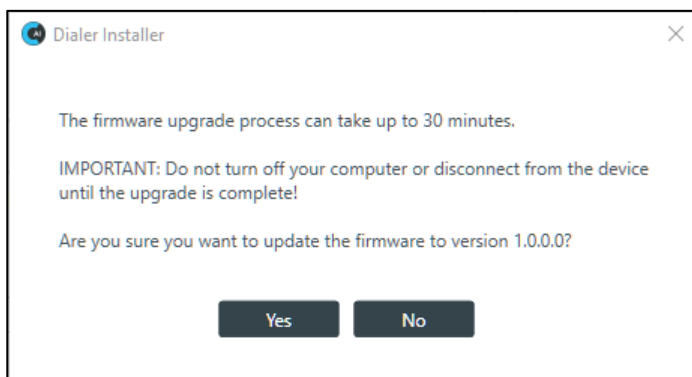
9. Click **Yes**.

The system sends the firmware file to the Controller.

10. To determine the next step, use the following table:

If the firmware update was…	Then…
Successful	The system presents the following dialog window: and the Controller restarts. Click **OK.** The firmware update is complete.
Unsuccessful	The system presents the following message window: Click **OK.** The system displays the following window: Click **Save Log…** Investigate why the update was unsuccessful. Contact ClearOne technical support as needed.

Using Workflow Checklist (CP2)

The Workflow Checklist is a great way to keep track of the steps needed to set up a project and get to the relevant portions of the CONSOLE AI interface.

📝 **Note:** The Workflow Checklist is available only for CONVERGE Pro 2 projects.

To use the Workflow Checklist:

1. If you have not already done so, open a CP2 project.

   For more information about opening a project, see *Opening a Project*.

2. From the toolbar, click [icon] .

   You can also use the preferences to have the Workflow Checklist opened every time you create or open a project file. See *Changing CONSOLE AI Preferences* for more information.

   The Workflow Checklists appears:
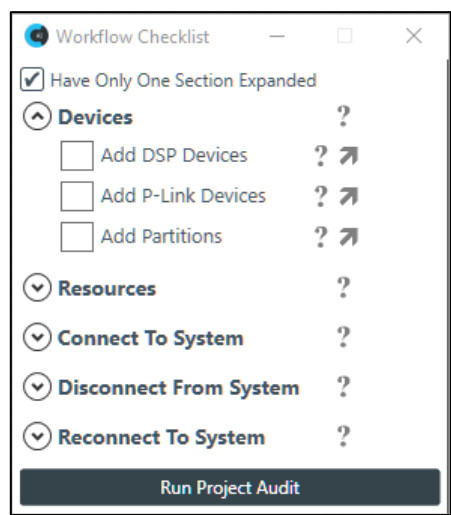
   Optional: To make changes, use the following table:

To…	Do the following:
Allow more than one section of the checklist to be open at a time	Deselect the **Have Only One Section Expanded** check box.
Open a section in the checklist	Click ⌄ next to that section heading.
Learn more about any particular option	Click ? to the right of that option.
Go directly to the part of the interface that corresponds to an item in the checklist	Click to the right of that item.
Check off an item you have already completed	Click the box to the left of that item to add a check mark.

Set a checklist item to "Ignore" (an item not checked in project audit)	Click the box to the left of that item twice so that an X appears in the box rather than a check mark.
Check your project for any errors	Click **Run Project Audit**.

📋 **Note:** You can also run a project audit by clicking ⊞ in the toolbar. See *Using Project Audit (CP2)* for more information.

Using Project Audit (CP2)

Project Audit Allows you check a CONSOLE AI project for potential issues that could prevent your project from working correctly. You can then use the audit results to easily jump to the parts of the CONSOLE AI interface that let you resolve potential issues.

Note the following:

- Project Audit is available only for CONVERGE Pro 2 projects.

- You can also run a project audit from the Workflow Checklist. See *Using Workflow Checklist (CP2)* for more information.

To use Project Audit:

1. If you have not already done so, open a CP2 project.

   For more information about opening a project, see *Opening a Project*.

2. Click ⊞ in the toolbar.

   The Project Audit dialog box appears:
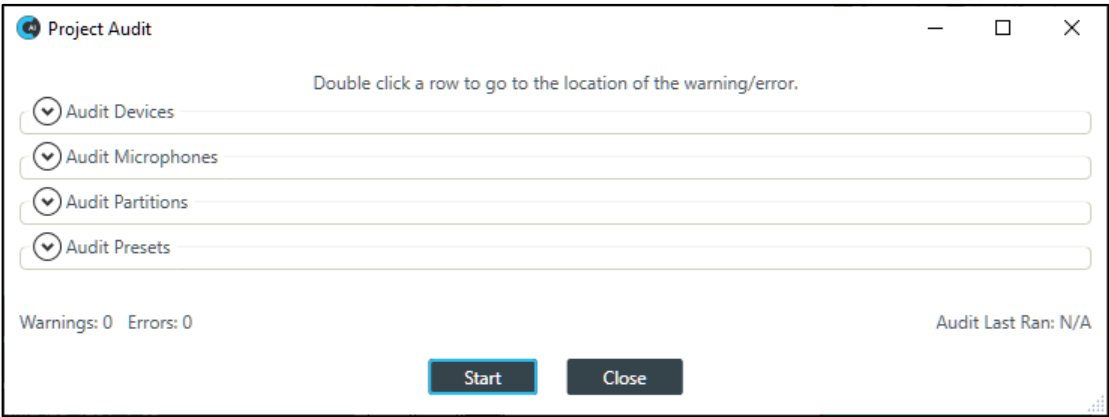
3. Click Start.

The system displays a list of any possible project warnings or errors.
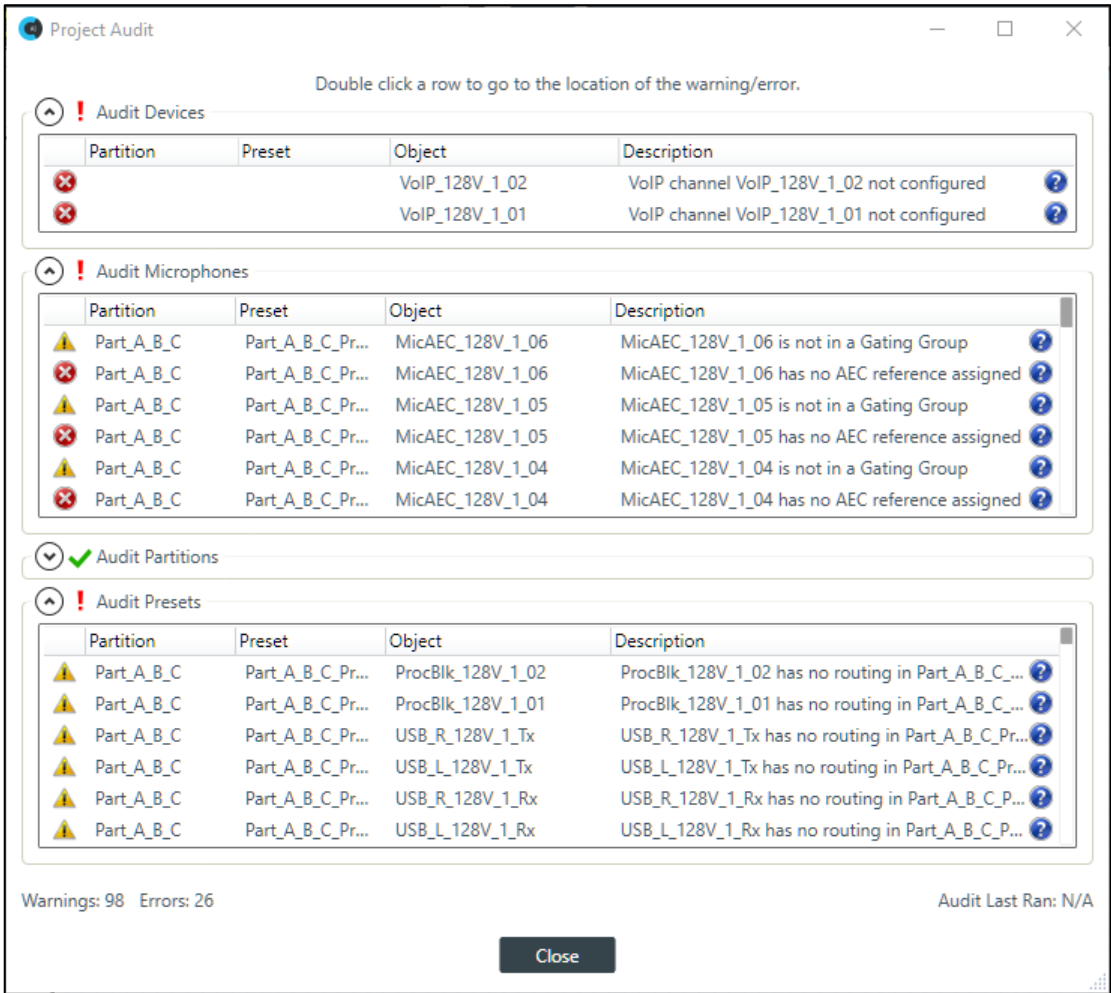
4. To see more details about an item in the list, click the question mark icon on the corresponding row.

   You are shown information about that item, such as the following:
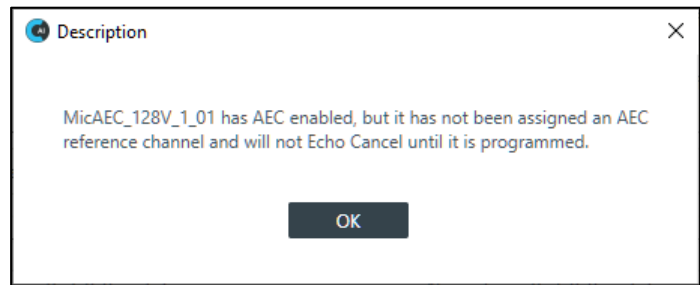
5. To make adjustments based on the audit results, double-click an item in the list.

   CONSOLE AI then opens the area of the interface that contains details to help fix the problem (if necessary).

Chapter 3: Project - Offline

This chapter contains information about creating and modifying projects.

📒 **Note:** The options described in this chapter are accessible only when the CONSOLE AI is in offline mode (not connected to a device or stack). See *Online Mode vs. Offline Mode* for more information.

Creating a Project (CP2)

Before you can change any of the settings for a CONVERGE Pro 2 device, you must create a project. For more information about project, see *About Projects*.

To create a project:

1. From the **File** menu, choose **New**.

2. If the CONSOLE AI application is configured to use both CONVERGE Huddle and CONVERGE Pro 2 as active products, the New Project dialog box appears to let you choose a product. (If the application is configured to use only CONVERVE Pro 2 products, you will see the second New Project dialog box below, listing CONVERGE Pro 2 devices, rather than the first New Project dialog box shown below; you can skip directly to the second New Project dialog box below.)
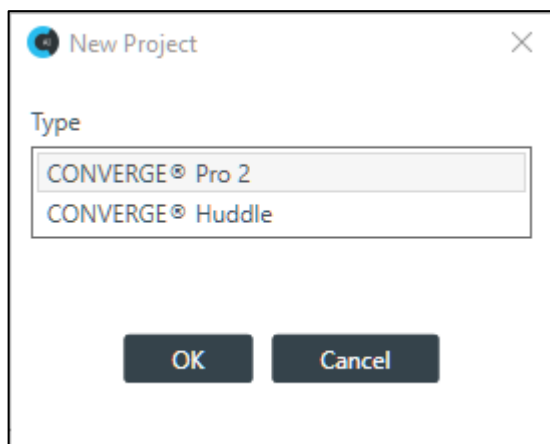
3. Click **CONVERGE® Pro 2,** and then click **OK**. The New Project dialog box appears:

4. Type a name for the project in the **Project Name** field.

📝 **Note:** Project names cannot have spaces.

5. Add devices by increasing the count for the correct device type.

6. Click **OK**.

Creating a Project (Huddle)

Before you can change any of the settings for a Huddle device, you must create a project. For more information about project, see *About Projects*.

To create a project:

1. From the **File** menu, choose **New**.

2. If the CONSOLE AI application is configured to use both CONVERGE Huddle and CONVERGE Pro 2 as active products, the New Project dialog box appears to let you choose a product. (If the application is configured to use only CONVERGE Huddle, you will see the second New Project dialog box below; you can skip directly to the second New Project dialog box below.)
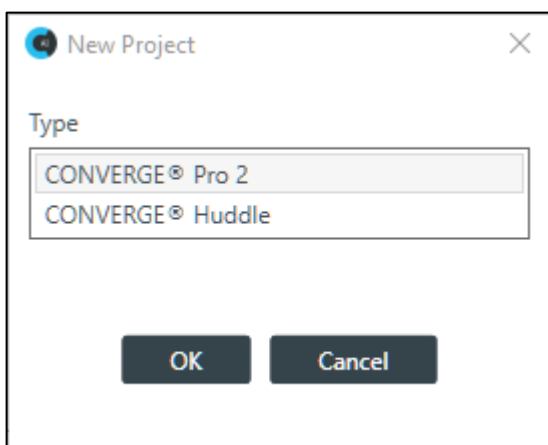
3. Click **CONVERGE® Huddle,** and then click **OK**. The New Project dialog box appears:

4. Type a name for the project in the **Project Name** field.
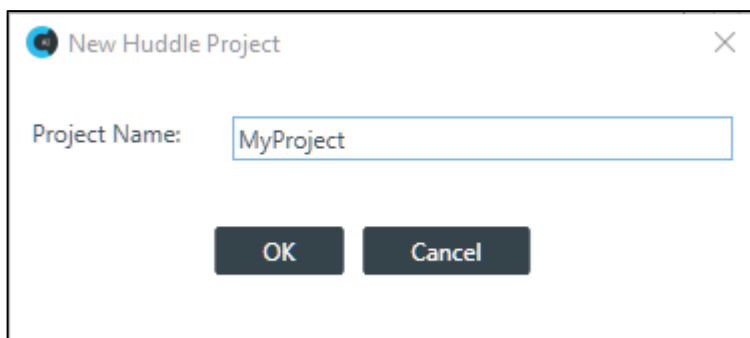
📝 **Note:** Project names cannot have spaces.
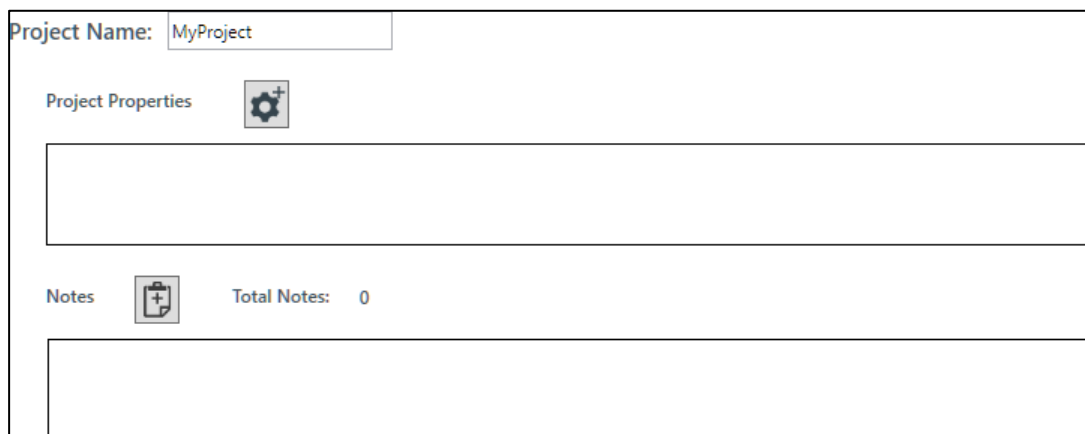
5. Click **OK**.

Adding Project Properties

You can add Field-Value pairs to a project as properties. For example, you could add a field called "Site" and assign to it a value of "Headquarters."
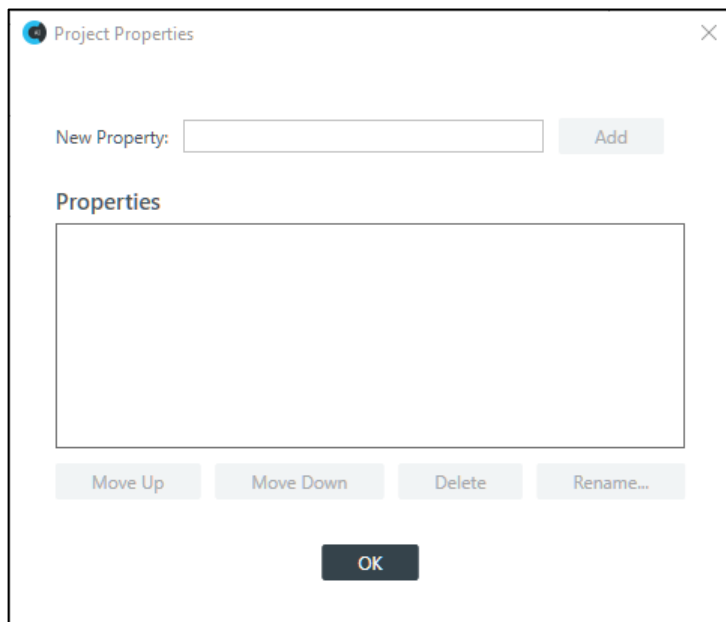
To add Project Properties:

1. In the Navigation panel, select **Project Properties**. The Project Properties screen appears:
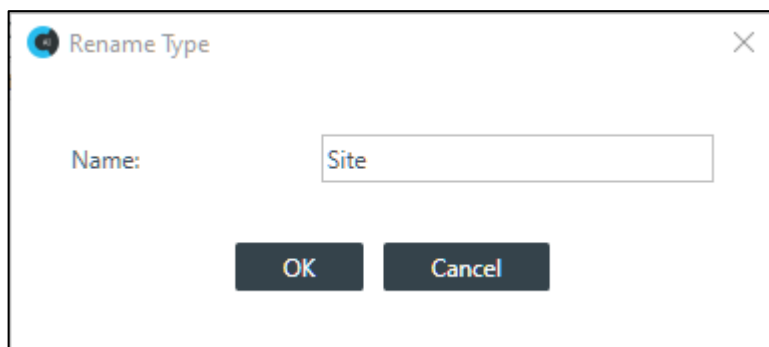
2. Click the Add Project Properties button:

The **Project Properties** dialog box appears:
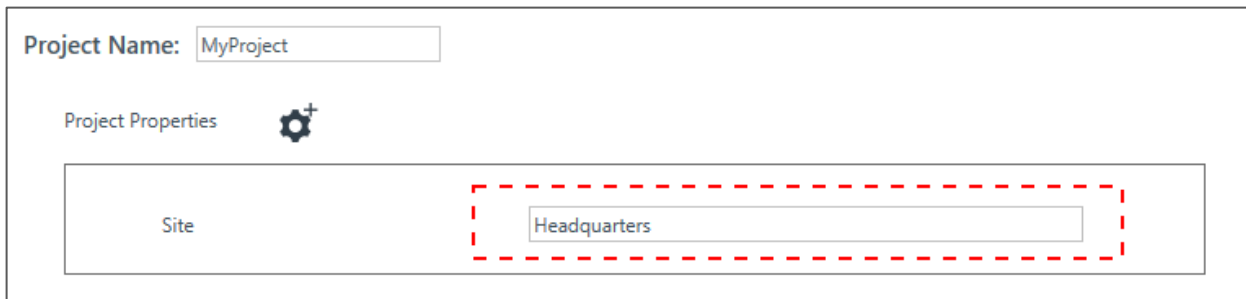
3. Type a property name in the **New Property** field.

4. Click **Add**.

5. (Optional) Repeat steps 3-4 for each property you want to add.

6. (Optional) To change the order of properties, select a property in the list and click **Move Up** or **Move Down**.

7. (Optional) To rename a property, select it in the list and click **Rename**. In the **Rename Type** dialog box, type a new name for the property, then click **OK**.

The **Rename Type** dialog box:

8. (Optional) To delete a property, select it in the list and click **Delete**.

9. When you're done adding or changing properties, click **OK**.

10. Each property appears in the Project Properties box with a text field next to the name. Click in the text field and type the value for each property:
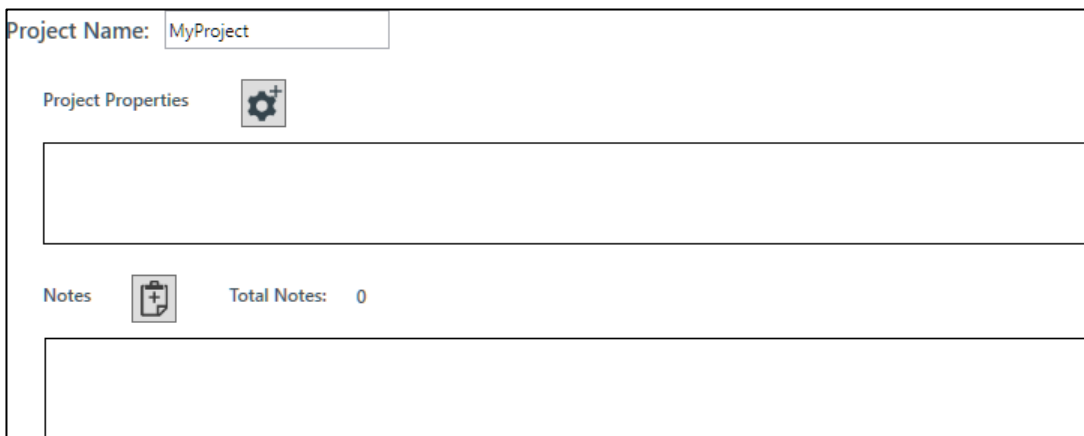
Adding Project Notes

You can add notes regarding the current project, to store any information you want. To add project notes:

1. In the Navigation panel, select **Project Properties**. The Project Properties screen appears:
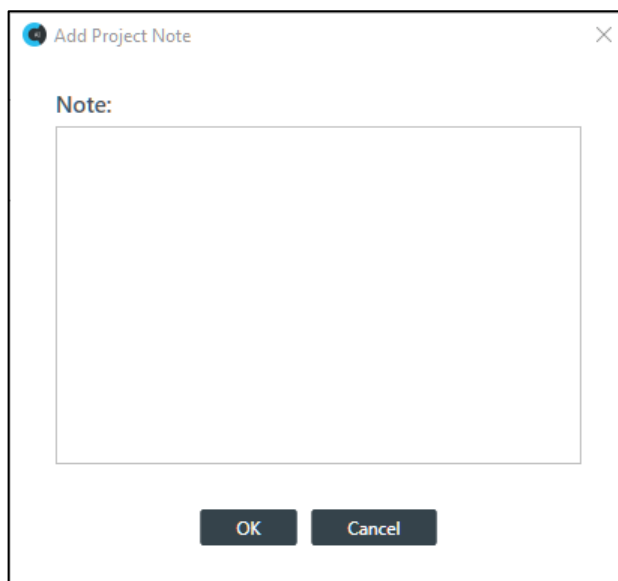
2. Click the **Add Note** button:

The Add Project Note dialog box appears:

3. Type the note in the **Note:** text field.

    📝 **Note:** Project notes may contain up to 10,000 characters.

4. Click **OK**.

    A time/date and computer name are added to your note when it's created.

5. To add additional notes or remove a note, click the remove   ic [**✕**]

Opening a Project

You can open a previously saved project file.

📝 **Note:** Opening a project file loads the project settings into CONSOLE AI, but does not affect any connected devices. For more information about project files, see *About Projects*.

To open a project file:

1. In the Navigation Panel, click **Home**. The Home screen appears:
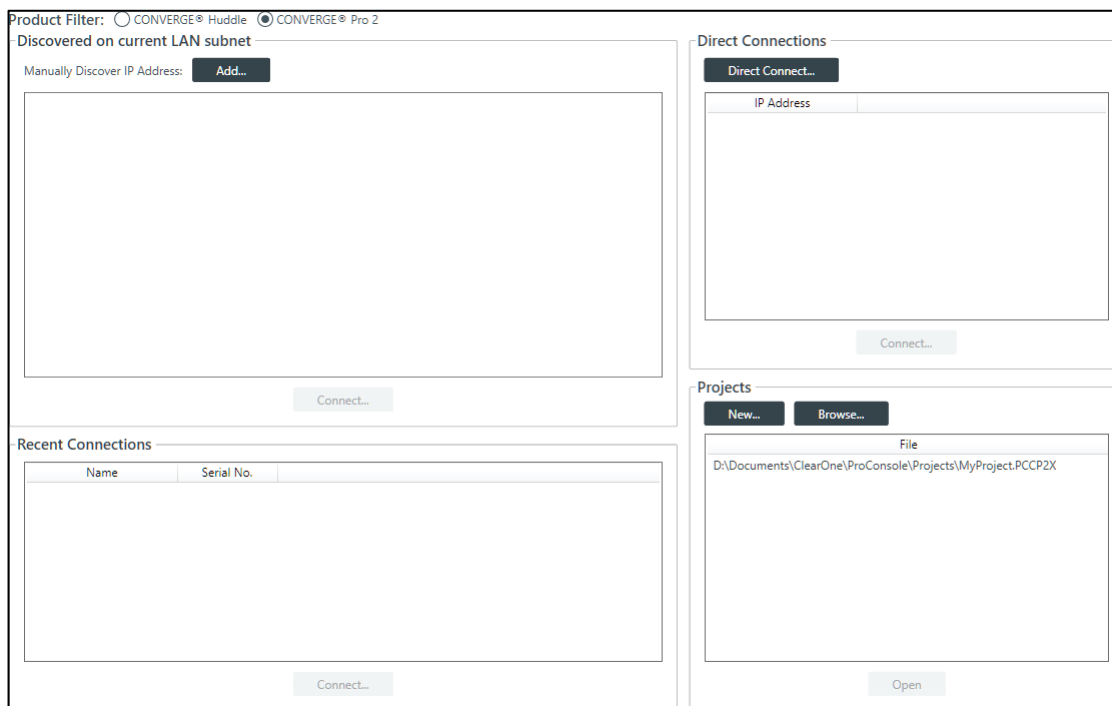
2. Select CONVERGE Huddle or CONVERGE Pro 2 under Product Filter.

    If the type you want to use doesn't appear, you can change which products are active in the Options. See *Choosing Active Products* for more information.

3. Select a file in the Projects list, then **click Open**.

4. If the file you want to open doesn't appear in the Projects file list, you can also **click Browse** to locate a file.

    An Open dialog box appears to let you locate and choose a project file.

5. When you have located the file you want, **click Open**. The project file is loaded into the CONSOLE AI.

Saving a Project

When you are in offline mode (not connected to a device or stack), you can save a project file with a name and location of your choice.

📝 **Note:** For more information about the relationship between different project versions, see *About Projects*.

To save a project file:

1. **Click** [Save icon] (Save) on the toolbar to save any changes under the existing name and location.

   📝 **Note:** If you are in offline mode but connected to a device, this option does not appear on the Toolbar. You must use Save As to save project settings.

2. **Click** [Save icon] (Save As) on the toolbar to save any changes under a different name and/or location.

Adding or Modifying Presets (CP2)

You can add, clone, delete, rename, and reset presets, or set a particular preset as the default for the partition.

To add or modify a preset:

1. From the Navigation Panel, **choose FlowView**, **MatrixView**, or **Channel Properties**.
2. **Make any changes** you want to include in the preset.

Add a Preset

3. To add a preset, **open** the **Preset** menu by clicking [icon] to the right of the **Preset** drop-down list. The Preset menu appears:
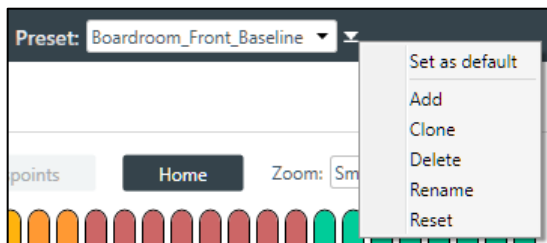
4. From the **Preset** menu, **choose Add**. The Add Preset dialog box appears:
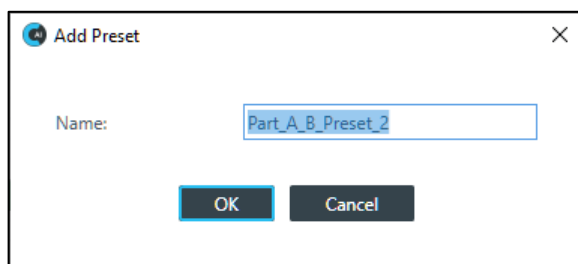
5. **Type a name** for the preset in the **Name** field.
6. **Click OK**.

Clone a Preset

7. To clone a preset, from the Preset drop-down list, **select** the **preset** you want to clone:
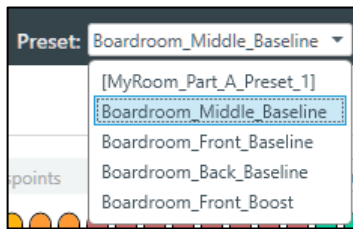
8. From the **Preset** menu, **choose Clone**.

   A copy of the selected preset is made with "_copy" at the end of the name.

Delete a Preset

9. To delete a preset, from the **Preset** drop-down list, **select the preset** you want to delete.

10. From the **Preset** menu, choose **Delete**.

    The preset is deleted.

 Note: No confirmation is required to delete presets.

Rename a Preset

11. To rename a preset, from the **Preset** drop-down list, **select the preset** you want to rename.

12. From the **Preset** menu, **choose Rename**. The Rename Preset dialog box appears:

13. In the Name field**, type a new name**.
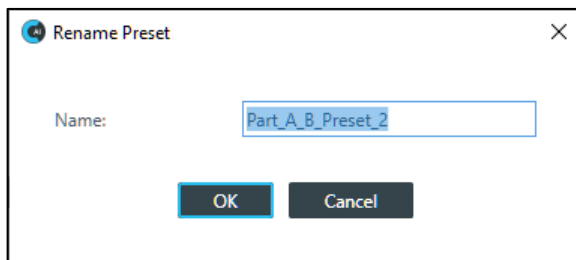
14. **Click OK**.

Reset a Preset

15. To reset a preset to its default settings, **select the preset** you want to reset from the Preset drop-down list.

16. From the Preset menu**, choose Reset**.

    A warning appears:
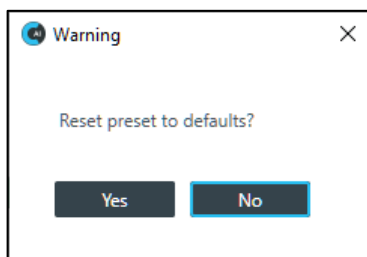
17. **Click Yes** to reset the preset to its default values.

Set a Preset as the Default for a Partition

18. To set a preset as the default preset for a partition, select the preset from the **Preset** drop-down list.

19. From the **Preset** menu, **choose Set as Default**.

The preset becomes the default for the partition. No confirmation is required.

Chapter 4: Configuration - Offline (Huddle)

This chapter contains information about changing the settings for a Huddle device.

Note: The options described in this chapter are accessible only when the CONSOLE AI is in offline mode (not connected to a Huddle device). See *Online Mode vs. Offline Mode* for more information.

Changing Device Settings (Huddle)

You can change the settings for a Huddle device. To change the device settings:

1. In the Navigation Panel, **choose Settings**. The Settings screen appears:

Device Name

2. (Optional) **Type a name** in the Device Name box.

Username and Password

3. To view the current password, **check the Show Password check box**.

4. To change the username and password, **click Set Username and Password**. The Username and Password dialog box appears:

The default username is "clearone" and the default password is "converge".

5. Type a new username and/or password, then click **OK**.

Note: Usernames and passwords can have at least 64 characters, and possibly more depending on what language you're using.

NTP Server Configuration

6. To have the device automatically set its time using a Network Time Protocol (NTP) server, select the **Use Network Time** check box.

7. Add the address of an NTP server in the **Time Server 1** field.

Note: The server name can have up to 30 characters.

8. (Optional) Add the address of another NTP server in the **Time Server 2** field.

Note: The server name can have up to 30 characters.

Time Settings

9. To have the stack automatically adjust the time for daylight savings, check the **Use Daylight Savings** check box.

10. To set the time zone, choose an option from the **Time Zone** drop-down list.

SMTP Settings

11. To turn on the ability to have stack notifications sent via email, select the **Use SMTP** check box. 12. Type the name of an email address to which notifications will be sent in the **Error Contact Email** field. 13. Type the address of an SMTP server in the **Email Server** field.

SNMP Settings

14. To turn on the Simple Network Management Protocol (SNMP), check the **Use SNMP** check box.

15. Type the address of the SNMP Manager in the Manager IP Address field.

16. Type the port to use to communicate with the SNMP Manager in the Manager Port field.

17. Type the name of the SNMP Write community string in the Write Community field.

18. Type the name of the SNMP Read community string in the Read Community field.

Network Settings

19. To have the router assign an IP address to the device automatically, select Use DHCP.

20. To specify a static IP address, select **Use Static IP** and then type values for all the Static IP fields.
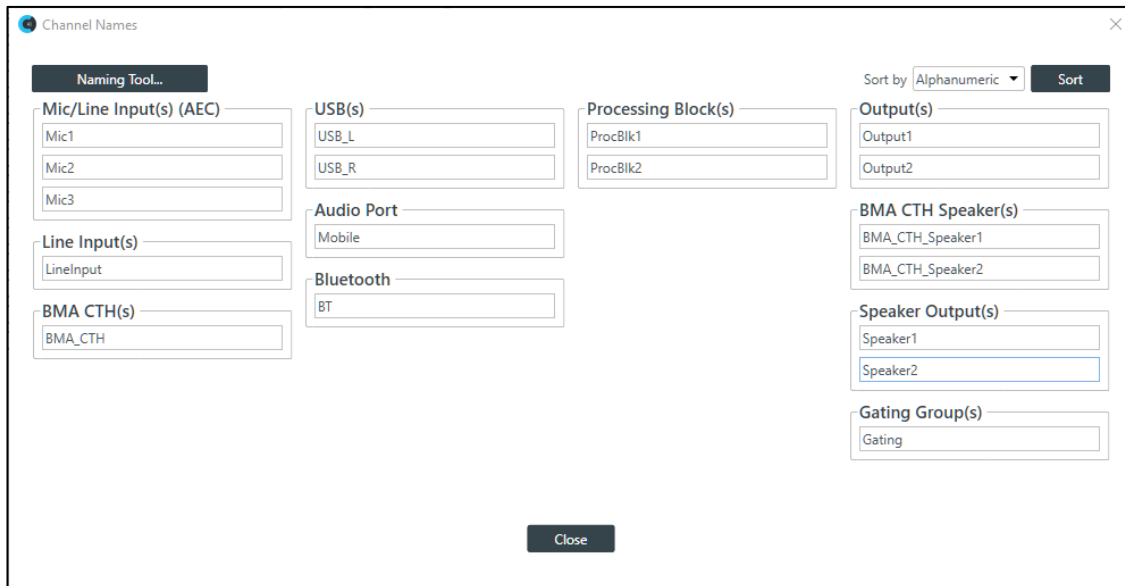
Naming Assets (Huddle)

You can give unique names to assets to make it easier to identify them and work with them. To name assets:

1. In the Navigation Panel, choose **Flowview** or **MatrixView**.

2. Click ⌷ in the toolbar.

    The Channel Names dialog box appears with all the channels shown, along with the generic names already assigned to them:

3. To sort the channel names, choose an option from the **Sort by** drop down men and then click **Sort**.

4. To rename any particular channel, you can click in the box for that channel and type a new name.

5. To give the channels new names using the naming tool, click **Naming Tool**. The Naming Tool dialog box

    appears:

6. Choose a channel type from the **Type** drop-down list.

7. Type a base name (the root of the channel name, to which other parts of the name will be appended) in the **Base Name** text box.

8. (Optional) If you want to start numbering with a number other than 1, type the value in the Base Number text box.

9. (Optional) If you want to add a prefix to the base name, type it in the **Base Name Prefix** text box.

10. Click **Apply**.

11. (Optional) Repeat steps 6-10 for additional channel types.

12. Click **OK** to close the Naming Tool.

13. Click **Close** to close the Channel Names dialog box.

Connecting Channels Using FlowView (Huddle)

You can use the FlowView to make connections between Huddle audio channels. FlowView is designed to let you visualize the connections between assets as a flow from input channels, through mixer channels, such as processing blocks, through to output channels or speakers.

> **Note:** FlowView and MatrixView are alternative methods of visualizing the connections between audio devices. Therefore, when you make connections in FlowView, those connections are reflected in MatrixView as well.

To make connections between channels using FlowView®:

1. In the Navigation Panel, choose **FlowView**. The FlowView screen appears:

    FlowView shows the assets available in the Huddle device, and the relationships between them. The following
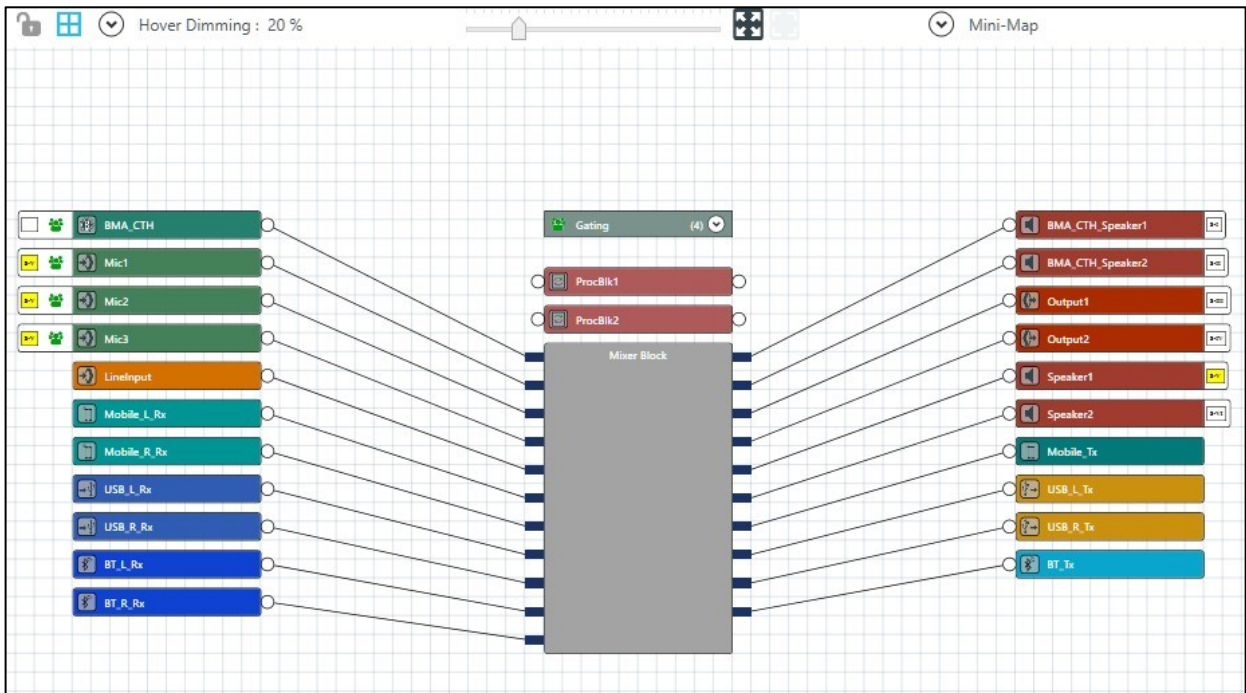
table how assets and asset relationships are represented in FlowView and the available controls:

Symbol	Meaning
Mic1	This icon represents a **channel**. It is labeled with its name. Channels have connectors (shown as a small circle) that allow you to create routes between channels. Input channels have a connector on the right side. Processing block channels have connectors on the left and the right. Output channels have a connector on the left side.
	Solid lines with connectors on each end represent routes between channels.
	This icon indicates whether a mic channel is part of a gating group. If this symbol is light green, the channel is not part of a gating group. It's dark green if the channel is part of a gating group.
S-I	This symbol represents a reference. An input channel can have an output channel as a reference, to cancel out echo. For more information about how references work, see *About References*.
🔓 Lock	Use this to lock the FlowView channel icons, to prevent accidental changes. When you lock the view, the lock closes. If you want to make changes to the FlowView again, click the lock again. 📝 **Note:** Even though the channel icons are locked, you can still add and delete channel routes when FlowView is locked.
⊞ Show Grid	Use to show or turn off gridlines. Hiding grid lines also turns off the snap-to-grid function.
⌄ Hover Dimming : 20 %	When you hover your mouse pointer over something in the FlowView, everything is else in FlowView is dimmed to the amount set in this setting. 20% means that when you hover over something, everything except what you're hovering over is dimmed to 20% of normal. You can also choose to dim everything except what your pointer is hovering over as well as anything currently selected by checking the **Selected Objects**/**Routes** check box.
—————△—————	Use this tool to control the zoom of the FlowView area.
⛶	Use this tool to zoom the FlowView area so that all channels you have added to FlowView fill the visible FlowView area.
⛶	Use this tool to zoom the FlowView area so that all selected channels fill the visible FlowView area.

Mini-Map	The Mini-Map shows a miniature version of the entire FlowView area (including all added channels) and the currently visible area of the FlowView area, given the current zoom settings, shown as a gold box. You can drag the gold box to change which portion of the FlowView area is shown.

Move Channel Icons

2. You can move a channel icon anywhere you want within the FlowView space. To move a channel icon, grab it by the symbol that appears on the left side of the icon.

    The channel type changes to the drag symbol.

3. Drag the channel icon to where you want it to appear within FlowView.

Add a Channel Route

4. To route audio from one channel to another, grab the output connector from one channel and drag it to the input connector of another channel. The mouse pointer changes to a target to show that you are making a connection.

    If you have successfully made the route connection, a solid line appears between the two channel icons.

    The color of the line depends on the crosspoint type. See Change Crosspoint Properties below for more details.

5. To route audio from multiple channels to another channel, select more than one channel (hold down the CTRL key and select multiple channel icons OR drag around several channel icons to select more than one) and then drag the entire group onto the connector of another channel. The mouse pointer charges to a target to show that you are making a connection.

    Channel routes are created for each selected channel.

6. To route audio from a channel group to a channel, or from a channel group to another channel group, grab the channel group (you must select it anywhere except by the image at the left of the icon) and drag it on top of another channel group icon or onto a channel icon. The mouse pointer changes to a target to show that you are making a connection.

    Channel routes are created for each member of the group or groups.

7. Add, remove, or modify crosspoints.

     Note: For more information about using a matrix view to make crosspoint connections between assets, see *Connecting Channels Using MatrixView (Huddle)*.

Change Crosspoint Properties

8. To change the properties of a route (also referred to as a crosspoint), double-click the route line to show the crosspoint properties:

    The Crosspoint Properties appear at the bottom of the FlowView screen:
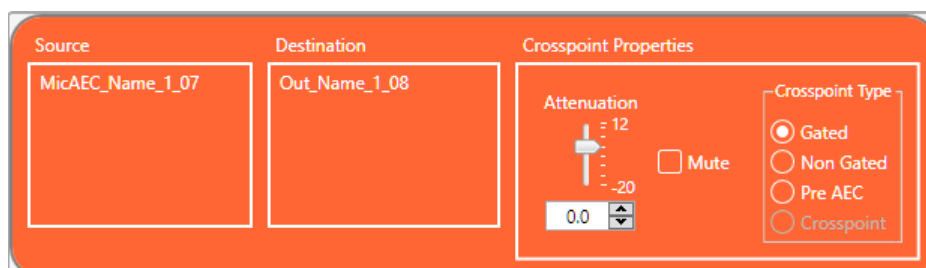
The Source and Destination of the route appear on the left side of the Crosspoint Properties settings.

9. You can change the Attenuation in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

10. To mute this crosspoint, click the Mute check box.

   The crosspoint will appear with a red 0 inside, to show that it is muted.

11. You can choose a Crosspoint Type from the Crosspoint Type group. The types are described in the table below.

   Note: Which types are available depends on the source and destination channels.

Crosspoint Type	Indicator	Description
Crosspoint	■	Connections between channels that don't involve microphones or processing blocks are simple crosspoints.
Gated	■	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Gated, the connection between the two channels follows whatever gating rules are assigned to the microphone.
Non-Gated	■	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Non-Gated, the connection between the two channels doesn't follow any gating rules.
Pre-AEC	■	Setting a Pre-AEC crosspoint in the Matrix bypasses the cross-pointed input audio from the AEC (Acoustic Echo Cancellation) reference. This is primarily used for sound reinforcement applications to prevent mic input channel audio from being degraded by AEC artifacts.

Remove a Channel Route

12. To remove a channel route, hover the mouse pointer over an existing route until the pointer changes to a pencil icon.

13. Click the route to select it.

14. Press the Delete key OR right-click the route and choose **Delete** > **Routes** from the context menu.

Assign References

15. For more information about assigning standard references, see *Assigning Standard References (Huddle)*.

View/Change Properties

16. To view or change the properties for a channel, channel group, or gating group from within FlowView, double-click the icon OR right-click an icon and choose Show Properties from the context menu.

   The Properties block for that item appears at the bottom of the FlowView screen.

   You can make any changes you want in the Properties block. See the corresponding section below on Huddle channel properties for more details.

Assigning Standard References (Huddle)

Using a CONVERGE Huddle, you can assign input channels to output channel standard references. The Huddle cannot use custom references. For more information about references, see *About References*.

Note: Unlike CP2 projects, standard references are already created for you when you create a Huddle project.

To assign a standard reference:

1. If you are not already in FlowView, from the Navigation panel, choose **FlowView**™. The FlowView screen appears:
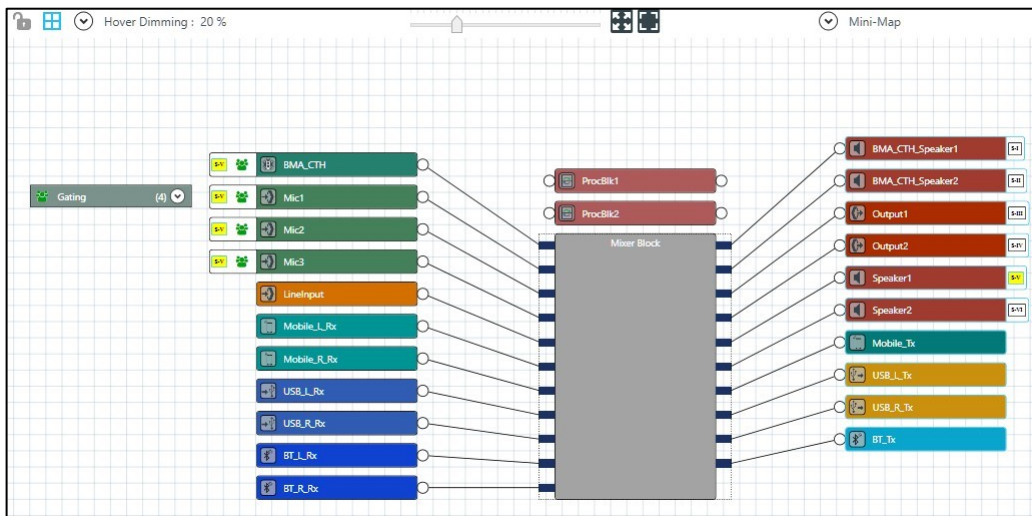
   Notice that there are both assigned and unassigned references already.

2. Choose an input channel you want to assign to the standard reference. Drag a connection between the empty box at the left side of the input channel and the reference on an output channel.

   If you have successfully made a connection, a matching reference box appears on both the input and output channels and the reference boxes on each turn yellow:

3. Repeat step 3 for each standard reference you want to assign.

Connecting Channels Using MatrixView (Huddle)

You can use MatrixView to make connections between Huddle audio channels. MatrixView is designed to let you visualize connections between channels as a matrix, with output channels in columns and input channels in rows, and the connections between them shown as crosspoints that can be selected or deselected.

📝 **Note:** MatrixView and FlowView are alternative methods of visualizing the connections between audio devices. Therefore, when you make connections in MatrixView, those connections are reflected in FlowView as well.

To make connections between channels using MatrixView:

1. In the Navigation panel, choose **MatrixView**. The MatrixView screen appears:

| Clear All Crosspoints | Zoom: Large | | | | Mic Output Reference: BMA_CTH_Speaker1 | | | | | | |

Crosspoint Types: 🟩 Crosspoint 🟪 Pre-AEC 🟨 Gated ⬛ Unavailable 🟦 Non-Gated

	Output1	Output2	BMA_CTH_Speaker1	BMA_CTH_Speaker2	Speaker1	Speaker2	USB_L_Tx	USB_R_Tx	Mobile_Tx	BT_Tx	ProcBlk1	ProcBlk2
Mic1			▪	▪	▪	▪	0	0	0	0		
Mic2			▪	▪	▪	▪	0	0	0	0		
Mic3			▪	▪	▪	▪	0	0	0	0		
LineInput	0	0	▪	▪	0	0	0	0	0	0		
BMA_CTH			▪	▪	▪	▪					0	
USB_L_Rx	0	0	0		0		▪		0	0		
USB_R_Rx	0	0		0		0		▪	0	0		
Mobile_L_Rx	0	0	0		0		0		▪	0		
Mobile_R_Rx	0	0		0		0		0	▪	0		
BT_L_Rx	0	0	0		0		0		0	▪		
BT_R_Rx	0	0		0		0		0	0	▪		
ProcBlk1											▪	▪
ProcBlk2											▪	▪
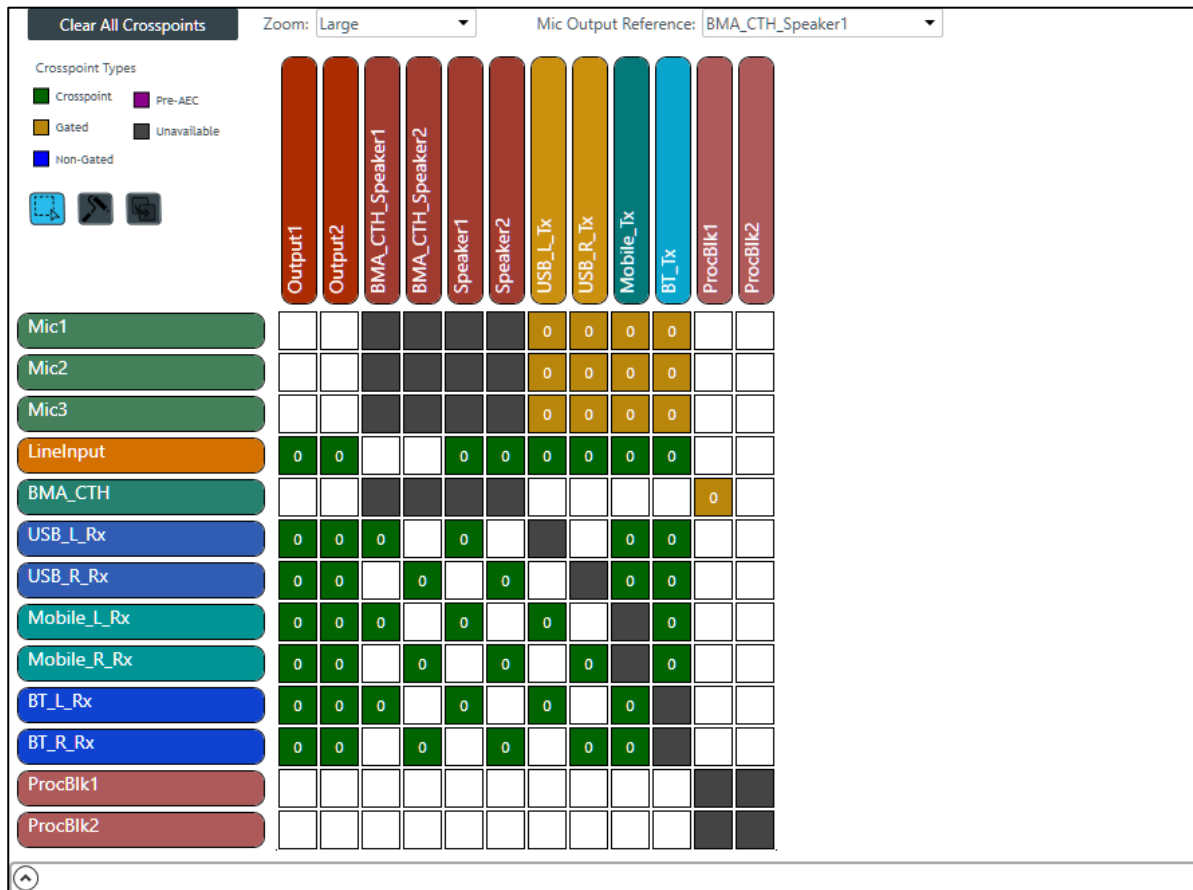
Inputs appear as matrix rows and outputs appear as matrix columns. Processing block channels have both inputs and outputs, so they appear as both a row, for the input, and as a column, for the output.

Adjust MatrixView Display

2. To change the MatrixView display zoom, choose an option from the Zoom drop-down menu at top of the MatrixView screen.

3. To move the display location within the MatrixView to the upper left, click Home at the top of the MatrixView screen.

4. If the matrix is larger than the available screen space, scroll bars appear at the right side and the bottom of the matrix cells. You can drag those scroll bars to change which part of the matrix displays.

Make Matrix Connections

5. To connect an input channel and an output channel, click a crosspoint in the channel matrix. Clicking the crosspoint again cycles through the available types.

📝 **Note the following**

- Crosspoints that appear black in the matrix cannot be selected, because you would be connecting the input and output channels of the same asset, which would create a loop.
- The current audio level is shown in crosspoint cells (to the nearest whole value if zoom is set to small). If you are offline, the value is 0.

Depending on the channel types you are connecting, there are several types of connections you can make, as described in the table below:

Crosspoint Type	Indicator	Description
Crosspoint	⬛	Connections between channels that don't involve microphones or processing blocks are simple crosspoints.
Gated	⬛	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Gated, the connection between the two channels follows whatever gating rules are assigned to the microphone.
Non-Gated	⬛	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Non-Gated, the connection between the two channels doesn't follow any gating rules.
Pre-AEC	⬛	Setting a Pre-AEC crosspoint in the Matrix bypasses the cross-pointed input audio from the AEC (Acoustic Echo Cancellation) reference. This is primarily used for sound reinforcement applications to prevent mic input channel audio from being degraded by AEC artifacts.
Mixed (Group)	⬛	A Mixed crosspoint applies only to rows that contain groups, and appears when the members of a group are not all configured the same way. For example, if a microphone is part of a channel group, and you connect only one member of the group to an output channel, the group to which that mic belongs will have a Mixed (Group) crosspoint.

Use Mode to Choose How Multiple Selection Functions

6. To specify how multiple selection functions (i.e., what happens when you drag the pointer across multiple crosspoints in MatrixView), choose one of the modes, described in the table below:

Mode	Icon	Description
Select		Dragging the mouse pointer across multiple crosspoints select the crosspoints and then opens the Set Multiple Crosspoints dialog box, which Allows you change the crosspoint type, attenuation, and mute state for the selected crosspoints.
Roll		Dragging the mouse pointer across multiple crosspoints changes each selected crosspoint to the next possible crosspoint type. 📝 **Note the following:**

Mode	Icon	Description
		• How this works depends on the crosspoint type. Crosspoints for microphones, for example, which can be gated, can change between Gated, Non-Gated, and Pre-AEC. • Dragging across a microphone crosspoint in roll mode causes it to move from whatever its current state is to the next possible state (in the order listed in MatrixView under Crosspoint Types. • For crosspoints that can't be gated, the state can either be on or off, so using Roll Mode turns off crosspoints that are on and turns on crosspoints that are off.
Copy		Dragging the mouse pointer across multiple crosspoints copies the crosspoint state from the first crosspoint touched to all other crosspoints you drag across. 📝 **Note the following:** • If the state being copied isn't possible in a crosspoint you drag across, then no change is made. • For more detailed information, see *Using MatrixView Modes*.

Mute or Attenuate a Crosspoint

7. To mute or attenuate a crosspoint, right-click it. The Attenuation/Mute dialog box appears:

8. To mute this crosspoint, click the **Mute** check box.

The crosspoint will appear with a red 0 inside, to show that it is muted.

9. You can change the Attenuation in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

10. Click **Close**.

Make a Reference Connection

11. To choose a reference for the mics, select an option from the **Mic Output Reference** drop-down list.

View/Change Properties

12. To view or change the properties for a channel within MatrixView, double-click the channel OR select the channel and click the Show Properties control ⊙ at the bottom of the MatrixView screen..

The Properties block for that item appears at the bottom of the MatrixView screen. You can make any changes you want in the Properties block.

Changing Channel Properties - BMA CTH (Huddle)
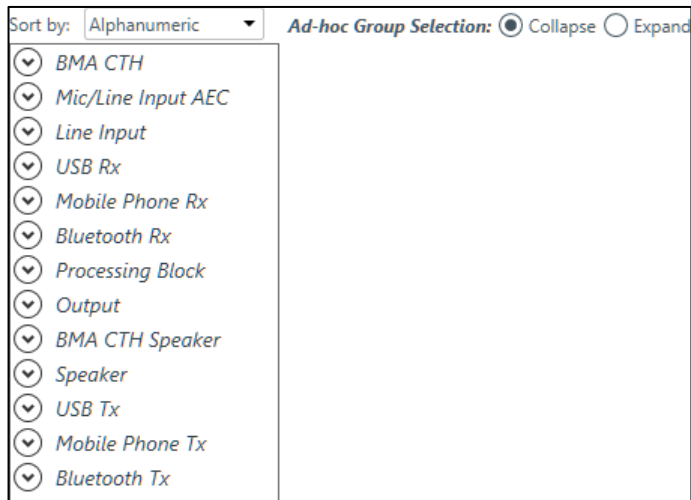
You can use channel properties to modify a BMA CTH channel. You can make any of the following changes:

Feature	Description
BFM Config Button	Use to change several BMA CTH configuration settings.
Gain	Gain adjusts the input volume level for a BMA CTH input.
Acoustic Echo Cancellation (AEC)	AEC (Acoustic Echo Cancellation) reduces or removes acoustical echo from an input signal, thereby improving audio clarity. CONVERGE Huddle devices perform AEC using the full bandwidth (20Hz to 22kHz) of the signal. AEC uses a reference source to perform AEC based on the acoustic characteristics and dynamics of a specific room.
Noise Cancellation (NC)	Noise Cancellation is a process in which ambient (background) noise is removed from an input signal, with no noticeable degradation in signal quality. This setting is used primarily for audio and video conferencing.
Mute	Mute a microphone.
Automatic Level Control (ALC)	ALC automatically keeps an input signal at a constant level, and is generally used to keep speech levels constant onMic Input channels.
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Gate Settings	Gate settings control when a microphone is gated on or off, based on audio environment factors for this microphone and other microphones in the same gating group.

To change the properties for a BMA CTH channel:

1. In the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **BMA CTH** to open the channel list.

3. Select the channel you want to change. The BMA CTH Properties block appears:
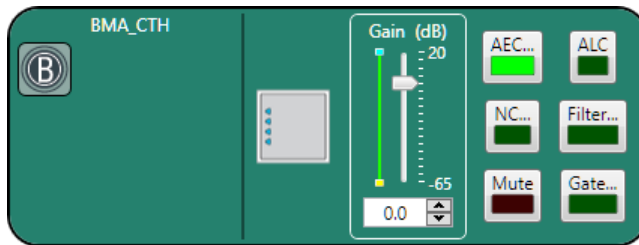
BMA Config

4. Click the BMA Config button (the button at the left side of the channel properties block that looks like a BMA CTH) to change the Config settings.

   The Config dialog box appears:

5. (Optional) Change any of the settings, as described in the table below:

Option	Description
Pattern	Choose from standard or wide angle modes.
Zones	Choose which microphone zones are turned on.
LED Settings	Configure how the LED lights behave.
Power Select	Use to turn the BMA CTH on or off.

Gain

6. You can change the gain in any of the following ways:

   - Drag the slider

   - Type a value in the text box

   - Click the incrementer and decrementer arrows beside the text box to set the value

AEC

7. To turn AEC on or off, click the **AEC** button (the button changes to light green if AEC is on). The AEC Settings

   dialog box appears:

8. (Optional) Make any changes to the AEC Settings you want (as described in the table below):

Option	Description
Enable Acoustic Echo Canceller	Check this box to turn on the AEC feature.
Non-linear Processing (NLP)	NLP increases the power of echo cancellation for difficult acoustical environments. You can choose whether to use NLP and how aggressive the NLP should be. **Note:** Use NLP with care. There are trade-offs associated with NLP, including audio suppression and half-duplex operation.

9. Click **Close**. **Noise Cancellation**

10. To turn noise cancellation on or off, click the **NC** button (the button changes to light green if NC is on).

    The Noise Canceller dialog box appears:
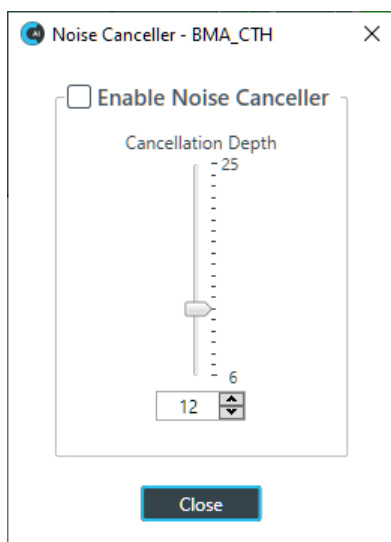
11. Check the **Enable Noise Canceller** check box to turn on NC.

12. Use any of the following methods to change the cancellation depth:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

13. Click **Close**

Mute

14. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

ALC

15. To turn ALC on, click the **ALC** button (the button changes to light green if ALC is on).

Filter

16. To enable and configure a filter, click the **Filter** button.

The Filters dialog box appears:

17. For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.

Filter Type	Description
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

18. (Optional) If you don't want to use default values, change the filter options, as described in the table below.

Option	Description
Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring. Range is from -15to 15dB. The default is 0dB.
Q	Quality factor. The ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.

19. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

20. Repeat the process for each filter you want to add.

21. Click **Close**.

Gate

22. To set gating options, click the **Gate** button.

The Gate Settings dialog box appears:

23. Choose an option from the Gate Mode drop-down list, as described in the table below:

Option	Description
Auto	The microphone gates on or off automatically, according to the specified settings.
Manual On	The microphone is always gated on.
Manual Off	The microphone is always gated off (though the way it turns off is controlled by the specified settings.

24. (Optional) Change any of the gating settings, as described in the table below:

Option	Description
Gate Ratio (Auto Only)	How much louder than the ambient level the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
Hold Time	How long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from 0.1 to 8.0 seconds. The default is 0.3 seconds.
Off Attenuation	The amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB. The default is 18dB.
Decay Rate	How fast a channel gates off after the Hold Time expires.

Option	Description
	The default is Medium.
Adaptive Ambient (Auto Only)	Adjusts the ambient reference level as noise and room conditions change.
	When Adaptive Ambient is on, the mic channel monitors the ambient noise level on the input and adjusts the ambient level reference automatically.
	This means that the gate threshold level automatically increases or decreases based on background noise.
	The default is On.
Manual Ambient Tracking (Auto Only)	The input will use the fixed ambient level you specify in the Ambient Level field as its gating reference.
Chairman Override	Provides gating priority for this mic input over any other mic input within the same gating group that is set to Auto gating mode.
	When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off.
	The default is Off.

25. Click **Close**.

Changing Channel Properties - Mic (Huddle)

You can use channel properties to modify a Mic channel.
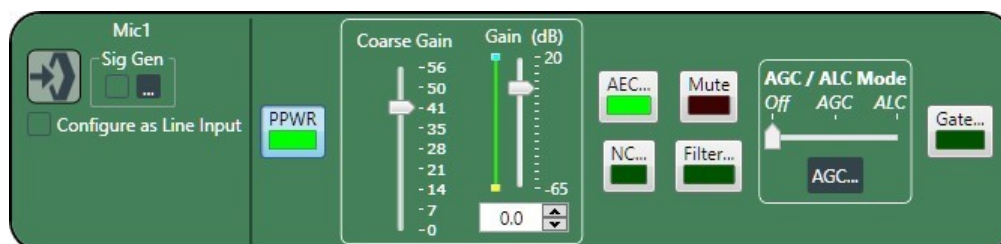
You can make any of the following changes:

Feature	Description
Sig Gen	Allows you turn on the signal generator for this channel and change the signal generator settings.
Configure as Line Input	Checking this check box removes the PPWR, Coarse Gain, AEC, NC, AGC/ALC, and Gate settings, leaving only Gain, Mute, and Filter.
PPWR (Phantom Power)	Phantom power is an auxiliary power source used to power certain types of microphones. Phantom power voltage is 24VDC. Default is On.

Feature	Description
Coarse Gain	The Coarse Gain slider adjusts the volume level for a mic input channel. Coarse gain can be adjusted in roughly 7dB increments. **Note:** In general, you should set the Coarse Gain slider to 56dB for a mic input, 28dB for active equipment that requires an input between mic and line level, or 0dB for a line level input device.
Gain	Gain adjusts the input volume level for a mic input but in increments of 0.5dB.
Acoustic Echo Cancellation (AEC)	AEC (Acoustic Echo Cancellation) reduces or removes acoustical echo from an input signal, thereby improving audio clarity. CONVERGE Pro 2 devices perform AEC using the full bandwidth (20Hz to 22kHz) of the signal. AEC uses a reference source to perform AEC based on the acoustic characteristics and dynamics of a specific room.
Noise Cancellation (NC)	Noise Cancellation is a process in which ambient (background) noise is removed from an input signal, with no noticeable degradation in signal quality. This settings is used primarily for audio and video conferencing.
Mute	Mute a microphone.
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Automatic Level Control (ALC)	ALC automatically keeps an input signal at a constant level, and is generally used to keep speech levels constant onMic Input channels.
Automatic Gain Control (AGC)	AGC keeps an input signal at a target gain level that you select, and is generally used for Line Input channels.
Gate Settings	Gate settings control when a microphone is gated on or off, based on audio environment factors for this microphone and other microphones in the same gating group.

To change the properties for a Mic/Line Input AEC channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **Mic/Line Input AEC** to open the channel list.

3. Select the channel you want to change.

    The Mic/Line Input AEC Channel Properties block appears:

Signal Generator

4. Click under Sig Gen to use the Signal Generator. The Signal Generator dialog box appears:

5. Change any of the options, as described in the table below:

Option	Description
Enabled	Whether the signal generator is enabled.
Signal Type	Choose from the following options: • Logarithmic Swept Sine Wave-A test signal increasing in frequency using exponential steps (i.e., rises on a curve). • Tone-A sine-wave test with less than .03% distortion. When using Tone you specify a frequency. • White-A test signal with equal energy distribution throughout a given frequency range. • Pink-A test signal containing all the frequencies in a given audio spectrum, with equal energy in each octave.
Frequency	The frequency of the signal. Applies only when the signal type is Tone.
Amplitude	The amount of gain, or volume, to use during signal generation.

6. Click **Close**.

Line Input

7. Click Configure as Line Input to use the channel in line input mode.

Using the channel in line input mode removes the PPWR, Coarse Gain, AEC, NC, AGC/ALC, and Gate settings from the block.

Phantom Power

8. To turn phantom power on or off, click the **PPWR** button (the button changes to light green if phantom power is on).

Coarse Gain

9. To change the coarse gain, drag the **Coarse Gain** slider.

Fine Gain

10. You can change the fine gain in any of the following ways:

    •   Drag the slider

    •   Type a value in the text box

    •   Click the incrementer and decrementer arrows beside the text box to set the value

AEC

11. To turn AEC on or off, click the **AEC** button (the button changes to light green if AEC is on). The AEC Settings

    dialog box appears:

12. (Optional) Make any changes to the AEC Settings you want (as described in the table below).

Option	Description
Enable Acoustic Echo Canceller	Check this box to turn on the AEC feature.
Non-linear Processing (NLP)	NLP increases the power of echo cancellation for difficult acoustical environments.

	📑 **Note:** Use NLP with care. There are trade-offs associated with NLP, including audio suppression and half-duplex operation.
Enable Push to Talk (PTT) Mode	PTT notifies AEC when a microphone is switched off, and freezes AEC convergence until the microphone is switched back on. As a result, PTT helps prevent AEC divergence and improves overall AEC performance with push to talk microphones. 📑 **Note:** When the microphone is off, set the PTT Threshold slider to the level of the Pre-Gain Meter for the channel.

13. Click **Close**.

Noise Cancellation

14. To turn noise cancellation on or off, click the **NC** button (the button changes to light green if NC is on).

    The Noise Canceller dialog box appears:
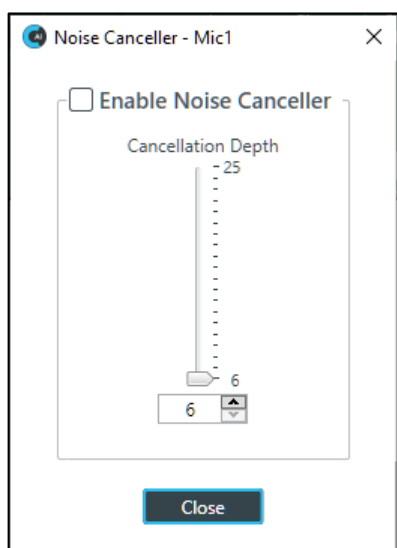
15. Check the **Enable Noise Canceller** check box to turn on NC.

16. Use any of the following methods to change the cancellation depth:

    • Drag the slider

    • Type a value in the text box

    • Click the incrementer and decrementer arrows beside the text box to set the value

17. Click **Close**

Mute

18. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Filter

19. To enable and configure a filter, click the **Filter** button.

    The Filters dialog box appears:

20. For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments.

Filter Type	Description
	Level is fixed at -80dB.
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

21. (Optional) If you don't want to use default values, change the filter options, as described in the table below.

Option	Description
Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring. Range is from -15to 15dB. The default is 0dB.
Q	Quality factor. The ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.

22. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

23. Repeat the process for each filter you want to add.

24. Click **Close**.

AGC/ALC

25. To turn ALC on, slide the **AGC/ALC Mode** slider to **ALC**.

26. To turn AGC on, slide the **AGC/ALC Mode** slider to **AGC**.

27. To change the AGC settings, click the **AGC** button.

The AGC Settings dialog box appears:

28. Use any of the following methods to change the Maximum Gain, Target Level, Response Time, or Threshold (options described in the table below):

   - Drag the slider

   - Type a value in the text box

   - Click the incrementer and decrementer arrows beside the text box to set the value

Option	Description
Maximum Gain	The dB value that should never be exceeded.
Target Level (RMS)	Target Level sets the dB level for AGC to maintain. Target level is set using the Root Mean Square (RMS) method to determine the average magnitude of the audio signal over time.
Response Time	The amount of time (in ms) over which the level is averaged before AGC is activated or deactivated.
Threshold	The dB level at which AGC engages.

29. Click **Close**.

Gate

30. To set gating options, click the **Gate** button.

   The Gate Settings dialog box appears:

31. Choose an option from the Gate Mode drop-down list, as described in the table below:

Option	Description
Auto	The microphone gates on or off automatically, according to the specified settings.
Manual On	The microphone is always gated on.
Manual Off	The microphone is always gated off (though the way it turns off is controlled by the specified settings.

32. (Optional) Change any of the gating settings, as described in the table below:

Option	Description
Gate Ratio (Auto Only)	How much louder than the ambient level the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
Hold Time	How long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from 0.1 to 8.0 seconds. The default is 0.3 seconds.
Off Attenuation	The amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB. The default is 18dB.
Decay Rate	How fast a channel gates off after the Hold Time expires. The default is Medium.
Chairman Override	Provides gating priority for this mic input over any other mic input within the same gating group that is set to Auto gating mode. When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off. The default is Off.

Option	Description
PA Adaptive Mode	Uses the audio level on a specified output as the new ambient level when audio is present at the power amplifier. This prevents loudspeaker audio from gating on the mic while still allowing people in the room to gate on microphones when they speak (provided that their voices are louder than the loudspeaker audio). For example, you might decide to play background music from a CD player during a presentation. PA Adaptive Mode allows you to use the output routed from the CD player as the ambient reference to prevent the CD player's audio from gating on microphones.

33. Click **Close**.

Changing Channel Properties - Line Input (Huddle)

You can use channel properties to modify a Line Input channel. You can make any of the following changes:

Feature	Description
Sig Gen	Allows you turn on the signal generator for this channel and change the signal generator settings.
Gain	The Gain slider adjusts the volume level for a mic input channel.
Mute	Mute a microphone.

To change the properties for a Line Input channel:

1. In the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **Line Input** to open the channel list.
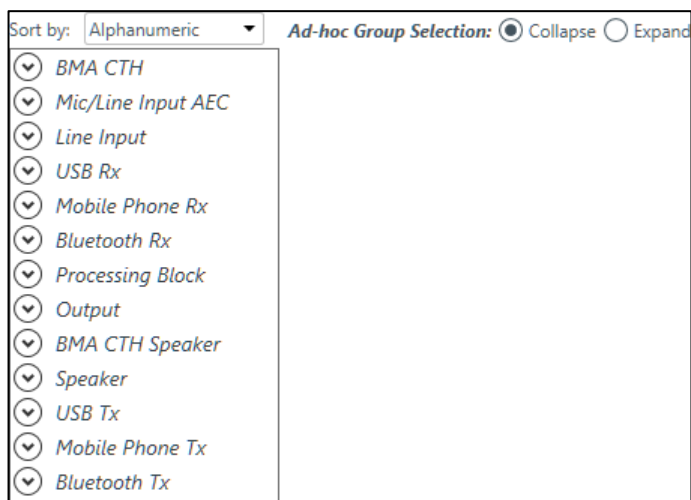
3. Select the channel you want to change.

The Line Input Channel Properties block appears:

Signal Generator

4. Click under Sig Gen to use the Signal Generator. The Signal Generator dialog box appears:

5. Change any of the options, as described in the table below:

Option	Description
Enabled	Whether the signal generator is enabled.
Signal Type	Choose from the following options: • Logarithmic Swept Sine Wave-A test signal increasing in frequency using exponential steps (i.e., rises on a curve). • Logarithmic Swept Sine Wave-A test signal increasing in frequency using exponential steps (i.e., rises on a curve). • Tone-A sine-wave test with less than .03% distortion. When using Tone you specify a frequency. • White-A test signal with equal energy distribution throughout a given frequency range.

Option	Description
	• Pink-A test signal containing all the frequencies in a given audio spectrum, with equal energy in each octave.
Frequency	The frequency of the signal. Applies only when the signal type is Tone.
Amplitude	The amount of gain, or volume, to use during signal generation.

6. Click **Close**.

Gain

7. To change the gain, drag the **Gain** slider.

Mute

8. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Changing Channel Properties - USB Rx (Huddle)

You can use channel properties to modify a USB Rx channel. You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a USB Rx channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **USB Rx** to open the channel list.
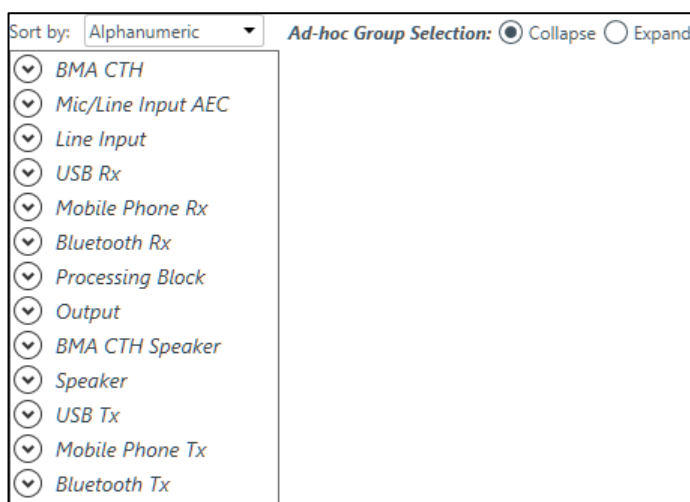
3. Select the channel you want to change.

   The USB Rx Channel Properties block appears:

Mute

4. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

5. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Mobile Phone Rx (Huddle)

You can use channel properties to modify a Mobile Phone Rx channel. You can make any of the following changes:

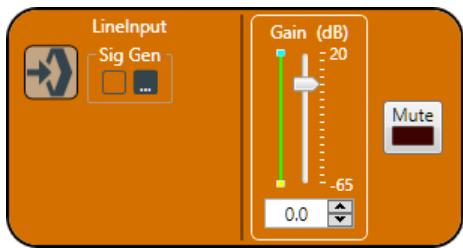| Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a Mobile Phone Rx channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

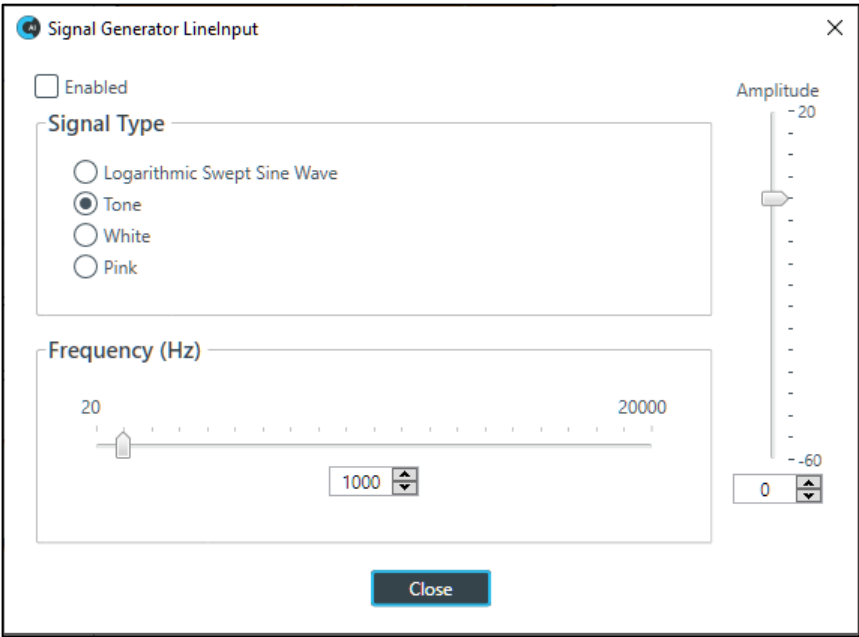2. Click **Mobile Phone Rx** to open the channel list.
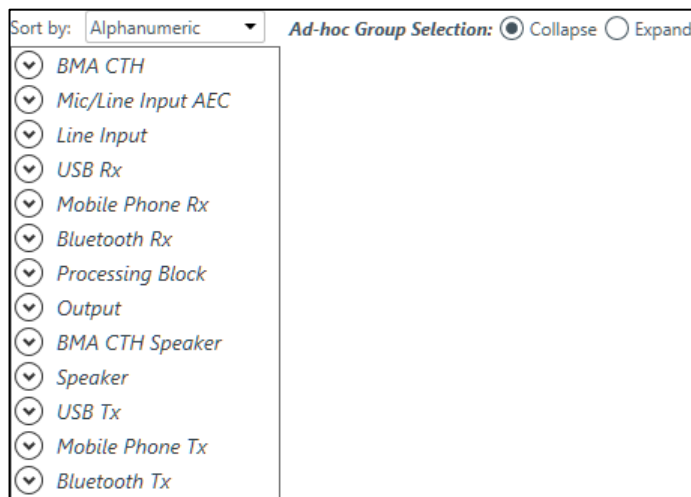
3. Select the channel you want to change.

The Mobile Phone Rx Channel Properties block appears:
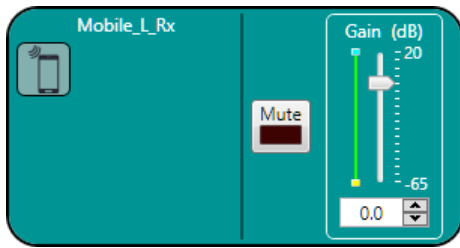
Mute

4. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

5. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Bluetooth Rx (Huddle)

You can use channel properties to modify a Bluetooth Receive channel (the settings are the same for both the L and R receive channels). You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a Bluetooth Receive channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **Bluetooth Rx** to open the channel list.

3. Select the channel you want to change.

    The Bluetooth Rx Channel Properties block appears:

Device Properties

4. To change the Bluetooth device properties, click ▪▪▪. The Bluetooth Device Properties dialog box appears:

5. (Optional) Type a value in the Pair name text box.

    The pair name is the name that appears when you turn on Bluetooth discovery to pair a device.

Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

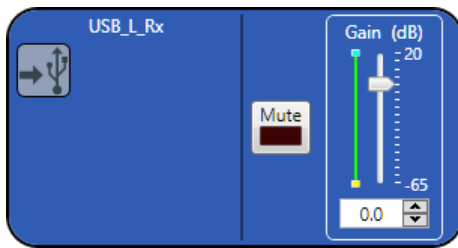7. You can change the gain in any of the following ways:

    •   Drag the slider

    •   Type a value in the text box

    •   Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Processing Block (Huddle)

You can use channel properties to modify a Processing Block channel. Processing Settings enable you to configure filters, delay, compression, and gain to create precise audio configurations. There are two processing blocks available per Huddle device.

You can make any of the following changes:

| Feature	Description
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Delay	Delay Allows you add a specified amount of delay into specified channels. Introducing an appropriate amount of delay to the forward-mounted driver(s) re-establishes the acoustical alignment necessary for proper sound imaging in a room. The same principle of introducing delay applies to separate speaker enclosures located various distances from the listening area.
Compressor	A compressor Allows you change the gain transfer characteristics of the signal path and control the dynamics of a signal.
Mute	Mute a microphone.
Gain	Gain adjusts the volume level for a processing block in increments of 0.5dB.

To change the properties for a Processing Block channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

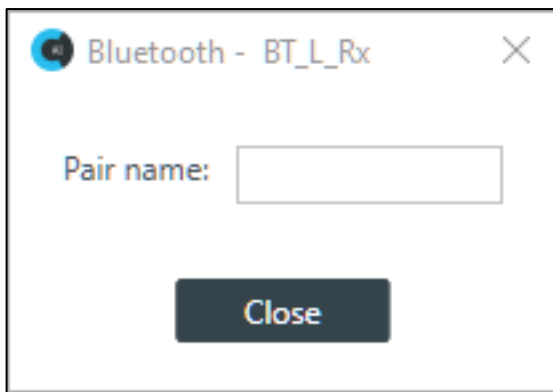2. Click **Processing Block** to open the channel list.
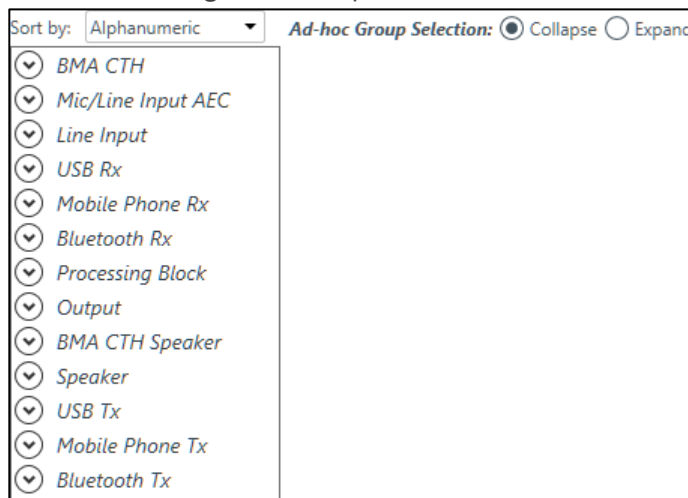
3. Select the channel you want to change.

   The Processing Block Channel Properties block appears:
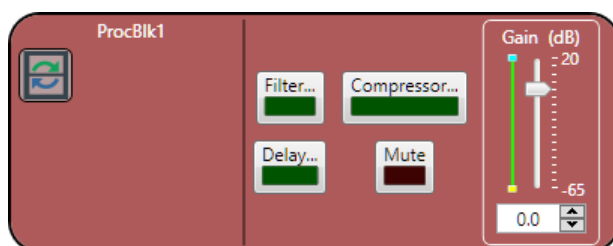
Filter

4. To enable and configure a filter, click the **Filter** button. The Filters dialog box appears:
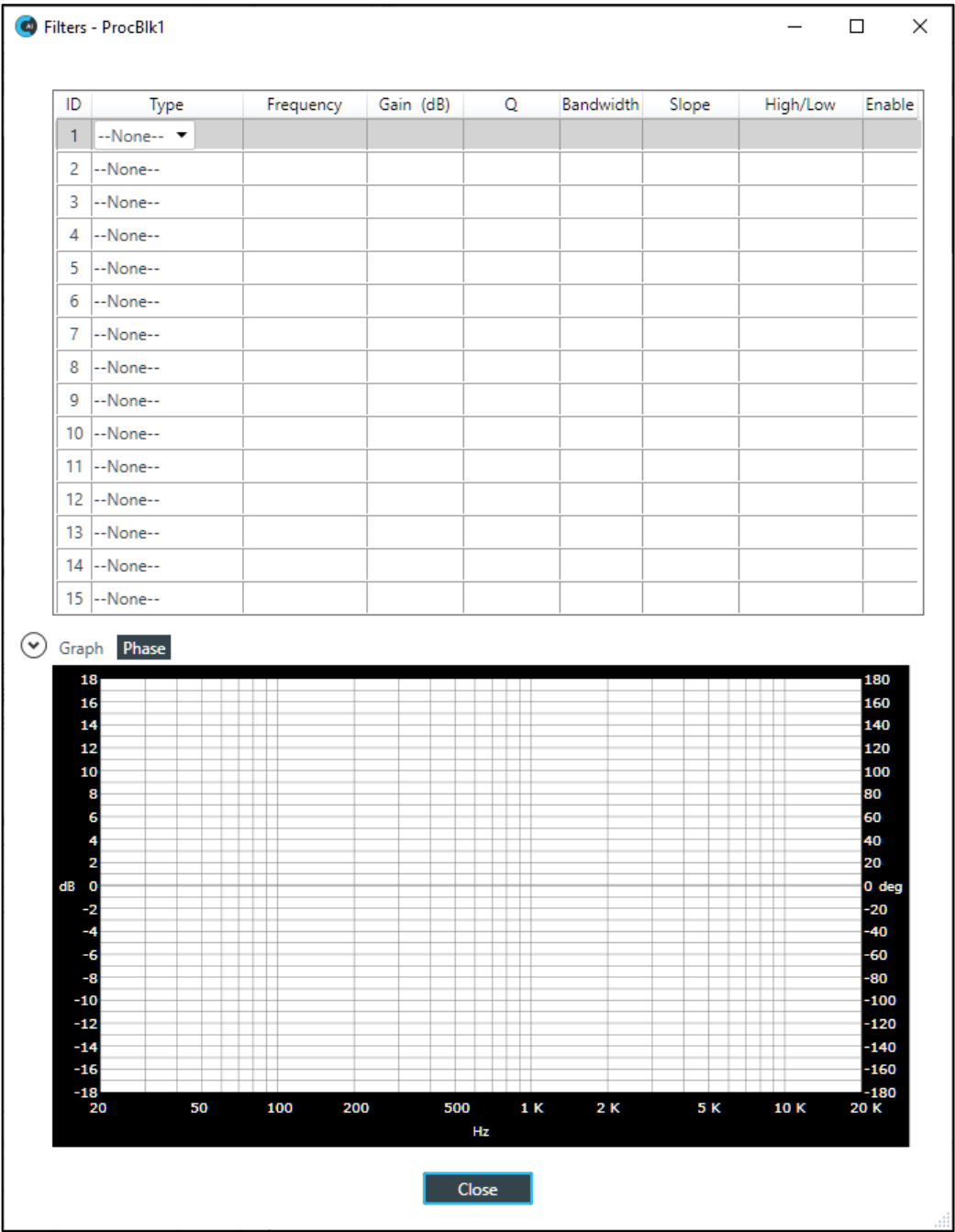
5. For one of the available filters, choose a filter type from the **Type** drop-down list.

   The following table includes a brief description of the available filter types:

All Pass	A filter that provides only phase shift or phase delay without appreciably changing the magnitude characteristic. The filter produces a flat amplitude

	response. It is useful for matching the delay of two processing channels with different delays.
Bessel Crossover	A crossover using a low-pass filter design characterized by a linear phase response. This results in a constant time delay throughout the passband.
Butterworth Crossover	A crossover using a low-pass filter design characterized by a maximally flat magnitude response. This results in no amplitude ripple in the passband.
CD Horn EQ	Horn drivers used in arenas and auditoriums have an inherent 6dB/octave high frequency rolloff. The CD Horn EQ compensates for this characteristic.
High Pass	Passes high signal frequencies while attenuating low frequencies. Selectable frequency cutoff is 20.00Hz to 20.00kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
High Shelving	Provides boosting or attenuation of frequencies above a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/octave rate. The gain or loss above the corner frequency is adjustable to +/- 15dB.
Linkwitz-Riley Crossover	A fourth-order crossover consisting of a cascaded second order Butterworth low-pass filter. Offers a vast improvement over the Butterworth crossover and is the de facto standard for professional audio active crossovers.
Low Pass	Passes low frequencies while attenuating high frequencies. Selectable frequency cutoff is 20.00Hz to 20.00kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Shelving	Provides boosting or attenuation of frequencies below a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/octave rate. The gain or loss below the corner frequency is adjustable to +/- 15dB.
Notch	Passes most frequencies unaltered, but attenuates those in a specified range (e.g., the notch). Center frequency range is 20.00Hz to 20.00kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	A multi-band variable equalizer with control of gain, center frequency, and bandwidth. A properly configured PEQ enables Converge Pro devices to offset speaker anomalies and room acoustic imaging deficiencies. Center frequency range is 20Hz to 20kHz in 0.01Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

6. (Optional) If you don't want to use default values, change the filter options, as described in the table below.

Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB) (HighShelving, LowShelving, Notch, and PEQ only)	The gain value for the filter you are configuring. Range is from -15 to 15dB. The default is 0dB.
Q (Notch and PEQ only)	Quality factor. the ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth (Notch and PEQ only)	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.
Slope (Bessel, Butterworth, and LinkwitzRiley only)	The highpass or lowpass cutoff slope. A higher slope means that the frequencies near the cutoff point are attenuated more quickly (greater attenuation per frequency octave).
High/Low (Bessel, Butterworth, and LinkwitzRiley only)	Whether to pass high frequencies or low frequencies.

7. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

8. Repeat the process for each filter you want to add.

9. Click **Close**.

Delay

10. To enable or disable a delay for this channel, click the **Delay** button.

The Enable Delay dialog box appears:
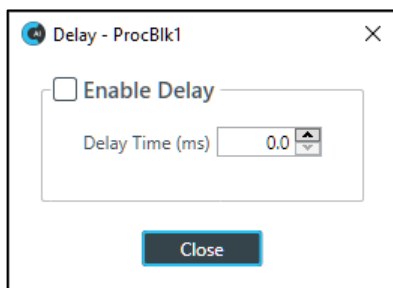
11. Check the **Enable Delay** check box to turn on the delay.

12. Specify the amount of the delay (in ms) by typing a value in the **Delay Time** field or using the incrementer and decrementer buttons next to the field to set a value.

13. Click **Close**.

Compressor

14. To enable or disable a compressor for this channel, click the **Compressor** button.

The Compressor dialog box appears:
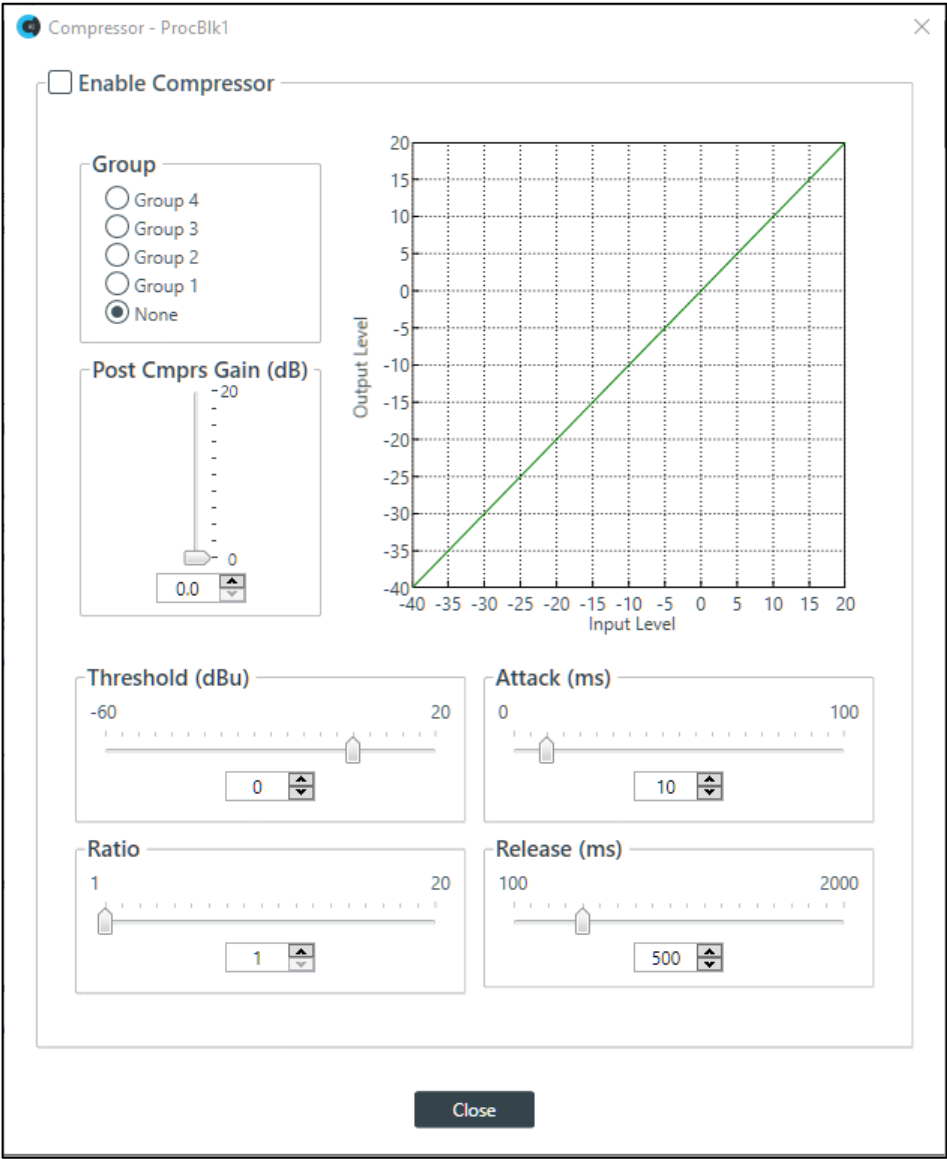
15. Change any of the Compressor options, as described in the table below.

Enable Compressor	Check the check box to activate the compressor on this channel.
Group	Use the Group radio buttons to assign this compressor to a compressor group. The default is None. When you assign a

	compressor to a compressor group—such as a group of two compressors configured for left and right stereo channels—the compressors will monitor each other. When one channel compresses, all compressors in the group compress together. 📝 **Note:** A compressor group must be configured for a single unit; a group cannot control compressors from multiple units.
Enable Delay Mode	Turning on delay mode gives the compressor time to make compression adjustments before the signal is sent to other channels. This can useful for making sure that a signal doesn't exceed a threshold that might damage a speaker, for example.
Delay	The amount of the delay (in ms).
Post Compression Gain	A level adjustment made after compression has occurred.
Threshold	Determines the RMS level at which the compressor begins to operate. The range is from -30 to +20dBu. The default is 0dBu.
Attack	Sets the time increment used to reduce the signal from input level to the prescribed output level when the threshold is exceeded. The range is 0 to 100ms in .5ms steps. The default is 10ms.
Ratio	Changes the rate of compression applied to the input signal as the signal exceeds the threshold level. The range is 1:1 to 1:20dB. The default is 1:1.
Release	Sets the time increment used to restore the signal to the input level when the signal drops below the threshold. The range is 100ms to 2 seconds, in 5ms increments. The default is 500ms.

📝 **Note:** The graph reflects the input/output decibel levels with the gain, ratio, and threshold settings you select.

16. Click **Close**.

Mute

17. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

18. You can change the gain in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Output (Huddle)

You can use channel properties to modify an Output channel. You can make any of the following changes:

Feature	Description
Active (Group only)	Allows you choose which member of the group to show or modify.
Auto Sync	Automatically sync every channel in the group when you make changes to one channel.
Sync All (Group only)	Allows you synchronize all the members of the group to match the settings of the active member.
Mute	Mute a channel.
Gain	Gain adjusts the volume level for an output in increments of 0.5dB.
Polarity	Reverses the polarity of an output channel.
EQ Filter	Adjusts specific frequency bands within a +/-12db range.
Limiter	Establishes a ceiling level for the channelFader output.

To change the properties for an Output channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **Output** to open the channel list.

3. Select the channel you want to change.

   The Output Channel Properties block appears:

Mute

4. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

5. You can change the gain in any of the following ways:

- Drag the slider
- Type a value in the text box
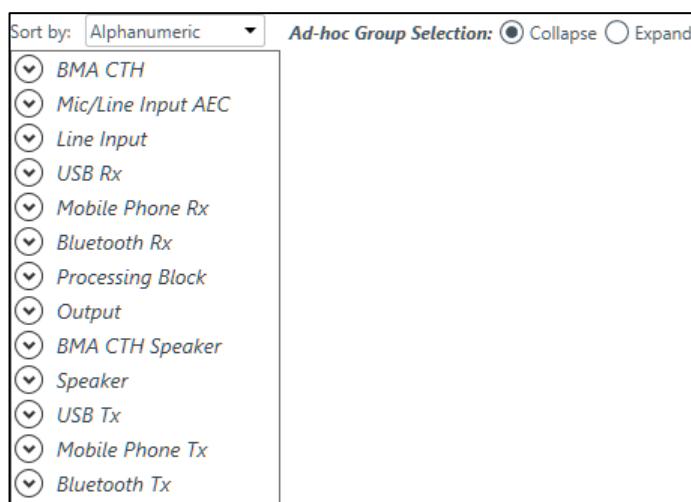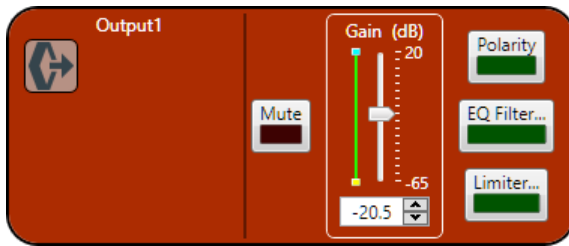- Click the incrementer and decrementer arrows beside the text box to set the value

Polarity

6. To reverse the polarity of the output channel, click the **Polarity** button. If the polarity is reversed the button turns light green.

EQ Filter

7. To enable and configure an equalizer filter, click the **EQ Filter** button. The Graphic EQ dialog box appears:

8. You can change the gain value for any of the frequency ranges in any of the following ways:

- Drag the slider
- Type a value in the text box
- Click the incrementer and decrementer arrows beside the text box to set the value

9. Click **Close**.

Limiter

10. To enable and configure a limiter, click the **Limiter** button.

The Limiter dialog box appears:

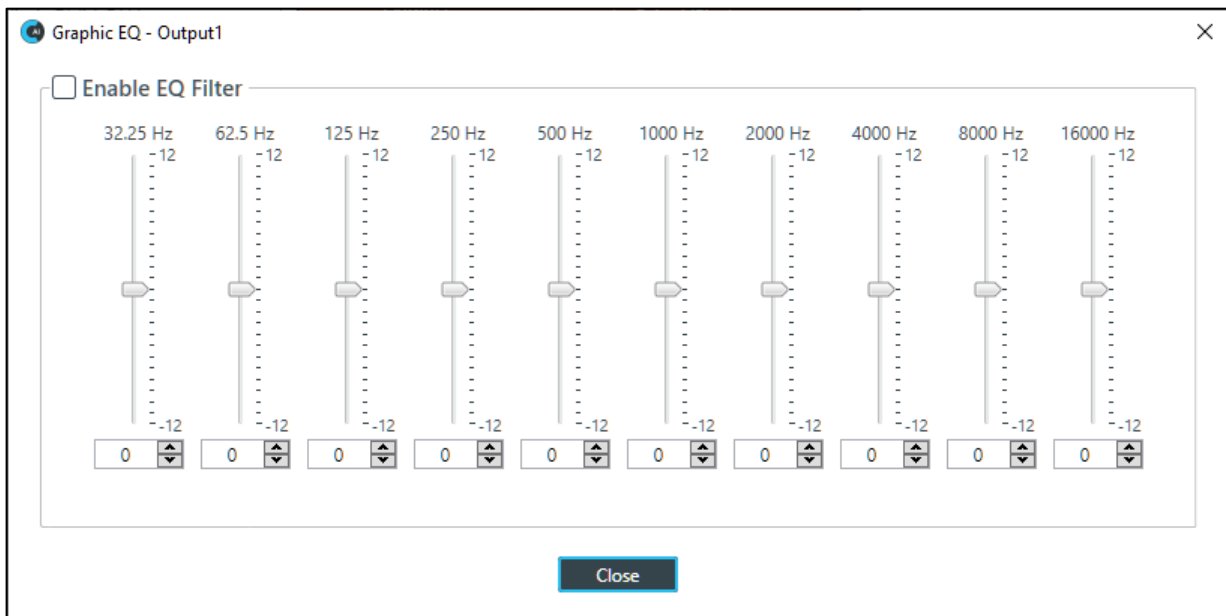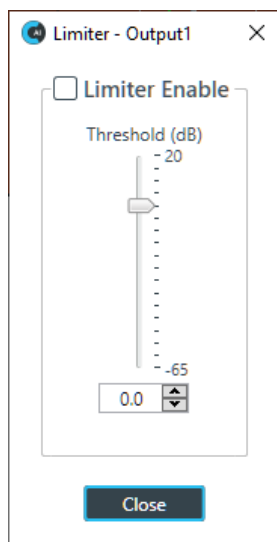**11.** To activate the limiter, click the **Limiter Enable** check box.

12. Adjust the limiter threshold in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

13. Click **Close**.

Changing Channel Properties - BMA CTH Speaker (Huddle)

You can use channel properties to modify a BMA CTH Speaker channel. You can make any of the following changes:

Feature	Description
Mute	Mute a channel.
Gain	Gain adjusts the volume level for a processing block in increments of 0.5dB.
Polarity	Reverses the polarity of a speaker channel.
EQ Filter	Adjusts specific frequency bands within a +/-12db range.
Limiter	Establishes a ceiling level for the output.

To change the properties for a BMA CTH Speaker channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **BMA CTH Speaker** to open the channel list.

3. Select the channel you want to change.

   The BMA CTH Speaker Channel Properties block appears:

Filter

4. To enable and configure a filter, click the **Filter** button. The Filters dialog box appears:
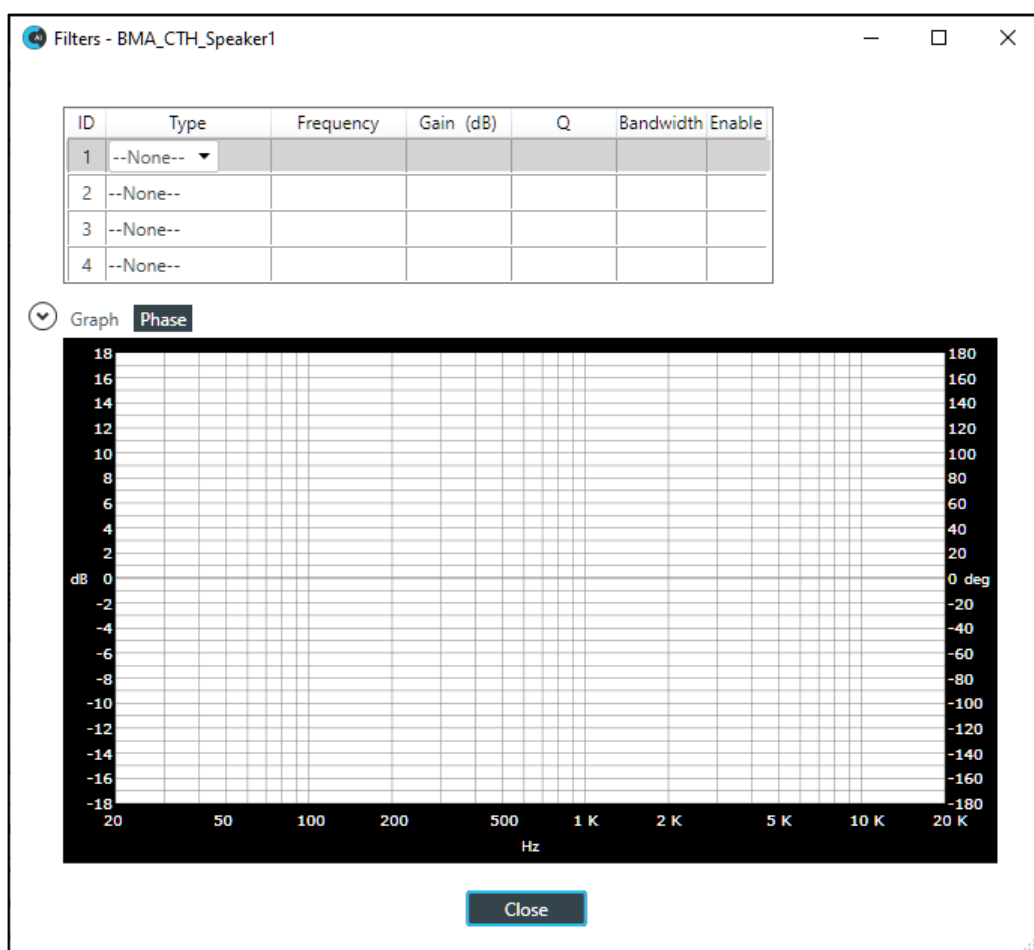
5. For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

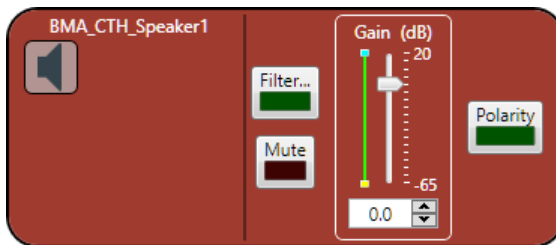|	
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments.

	Bandwidth is 0.05 to 5 octaves in 0.01 octave increments.
	Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

6. (Optional) If you don't want to use default values, change the filter options, as described in the table below.

Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring. Range is from -15to 15dB. The default is 0dB.
Q	Quality factor. The ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.

7.   (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

8. Repeat the process for each filter you want to add.

9. Click **Close**.

Mute

10. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

11. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Polarity

12. To reverse the polarity of the speaker channel, click the **Polarity** button.

   If the polarity is reversed the button turns light green.

13. Click **Close**.

Changing Channel Properties - Speaker (Huddle)

You can use channel properties to modify a Speaker channel. You can make any of the following changes:

Feature	Description
Active (Group only)	Allows you choose which member of the group to show or modify.
Auto Sync	Automatically sync every channel in the group when you make changes to one channel.
Sync All (Group only)	Allows you synchronize all the members of the group to match the settings of the active member.
Mute	Mute a channel.
Gain	Gain adjusts the volume level for a processing block in increments of 0.5dB.
Polarity	Reverses the polarity of a speaker channel.
EQ Filter	Adjusts specific frequency bands within a +/-12db range.

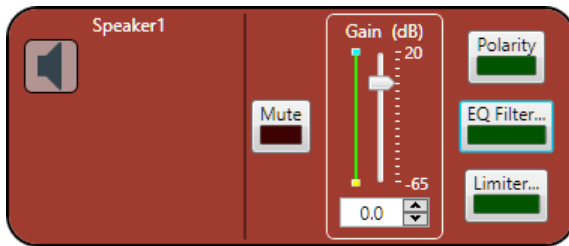| Feature	Description
Limiter	Establishes a ceiling level for the output.

To change the properties for a Speaker channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **Speaker** to open the channel list.
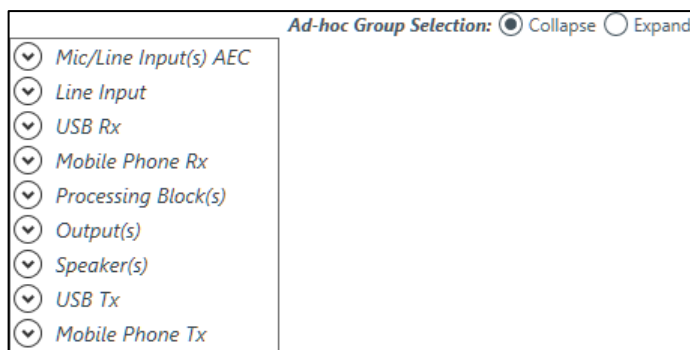
3. Select the channel you want to change.

   The Speaker Channel Properties block appears:

Mute

4. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).
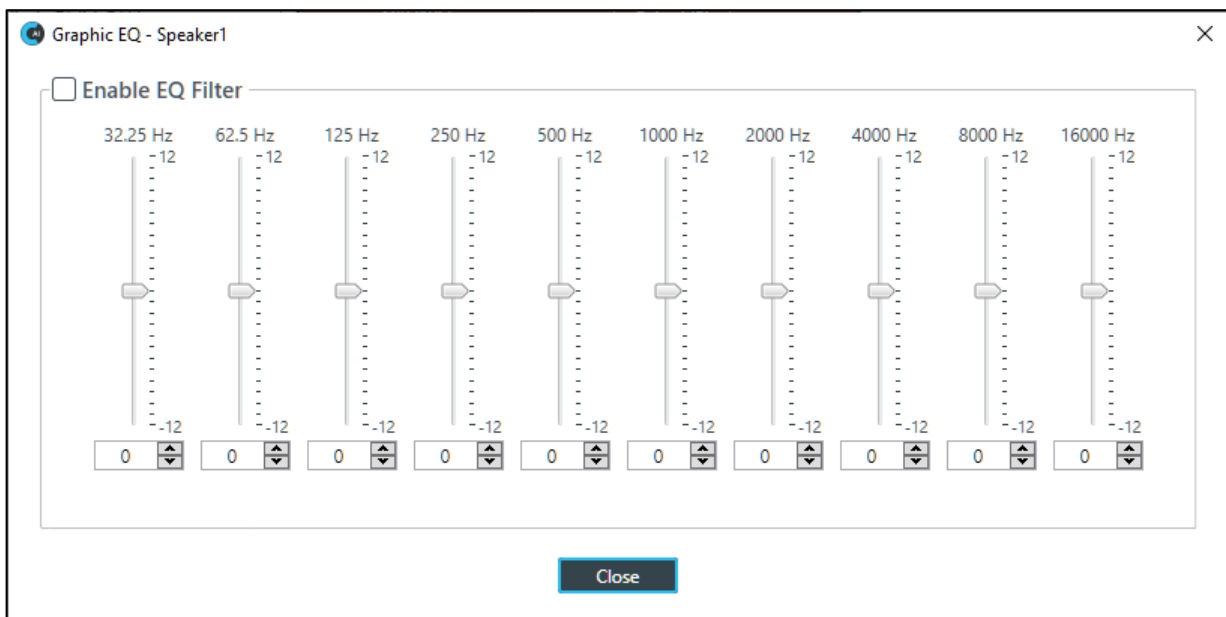
Gain

5. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Polarity

6. To reverse the polarity of the speaker channel, click the **Polarity** button. If the polarity is reversed the button turns light green.

EQ Filter

7. To enable and configure an equalizer filter, click the **EQ Filter** button. The Graphic EQ dialog box appears:
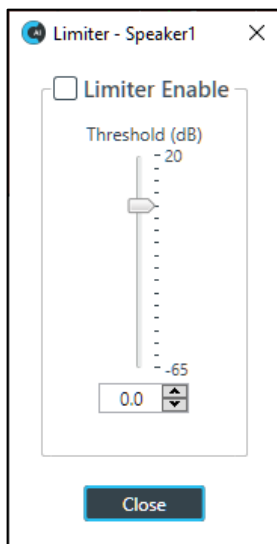

8. You can change the gain value for any of the frequency ranges in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

9. Click **Close**.

Limiter

10. To enable and configure a limiter, click the **Limiter** button.

The Limiter dialog box appears:

11. To activate the limiter, click the **Limiter Enable** check box.

12. Adjust the limiter threshold in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value
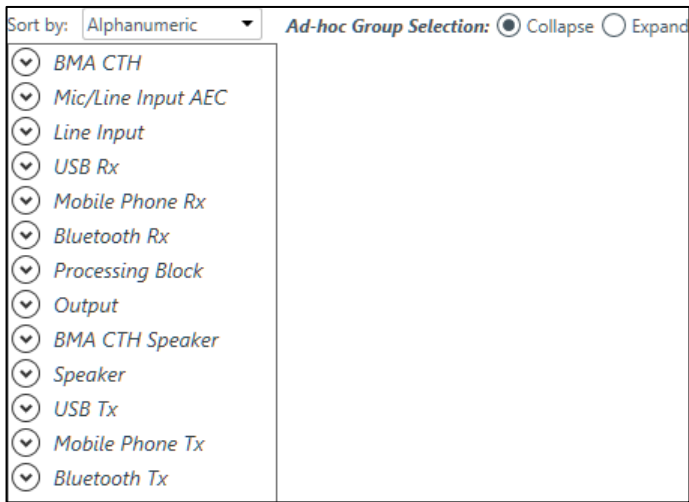
13. Click **Close**.

Changing Channel Properties - USB Tx (Huddle)

You can use channel properties to modify a USB Tx channel. You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a USB Tx channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **USB Tx** to open the channel list.

3. Select the channel you want to change.

   The USB Tx Channel Properties block appears:

Mute

4. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

5. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value
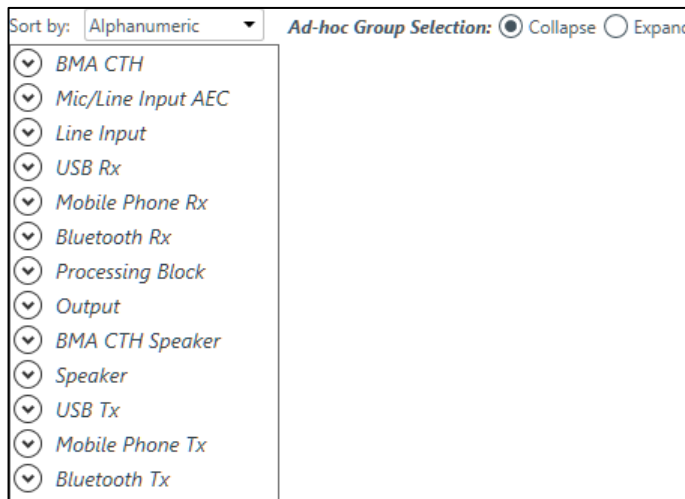
Changing Channel Properties - Mobile Phone Tx (Huddle)

You can use channel properties to modify a Mobile Phone Tx channel. You can make any of the following changes:

| Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a Mobile Phone Tx channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **Mobile Phone Tx** to open the channel list.

3. Select the channel you want to change.

    The Mobile Phone Tx Channel Properties block appears:
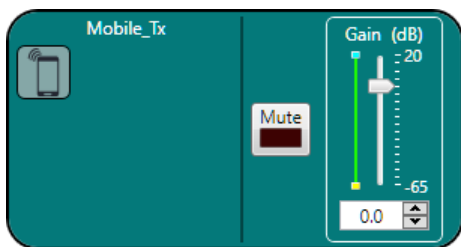
Mute

4. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

5. You can change the gain in any of the following ways:

    *   Drag the slider

    *   Type a value in the text box

    *   Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Bluetooth Tx (Huddle)

You can use channel properties to modify a Bluetooth Tx channel. You can make any of the following changes:

| Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a Bluetooth Tx channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears:

2. Click **Bluetooth Tx** to open the channel list.
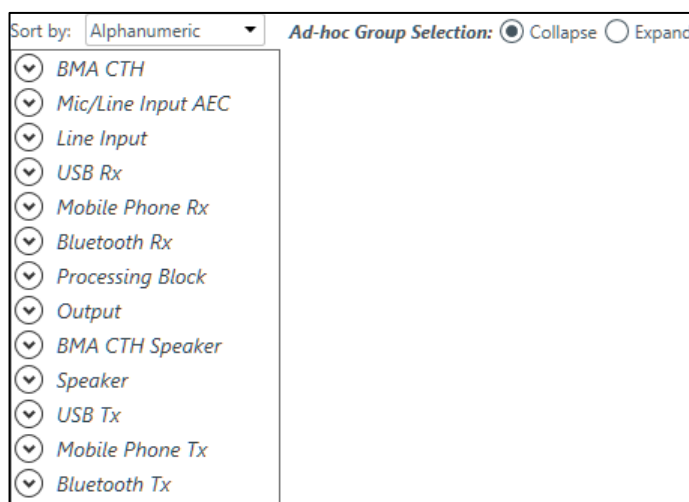
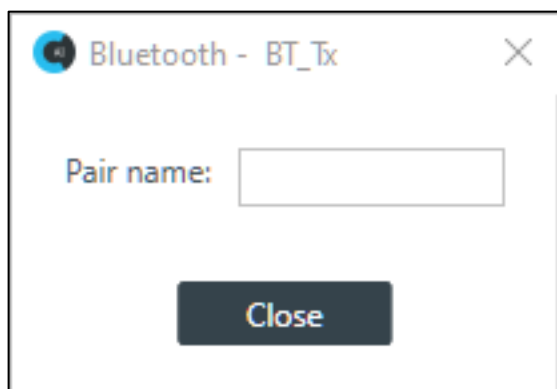3. Select the channel you want to change.

    The Bluetooth Tx Channel Properties block appears:
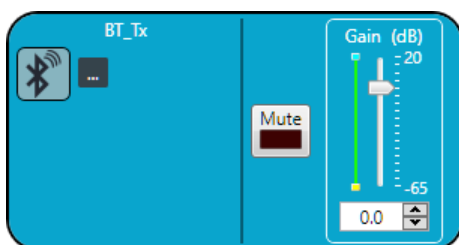
Device Properties

4. To change the Bluetooth device properties, click ▪. The Bluetooth Device Properties dialog box appears:

5. (Optional) Type a value in the Pair name text box.

Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

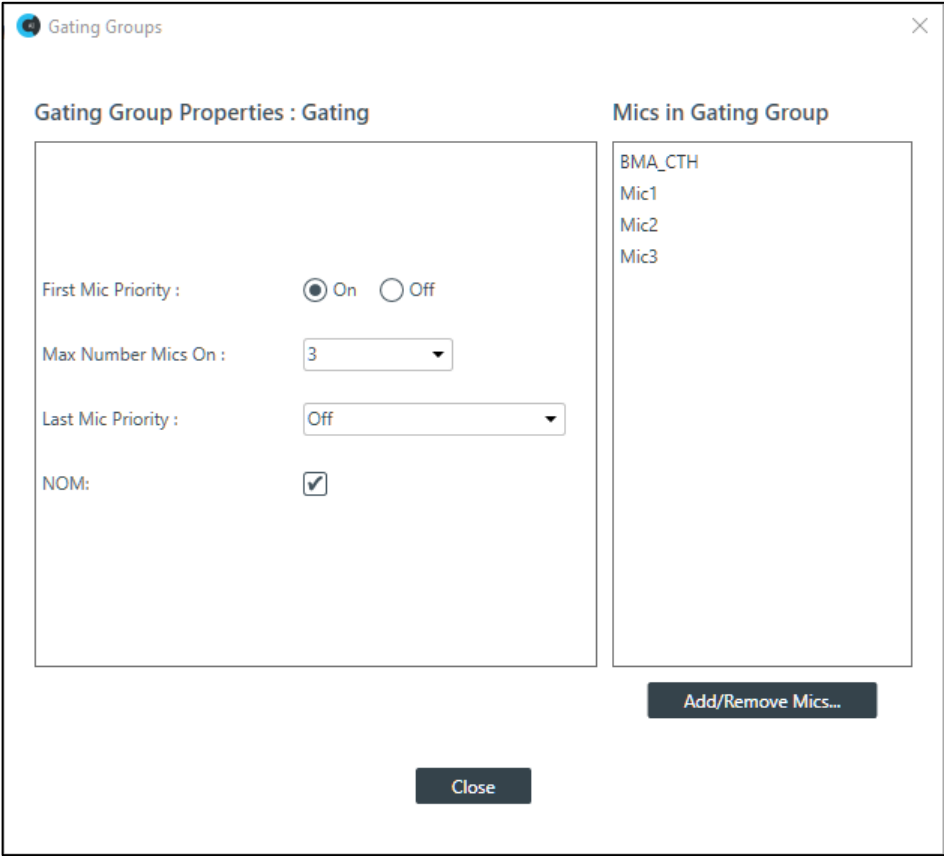**7.** You can change the gain in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

Changing Gating Group Mics and Properties (Huddle)

You can change the properties of the Huddle mics gating group. To change the properties of a gating group:

1. In the Toolbar click .

The Gating Groups dialog box appears:

2. (Optional) You can choose which of the three mic channels should be included in the gating group.

3. (Optional) You can change any of the Gating Group Properties, as described in the table below:

Option	Description
First Mic Priority	First Mic Priority allows more than one microphone to gate on at same time, but it restricts more than one mic from gating on to the same audio source. It does this by determining the audio level received by all mics when the first mic is gated on, and then using this audio level as the ambient level for the gating group. 📋 **Note:** ClearOne recommends using First Mic Priority to maintain maximum audio intelligibility. If First Mic Priority is disabled, two or

Option	Description
	more microphones will usually gate on when only one person speaks.
Max Number Mics On	This sets the maximum number of microphones that can be gated on at any one time within a gating group. The maximum number of mics is limited to the number of mics included in the gating group.
Last Mic Priority	This leaves the specified mic gated on until another mic gates on. You can choose Last On, to keep the most recently gated mic on, or choose a particular microphone to keep on (available microphones are shown in the drop-down list). This feature is useful in conferencing situations, so the far end doesn't think the call has disconnected.
NOM	Number of Open Microphones Mode. This feature optimizes the audio level based on the number of open microphones being used.

4. Click **Close**.

Chapter 5: Adding Devices (CP2)

This chapter contains information about adding and configuring CONVERGE Pro 2 devices and related peripherals.

📝 **Note:** The options described in this chapter are accessible only when the CONSOLE AI is in offline mode (not connected to a device or stack). See *Online Mode vs. Offline Mode* for more information.
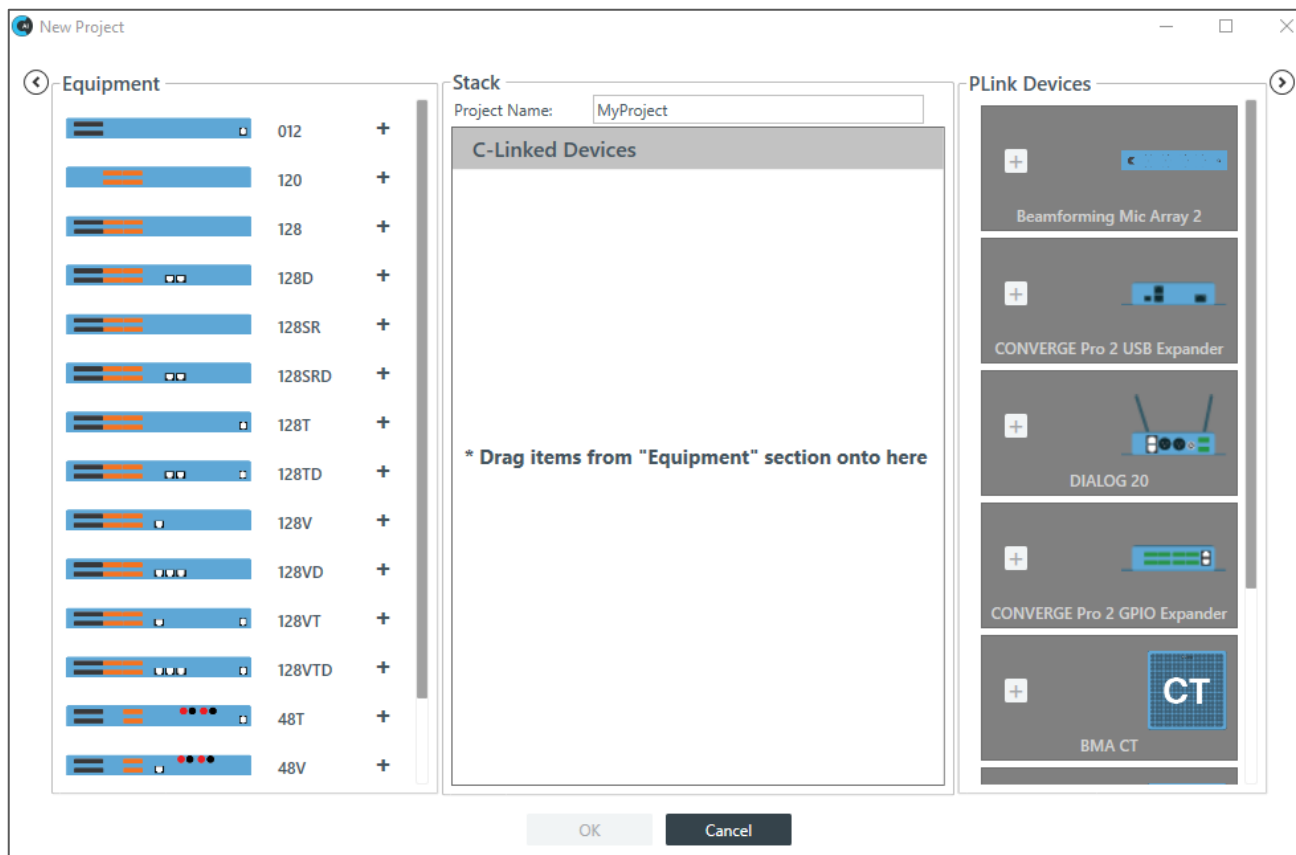
Adding a CONVERGE Pro 2 Device

Note: Adding a device does not make its assets (audio channels, GPIO pins, etc.) available to the project. See *Adding Channels to a Project* for more information.
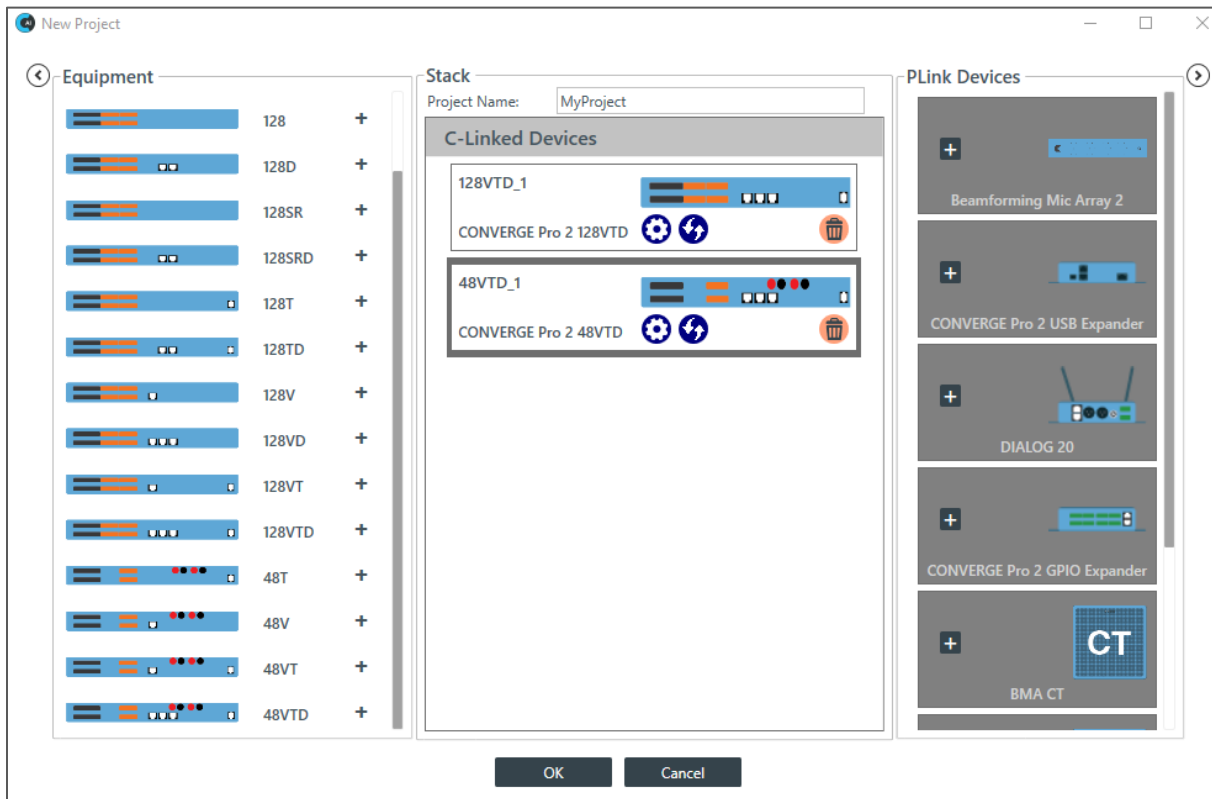
To add a CP2 device:

1. If you have not already done so, **create or open a CP2 project**.

2. From the toolbar, click   .

   The system displays the Devices window:

On the left of the window, under Equipment, select a device by either of two methods:

- Click the plus sign corresponding to the device
- Click, drag and drop the device icon from the Equipment list into the C-Linked Devices area.

## Adding a BMA2, BMA CT, BMA 360 or Bluetooth Expander

📝 **Note:** If you are not using Long-distance P-Link, you can add up to three BMA2 devices per CP2 unit in the stack. If you are using Long-distance P-Link, you can add up to three BMA2 devices. See *About Long-distance P-Link* for more information.

The following instructions apply to each of these 3 microphone arrays and BlueTooth. For example purposes, the addition of a BMA2 is illustrated.

To add one of these devices, complete the following steps.

1. If you have not already done so, **create or open a CP2 project**.

2. From the toolbar, click .
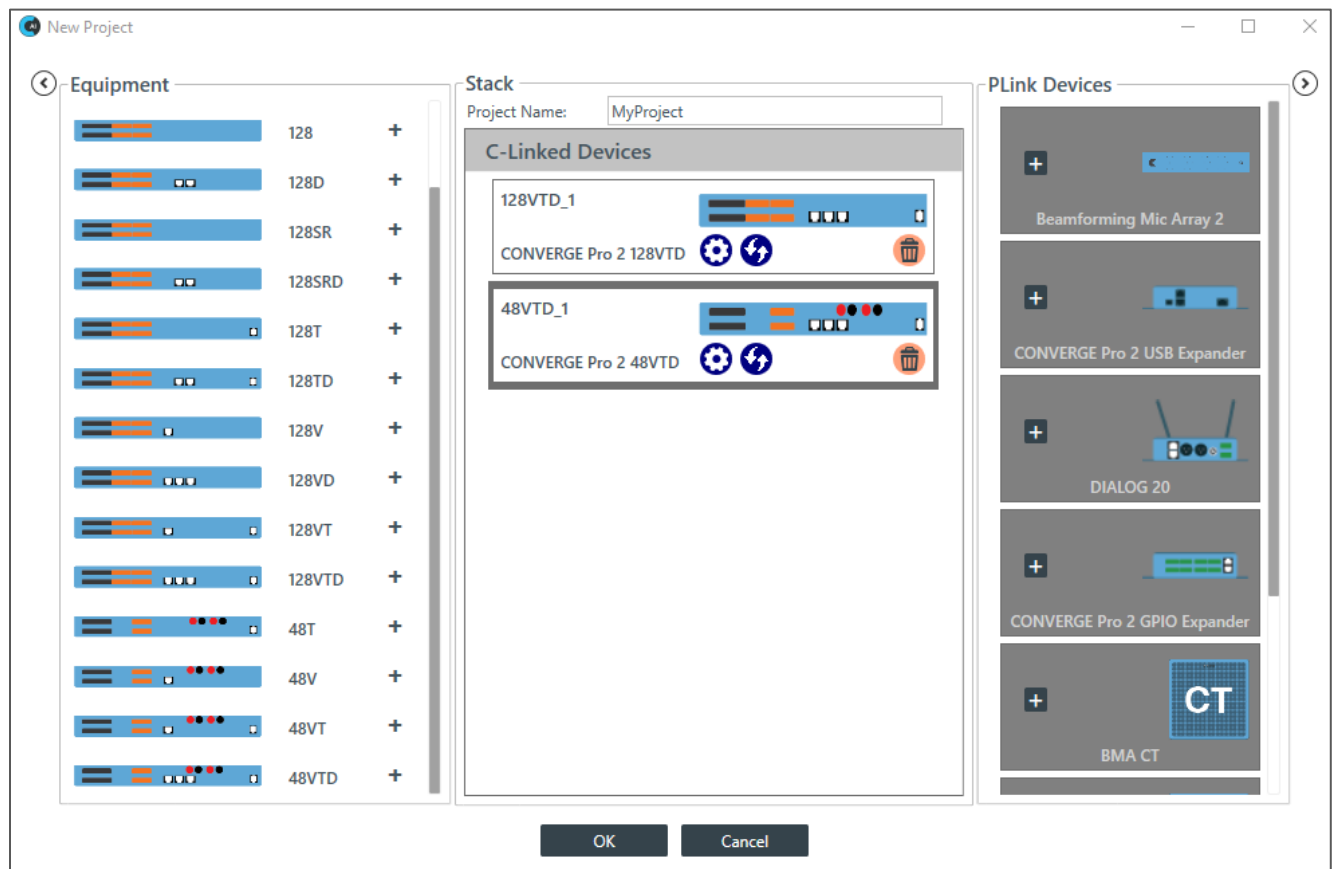
On the right of the screen, under PLink Devices, add the BMA2 by either of two methods:

- Click the plus sign, [+] , of the device.

  Note: To use this method, you must have previously clicked and made active, in the C-Linked Devices area, the CP2 device to which you want to add the BMA2. In the above screen image, the 48VTD_1 has been selected, as the icon's thick border indicates.

- Click, drag, and drop the BMA2 from the Plink Devices list to the CP2 device in the C-Linked Devices area.

The system displays the BMA2 added to the CP2 device.
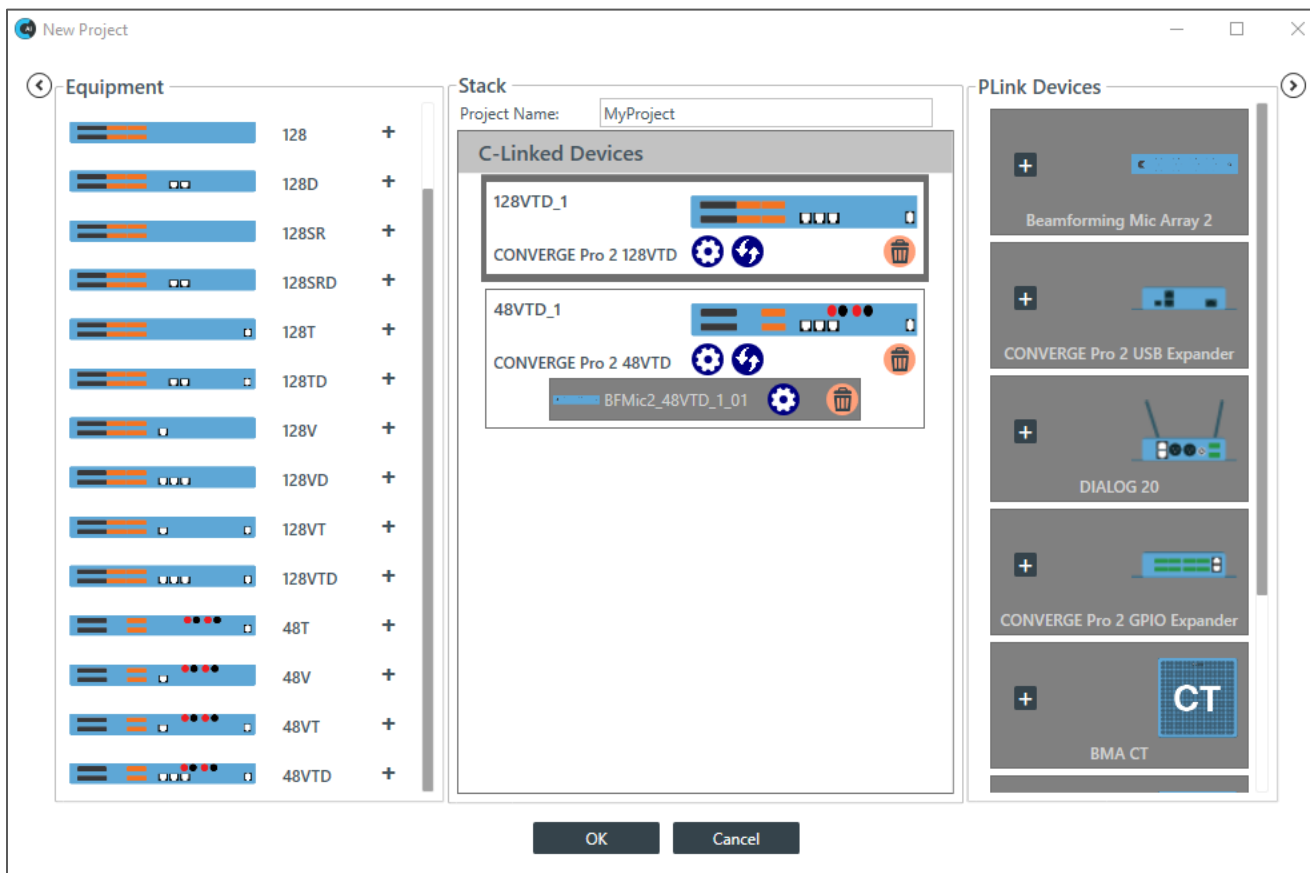
Optional: To apply a name and serial number to the added device:

1. Click the Plink device's gear icon:
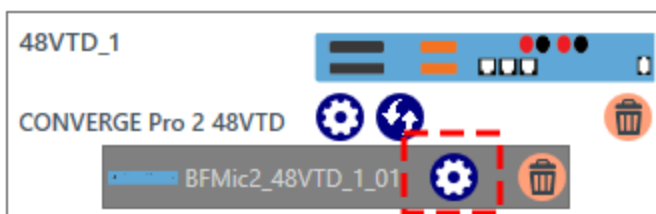
The system displays the Edit Device dialog box.

2. In the dialog box, type a name and serial number.

3. Click **OK**.

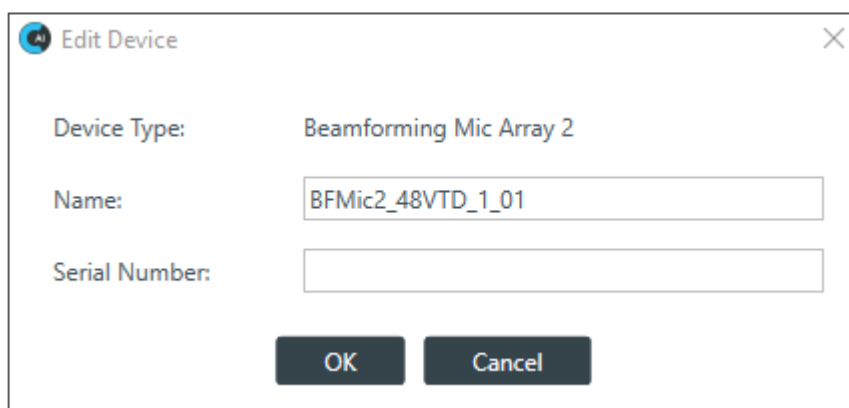The device is added to the specified CONVERGE Pro 2.

Adding a GPIO Expander or Versa USB Expander

📝 **Note the following:**

- GPIO pins added using a GPIO Expander can be used as Logic Input and Open Collector Output types, but, unlike the GPIO pins on a CP2, they cannot be used as Powered Logic Output type pins.

- See *About CONVERGE Expanders* for more information.

To add a GPIO Expander or USB Expander, follow the same steps as those for a BMA2, BMA CT, BMA 360 or Bluetooth Expander.

However, the Edit Device dialog box for both the GPIO Expander and the USB Expander are slightly different.

As the following image illustrates, the Edit Device dialog box for both includes an option to enable the serial port:
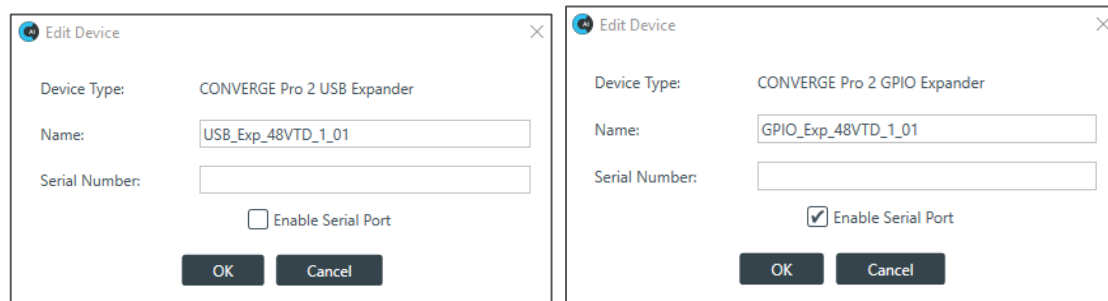
Adding a DIALOG® 20 Wireless Mic

⚠️ **Important:**

- Before you connect a DIALOG 20 Wireless Mic System to a CP2, be sure the DIALOG 20 system has firmware MUX 2.3, RXM 1.6.5, TXM 1.3.5, TX 1.2.8, and RXS 1.4.1 or greater.

- Use the DIALOG 20 Remote software to upgrade the DIALOG 20 firmware.

- See the *WS800 & DIALOG 20 Remote Software User Manual* for more information about upgrading the firmware.

To add a DIALOG 20, follow the same steps as those for a BMA2, BMA CT, BMA 360 or Bluetooth Expander.

However, when you click the devices gear icon,
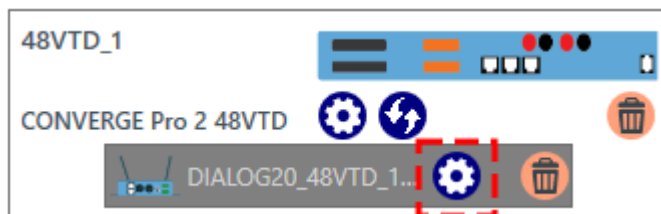
CONSOLE AI displays the DIALOG 20 Properties dialog box.

Changing CP2 Device Settings

To access settings for a CP2 device, in the tool bar, click the Stack icon, .

For the CP2 device you want to change, click the Gear icon, .
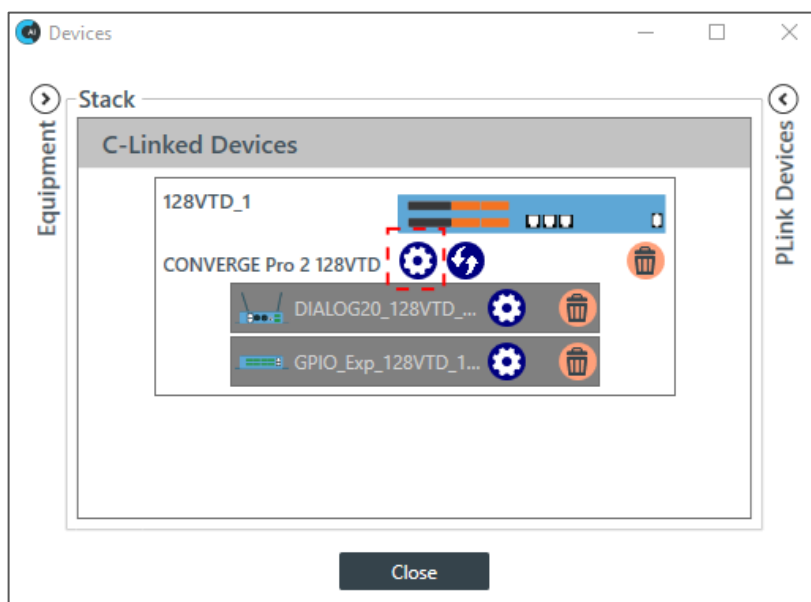
CONSOLE AI presents the Device Settings dialog box, with the General tab active:
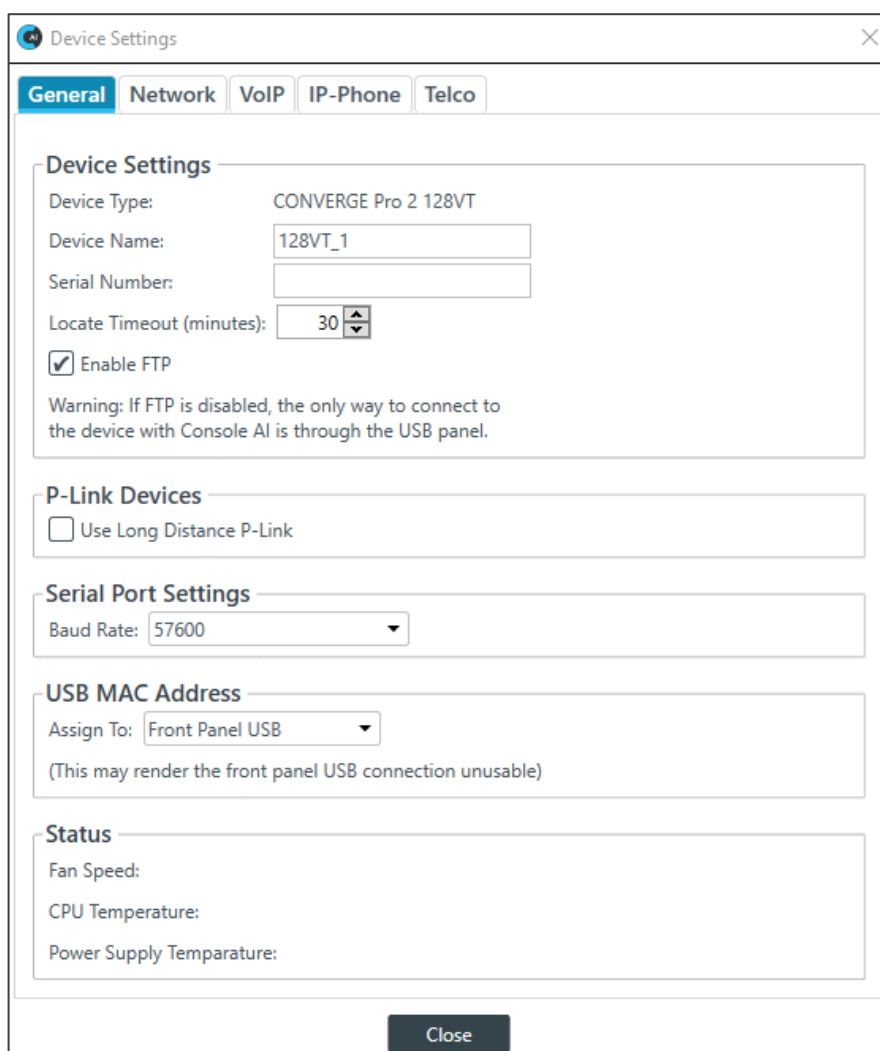
> 📋 **Note:** The tabs shown on this dialog box depend on the type of device. All devices have General and Network tabs. Devices with VOIP capability have VoIP and IP-Phone tabs. Devices with Telco capability have a Telco tab.

CP2 Device Settings > General

Make changes based on information in the following table:

Device Name	The name of the CP2 Device as you want it to appear in the CONSOLE application.
Serial Number	The device's serial number.
Use Long Distance P-Link	Specify whether to turn on long-distance P-Link, which Allows you increase the distance between P-Link devices but reduces the number of P-Link devices that can be added. See *About Long-distance P-Link* for more details.
Serial Port Settings-Baud Rate	The baud rate of the device's serial port.
USB MAC Address-Assign To	Assigns a MAC address to either the USB port on the front panel of the CP2 or to the VoIP VLAN. 📋 **Note:** If you decide to assign the MAC address to the VoIP VLAN, it may make the front-panel USB port unusable for a telnet connection.

Changing CP2 Device Settings > Network

📋 **Note:** The tabs shown on this dialog box depend on the type of device. All devices have General and Network tabs. Devices with VOIP capability have VoIP and IP-Phone tabs. Devices with Telco capability have a Telco tab.

If it's not already selected, under IP Settings, select the **Ethernet Port** tab.

These settings apply to the Ethernet port on the back panel of the CP2 device.

Make changes based on information in the following table:

Option	Description
Use DHCP	Select to use DHCP to automatically configure network settings for the device.
Use Static IP	Select to set a static IP address.
IP Address (Static IP only)	When using a static IP address, specify the IP address.
Subnet Mask (Static IP only)	When using a static IP address, specify the subnet mask.
Gateway (Static IP only)	When using a static IP address, specify the gateway address.
DNS Address 1 (Static IP only)	When using a static IP address, specify a primary DNS server address.
DNS Address 2 (Static IP only)	When using a static IP address, specify a secondary DNS server address.

For VoIP Port (VoIP-capable devices only):

Under IP Settings, select the **VoIP Port** tab.

These settings apply to the VoIP port on the back panel of the CP2 device, if the CP2 unit has one. Not all VoIP- capable CP2 devices have both a VoIP port.

The VoIP Port settings appear:

Make changes based on information in the following table:

Option	Description
Use DHCP	Select to use DHCP to automatically configure network settings for the device.
Use Static IP	Select to set a static IP address.
IP Address (Static IP only)	When using a static IP address, specify the IP address.
Subnet Mask (Static IP only)	When using a static IP address, specify the subnet mask.
Gateway (Static IP only)	When using a static IP address, specify the gateway address.
DNS Address 1 (Static IP only)	When using a static IP address, specify a primary DNS server address.
DNS Address 2 (Static IP only)	When using a static IP address, specify a secondary DNS server address.

VoIP VLAN Settings (VoIP-capable devices only)

1. **VoIP VLAN**

   Applies to the VoIP port on the back panel of the CP2 device

   Use only if the network attached to that port is configured as a VLAN.

Make changes based on information in the following table:

Option	Description
Use Voice VLAN	Whether to configure the VoIP connection as a VLAN network.
VLAN ID	The VLAN ID number (1-4094).
VLAN Priority	The VLAN priority value (0-7).
Use DHCP	Select to use DHCP to automatically configure network settings for the device.
IP Address (Static IP only)	When using a static IP address, specify the IP address.
Subnet Mask (Static IP only)	When using a static IP address, specify the subnet mask.
Gateway (Static IP only)	When using a static IP address, specify the gateway address.
DNS Address 1 (Static IP only)	When using a static IP address, specify the primary DNS server.
DNS Address 2 (Static IP only)	When using a static IP address, specify the secondary DNS server.

Changing CP2 Device Settings – VoIP > SIP Log Level

Near the bottom of each of the tabs within the VoIP tab, you can set the SIP Log Level.
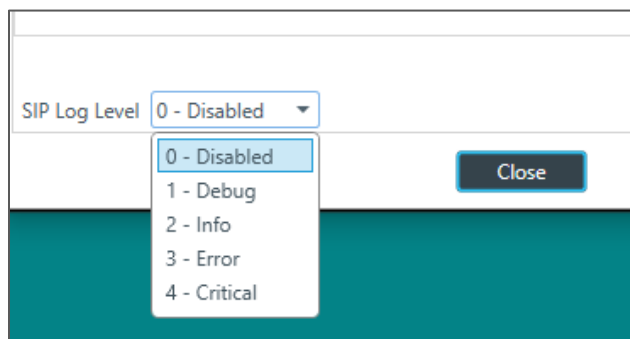
The log levels are as follows:

Log Level	Description
1- Debug	Potentially helpful information, such as log comments and VoIP settings information
2 – Info	Normal events that may be of interest. It does **not** indicate a problem.
3 – Error	Full diagnostics. The data may help ClearOne technical support troubleshoot a problem.
4 - Critical	Events to watch for and investigate. Also helps technical support analyze the signaling call flows.

Changing CP2 Device Settings – VoIP > QoS

Note: The tabs shown on this dialog box depend on the type of device. All devices have General and Network tabs. Devices with VOIP capability have VoIP and IP-Phone tabs. Devices with Telco capability have a Telco tab.
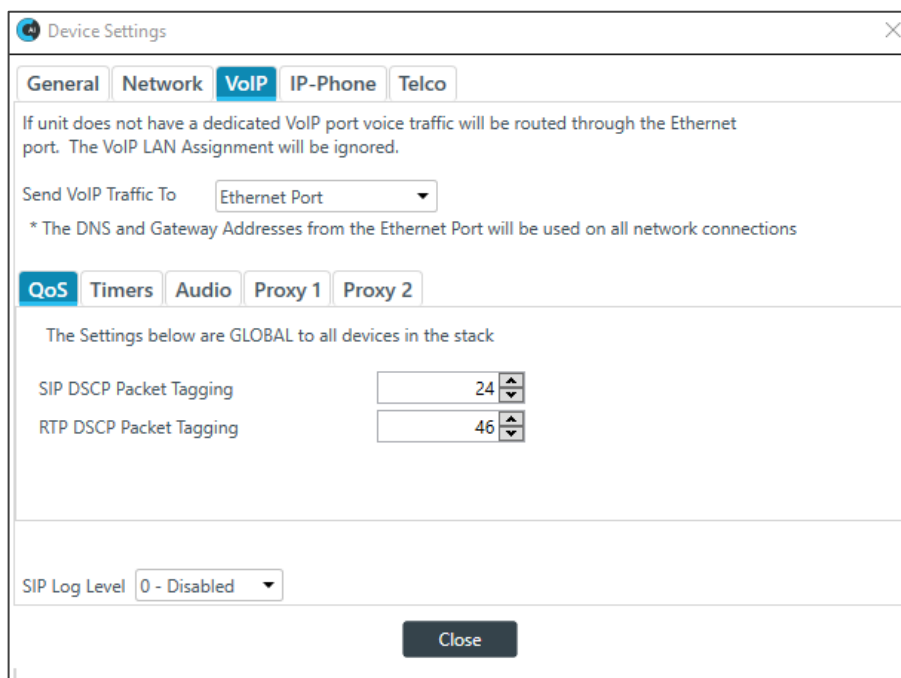
Specify whether to send VoIP traffic over the Ethernet port or the VoIP port.

📝 **Note:** This applies only if you have a device with both an Ethernet Port and a VoIP port on the back of the device; not all VoIP-capable CP2 units have both ports.

Make changes based on information in the following table:

Option	Description
SIP DSCP Packet Tagging	Quality of Service priority level for SIP packets (1-63) as a decimal value. Default: 24 (Best Effort). These packets are used for VoIP signaling. ClearOne recommends using 24 for this value if you want to elevate the priority of VoIP calls on the network. However, you should consult your network admin for a detailed recommendation.
RTP DSCP Packet Tagging	Quality of Service priority level for RTP packets (1-63) as a decimal value. Default: 46 (Express Forwarding). These packets are used for VoIP audio. ClearOne recommends using 46 for this value if you want to elevate the priority of VoIP calls on the network. However, you should consult your network admin for a detailed recommendation.
SIP Log Level	See **CP2 Device Settings – VoIP > SIP Log Level.**

(Optional) Changing CP2 Device Settings – VoIP > Timers

Timers are used to keep SIP sessions "alive" on the network.

Make changes based on information in the following table:

Option	Description
Registration Expires	The time (in seconds) a given device is registered on the network. Default: 3600. Min: 30. Max: 5000.
Dial Tone Duration	How long a dial tone is allowed to "live" before it times out if no digits are dialed. Default: 60000. Min: 0. Max: 120000.
Refresh by Update	Whether to send a session timer refresh message by INVITE or UPDATE request. Default: Off.
Min SE	Minimum session timer (in seconds). Default: 90. Min: 0. Max: 65535.
Session Expires	Time (in seconds) before the current session expires due to inactivity. This value MUST be greater than the Min SE Timer value. Default: 1800. Min: 0. Max: 86400.
Digit Map Short Timer	The length of a short timer, to be used in dial plans. Default: 10. Min: 5. Max: 50.
Digit Map Long Timer	The length of a long timer, to be used in dial plans. Default: 50. Min: 10. Max: 100.
Digit Map Time Out	The length of time after a digit is sent before a timeout occurs. Default: 1500. Min: 100. Max: 5000.

Option	Description
SIP Log Level	**CP2 Device Settings – VoIP > SIP Log Level**

(Optional) Changing CP2 Device Settings – VoIP > Audio

Make changes based on information in the following table:

Option	Description
DTMF Relay	The DTMF Relay type. Possible options are SIP Info, Inband, and Out of Band. Default is Out of Band. **Note:** Inband DTMF Relay is more likely to work on lossless codecs, such as G.711. The SIP Info method works only on SIP dial peers.
Dynamic Payload Type	Specified by server manufacturer.

Option	Description
	Default: 101 (a type that is frequently specified by manufacturers).
RTP Starting Port	The starting port for RTP sessions. Default: 30000. Min: 1025. Max: 65535.
RTP Range	The number of ports that can be used for RTP sessions. Default: 200. Min: 10. Max: 5000.
Dial Plan	A VoIP dial plan. For more information, see *VoIP Dial Plan Syntax*. Default dial plan: 911 | 0 | [1-7]xxx | 8xxxxxxx | 91xxxxxxxxxx | 9011x.L
Codec Priority	The order of preferred codecs to attempt to use. If the device can't negotiate the first codec on the list, the second one is attempted next, etc.
SIP Log Level	The level of logging that occurs. Leave this as is unless directed by ClearOne Customer Support for troubleshooting purposes. Default is Debug.

VoIP Dial Plan Syntax

A VoIP dial plan is a rule or set of rules for allowable dial sequences. You can use dial plans to help users avoid dialing errors. CONSOLE AI uses standard VoIP dial plan syntax, as described in this topic.

Dial Plan Elements

The following table describes the possible elements of a dial plan:

Type	Description	Result
Digit	An digit (0-9) or an asterisk (*)	Identifies a specific digit (do not use #)
Range	[n1-n2] (where n1 and n2 represent digits)	A range of digits, between n1 and n2, inclusive
List	[n1 n2 n3] (where n1, n2, and n2 represent digits)	A list of digits (it must be the specific digits listed)
Wild Card (single)	x	x matches any single digit
Wild Card (multiple)	. (period)	. matches an arbitrary number of digits

S	short timer	A timed waiting period that corresponds to the value designated for a short timer (default is 10 seconds)
L	long timer	A timed waiting period that corresponds to the value designated for a long timer (default is 50 seconds)
		A delimiter	Place this character, surrounded by spaces, between dial plan options if you want to use more than one option.

Dial Plan Examples

The following table describes some dial plan examples and their meaning.

Plan	Description
xxxxxxx	Any 7-digit number
[49]11	Either 411 or 911
[3-8]11	Any of the following numbers: 311, 411, 511, 611, 711, or 811
9[2-9]xxxxxx	A 9 followed by a digit in the range 2-9, followed by any six other digits. This is an example of a call from an internal network that uses a 9 to get an outside line, followed by a 7-digit local phone number (in North America, local numbers cannot begin with 0 or 1).
911 | [3-7]xxx | 8[2-9]xxxxxxxxxS | 8011.L	This dial plan permits four possible sequence types: • Dialing 911 • Dialing an in-office extension, in this case a 4-digit number that begins with 3, 4, 5, 6, or 7 • Dialing an 8 (to get an outside line) followed by a valid North American 10-digit sequence (a number and an area code), followed by a short timer dialing an 8 (to get an outside line) followed by a 011, to initiate an international call, followed by an arbitrary number of digits (since international numbers can vary in length), followed by a long timer

(Optional) Changing CP2 Device Settings – VoIP > Proxy & and Proxy 2

Note: The system uses Proxy 2 server only if the connection to the Proxy 1 server fails.

Make changes based on information in the following table:

Option	Description
Enable Second Proxy (Proxy 2 only)	Whether to use a second proxy. Default: deslected.
TCP Port	The TCP port to use for a proxy connection. Applies only if Transport Type is TCP. Default: 5060.
UDP Port	The UDP port to use for a proxy connection. Applies only if Transport Type is UDP. Default: 5060.
User Domain	User domain
Registrar Address	The address of the proxy server
Registrar Port	The port to connect to on the proxy server. Default: 5060.
Outbound Proxy Address	The address of an outbound proxy (if applicable).
Outbound Proxy Port	The outbound proxy port (if applicable). Default: 5060
Transport Type	Whether to transport the signal via TCP or UDP. Default: UDP.
OBP Enable	Whether to use an outbound proxy. Default: Off.
SIP Log Level	Information available at CP2 Device Settings – VoIP > SIP Log Level

(Optional) Changing CP2 Device Settings > IP Phone

When you use a VoIP/SIP server, you can change IP phone settings for a CONVERGE Pro 2 device.

📝 **Note:** The maximum number of simultaneous calls depends on the number of user agents (UAs) being used, as shown in the table below:

UAs	Max Calls
1	5
2	5

UAs	Max Calls
3	4
4	3
5	2

For each of the five phones, make changes based on information in the following table:

Option	Description
Phone Number	The number for the respective VoIP phone.
Name/Label	The channel name/label for this phone (user agent).

Option	Description
Active Ringtone	Which ringtone to use for this phone.
Enable	Enable this SIP phone (user agent).
Auto Answer	Whether to automatically answer incoming calls to this phone.
Proxy 1 User Name	The user name for the first proxy server. Can use at least 64 characters, and possibly more depending on what language you're using.
Proxy 1 Password	The password for the first proxy server. Can use at least 64 characters, and possibly more depending on what language you're using.
Proxy 1 Reenter Password	Reenter the proxy 1 server password (to confirm that you have typed it correctly). Can use at least 64 characters, and possibly more depending on what language you're using.
Proxy 2 User Name	The user name for the second proxy server. Can use at least 64 characters, and possibly more depending on what language you're using.
Proxy 2 Password	The password for the second proxy server. Can use at least 64 characters, and possibly more depending on what language you're using.
Proxy 2 Reenter Password	Reenter the proxy 2 server password (to confirm that you have typed it correctly). Can use at least 64 characters, and possibly more depending on what language you're using.

Changing CP2 Device Settings > Telco

Note: The tabs shown on this dialog box depend on the type of device. All devices have General and Network tabs. Devices with VOIP capability have VoIP and IP-Phone tabs. Devices with Telco capability have a Telco tab.

Make changes based on information in the following table:

Option	Description
Auto Answer	Whether to automatically answer and if so, specify after how many rings. Default is disabled.
Auto Disconnect	Select the auto disconnect mode to control when the unit disconnects a connected call. Modes include Loop Drop + Call Progress, Call Progress, and Loop Drop, and Off. Default is Loop Drop + Call Progress.
Ring Type	Select from three different ring tones (Type 1, Type 2, Type 3). To test a particular tone, click Test after you have selected the tone. Default is Type 1.
Telco Adaptation	Some applications require the unit to adapt to line conditions using a white-noise burst (Noise) rather than automatically (Auto). Default is Auto.
Hook Flash	Sends a momentary interruption in the line seizure, allowing activation of options such as 3-way calling, call waiting, and call hold. This feature is

	dependent on the services offered by your telephone company. You can set the duration of the hook flash using the slider or the selector box. Range is 50ms to 2 seconds in 10ms steps. Defaults is 250ms.
DTMF Level	This feature allows you to adjust the DTMF tone level in relationship to the participant audio level in the room. The level can be adjusted in 1dB steps from a nominal level of 0dB to plus or minus 12dB in 1dB increments. Default is 0dB.
Audible Ringer	When this feature is enabled, an audible ring is heard for incoming calls. The level adjustment allows you to customize the level in relationship to the participant audio level in the room. The level can be adjusted in 1dB steps from a nominal level 0 (default) to plus or minus 12dB in 1dB increments. Default is 0dB.
Audible Hook	When the unit goes off hook (connects) a beep is injected into the receive channel and transmit channel of the unit. When the unit goes on hook (disconnects), a series of two beeps is injected into the receive channel to indicate that the call has been dropped. Default is 0dB.
Ringer Cadence	Standard: Uses the cadence specified in the Country Code to detect the standard ring cadence per country.
	Custom: Set for distinctive ring cadences. When custom is set, the Min On and Min Off times must be selected from their respective drop-down boxes. PBX's can have distinctive ring cadences that are not country specific. These times are the minimum values the ring cadence must be for the unit to detect the ring. If the ring cadence signal provided by the PBX is greater than the custom settings, the unit will detect the ring.
	Default is Standard.
Local Number	The device's phone number.
Country Codes	Set the country for the device to specify which telco standards are used.

Changing Device Properties -DIALOG 20

You can change the device properties for a DIALOG 20 Wireless Mic device.

📋 **Note the following:**

- Adding a DIALOG 20 Mic to a CP2 CONSOLE Project and then pushing a CP2 project file will overwrite any configuration changes you have made to the DIALOG 20 using the WS800 & DIALOG 20 Remote Software.

- The CP2 CONSOLE software doesn't support Narrowband mode selection.

- The device properties apply to only one DIALOG 20 device. If you add more than one DIALOG 20 device, you must set the device properties for each device.

To change the settings for a DIALOG 20 device:

From the toolbar, click   .

The Devices dialog box appears:

For the DIALOG 20 device you want to change, click gear icon, . The DIALOG 20 Properties dialog box appears:

General Settings

(Optional) Change any of the settings (described in the table below):

Option	Description
Device Name	The name of the device as it appears in the CP2 CONSOLE.
Serial Number	The serial number of the DIALOG 20 device. If the device is detected, this is filled automatically.
Receiver Name	The receive name that appears in the OLED panel of the receiver.
OLED Display Mode	Choose from: **Bright while transmitter on**: Bright while any transmitter is on; dims after all transmitters are turned off and timer expires **Bright while syncing:** Bright when syncing transmitter, dims after timer expires **Always bright**: Does not ever dim
OLED Brightness Timer	The length of time, in minutes, after which the OLED display dims if you have selected **Bright while transmitter on** or **Bright while syncing** above.

Option	Description
RF Bandwidth	Whether to use Wide frequency ranges or Narrow frequency ranges. Using Wide works under most situations, but sometimes you may need to use Narrow to avoid interference or when you have a larger number of transmitters to connect.
Mixed Output Mute	Use to mute the mixed output signal from the receiver, affecting all audio output from that receiver.
Mixed Output Level	Use to adjust the gain for the mixed output signal.
GPIO Settings	Use to set the GPIO input or output pins (1 or 2) to control the audio, letting third-party controllers use the pins to mute the audio signal.
Redundancy	Redundancy allows the system to use designated backup channels in case there is a problem with a channel (due to low batteries or other problems).
Slot Name (Slot 1 or 2)	Slot name.
Channel Number (Slot 1 or 2)	Channel number (1-8). If you are attached to a device, you can use RF Scan to determine which channels have the best signal. See *Performing an RF Scan for DIALOG 20* for more information.
Tour Mode (Slot 1 or 2)	Tour Mode enables multiple receivers to receive audio from a single transmitter
Key (Slot 1 or 2)	All receivers must use the same key as the transmitter to receiver audio. The Tour Mode function allows you to manually assign a key so that it can be shared between multiple receivers and a transmitter. When the key does not match, the audio is muted until there is a re-sync. 📝**Note:** Keys can be 1-32 alphanumeric characters.
Output Mute (Slot 1 or 2)	Mute the signal from Slot 1 or Slot 2.
Output Gain (Slot 1 or 2)	Adjust the gain for the signal from Slot 1 or Slot 2.

Transmitters Settings

(Optional) Change any of the settings (described in the table below).

Option	Description
Handheld: Tx Controls Lock	Locks the control buttons on hand-held transmitters so that end users cannot change parameters.
Body Pack: Tx Controls Lock	Locks the control buttons on beltpack transmitters so that end users cannot change parameters.
Podium: Button Mode 📝 **Note**: Podium mics are also referred to as Gooseneck mics.	Choose from: **Toggle Mode**: Pushing the button turns the mic on or off. **Push to talk**: The mic functions only when the button is pushed. **Push to mute**: Pushing the button mutes the mic.
Boundary: Button Mode 📝 **Note:** Boundary mics are also referred to as Tabletop mics.	Choose from: **Toggle Mode**: Pushing the button turns the mic on or off. **Push to talk**: The mic functions only when the button is pushed. **Push to mute**: Pushing the button mutes the mic.
Power Switch Mode	Choose from: **On-Off:** The switch toggles between on and off.

Option	Description
	On-Mute: The switch toggles between on and mute. **On-On:** The mic remains on at all times, regardless of the state of the switch.
Low Cut	Toggles a 75 Hz low-cut audio filter.
Transmitter Power	The amount of power used by the transmitter: 1mW or 10mW.
RF Standby Mode	When RF Standby Mode is enabled, the transmitter turns off the RF output when the transmitter is muted.
Mute Mode	Choose from: **Hard Mute:** Pressing the mute button mutes the receiver output. **Logic Mute:** When Logic Mute is enabled, the audio output is not muted when the transmitter's mute switch is enabled. This option is used in combination with the GPIO outputs so that echo cancellers can use the audio as an input and mute the audio downstream.

2. Click **Close**.

Performing an RF Scan for DIALOG 20

To help you choose which channels to use with a DIALOG 20 Wireless Mic system, you can perform a radio frequency (RF) scan. The scan shows you which channels have the strongest signals in your environment.

To perform an RF Scan:

1. If you have not already done so, do the following:

   a. Add a DIALOG 20 P-Link device to the project. See *Adding a DIALOG® 20 Wireless Mic* for more information.

   b. Load the project with the DIALOG 20 included to the CP2 device. See *Loading a Project File to a Device or Stack (CP2)* for more information.

   c. Connect to the device that has the DIALOG 20 attached to it. See *Connecting to a Device or Stack (CP2)* for more information.

2. In the toolbar, click .
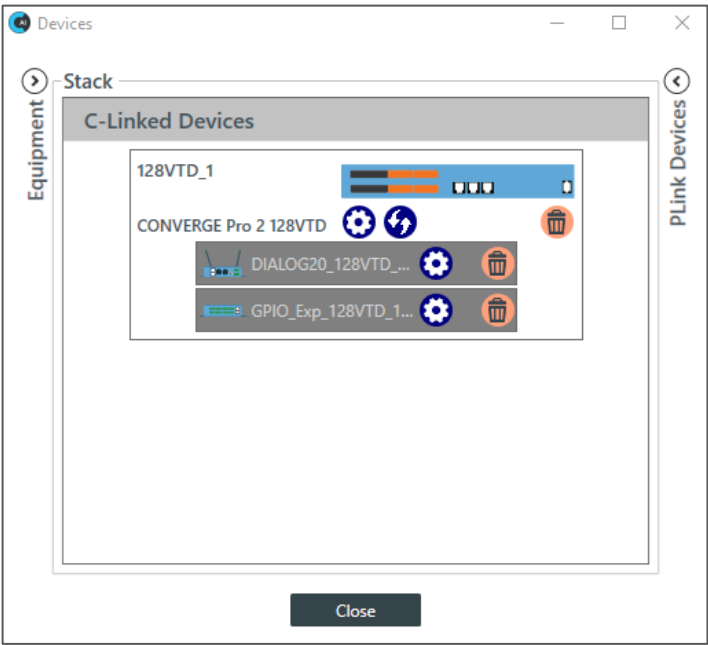
   The Devices dialog box appears:

For the DIALOG 20 device you want to change, click gear icon, .

The DIALOG 20 Properties dialog box appears:
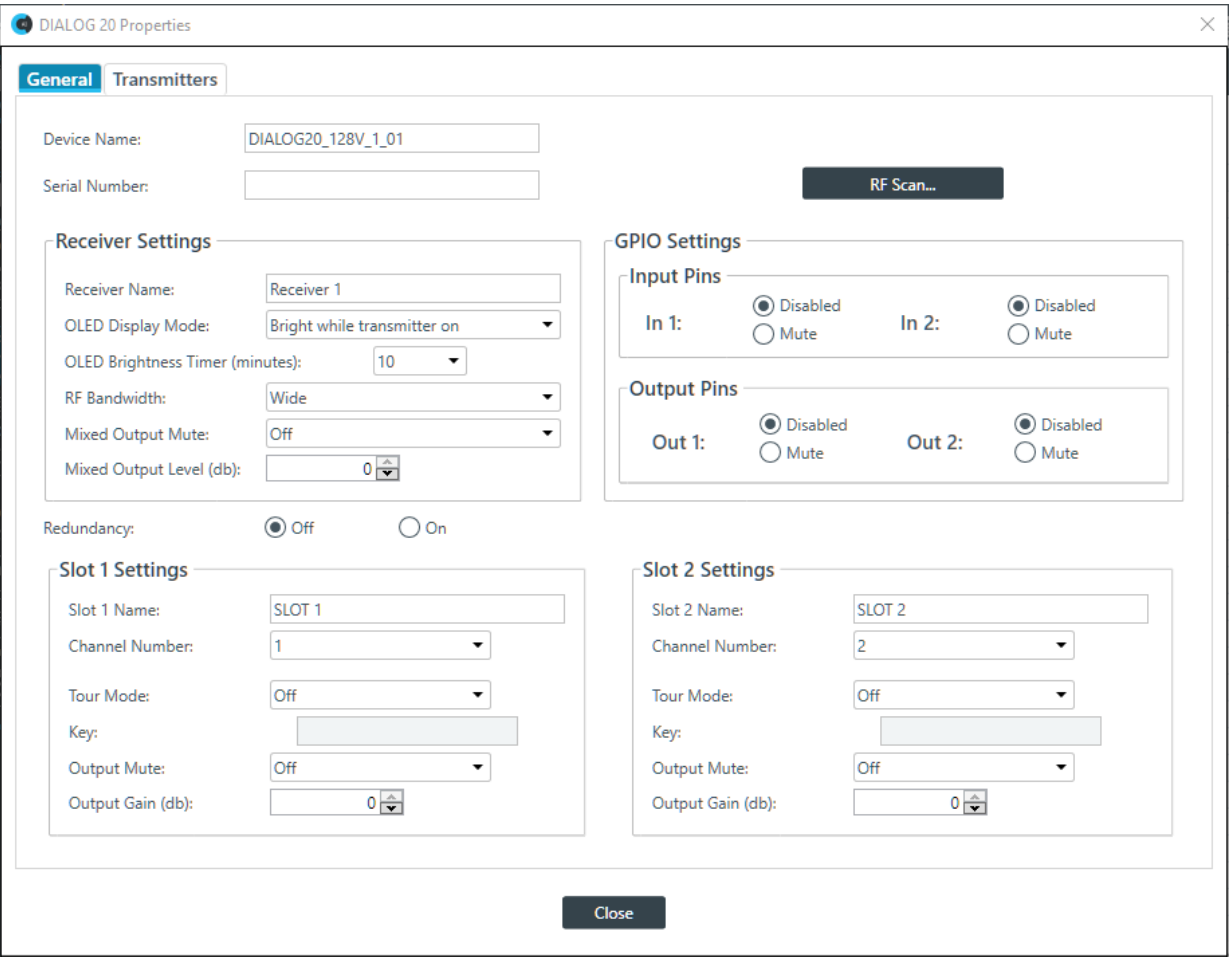
3. In the upper-right of the dialog box, click **RF Scan.**

📝 **Note:** This button appears only if you are connected to a device, so if you don't see the button, make sure you are connected to both the CP2 and DIALOG 20 devices.

The system presents the DIALOG 20 RF Scan dialog box.
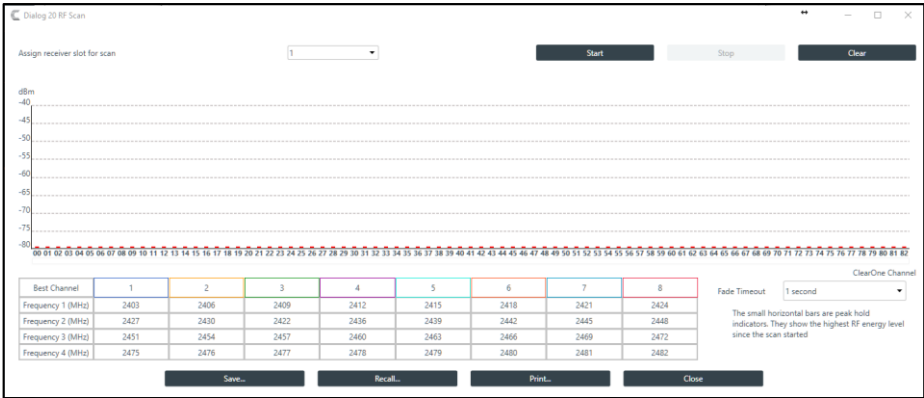
4. (Optional) Choose a receiver slot (the drop-down list to the left of the Start button).

5. Click **Start** to begin scanning.

The scan results appear as strength bars:

6. Results are shown at the bottom of the screen, with the best channels (those with the strongest signal) ordered from left to right, showing you the best possible channel in your environment:

Best Channel	7	8	1
Frequency 1 (MHz)	2421	2424	2403
Frequency 2 (MHz)	2445	2448	2427
Frequency 3 (MHz)	2469	2472	2451
Frequency 4 (MHz)	2481	2482	2475
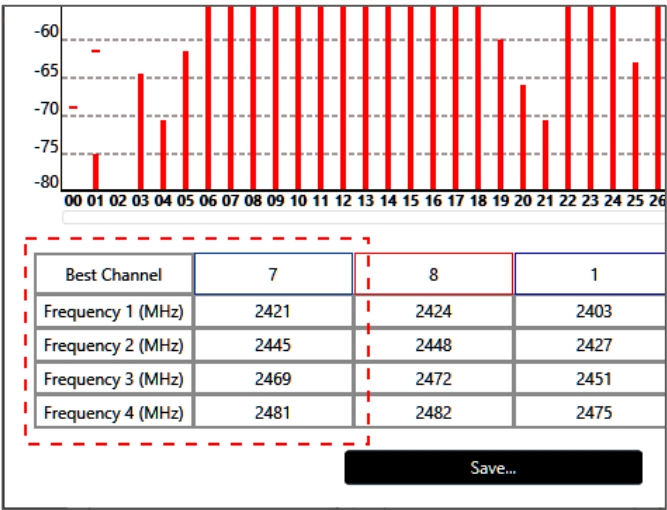
7. (Optional) You can choose from any of the other options in the dialog box, as described in the table below:

Option	Description
Stop	Click to stop RF scanning.
Clear	Click to clear the scanning results if you want to start over.
Fade Timeout	Click to change how fast changes to the signal strength fade in the dialog box.
Save	Click to save the scan results for troubleshooting purposes.
Recall	Click to load previously saved scan results for troubleshooting purposes.
Print	Click to print scan results for troubleshooting purposes.

(Optional) If desired, you can change the Channel Number setting being used under Slot 1 Settings and Slot 2 Settings.

Changing Stack Settings (CP2)

You can change the settings for a CP2 device stack.

📝 **Note:** Stack settings apply to all the devices in a stack.

To change the stack settings:

1. In the Navigation Panel, click **Settings**. The Stack Settings screen appears:

General

2. Choose an operation mode: Simple Room or Advanced Room.

   Use the Simple Room operation mode for a room that doesn't have partitions. Use Advanced Room for a room that has partitions. See *About Room Partitions* for more information. If you choose Advanced Room, you can use the Partition Manager to add, remove, or configure partitions. See *Using Partition Manager (CP2)* for more information.

Username and Password

3. To change the username and password, click **Set Username and Password**. The Username and Password dialog box appears:

The default username is "clearone" and the default password is "converge".

4. Type a new username and/or password, then click **OK**.

📝 **Note:** Usernames and passwords can have at least 64 characters, and possibly more depending on what language you're using.

NTP Server Configuration

5. To have the device automatically set its time using a Network Time Protocol (NTP) server, select the **Use Network Time** check box.

6. Add the address of an NTP server in the **Time Server 1** field.

📝 **Note:** The server name can have up to 30 characters.

7. (Optional) Add the address of another NTP server in the **Time Server 2** field.

📝 **Note:** The server name can have up to 30 characters.

Time Settings

8. To have the stack automatically adjust the time for daylight savings, check the **Use Daylight Savings** check box.

9. To set the time zone, choose an option from the **Time Zone** drop-down list.

SMTP Settings

10. To turn on the ability to have stack notifications sent via email, select the **Use SMTP** check box.

11. Type the name of an email address to which notifications will be sent in the **Error Contact Email** field.

12. Type the address of an SMTP server in the **Email Server** field.

SNMP Settings

13. To turn on the Simple Network Management Protocol (SNMP), check the **Use SNMP** check box.

14. Type the address of the SNMP Manager in the Manager IP Address field.

15. Type the port to use to communicate with the SNMP Manager in the Manager Port field.

16. Type the name of the SNMP Write community string in the Write Community field.

17. Type the name of the SNMP Read community string in the Read Community field.

Locate

18. To specify how long the LED light on a device blinks when using the locate feature, specify a value for

Locate Timeout (minutes).

Chapter 6: Adding Partitions, Channels, and GPIO Settings (CP2)

This chapter contains information about adding room partitions, channels, and channel groups to a project and setting GPIO options.

Note: The options described in this chapter are accessible only when the CONSOLE AI is in offline mode (not connected to a device or stack). See *Online Mode vs. Offline Mode* for more information.

Using Partition Manager (CP2)

The partition manager is a tool for visualizing and configuring rooms that have partitions. See *About Room Partitions* for more information about room partitions.

You can use the partition manager to create partitions, remove partitions, lock or unlock partition dividers, and choose which partition combinations are valid.

To use the partition manager:

1. If you have not already done so, you must change the Operation Mode to Advanced Room in the stack settings. If you have already turned on the Advanced Room setting, you can skip to step 4.

2. From the Navigation Panel, click **Settings**. The Settings screen appears:

3. Choose Advanced Room as the Operation Mode under General.

4. Click A in the toolbar.

    The Partition Manager appears:
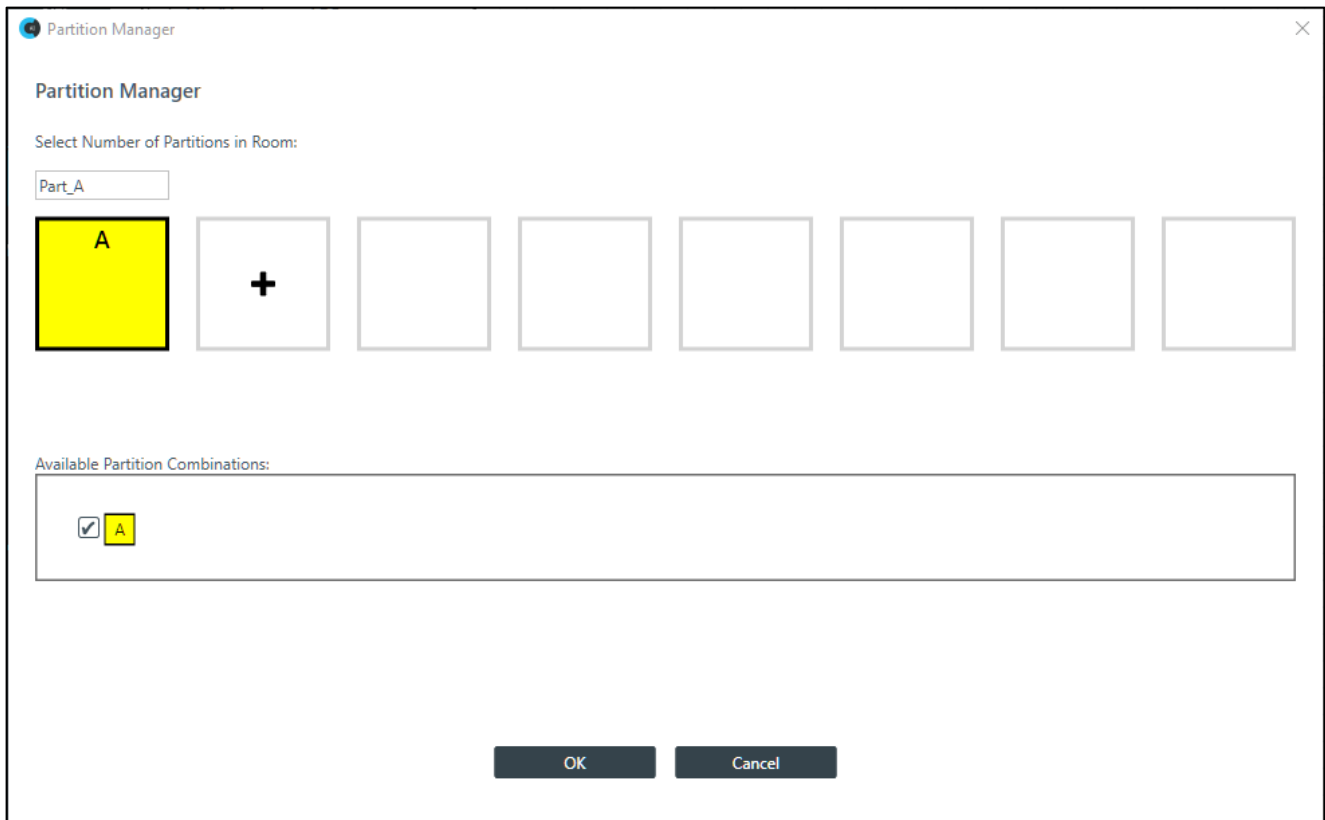
If you have just turned on Advanced Room, there will be only one partition: A.

Adding Partitions

5. To add a partition, click the box with the ✚ in it to the right of an existing partition. A new partition is added, using the next available letter.

6. (Optional) Partitions are automatically named, but if you wish, you can change the names by typing a new name in the text box above the partition.

7. Repeat steps 5-6 to create the number of partitions you want (up to eight).

Removing Partitions

8. To remove a partition, click the ▬ on a partition.

    You can remove only one partition at a time, starting with the one you created last.

9. Repeat step 8 to remove more partitions.

Locking and Unlocking Dividers

10. Each time you create a partition, a divider is created between the previous partition and the one you just created. To lock a divider in a closed state, click the 🔓 at the bottom of the divider.

11. To unlock a divider that has been locked, click the 🔒

Changing Available Partition Combinations

12. Be default, all available partition combinations that can be created are made available. Locking a divider makes some partition combinations unavailable. For the rest that are possible, you can manually make some of them unavailable by deselecting the check box next to that partition combination.

> **Note:** Removing partition combinations that you can't use or don't intend to use can significantly speed up the time it takes to load a project to a device or stack.

13. When you are done making changes to partitions, click **OK**.

The partitions you have created become available for selection in the Partition drop-down list. When you have chosen an option from that drop-down list, changes you make apply only to the chosen partition and your partition selection is reflected in the symbols that appear to the right of the Partition drop-down list.

Adding Channels to a Project

Before you can configure any audio channels, you must add them to a project. You can create multiple presets and add specific channels for different presets. See *About Presets* and *Adding or Modifying Presets (CP2)* for more information about presets. If you are using the Advanced Room operation mode, you add channels to a room partition. See *About Room Partitions* and *Using Partition Manager (CP2)* for more information about room partitions. See *Releasing Channels from a Project* for information about releasing assets after they have been added.

To add channels:

1. In the Navigation Panel, select **FlowView**™. The FlowView screen appears:

2. If you're using presets, select a preset from the Preset drop-down menu.
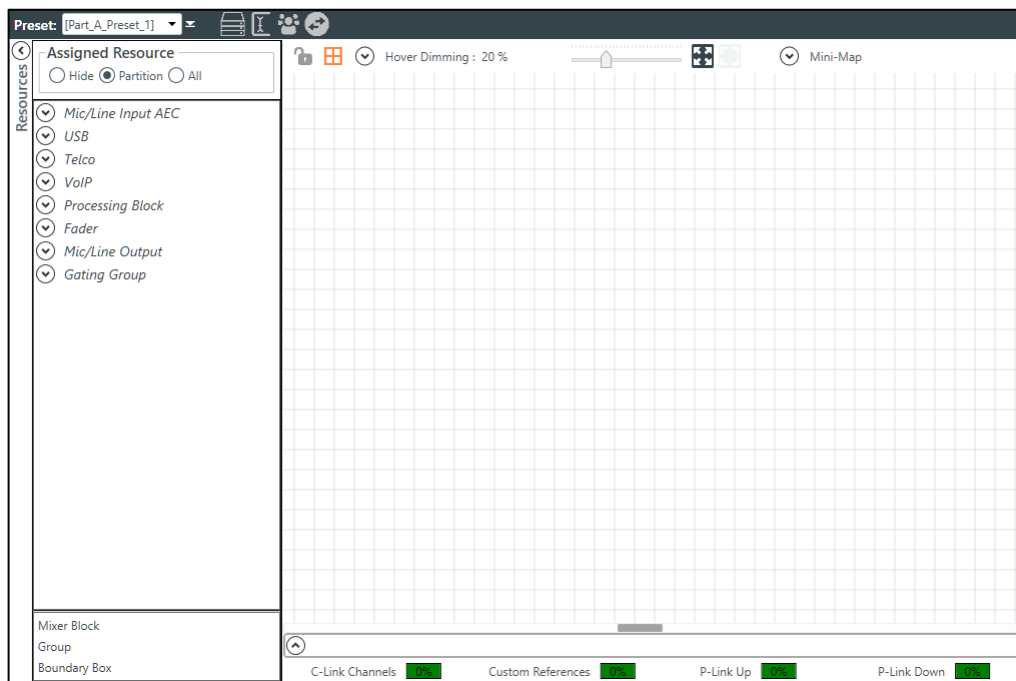
> **Note:** For information about creating and managing presets, see *Adding or Modifying Presets (CP2)*.

3. If you're using the Advanced Room mode, choose a partition from the Partition drop-down list.

> **Note:** If you have set the project for Simple Room operation mode, no Partition drop-down menu is displayed.

4. Resource channels appear at the left side of the FlowView screen, categorized by channel type. To see individual resources, click a type to open it.

Note: The list of available channels depends on which devices (both DSP and P-Link devices) you have added to the project. For more information about adding devices to a project, see *Adding a CONVERGE Pro 2 Device* and *About P-Link Devices and Channels*.

5. To allocate a particular channel to your project, drag it from the Assigned Resource area into the main FlowView area.

Note regarding the BMA 360: CONSOLE AI lists the BMA 360 voice lift channels in the Assigned Resources area only after you allocate the BMA 360 to the project (drag the BMA360 icon into the main FlowView area.)

The following two images illustrate this:
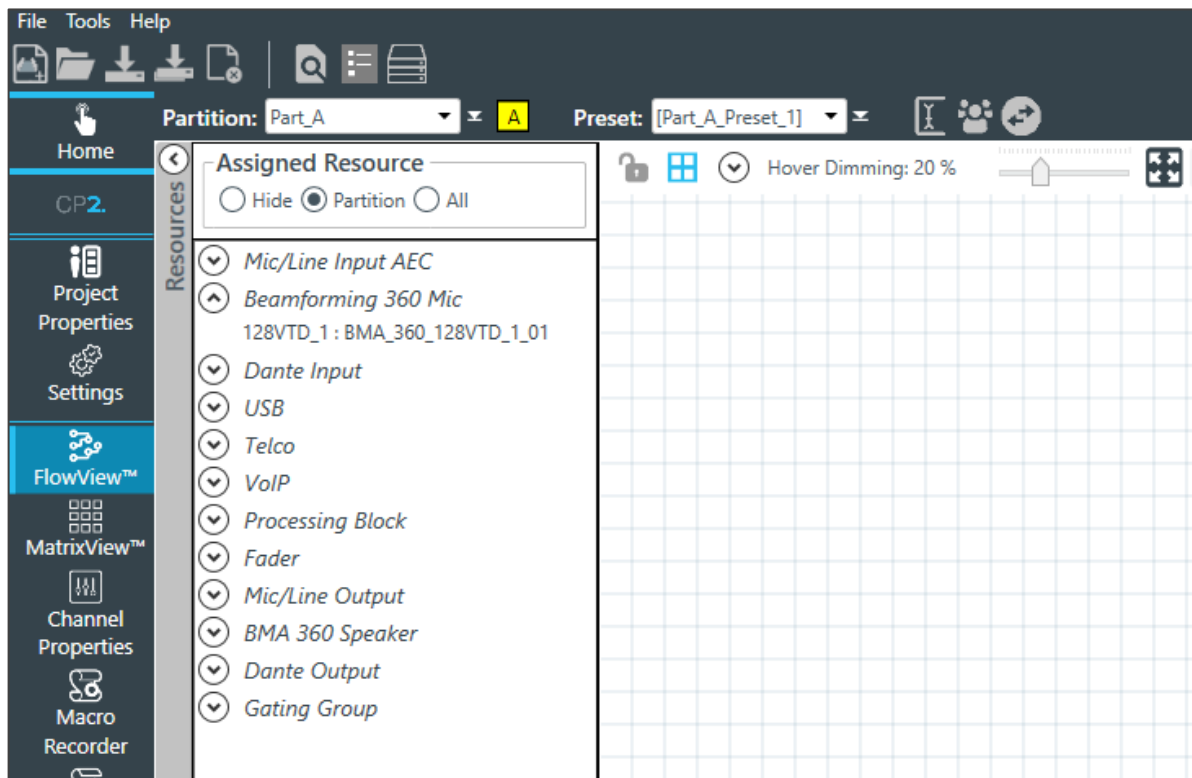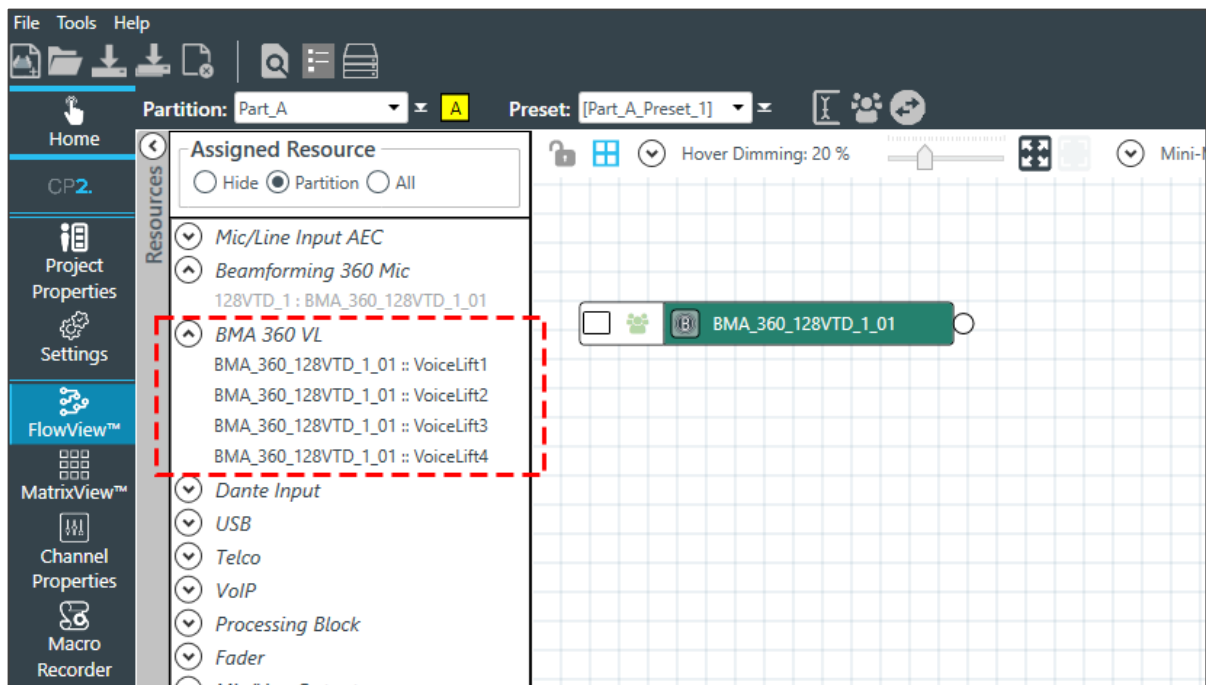
6. To move channels within the FlowView screen, you can click and drag them to arrange them as you want.

7. You can allocate multiple channels as a group by selecting more than one channel in the Assigned Resource area and then dragging them all together into the main FlowView area.

When you drag multiple resources into the FlowView area, they are automatically added to a channel group, and can be routed together as a group.

As you add assets, pay attention to the resource meters at the bottom of the FlowView screen. These meters keep track of what percentage of the total allowed C-Link channels, Custom References, P-Link Up channels, and P-Link down channels you have used by adding channels.

If you exceed the maximum number of channels in any of the four categories and then try to continue to add channels, you will receive a warning such as the one shown below:
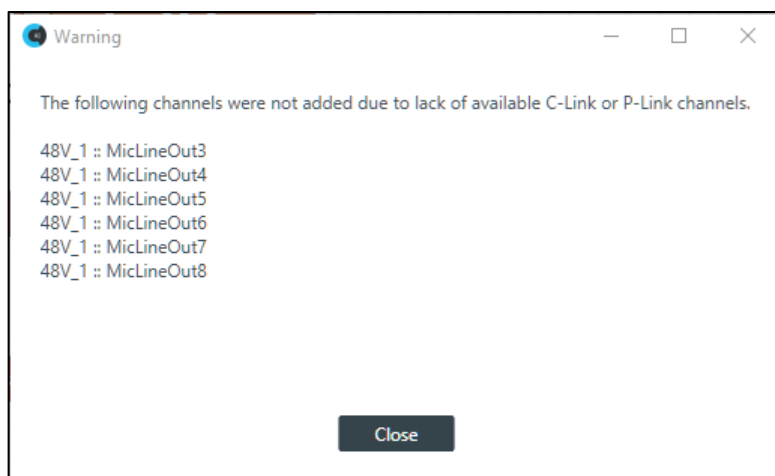
8. There are three types of special resources you can add in addition to resource channels: Mixer Blocks, Groups, and Boundary Boxes. These appear below the resource channel list. See the table below for details about how to use these resources.

Resource Type	Description
Mixer Block	You can route channels into and out of mixer blocks and then use the Mixer Block to do the individual channel routing using a mini-matrix type of routing. The advantage of doing so is to reduce the number of routes you see in FlowView, making it easier to visualize the project. To add a mixer block to a project, simply drag Mixer Block from below the channel list into the main FlowView area. For more details about using mixer blocks, see *Connecting Channels Using FlowView (CP2)*.
Group	Groups are a way to simplify and speed up creating audio channel routes by grouping channels together and then making routes to or from the entire group, rather than having to create individual routes for each member of the group. To add a group to a project, drag Group from below the channel list into the main FlowView area, then drag resources on top of the Group icon to add those channels to the group. **Note:** Keep in mind that you can add only channels of the same type of a group. You couldn't, for example, add a Mic/Line Input channel and a Speaker channel to a group, because these channels cannot be routed in similar ways.
Boundary Box	A boundary box can serve as a way to visually organize channels in FlowView; however, it serves only to enhance the visual organization of the FlowView area, and doesn't serve any functional purpose. To add a Boundary Box to a project, simply drag Boundary Box from below the channel list into the main FlowView area. When it's added to the FlowView area, you choose a color and opacity for the box. You can change the size of the box by dragging any of its handles (found on the corners and in the center of each side of the box). You can then drag channels inside the box for visual organization.

9. Once you have added channels to the project, you can then establish audio routing relationships. See *Connecting Channels Using FlowView™ (CP2)* for more details.

Releasing Channels from a Project

You can release (un-allocate) channels you have allocated to a project. See *Adding Channels to a Project* for information about adding channels to rooms.

To release channels from a project:

1. From the Navigation Panel, select **FlowView**™. The FlowView screen appears:
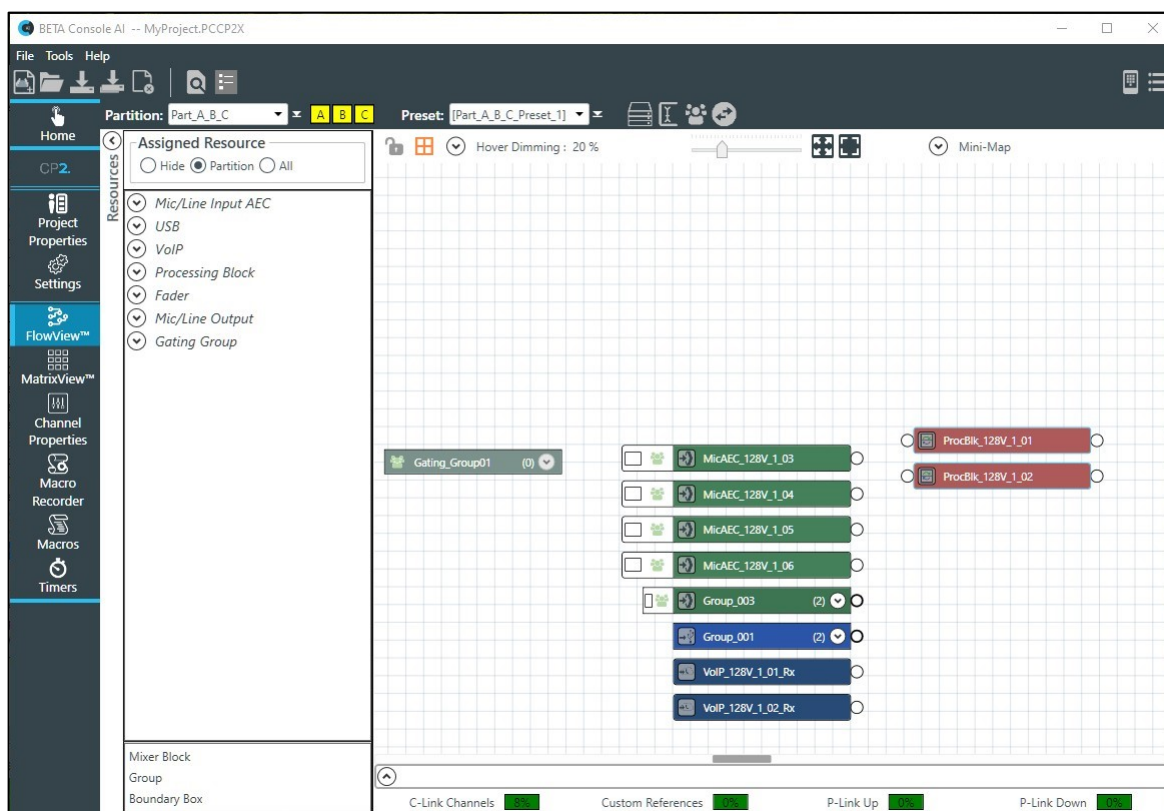
2. Right-click a channel or channel group you want release from the project.

The system displays a context menu:
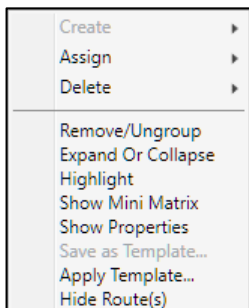
3. Choose **Delete**, and then from the sub-menu that appears, choose **Object**.

If you delete an individual channel, the system removes that channel from FlowView.

However, if you delete a channel group, the system displays a warning dialog box:
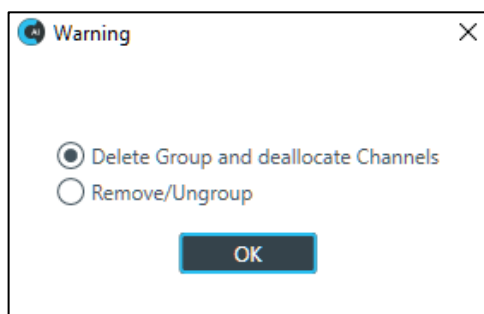
4. To delete the entire group, select **Delete Group and deallocate Channels,** then click **OK**.

Naming Channels using Channel Names/Naming Tool (CP2)

You can give unique names to channels to make it easier to identify them and work with them. This topic describes naming assets using the Channel Names dialog box and the Naming Tool (available from the Channel Names dialog box).

📝 **Note:** You can also name channels from within FlowView by clicking on the name on its icon in the main FlowView area. The name becomes editable, and you can type a name.

To name assets:

1. From the toolbar, click [icon].

   The Channel Names dialog box appears:
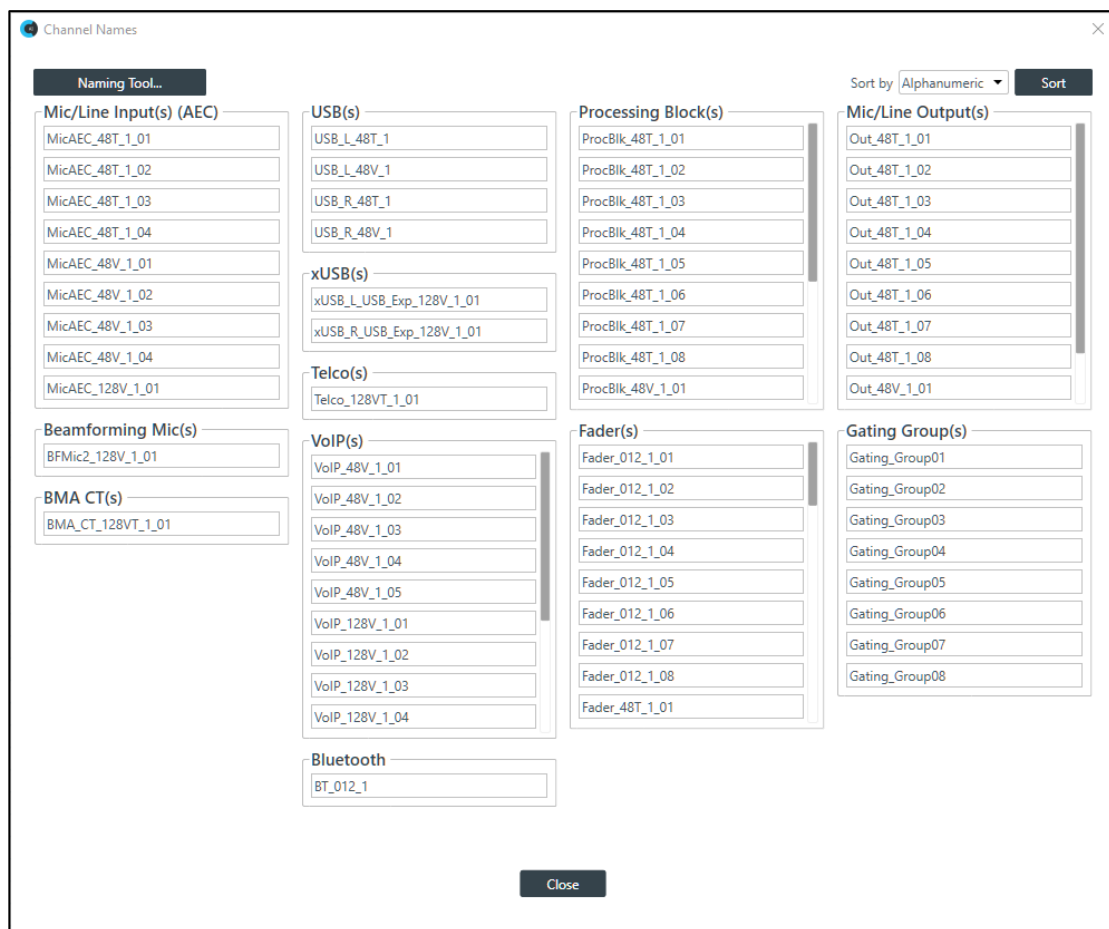
2. (Optional) To change how channels are sorted (alphanumerically or by device and connection), choose an option from the Sort by drop-down list at the top of the Naming screen and then click Sort.

3. (Optional) You can change the name of each asset individually by clicking in the name field next to that asset and typing a new name.

4. (Optional) Click Naming Tool to change the names of multiple assets at once, by type, using the naming tool.

The Naming Tool dialog box appears:

1. (Optional) Choose an asset type from the **Type** drop-down list.

2. (Optional) Type a base name (the text that makes up the first part of the asset name) in the **Base Name** field.

3. (Optional) Type a base number (the first number you want to use; the rest will be numbered sequentially starting with the base number) in the **Base Number** field.

   a. Using the Naming Tool can significantly speed up the process of naming many assets. For example, if the line input microphones attached to a particular CONVERGE Pro 2 device are all in a conference room called "Patagonia," you could use the Naming Tool to give all Mic/Line Input channels a base name of Patagonia and then number them consecutively (Patagonia01, Patagonia02, etc.).

   If you wanted to divide a large room with several partitions and eight ceiling mics per partition, you could use a naming scheme that recognized the partitions (Patagonia_P1, Patagonia_P2) or you could start numbering the microphones in the first partition at 1 and start numbering the mics in the second partition at 9.

4. (Optional) Check the check box to name the channels using the device stack order.

5. Click **OK**.

Assigning Channels to Channel Groups

To make it easier to configure multiple channels as a group instead of individually, you can assign channels to channel groups. You can do this in several ways.

📝 **Note:** Keep in mind that you can add only resources of the same type to groups. You cannot, for example, add a Mic/Line Input channel and a Speaker channel to a group, because these are not channels that can be routed in similar ways.

To assign resources to channel groups:

1. From the Navigation Panel, select **FlowView**™. The FlowView screen appears:
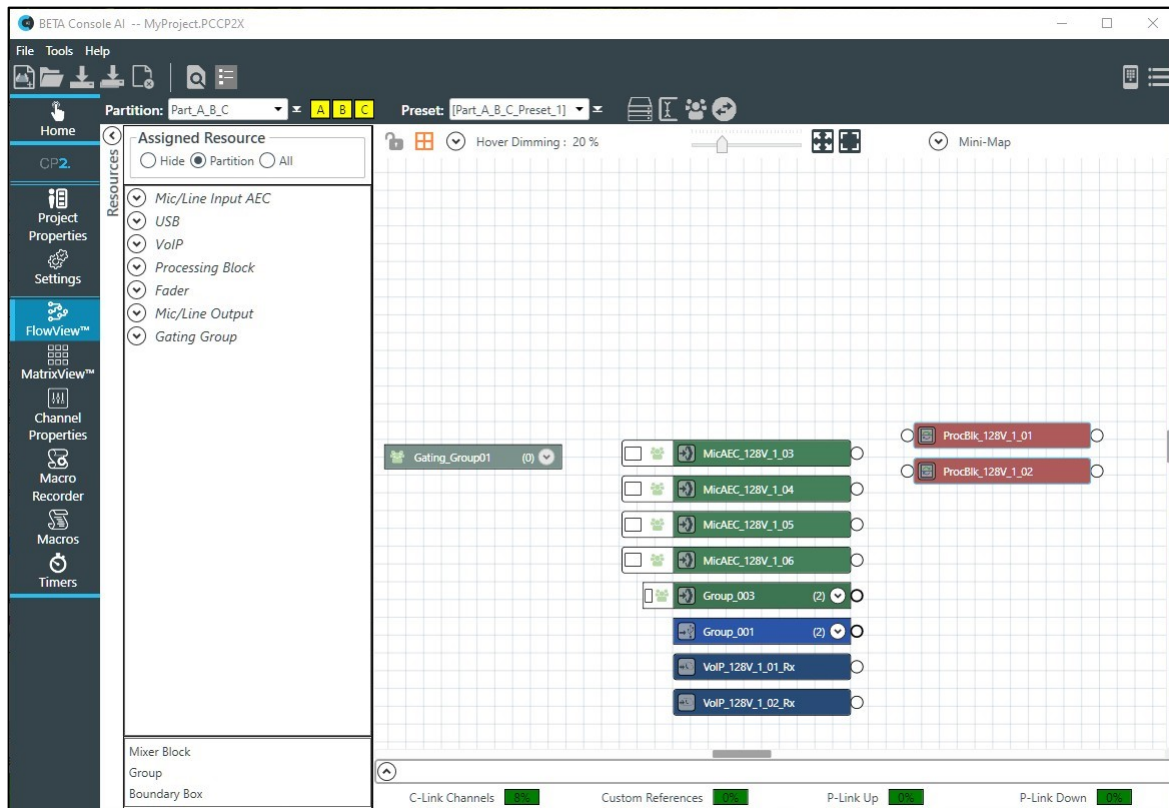
The following four methods are available to assign a resource to a channel group:

2. From the bottom of the Assigned Resources list, drag **Group** into the main FlowView area. When you do, the name becomes editable, so you can name the group. Then drop channels on top of the Group resource to add them to the group.

3. Another way to add channels to a group is to right-click somewhere in the FlowView area (not on an existing channel) and then from the context menu that appears choose **Create** and then **Group**. Just as with dragging a group resource into the FlowView area, you can then give the group a name and drop channels on top of the group.

4. Yet another way to add channels to a group is to select multiple channels in the FlowView area and then right-click any of the selected channels and from the context menu that appears, choose **Create** and then **Group**. The selected channels are added to a group, and you are given the chance to type the name of the group.

5. Finally, you can also create a group by dropping one or more channels on top of a similar channel type. Doing so will add all the channels into a group and give you a chance to name the group.

Changing GPIO Configuration

You can change the GPIO settings for a device using the GPIO Configuration tool.

GPIO stands for General-Purpose Input/Output. CONVERGE Pro 2 units have four GPIO pins that let the CP2 receive input from and send output to GPIO-compatible equipment. For example, room dividers can be configured to send their current state when opened or closed.

To configure the GPIO pins for a device:

How you configure GPIO pins depends in part on whether you are using Simple Room mode (no partitions) or Advanced Room mode (using partitions). The following sections are divided up by whether you are using the Simple Room or Advanced Room mode.

Simple Room Mode

1. In the toolbar, click   .

   The GPIO Configuration dialog box appears:
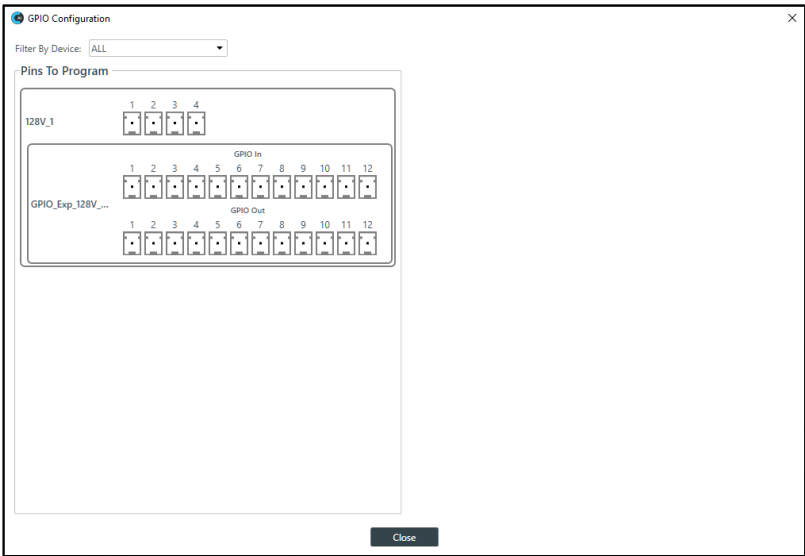
   GPIO pins are shown for each connected device that has them.

3. To filter which pins are shown, choose an option from the **Filter By Device** drop-down list.

   You can choose to show the pins for only one specific device or see the pins for all devices by choosing ALL.

4. For any pin, click the icon to see its settings at the right side of the GPIO Configuration dialog box:

5. (Optional) Change the settings for the pin as shown in the table below:

Option	Description
Pin Name	Type a name for the pin. This name is used only in this dialog box, to make it easier to identify a pin's purpose.
Allocate	Whether this pin is allocated in the project.
Pin Type	Choose from one of the following pin types: • Open Collector Output • Powered Logic Output • Logic Input 📄 **Note:** GPIO pin types for a GPIO Expander are preset, and cannot be changed.

6. When you are done making changes to the GPIO pin settings, click **Close**.

Advanced Room Mode

1. In the toolbar, click [icon] .

The GPIO Configuration dialog box appears (including showing partitions and dividers):
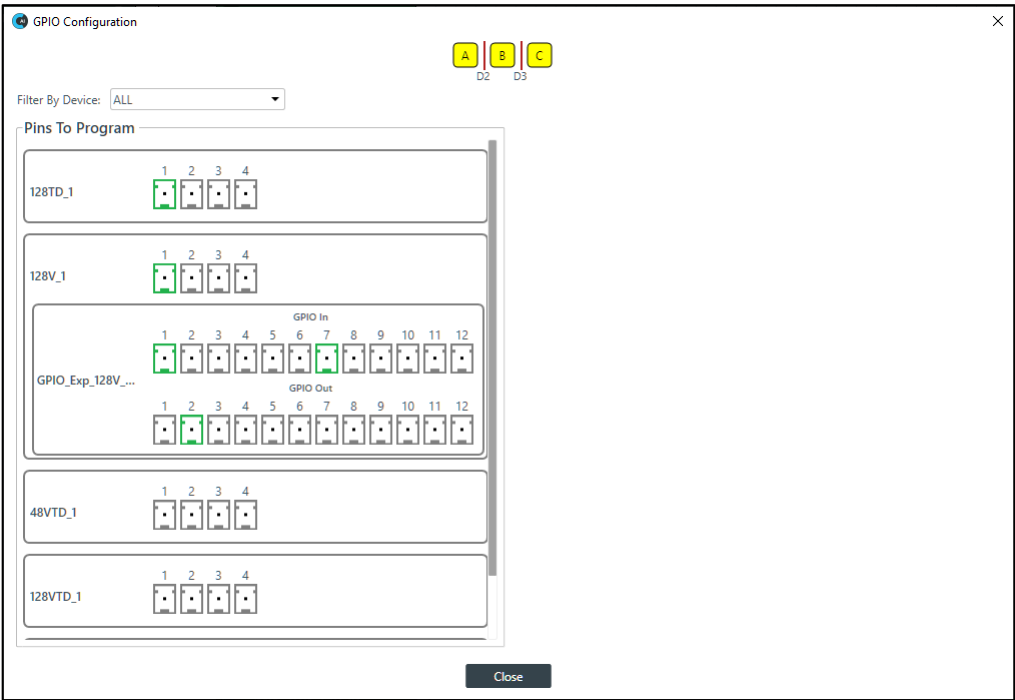
GPIO pins are shown for each connected device that has them.

2. For any pin, click the icon to see its settings at the right side of the GPIO Configuration dialog box:

3. Choose an option from the Allocate To drop-down list. You can choose partitions or the dividers between partitions.

4. For pins that permit you to change the type, choose an option from the **Pin Type** drop-down list.

5. Depending on what you have chosen for Allocate and Pin Type, some additional options appear to let you do one of the following:

    a. Set Open Collector and Powered Logic Output options

    b. Set Logic Input Trigger Commands

    c. Set the Divider Pin High to be open or closed

6. Skip to the appropriate section below to continue.

Open Collector and Powered Logic Output Options

1. For Open Collector and Power Logic Output, the following options appear:

2. Choose a preset from the Active drop-down list.

3. Click [icon] next to High to open the Command Wizard.

    The Command Wizard appears:

4. Choose a command from the drop-down list in the **Command** field.

    The only available command is "run."

5. A new drop-down menu appears to let you choose the next part of the command.

    You can run a macro or a preset.

6. A new drop-down menu appears to let you choose which macro or preset you want to run.

7. Click **OK**.

    The completed command appears in the Command column.

8. Repeat steps 4 through 7 for Low.

Logic Input Trigger Commands

For Logic Input Trigger Commands, the following options appear:

1. Choose a preset from the Active drop-down list.

2. Click [icon] next to **High** to open the Command Wizard.

    The Command Wizard appears:
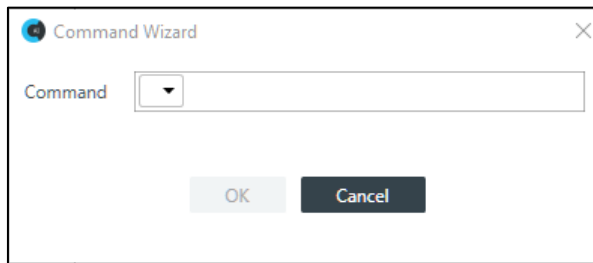
3. Choose a command from the drop-down list in the **Command** field.

    The only available command is "run."

4. A new drop-down menu appears to let you choose the next part of the command.

    You can run a macro or a preset.

    A new drop-down menu appears to let you choose which macro or preset you want to run.

5. Click **OK**.

    The completed command appears in the Command column.

6. Repeat steps 3 through 6 for Low.

Divider Pin High

1. If you have chosen a divider, rather than a partition, as your Allocate To selection, the following options appear:

2. Click **Closed** or **Open** to set the value of the pin.

Chapter 7: Macros and Timers (CP2)

This chapter contains information creating and managing macros and timers for CONVERGE Pro 2 devices.

📝 **Note:** The options described in this chapter are accessible only when the CONSOLE AI is in offline mode (not connected to a device or stack). See *Online Mode vs. Offline Mode* for more information.

Recording Macros

You can create a macro by recording actions using FlowView, MatrixView, channel properties, or Gating Groups. For more information about macros, see *About Macros*.

📑 **Note:** If you want to be able to add macro commands other than setting routes or channel properties, you must use the Macros screen. See *Adding Macros* for more information.

📑 **Note:** You can also run a macro at a specified time on or on a specified schedule. See *About Timers* for more information.
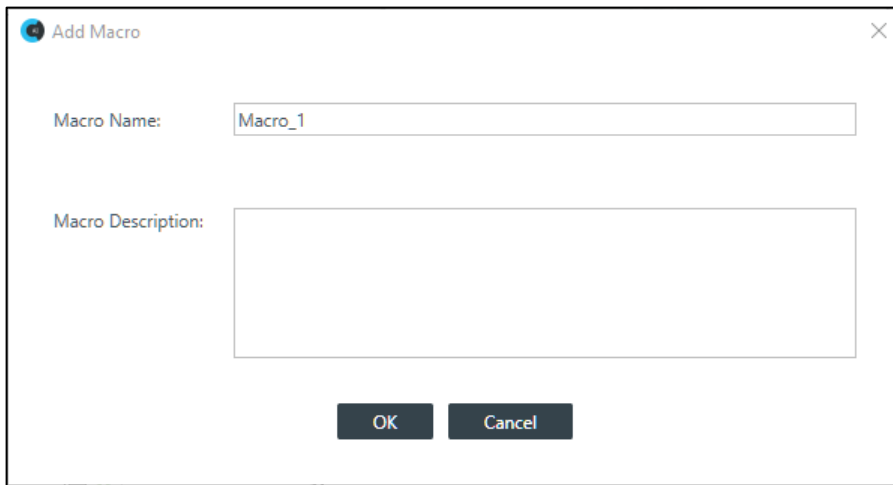
To record a macro:

1. From the Navigation Panel, choose **Macro Recorder**. The Macro Recorder screen appears:

Add a New Macro
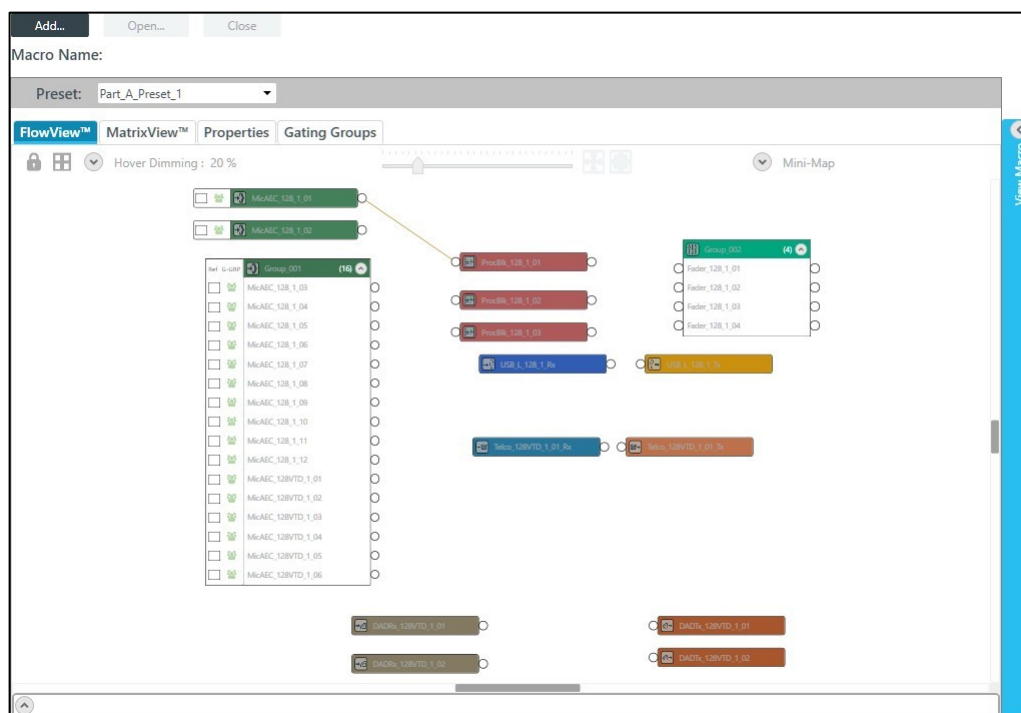
2. To create a new macro, click **Add**. The Add Macro dialog box appears:

3. Type a name for the macro in the **Macro Name** field.

4. (Optional) Type a description for the macro in the **Macro Description** field.

5. Click **OK**.

Open an Existing Macro

6. Alternatively, you can open an existing macro by clicking **Open**. The Select Macro to Edit dialog box appears:

7. Select a macro to open from the **Macro** drop-down list.

8. Click **OK**.

Record Commands Using FlowView

9. To record macro commands using FlowView, click the **FlowView** tab.

10. (Optional) If you are using Advanced Room operation mode, choose a partition from the Partition drop- down list.

11. (Optional) If you're using presets, choose a preset from the Preset drop-down list.

12. Use FlowView to make whatever changes you want to be added to the macro. See *Connecting Channels Using FlowView™ (CP2)* for more information about using FlowView.

13. (Optional) To see which commands have been added to the macro, click the **View Macro** control on the right side of the FlowView screen.

14. When you are done recording commands, click **Close**.

Record Commands Using MatrixView

15. To record macro commands using MatrixView, click the **MatrixView** tab.

16. (Optional) If you are using Advanced Room operation mode, choose a partition from the Partition drop- down list.

17. (Optional) If you're using presets, choose a preset from the Preset drop-down list.

18. Make changes to crosspoints or channel properties as desired. See *Connecting Channels Using MatrixView (CP2)* for more details about the various options.

19. (Optional) To see which commands have been added to the macro, click the **View Macro** control on the right side of the MatrixView screen.

20. When you are done recording commands, click **Close**.

Record Commands Using Channel Properties

21. To record macro commands using channel properties, click the **Properties** tab.

22. (Optional) If you are using Advanced Room operation mode, choose a partition from the Partition drop- down list.

23. (Optional) If you're using presets, choose a preset from the Preset drop-down list.

24. Make changes to the channel properties as desired. For more information about channel properties, see the *Managing Channels (CP2)* chapter, which contains topics for changing the channel properties for each of the channel types.

25. (Optional) To see which commands have been added to the macro, click the **View Macro** control on the right side of the Properties screen.

26. When you are done recording commands, click **Close**.

Record Commands Using Gating Groups

27. To record macro commands using gating groups, click the **Gating Groups** tab.

28. (Optional) If you are using Advanced Room operation mode, choose a partition from the Partition drop- down list.

29. (Optional) If you're using presets, choose a preset from the Preset drop-down list.

30. Make changes to the gating groups as desired.

Adding Macros

You can create or modify a macro by typing macro commands or by using the Command Wizard to construct macro commands. For more information about macros, see *About Macros*.

Note: As an alternative to adding macros via the Macros screen, you can record macro commands to set routes and channel properties using the Record Macro screen. See *Recording Macros* for more information.

To add or modify a macro:

1. From the Navigation Panel, choose **Macros**. The Macros screen appears:
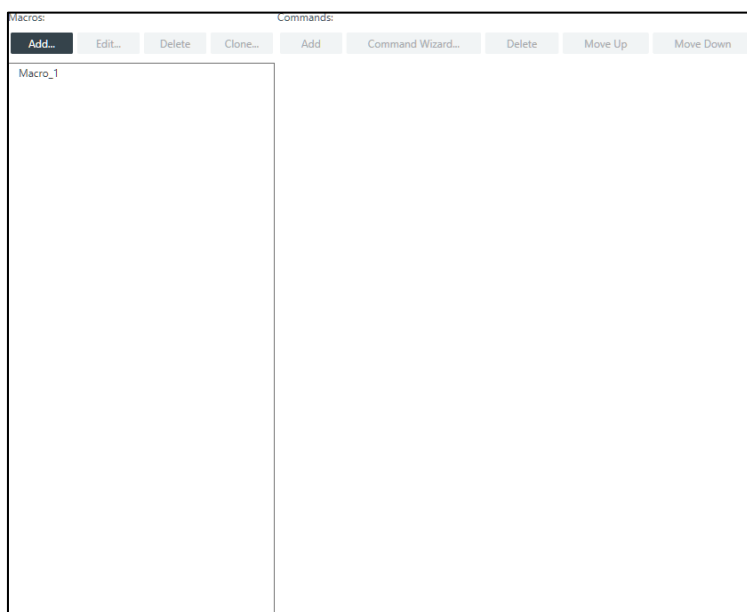
Add a New Macro

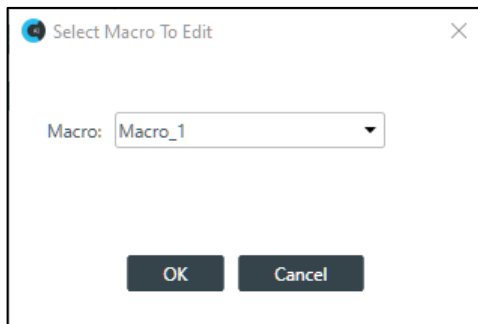2. To add a new macro, click **Add** in the **Macros** column. The Add Macro dialog box appears:

3. Type a name for the macro in the **Macro Name** field.
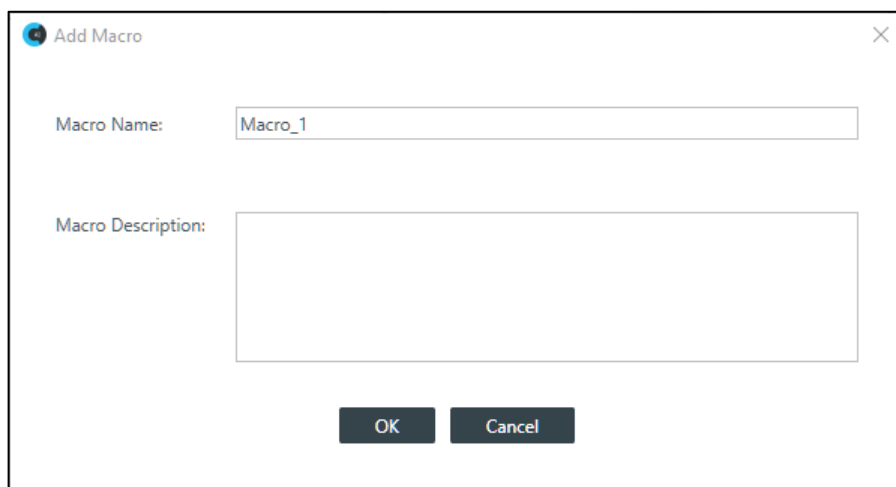
4. (Optional) Type a description for the macro in the **Macro Description** field.

5. Click **OK**.

   A macro with the name you specified is created in the Macros column, and an empty command is added to the Command column.

6. Click in the empty command field to begin editing the macro.

Create a Command using Auto Complete

7. You can create commands using the Auto Complete feature. Just begin typing a command, and the possible commands that match appear in a context menu.

   In the example below, an 's' has been typed, so the context menu shows the available commands that begin with 's'

set
setrelative
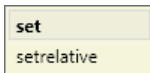
8. Continue to type commands, using Auto Complete as needed to complete the commands.

Note: Auto Complete works when you are at the end of command string, but does not work if you click in the middle of existing commands.

Create Commands Using Command Wizard

9. Click **Command Wizard** to use a tool that helps you create macro commands. The Command Wizard appears:

10. Choose a command from the drop-down list in the **Command** field.

Command Wizard	✕
Command	▾
	OK Cancel
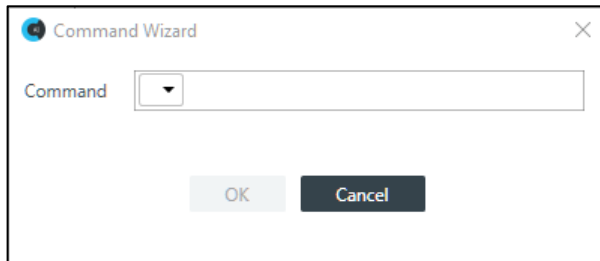
The available commands are described in the following table:

set	Use to create a route between channels, between channels and groups, or between groups, or else to set channel properties.
run	Use to run another macro. **Note:** The Command Wizard Allows you create a macro that runs itself, but doing so creates an endless loop.
wait	Use to wait a specified amount of time before executing the next command.
delete	Use to delete a route between channels or groups.
setrelative	Use to set a gain value that is relative to the current gain value, rather than an absolute value.

11. A new drop-down menu appears to let you choose the next part of the command.

    The available options depend on which command you have chosen and on the resources available in the project.

12. Continue to choose options from the drop-down menus until no more options appear.

13. Click **OK**.

    The completed command appears in the Command column.

Add a Command

14. To add a new command to the macro, click **Add** in the **Commands** column.

A new blank command field is added.

Delete a Command

15. To delete an existing command from the macro, select a command and then click **Delete** in the

Commands column.

The command field is removed.

Change Command Order

16. To change the order of the commands, select a command and then click **Move Up** or **Move Down**.

Cloning a Macro

If you want to create a macro that's similar to one that already exists, you can clone an existing macro and then edit it.

To clone a macro:

1. From the Navigation Panel, choose **Macros**. The Macros screen appears:

2. Select a macro you want to clone.

3. Click **Clone**.
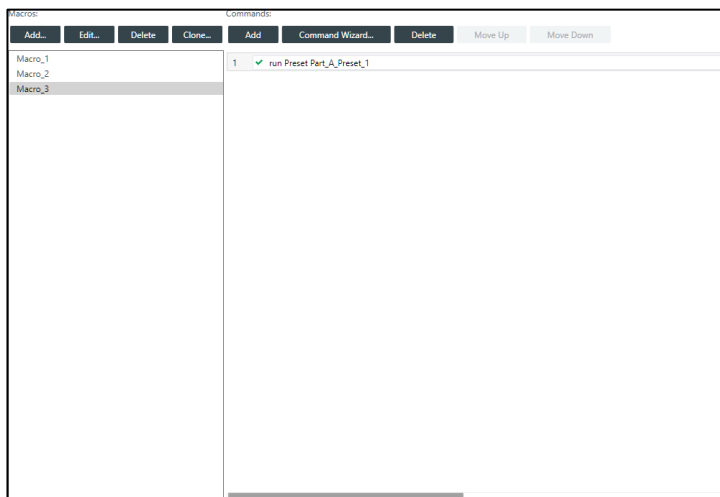
The Add Macro dialog box appears:

4. Type a name for the macro in the **Macro Name** field.

5. (Optional) Type a description for the macro in the **Macro Description** field.

6. Click **OK**.

A macro identical to the one you cloned, but with the new name you specified, is created in the Macros column. You can edit this macro as you would any other. See *Adding Macros* for more information about adding macros.

Deleting Macros

You can delete a macro you have already created. To delete a macro:

1. From the Navigation Panel, choose **Macros**. The Macros screen appears:

2. Select a macro you want to delete.

3. Click **Delete** in the **Macros** column.
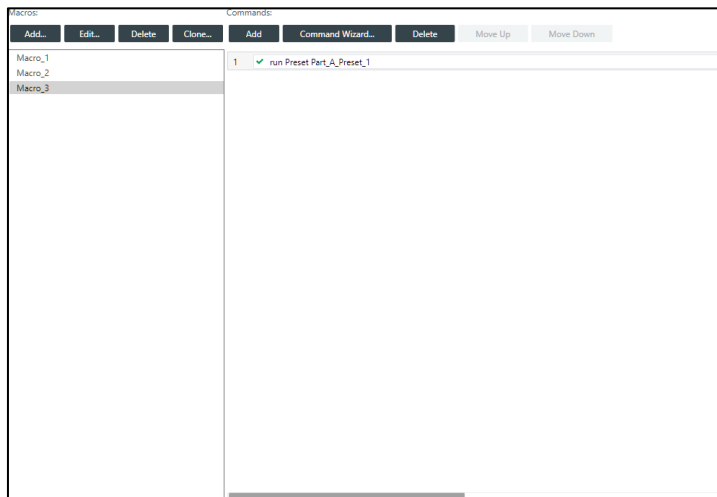
The Confirm Deletion dialog box appears:
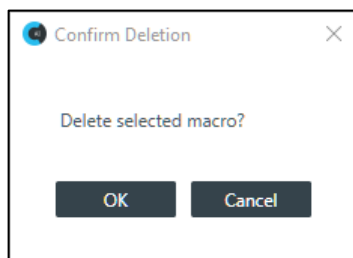
4. Click **OK**.

The macro is deleted and removed from the macros list.

Adding and Modifying Timers

You can add, edit, and delete timers to run macros or reset the stack. See *About Timers* for more information about timers. You can also execute a timer at any point. See *Live Control (CP2)* for more information.

To add or modify a timer:

1. From the Navigation Panel, choose Timers. The Timers screen appears:

Add Timer...	Edit...	Delete...									
Timer Name	Timer Type	Start Date	Start Time	End Date	End Time	Recurrence	Day	Weekdays	Event Action	Description	

Add a Timer

2. To add a new timer, click **Add Timer**. The Add Timer dialog box appears:

3. Type a name in the **Timer Name field**.
4. (Optional) Type a description in the **Description** field.
5. Specify when the timer should run in the **Scheduling** section of the dialog box. The available options are described in the table below.

Start	Use the Date and Time controls to specify the date and time that the timer should run. **Note:** The Date control is available only if you are running the timer one time.
One Time	Select to have the timer run only once.

Daily	Select to have the timer run every day.
Weekly	Select to specify which days of the week to run the timer.
Monthly	Use to specify one day each month to run the timer. Available options include specifying a particular day and week (such as the third Thursday of the month) or to specify a particular date (every month on the 15th).
Expire	For recurring timers, use to specify a date when the timer stops functioning.

6. You can create commands using the Auto Complete feature. Just begin typing a command, and the possible commands that match appear in a context menu.

    In the example below, an 'r' has been typed, so the context menu shows the available commands that begin with 'r':
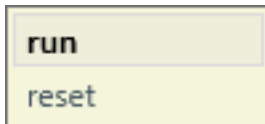
7. Continue to type commands, using Auto Complete as needed to complete the commands.

8. Alternatively, you can click to specify the command to run using the Command Wizard. The Timer Command Wizard appears:
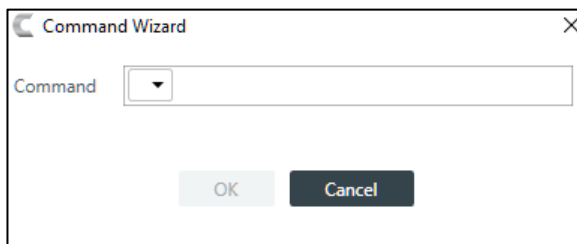
9. Choose a command from the drop-down list in the **Command** field.
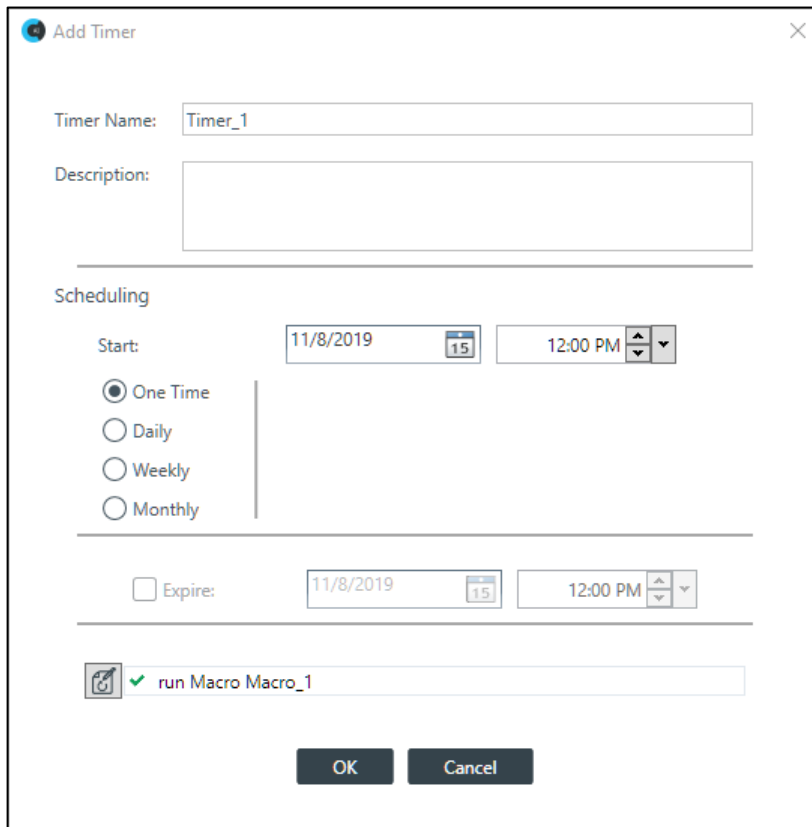
    The available options are run, after which you can choose a macro to run, or reset, to reset the stack at the specified time.

10. Click **OK**.

Edit a Timer

11. To edit a timer, from the Timers screen, select a timer and then click **Edit**.

    The Add Timer dialog box appears with the details of the selected timer already filled in:

12. Make changes to the timer settings, as desired. See the Add a Timer section above for details.

13. Click **OK**.

Delete a Timer

14. To delete a timer, from the Timers screen, select a timer and then click **Delete**.

The Confirm Deletion dialog box appears:

15. Click **Yes** to delete the timer.

The timer is deleted and removed from the list.

Chapter 8: Managing Channels (CP2)

This chapter contains information about managing channels: establishing relationships between channels and setting channel properties.

Connecting Channels Using FlowView® (CP2)

You can use the CONSOLE AI FlowView to:

- Add channels to the project
- Make and configure connections between audio channels
- Change channel properties

FlowView is designed to let you visualize the connections between channels as a flow from input channels, through mixer channels, such as processing blocks, through to output channels.

> **Note:** FlowView and MatrixView are alternative methods of visualizing the connections between audio devices. Therefore, when you make connections in FlowView, those connections are reflected in MatrixView as well.

To make connections between channels using FlowView:

1. From the Navigation panel, choose **FlowView**. The FlowView screen appears:

   FlowView starts out showing only the available resources on the left side of the FlowView area, under Assigned
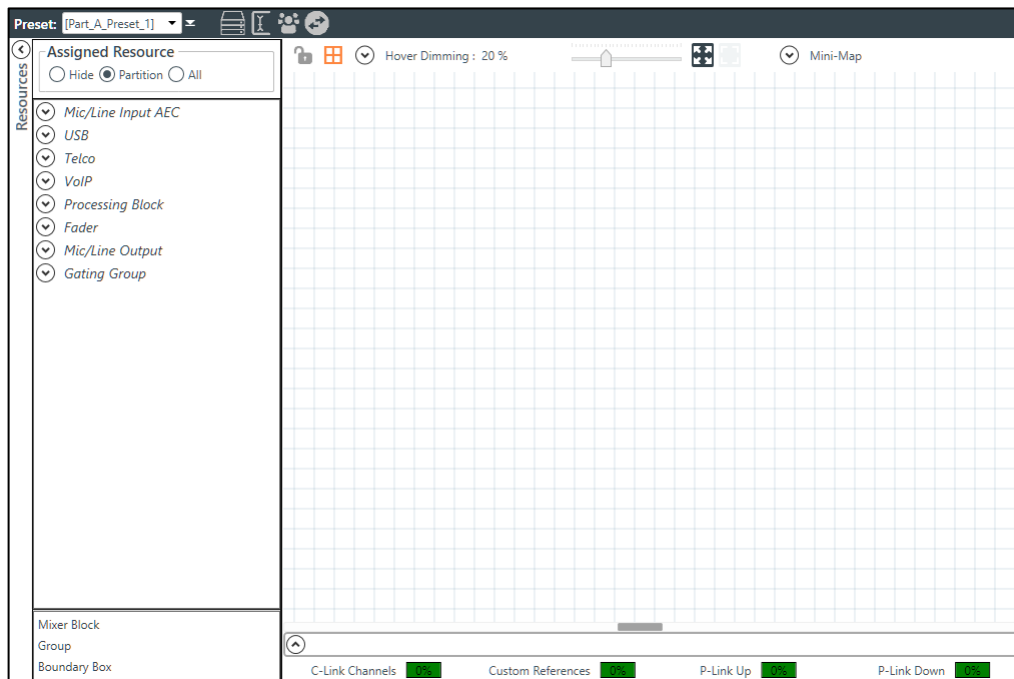
Resource.

> **Note the following:**
>
> - The resources shown here depend on what devices you have added to the project. If you have added a CONVERGE Pro 2 device, for example, certain resources become available, depending on the model of CP2.
>
> - Most CP2 models include both Mic/Line Input channels and Output channels (except for the 120, which has Mic/Line Inputs but no Output channels, and the 012, which has no Mic/Line Input channels but does have Output channels).
>
> - Most CP2 models have USB audio channels (except for those that have SR in the model name).
>
> - Models with a "T" in the name include Telco audio channels, and models with a "V" in the name include VoIP audio channels.

- Adding an expander unit adds audio channels, depending on the type added. And so forth.

Adding Channels to the Project

2. Before you use FlowView, you must add the audio channels you intend to use to the project. For more details about adding channels to the project, see *Adding Channels to a Project*.
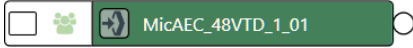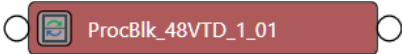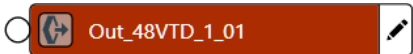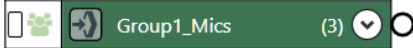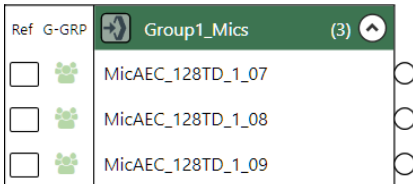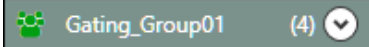
Using the FlowView Toolbar

3. The FlowView area has its own toolbar with tools you can use to control the FlowView area, navigate within it, and change its appearance. See the table below for details about the FlowView toolbar tools:

Symbol	Meaning
Lock	Use this to lock the FlowView channel icons, to prevent accidental changes. When you lock the view, the lock closes. If you want to make changes to the FlowView again, click the lock again. **Note:** Even though the channel icons are locked, you can still add and delete channel routes when FlowView is locked.
Show Grid	Use to show or hide gridlines. Hiding grid lines also turns off the snap-to-grid function.
Hover Dimming : 20 %	When you hover your mouse pointer over something in the FlowView, everything is else in FlowView is dimmed to the amount set in this setting. 20% means that when you hover over something, everything except what you're hovering over is dimmed to 20% of normal. You can also choose to dim everything except what your pointer is hovering over as well as anything currently selected by checking the**Selected Objects**/**Routes** check box.
	Use this tool to control the zoom of the FlowView area.
	Use this tool to zoom the FlowView area so that all channels you have added to FlowView fill the visible FlowView area.
	Use this tool to zoom the FlowView area so that all selected channels fill the visible FlowView area.
Mini-Map	The Mini-Map shows a miniature version of the entire FlowView area (including all added channels) and the currently visible area of the FlowView area, given the current zoom settings, shown as a gold box. You can drag the gold box to change which portion of the FlowView area is shown.

FlowView Channel Icons

4. When you add channels to FlowView and create relationships between them, those channel relationships are represented by icons. The table below explains the various channel and channel relationship icons used in FlowView:

Symbol	Meaning
MicAEC_48VTD_1_01	This icon represents an **input channel**. It is labeled with its name, and it has two possible connectors. The circle-shaped connector on the right can be used to create a route to mixer channels or output channels. The square-shaped connector at the left can be used to make reference channel assignments. See the "Making Reference Assignments" section later for more information.
ProcBlk_48VTD_1_01	This icon represents a **mixer channel**, such as a processing block or a fader. It is labeled with its name, and it has connectors on the left (an input) and on the right (an output). It can receive input from an input channel, such as a microphone, or from another mixer channel, and it can output to another mixer channel or to an output channel.
Out_48VTD_1_01	This icon represents an **output channel**. It is labeled with its name, and it has two possible connectors. The circle-shaped connector on the left is used to make a route from an input channel or a mixer channel. The pencil icon Allows you specify that this output be used as a reference. If you have specified that the channel be used as a standard or custom reference, a reference box appears, which can be used as a reference connector. If a reference assignment has been made, the box turns yellow.
Group1_Mics (3)	This icon represents a **channel group**, in this case a group of Mic/Line Input channels. The number, in parentheses, to the right of the name tells you how many channels are in the group. You can click ⏷ to expand the group. See "Add Channels to a Channel Group" later in this topic for more details.
Ref G-GRP Group1_Mics (3) MicAEC_128TD_1_07 MicAEC_128TD_1_08 MicAEC_128TD_1_09	This shows a **channel group** that has been expanded to show all the channels that are part of the group.
Gating_Group01 (4)	This icon represents a **gating group**. The number, in parentheses, to the right of the name tells you how many channels are in the group. You can click ⏷ to expand the group. See "Add Channels to a Gating Group" later in this topic for more details.

Symbol	Meaning
◯——◯	A solid brown line between two channel icon connectors represents a **channel route**. This means that audio is routed from the channel connector on the left to the channel connector on the right. See "Add a Channel Route" later in this topic for more details.
S-I	A yellow box like this on an input channel and an output channel represents an AEC **reference assignment**. Standard reference assignments come in matching pairs that start with the letter "S" and are numbered consecutively. Custom references start with the letter "C" and are numbered consecutively. 📄 **Note:** For more information about references, see *About References*. See *Adding Standard References (CP2)*, *Adding Custom References (CP2)*, and *Assigning References (CP2)* for more details about adding references.
Mixer Block_001	A gray box represents a mixer block, which can be used to simplify routing. See the "Use Mixer Blocks" section later in this topic for details.

Choose a Partition and Preset

5. (Optional) If you are using Advanced Room mode, choose a partition from the **Partition** drop-down list.

📄 **Note:** If you're using partitions, changes you make in FlowView apply only to the selected partition.

6. (Optional) Choose a preset from the **Preset** drop-down list.

Renaming Channels and Channel Groups

7. You can rename any channel or channel group by clicking its name and then waiting for the name to become editable.

8. Type a new name and press the Enter key to save the name.

Move Channel Icons

9. You can move a channel, channel group, or gating group icon anywhere you want within the FlowView space by simply dragging it.

10. Drag the channel icon to where you want it to appear within FlowView.

When the icon lines up with another channel icon, horizontally or vertically, a line briefly flashes at the center of the aligned icon to show you that they aligned.

Add a Channel Route

11. To route audio from one channel to another, grab the output connector from one channel and drag it to the input connector of another channel. The mouse pointer changes to a target to show that you are making a connection.

If you have successfully made the route connection, a solid line appears between the two channel icons:
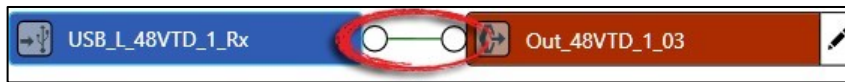
The color of the line depends on the crosspoint type. See Change Crosspoint Properties below for more details.

12. To route audio from multiple channels to another channel, select more than one channel (drag around several channel icons to select more than one) and then drag the entire group onto the connector of another channel. The mouse pointer charges to a target to show that you are making a connection.

Channel routes are created for each selected channel.

13. To route audio from a channel group to a channel, or from a channel group to another channel group, grab the channel group (you must select it anywhere except by the image at the left of the icon) and drag it on top of another channel group icon or onto a channel icon. The mouse pointer changes to a target to show that you are making a connection.

Channel routes are created for each member of the group or groups.

Use a Mini-Matrix

14. To see a Matrix view for selected channels, select multiple channels (by dragging completely around a group of channels, using Shift-click to select a range of channels, or Ctrl-click to select multiple

channels individually), then right-click any of the selected channels and choose **Show Mini-Matrix** from the context menu.

A Mini-Matrix consisting of only the selected channels appears:
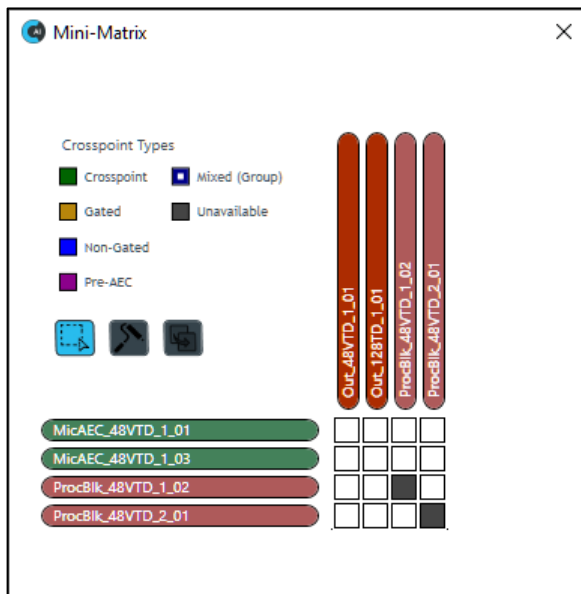
15. Add, remove, or modify crosspoints.

Note: For more information about using a matrix view to make crosspoint connections between assets, see *Connecting Channels Using MatrixView (CP2)*.

Change Crosspoint Properties

16. To change the properties of a route (also referred to as a crosspoint), double-click the route line to show the crosspoint properties:

The Crosspoint Properties appear at the bottom of the FlowView screen:
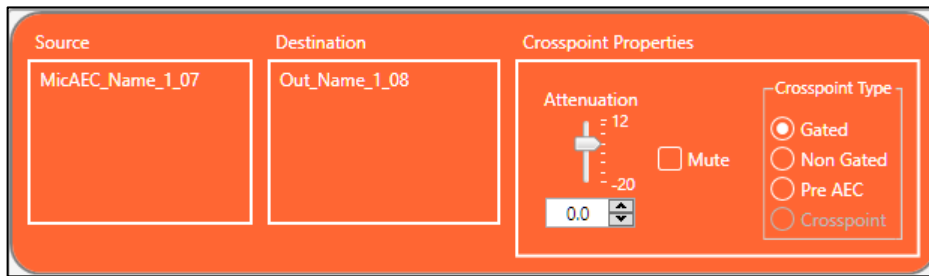
The Source and Destination of the route appear on the left side of the Crosspoint Properties settings.

17. You can change the Attenuation in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

18. To mute this crosspoint, click the Mute check box.

The crosspoint will appear with a red 0 inside, to show that it is muted.

19. You can choose a Crosspoint Type from the Crosspoint Type group. The types are described in the table below.

> **Note:** Which types are available depends on the source and destination channels.

Crosspoint Type	Indicator	Description
Crosspoint	🟩	Connections between channels that don't involve microphones or processing blocks are simple crosspoints.
Gated	🟧	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Gated, the connection between the two channels follows whatever gating rules are assigned to the microphone.
Non-Gated	🟦	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Non-Gated, the connection between the two channels doesn't follow any gating rules.
Pre-AEC	🟪	Setting a Pre-AEC crosspoint in the Matrix bypasses the cross-pointed input audio from the AEC (Acoustic Echo Cancellation) reference. This is primarily used for sound reinforcement applications to prevent mic input channel audio from being degraded by AEC artifacts.

Remove a Channel Route

20. To remove a channel route, click the route to select it.

21. Press the Delete key OR right-click the route and choose **Delete** > **Route(s)** from the context menu.

Add a Reference

22. To add a standard reference, see *Adding Standard References (CP2)*.

> **Note:** For more information about references, see *About References*.

23. To add a custom reference, see *Adding Custom References (CP2)*.

24. To assign a standard or custom reference, see *Assigning References (CP2)*.

Add Channels to a Channel Group

25. Select a channel icon OR hold down the CTRL or SHIFT keys and select multiple channel icons OR drag around several channel icons to select more than one.

26. Right-click any of the selected channels; from the context menu that appears, choose Create and then Group.

The channels are added to a group. The group icon shows the number of channels in the group in parentheses.

Add Channels to a Gating Group

27. Add a gating group to the project by dragging a Gating Group resource at the bottom of the Assigned Resources area on the left into the main FlowView area.

28. Double-click the gating group icon you just dragged into the FlowView area.

The Gating Groups dialog box appears:
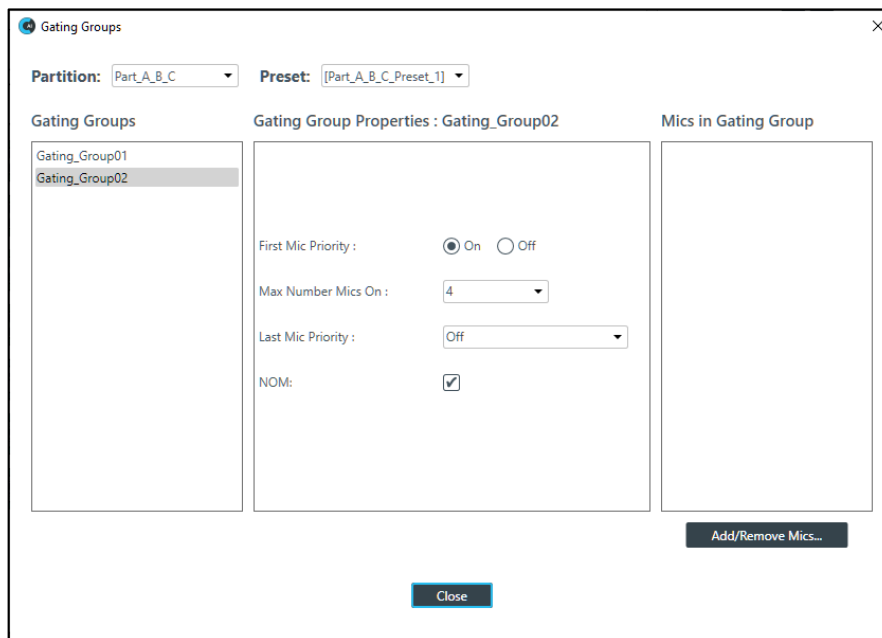
29. Click **Add**/**Remove Mics**.

The Add Mics dialog box appears:
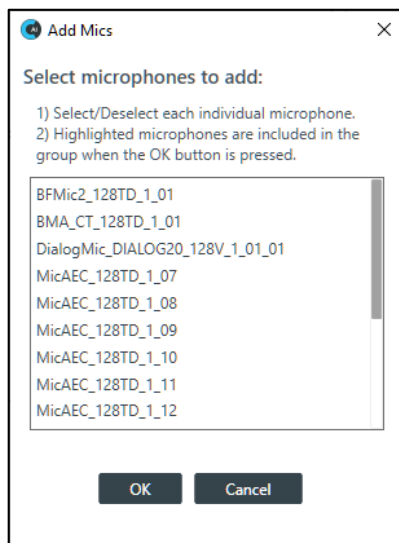
30. Select each of the mics you want to add, then click **OK**. **View/Change Channel Properties**

31. To view or change the properties for a channel, double-click its icon.

The Properties block for that item appears at the bottom of the FlowView screen:
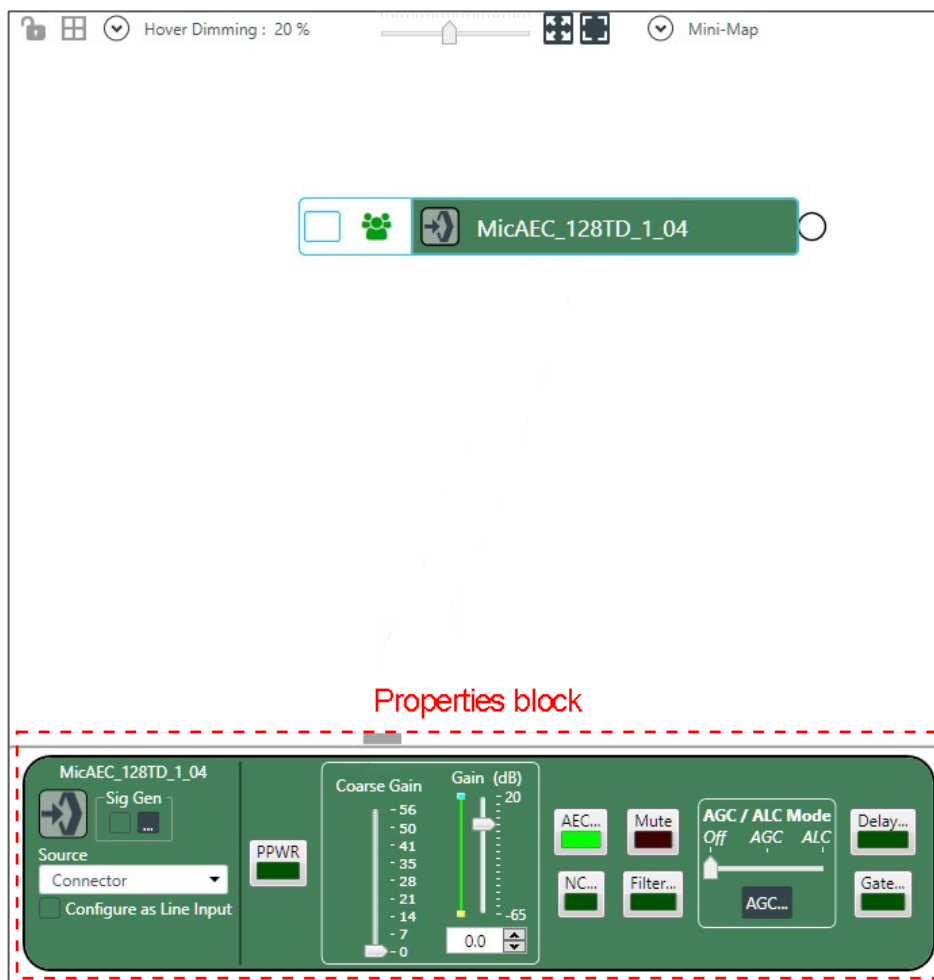
You can make any changes you want in the Properties block.

Use a Mixer Block

32. To use a mixer block, drag the Mixer Block resource from the lower left of the FlowView area (at the bottom of the Resources area) to the main FlowView area.

    A mixer block, which is just a gray block, appears.

33. Create channel routes to or from the mixer block by dragging the routes from a channel connector (it can be any channel connector on top of the mixer block.

    Route connectors appear on the mixer block:
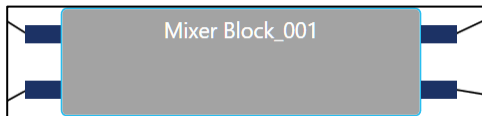
34. Add as many channel routes as you want to mix within the mixer block.

35. To create the routes within the mixer block, double-click the mixing block.

    The mixer block mini matrix appears, to let you create routes using the channels connected to the mixing block:
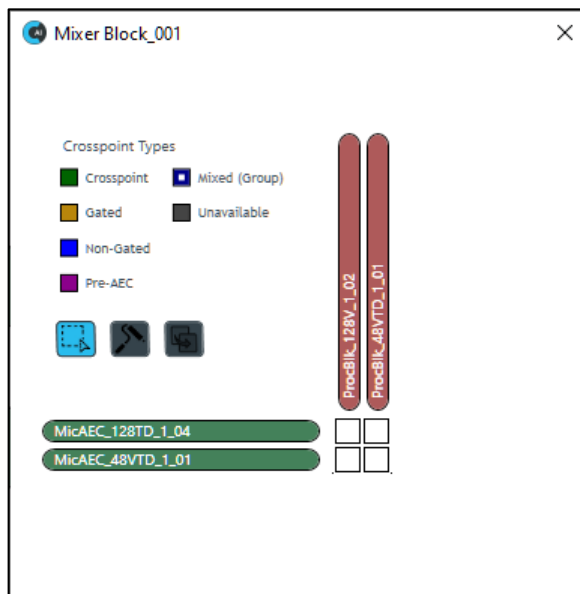
36. You can now make any changes to the channel crosspoints, as desired, in the same way that you can use MatrixView.

    Note: See *Connecting Channels Using MatrixView (CP2)* for more information about using MatrixView.

37. When you're done making changes to the mixer block channels, click the **x** in the upper right of the mixer block mini matrix.

38. You can create as many mixer blocks as you'd like. Mixer blocks can greatly simplify the FlowView area by keeping some routing within the blocks, rather than having many route lines.

Use a Boundary Box

39. You can use a boundary box to visually organize the channels in FlowView. To add a boundary box, drag the Boundary Box resource from the lower left of the FlowView area (at the bottom of the Resources area) to the main FlowView area.

    A color picker appears.

40. Use the color picker to choose a color for the shading in the box.

41. Click anywhere outside the color picker to close it.

42. Drag the Opacity slider in the Edit dialog box to choose the shading opacity.

43. Click **OK**.

44. You can move the boundary box by simply clicking anywhere within it and dragging.

45. To resize the box, drag any of its handles, which are in the corners and the center of each edge.

46. Once you have positioned and sized the box the way you want it, you can drag channel icons on top of the box.

> **Note:** Keep in mind that using a Boundary Box is only for visually organizing channels, and does not change anything functionally.

Connecting Channels Using MatrixView (CP2)

You can use MatrixView to make connections between audio channels. MatrixView is designed to let you visualize connections between channels as a matrix, with output channels in columns and input channels in rows, and the connections between them shown as crosspoints that can be selected or deselected.

> **Note:** MatrixView and FlowView are alternative methods of visualizing the connections between audio devices. Therefore, when you make connections in MatrixView, those connections are reflected in FlowView as well.

To make connections between channels using MatrixView:

1. From the Navigation Panel, choose **MatrixView**. The MatrixView screen appears:

   Inputs appear as matrix rows and outputs appear as matrix columns. Some channels, such a processing block
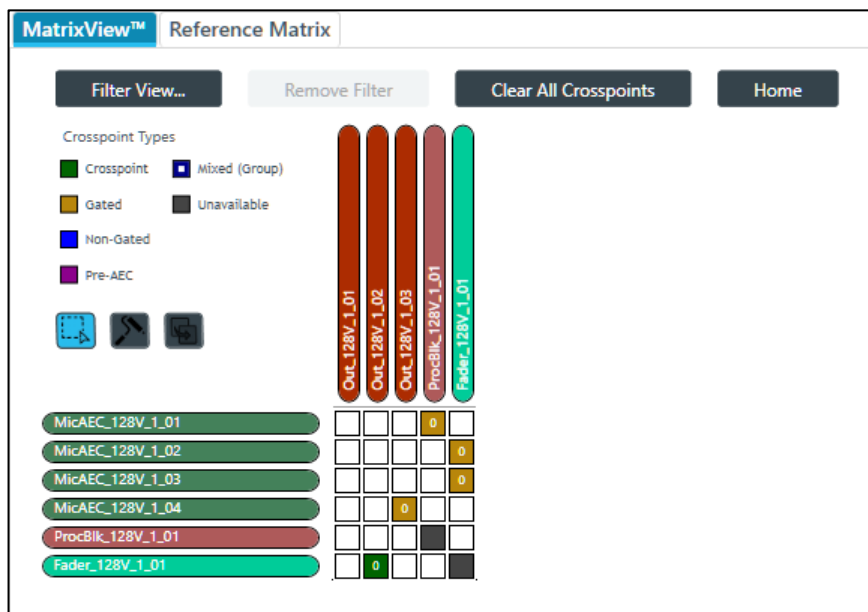
   channels, have both inputs and outputs, so they appear as both a row, for the input, and as a column, for the output.

2. If you are using Advanced Room mode, choose a partition from the **Partition** drop-down list.

Note: The channels available in MatrixView are limited to those you have added to the selected partition. Changes you make in MatrixView apply only to the selected partition.

3. (Optional) Choose a preset from the **Preset** drop-down list.

Filter

4. To limit which assets appear, click **Filter View**. The Filter dialog box appears:
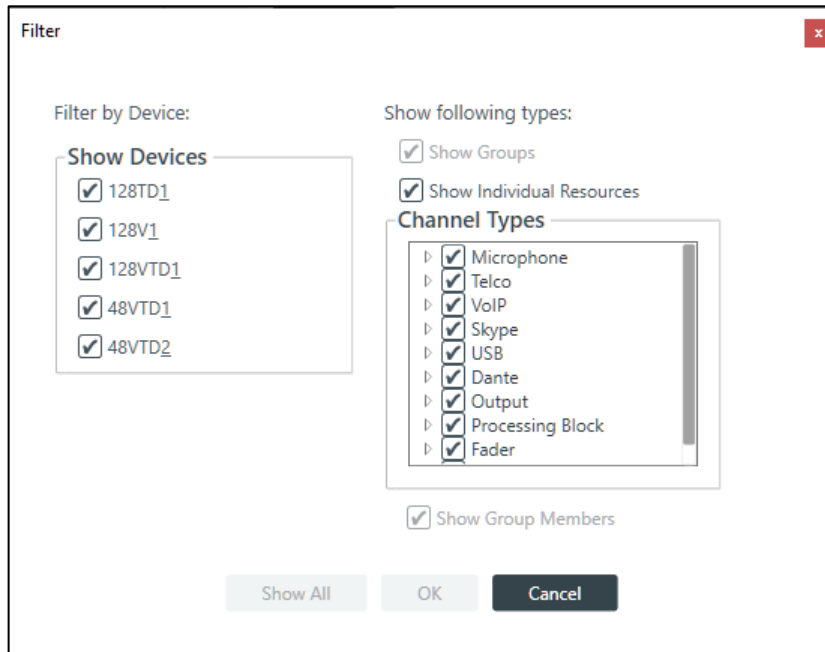
Note: The Channel Types list varies depending on which CP2 devices you have added and which assets you have added to the current project.

5. Select the assets you want to see in MatrixView, then click **OK**.

What appears in MatrixView is then limited to the asset types you have chosen.

6. To remove the filter and show all assets again, click **Remove Filter** at the top of the MatrixView screen.

Adjust MatrixView Display

7. To change the MatrixView display zoom, choose an option from the **Zoom** drop-down menu at top of the MatrixView screen.

8. To move the display location within the MatrixView to the upper left, click Home at the top of the MatrixView screen.

9. If the matrix is larger than the available screen space, scroll bars appear at the right side and the bottom of the matrix cells. You can drag those scroll bars to change which part of the matrix displays.

Make Matrix Connections

10. To connect an input channel and an output channel, click a crosspoint in the channel matrix. Clicking the crosspoint again cycles through the available types.

Note the following:

- Crosspoints that appear black in the matrix cannot be selected, because you would be connecting the input and output channels of the same asset, which would create a loop.

- The current audio level is shown in crosspoint cells (to the nearest whole value if zoom is set to small). If you are offline, the value is 0.

Depending on the channel types you are connecting, there are several types of connections you can make, as described in the following table:

Crosspoint Type	Indicator	Description
Crosspoint	■	Connections between channels that don't involve microphones or processing blocks are simple crosspoints, shown as green.
Gated	■	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Gated, the connection between the two channels follows whatever gating rules are assigned to the microphone.
Non-Gated	■	Connections between a microphone and any other channel can be Gated or Non-Gated. If you choose Non-Gated, the connection will always be on and never gate off
Pre-AEC	■	Setting a Pre-AEC crosspoint in the Matrix bypasses the cross-pointed input audio from the AEC (Acoustic Echo Cancellation) reference. This is primarily used for sound reinforcement applications to prevent mic input channel audio from being degraded by AEC artifacts.

Use Mode to Choose How Multiple Selection Functions

11. To specify how multiple selection functions (i.e., what happens when you drag the pointer across multiple crosspoints in MatrixView), choose one of the modes, described in the table below:

Mode	Icon	Description
Select		Dragging the mouse pointer across multiple crosspoints select the crosspoints and then opens the Set Multiple Crosspoints dialog box, which Allows you change the crosspoint type, attenuation, and mute state for the selected crosspoints.
Roll		Dragging the mouse pointer across multiple crosspoints changes each selected crosspoint to the next possible crosspoint type. **Note the following:** • How this works depends on the crosspoint type. Crosspoints for microphones, for example, which can be gated, can change between Gated, Non-Gated, and Pre-AEC.

		• Dragging across a microphone crosspoint in roll mode causes it to move from whatever its current state is to the next possible state (in the order listed in MatrixView under Crosspoint Types. • For crosspoints that can't be gated, the state can either be on or off, so using Roll Mode turns off crosspoints that are on and turns on crosspoints that are off.
Copy		Dragging the mouse pointer across multiple crosspoints copies the crosspoint state from the first crosspoint touched to all other crosspoints you drag across. 📝 **Note the following:** • If the state being copied isn't possible in a crosspoint you drag across, then no change is made. • For more detailed information, see *Using MatrixView Modes*.

Mute or Attenuate a Crosspoint

12. To mute or attenuate a crosspoint, right-click it.

The Attenuation/Mute dialog box appears:
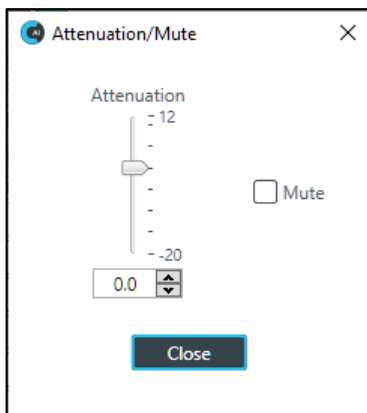
13. To mute this crosspoint, click the Mute check box.

The crosspoint will appear with a red 0 inside, to show that it is muted.

14. You can change the Attenuation in any of the following ways:

• Drag the slider

• Type a value in the text box

• Click the incrementer and decrementer arrows beside the text box to set the value

15. Click **Close**.

Make Reference Connections

16. Before you can make custom or standard reference assignments, you must first create the references using FlowView. See *Adding Standard References (CP2)* and *Adding Custom References (CP2)* for more information.

17. For more information about assigning standard or custom references and making reference exclusions, see *Assigning References (CP2)*.

View/Change Properties

18. To view or change the properties for a channel, channel group, or gating group from within MatrixView, double-click the channel.

The Properties block for that item appears at the bottom of the MatrixView screen:
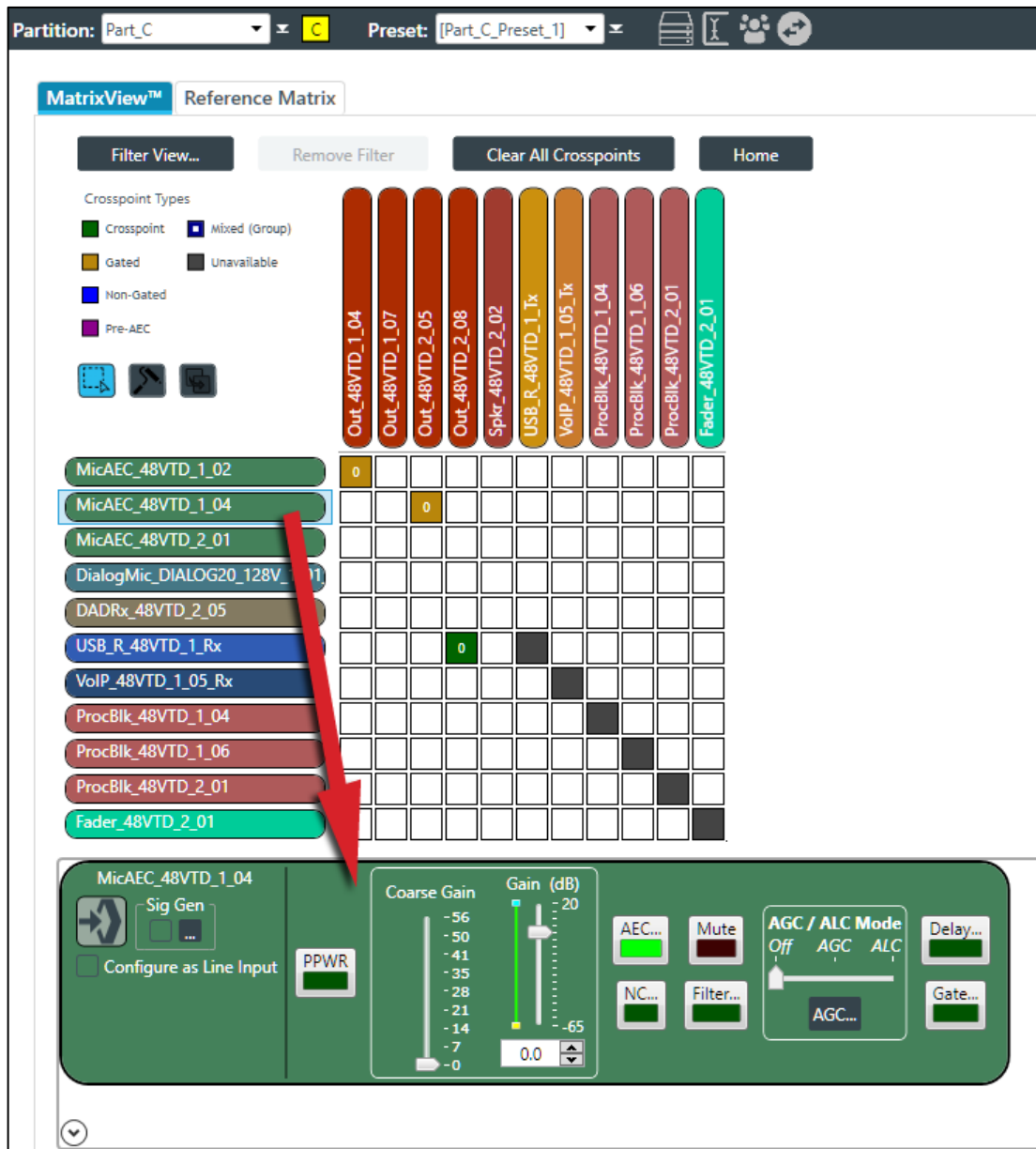
You can make any changes you want in the Properties block.

Adding Standard References (CP2)

You can add standard references to cancel acoustic echo. See *About References* for more information. For information about adding custom references, see *Adding Custom References (CP2)*.

For information about assigning references, once they have been created, see *Assigning References (CP2)*.

To add a standard reference:

1. If you are not already in FlowView, from the Navigation panel, choose **FlowView**™. The FlowView screen appears:
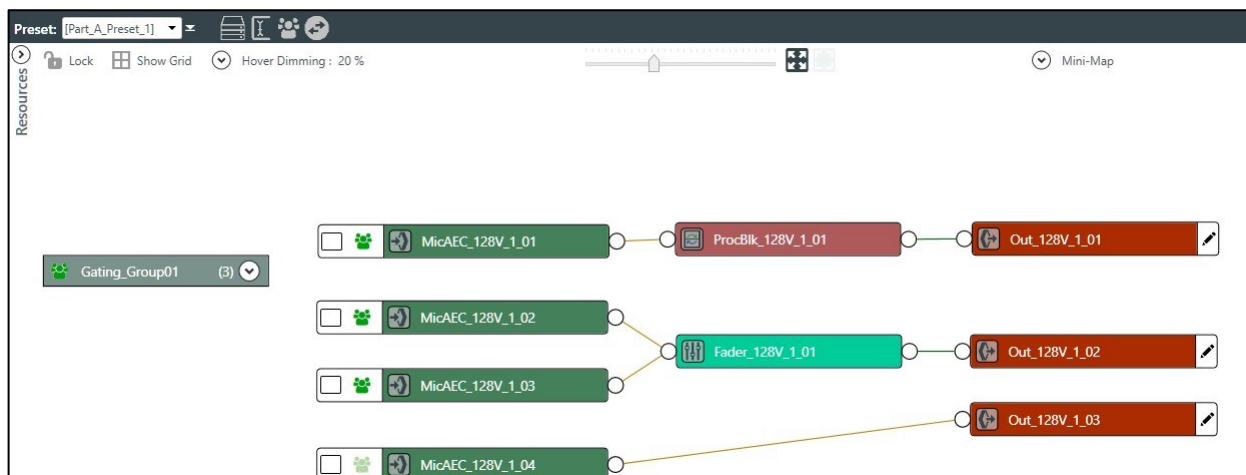
2. To add a standard reference to an output channel, click the pencil icon on the right side of the output channel icon:

3. The Output References dialog box appears:
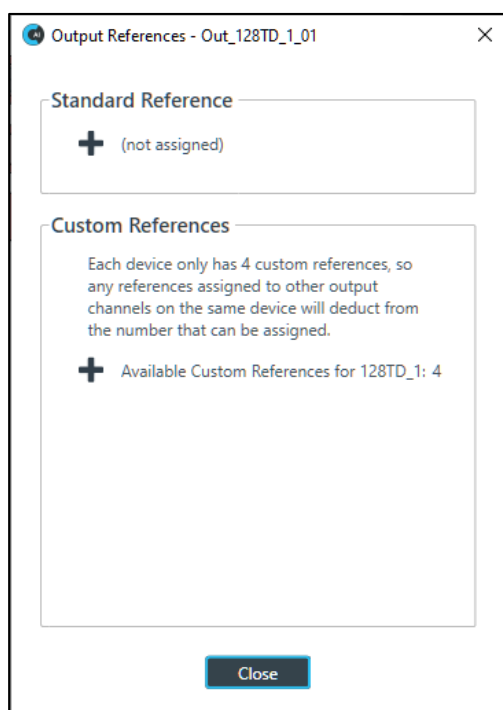
4. Click ➕ under Standard Reference to add a standard reference.

5. Once you have added a standard or custom reference to the output channel, a reference box appears on the channel icon:

References are numbered consecutively with Roman numerals, with an "S" at the front of standard references and a "C" in front of custom references.

Adding Custom References (CP2)

You can add custom references to stop acoustic echo while excluding specific input channels from being blocked. See *About References* for more information.

To assign a custom reference to an input channel, or to exclude certain input channels from a custom reference, see *Assigning References (CP2)*.

To create a standard reference, see *Adding Standard References (CP2)*. To add a custom reference:

1. If you are not already in FlowView, from the Navigation panel, choose **FlowView**™. The FlowView screen appears:
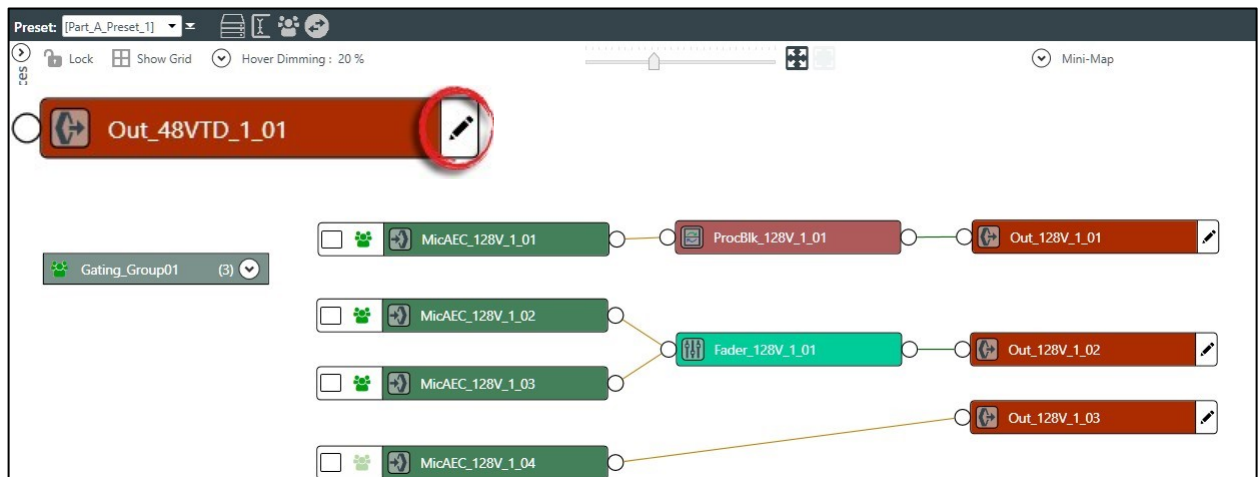
2. To add a custom reference to an output channel, click the pencil icon on the right side of the output channel icon, as shown in the example below:

The Output References dialog box appears:
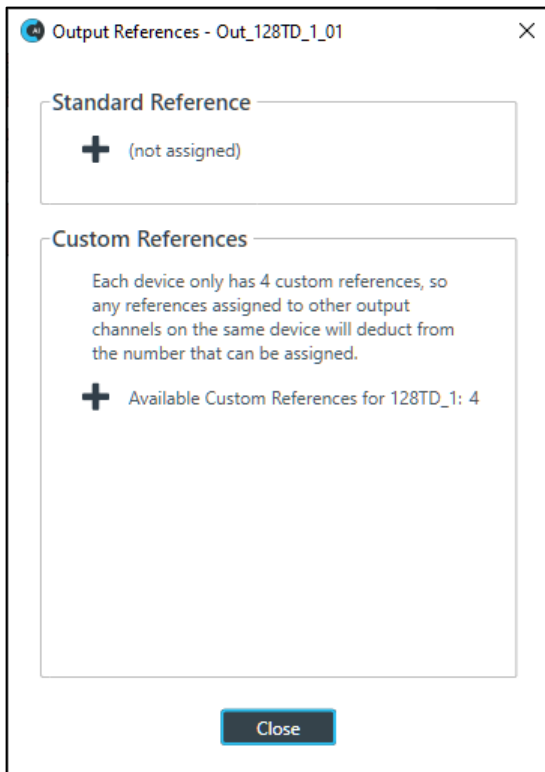
3. Click ✚ under Custom References to add a reference.

📝 **Note:** As the dialog box notes, there can be only four custom references.

4. Once you have added a custom reference to the output channel, a reference box appears on the channel icon:

References are numbered consecutively using Roman numerals, with an "S" at the front of standard references and a "C" in front of custom references.

Assigning References (CP2)

You can assign input channels to output channel standard references, and you can assign or exclude input channels from custom references. For more information about references, see *About References*.

📝 **Note:** Before you assign a reference, you must have already created a standard or custom reference. See *Adding Standard References (CP2)* and *Adding Custom References (CP2)* for more information.

To assign a standard or custom reference:

1. You can assign references using either FlowView or MatrixView. See the appropriate section below, depending on which method you're using.

Using FlowView

2. If you are not already in FlowView, from the Navigation panel, choose **FlowView**™. The FlowView screen appears:
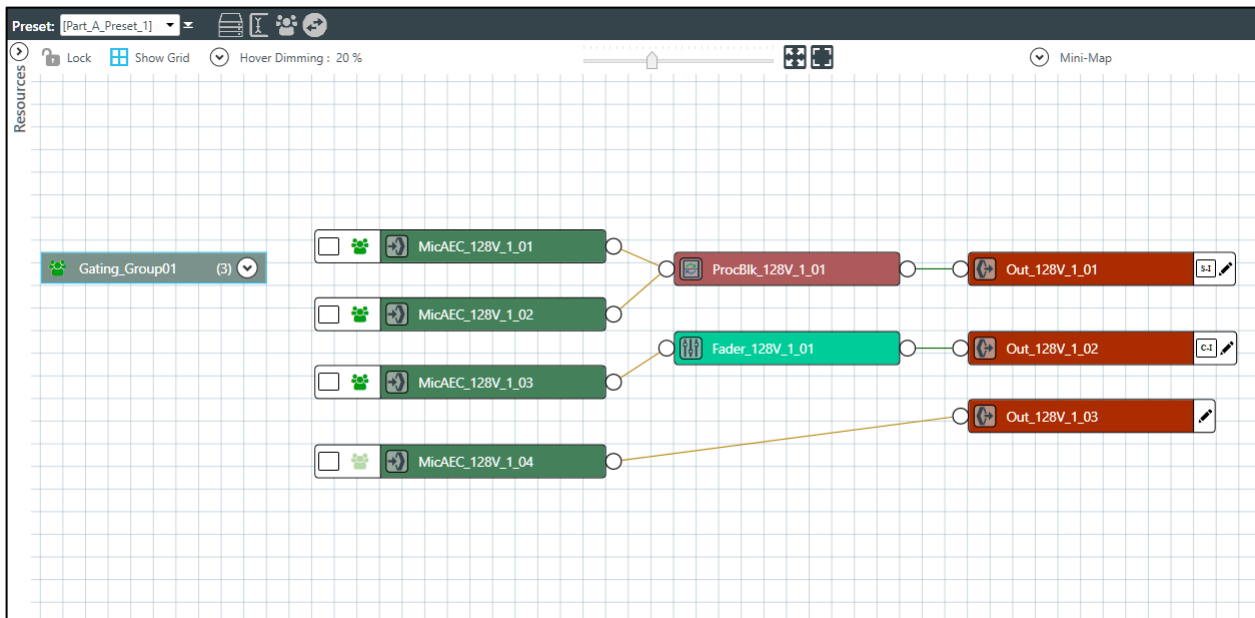
Notice that there are two outputs with unassigned references, one with a standard reference (S-I) and one with a custom reference (C-I).

3. Choose an input channel you want to assign to the standard or custom reference. Drag a connection between the empty box at the left side of the input channel and the reference on an output channel.

   If you have successfully made a connection, a matching reference box appears on both the input and output channels and the reference boxes on each turn yellow:
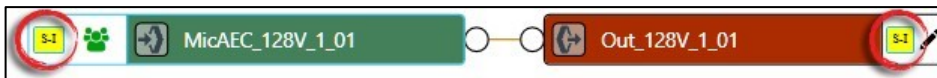
4. Repeat step 3 for each standard or custom reference you want to assign.

   Note: To create custom reference exclusions, you must use MatrixView. See Using MatrixView below.

Using MatrixView

5. From the Navigation Panel, choose **MatrixView**. The MatrixView screen appears:
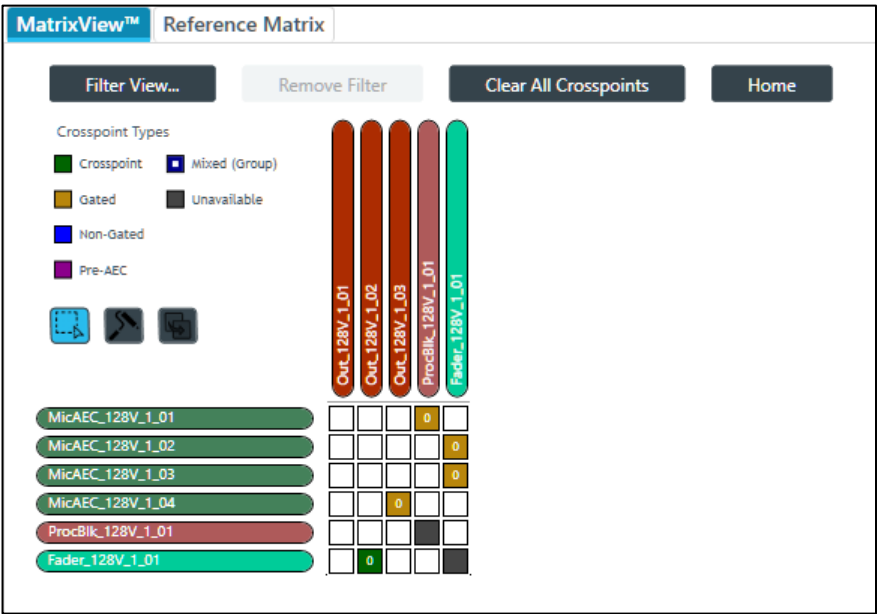
Inputs appear as matrix rows and outputs appear as matrix columns. Some channels, such a processing block channels, have both inputs and outputs, so they appear as both a row, for the input, and as a column, for the output.

6. Click the **Reference Matrix** tab. The Reference Matrix appears:

The regular matrix, showing channels in the room, appears on the right, while the reference matrix, which
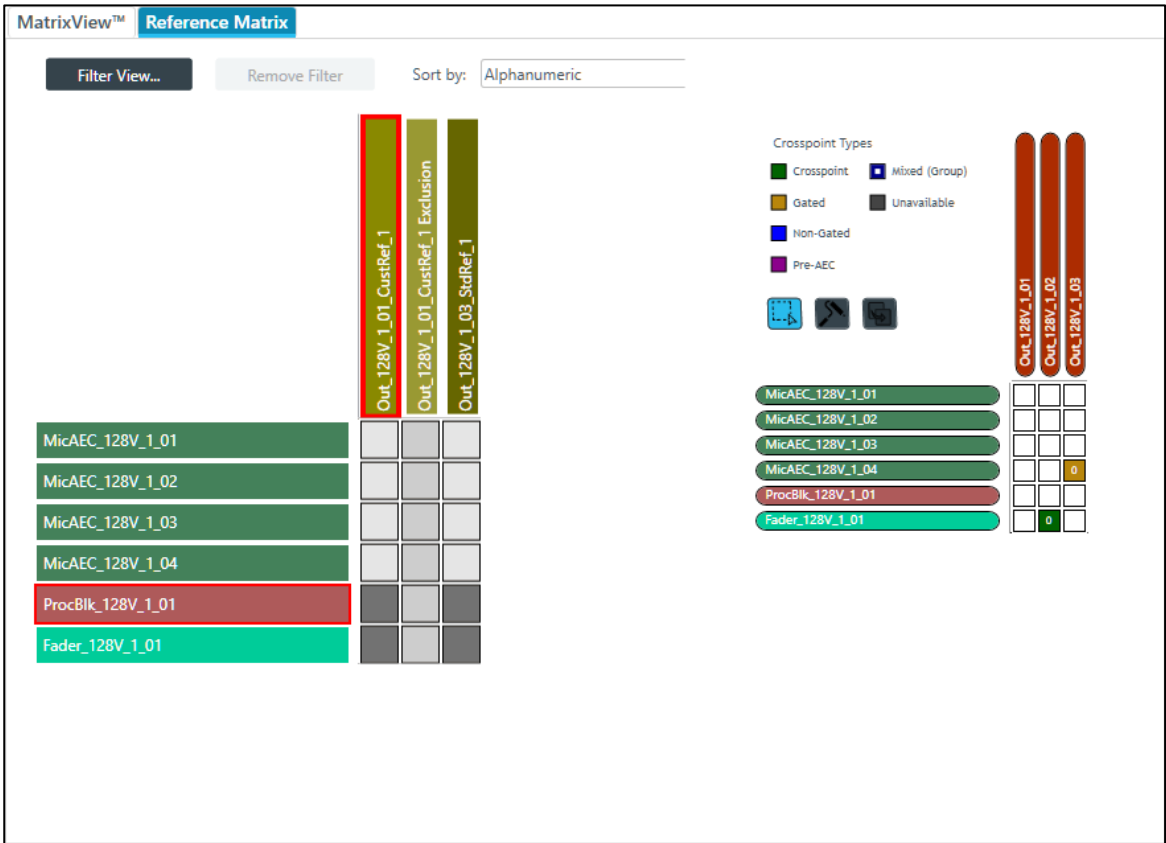
allows you assign references and exclusions, appears on the left.

7. To make a reference assignment for a standard reference, find a column (on the left side) that is labeled as a standard reference (in this case, only one channel is labeled as a standard reference: Out_128V_1_03_StdRef_1) and click any crosspoints that intersect with input channels you want to assign as references.

   Reference assignment icons appear for each crosspoint you select:

8. To make a custom reference assignment, find a column (again on the left side) that is labeled as a custom reference and click any crosspoints that intersect with input channels you want to assign as references.

   Reference assignment icons appears, just as in the previous step.

9. To make custom reference exclusions, find a column that is labeled as a customer reference exclusion and click any crosspoints that intersect with input channels you want to exclude (channels whose sound you don't want to exclude from the specified output channel).

   Exclusion icons appear for any specified exclusions:

Using MatrixView Modes

MatrixView has three modes you can use to change multiple crosspoints:

- Select Mode: Use to select multiple crosspoints, so you can change the type, attenuation, or mute state for all selected crosspoints

- Roll Mode: Use to drag across multiple crosspoints, changing each one to the next possible type

- Copy Mode: Use to drag across multiple crosspoints, duplicating the state of the first in every other crosspoint you touch

To use MatrixView Modes:

1. Under **Room Partitions**, choose **MatrixView**. The MatrixView screen appears:
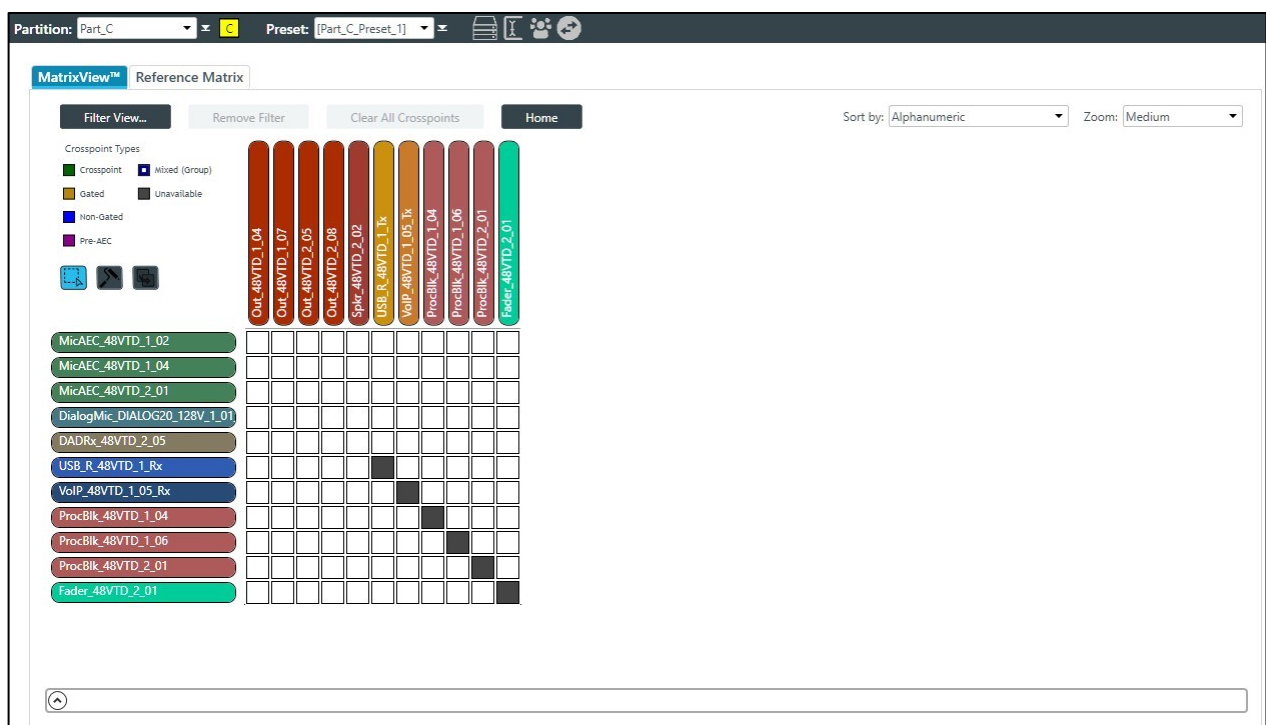
The mode buttons appear just below the crosspoint types.

Select Mode

2. If it's not already selected, click [icon] to choose Select Mode.

3. Drag the mouse across multiple crosspoints you want to change.

[icon] **Note:** This feature works only if you have selected crosspoints of the same routing type. For example, you can change multiple Mic channels, but you cannot make the same kinds of changes to a selection that includes both Mic channels and Dante channels. If you try to select multiple channels with different routing types, an error message appears letting you know you have selected incompatible routing types.

The Set Multiple Crosspoints dialog box appears:
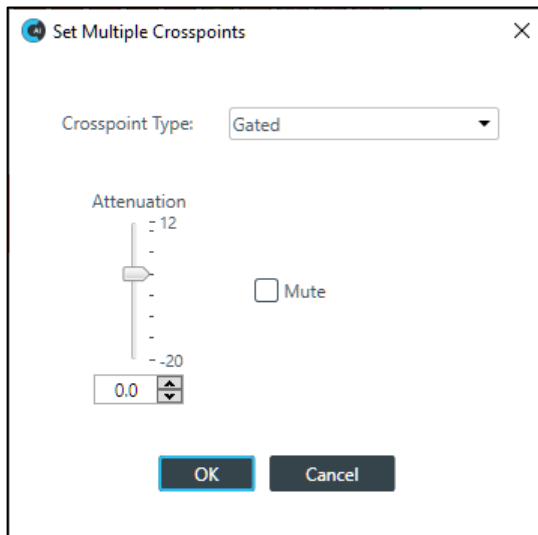
4. To change the type of all selected crosspoints, choose an option from the **Crosspoint Type** drop-down list.

5. To mute this crosspoint, click the **Mute** check box.

   Selected crosspoints will appear with a red 0 inside, to show that they are muted.

6. You can change the Attenuation of each of the selected crosspoints in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

7. Click **OK**.

Roll Mode

8. To use Roll Mode, click .

9. Drag the mouse across any crosspoints you want to change.

   For each crosspoint you touch, the next possible type is chosen. For example, the images below show the crosspoint states before and after using the highlighted crosspoints:

   Before:
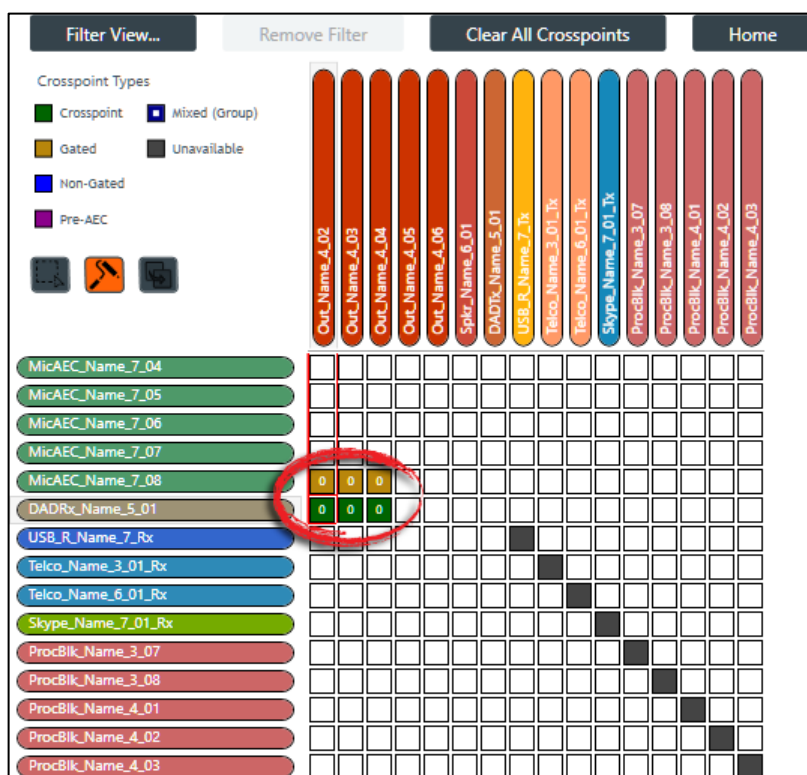
After:
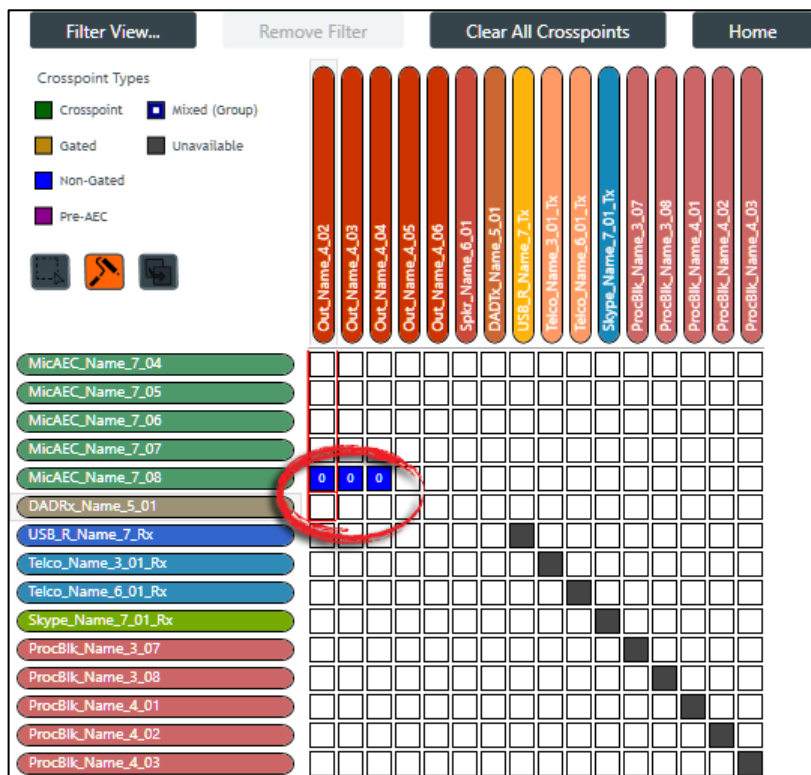
Notice that the crosspoints in the MicAEC_Name_7_08 channel row have been changed from "Gated" to "Non-Gated" while the crosspoints in the DADRx_Name_5_01 channel row have been changed from "Crosspoint" to blank (no crosspoint). That's because each crosspoint touched was changed to the next available type.

In the case of a Mic channel, the next available type after "Gated" is "Non-Gated" (as shown in the Crosspoint Types list in the upper left).

Dante channels, however, cannot be gated; they can be either on or off. So for those crosspoints, touching them using Roll Mode turns them from on to off.

Copy Mode

10. To use Copy Mode, click .

11. Start dragging the mouse pointer on a crosspoint you want to duplicate, and drag it across any crossspoint you want to have exactly the same settings.

If possible, the crosspoint type, mute state, and attenuation setting are duplicated from the first crosspoint you touched into every other crosspoint you touch. See the Before and After images below for an example.

Before:

After:
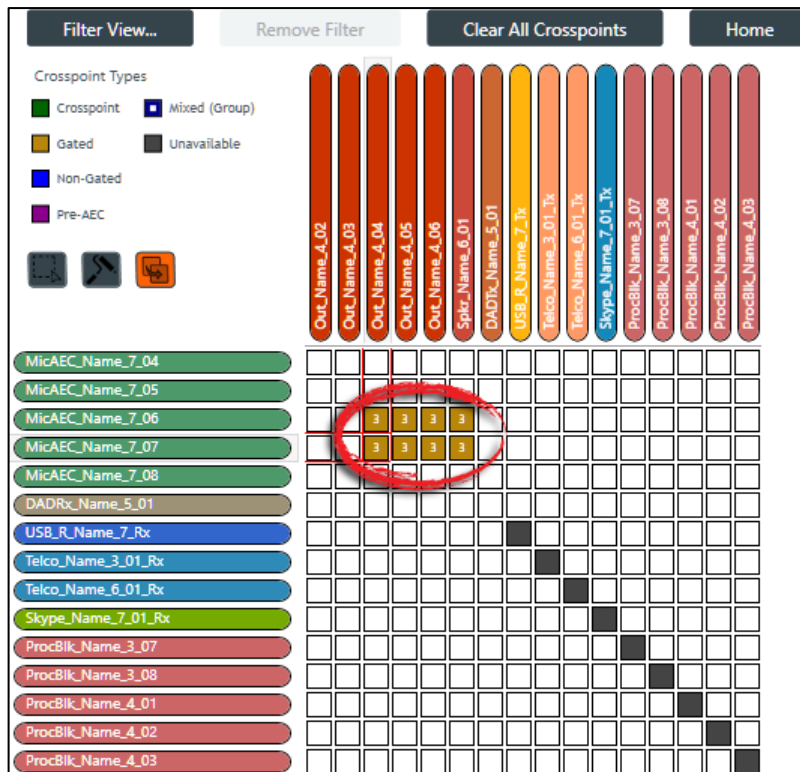
In this example, the first crosspoint touched, was the one circled in the Before image. Then the pointer was dragged across all the crosspoints circled in the After image. Notice that the crosspoint type and the attenuation value of 3 of the crosspoint circled in the Before image have been copied to all the touched crosspoints.

Changing Channel Properties - Mic/Line Input AEC (CP2)

You can use channel properties to modify a Mic/Line Input AEC channel. You can make any of the following changes:

Feature	Description
Active (Group only)	Allows you choose which member of the group to show or modify.
Sync All (Group only)	Allows you synchronize all the members of the group to match the settings of the active member.
Source	If digital (Dante or DIALOG® 20 Mic) channels are available in the partition, you can choose them as digital sources from this drop-down list.
Sig Gen	Allows you turn on the signal generator for this channel and change the signal generator settings.
Phantom Power	Phantom power is an auxiliary power source used to power certain types of microphones. Phantom power voltage is 24VDC. Default is On.

Coarse Gain	The Coarse Gain slider adjusts the volume level for a mic input channel. Coarse gain can be adjusted in roughly 7dB increments. 📝 **Note:** In general, you should set the Coarse Gain slider to 56dB for a mic input, 28dB for active equipment that requires an input between mic and line level, or 0dB for a line level input device.
Fine Gain	Fine Gain adjusts the input volume level for a mic input but in increments of 0.5dB.
Acoustic Echo Cancellation (AEC)	AEC (Acoustic Echo Cancellation) reduces or removes acoustical echo from an input signal, thereby improving audio clarity. CONVERGE Pro 2 devices perform AEC using the full bandwidth (20Hz to 22kHz) of the signal. AEC uses a reference source to perform AEC based on the acoustic characteristics and dynamics of a specific room.
Noise Cancellation (NC)	Noise Cancellation is a process in which ambient (background) noise is removed from an input signal, with no noticeable degradation in signal quality. This settings is used primarily for audio and video conferencing.
Mute	Mute a microphone.
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Automatic Level Control (ALC)	ALC automatically keeps an input signal at a constant level, and is generally used to keep speech levels constant onMic Input channels.
Automatic Gain Control (AGC)	AGC keeps an input signal at a target gain level that you select, and is generally used for Line Input channels.
Delay	Delay Allows you add a specified amount of delay into specified channels. Introducing an appropriate amount of delay to the forward-mounted driver(s) re-establishes the acoustical alignment necessary for proper sound imaging in a room. The same principle of introducing delay applies to separate speaker enclosures located various distances from the listening area.

Feature	Description
Gate Settings	Gate settings control when a microphone is gated on or off, based on audio environment factors for this microphone and other microphones in the same gating group.

To change the properties for a Mic/Line Input AEC channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **Mic/Line Input AEC** to open the channel list.

5. Select the channel you want to change.

   The Mic/Line Input AEC Channel Properties block appears:
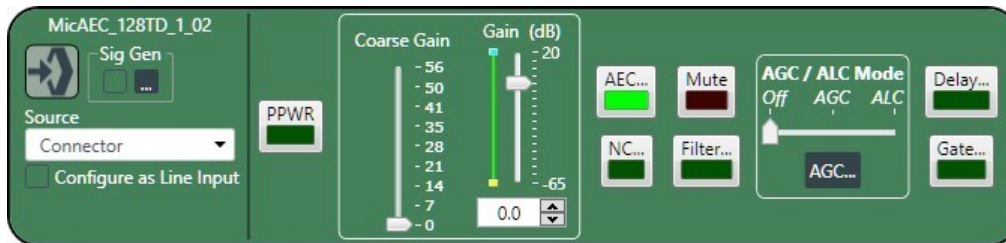
Digital Input

6. If you have added any Dante or DIALOG 20 Mic channels from the same device to the current partition (if you're using partitions), you can use any of these channels as a digital input by selecting the corresponding channel from the Source drop-down list.

   Note the following:

   - Once you have associated a Mic/Line Input channel with a digital channel, you should perform all routing using the Mic/Line Input channel, rather than the digital channel.

   - Using a Dante or DIALOG 20 channel as an input for a Mic/Line Input channel permits the use of AEC on digital channels, since AEC cannot be applied to raw digital channels directly.

Signal Generator

7. Click [icon] under Sig Gen to use the Signal Generator. The Signal Generator dialog box appears:
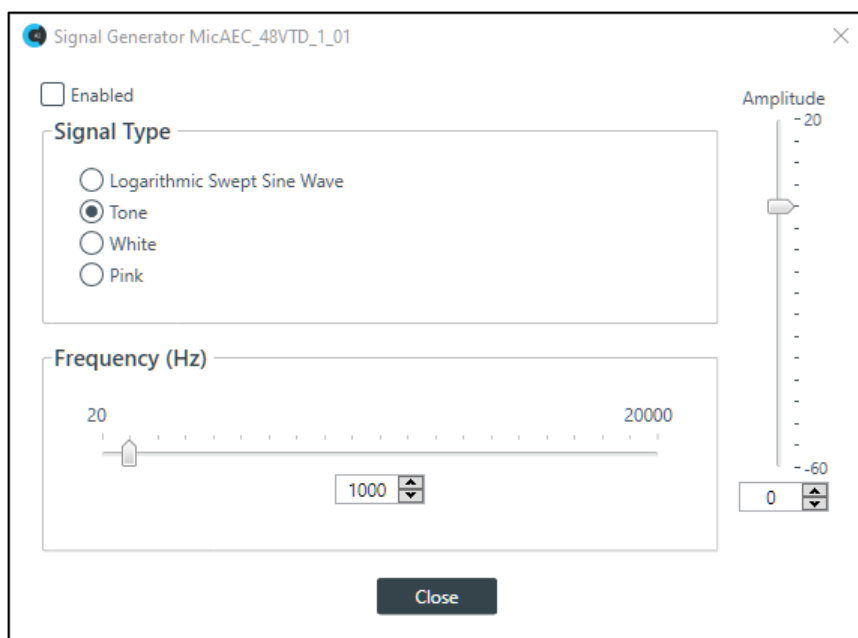
8. Change any of the options, as described in the table below:

Enabled	Whether the signal generator is enabled.
Signal Type	Choose from the following options: • Logarithmic Swept Sine Wave-A test signal increasing in frequency using exponential steps (i.e., rises on a curve). • Logarithmic Swept Sine Wave-A test signal increasing in frequency using exponential steps (i.e., rises on a curve). • Tone-A sine-wave test with less than .03% distortion. When using Tone you specify a frequency. • White-A test signal with equal energy distribution throughout a given frequency range. • Pink-A test signal containing all the frequencies in a given audio spectrum, with equal energy in each octave.
Frequency	The frequency of the signal. Applies only when the signal type is Tone.
Amplitude	The amount of gain, or volume, to use during signal generation.

9. Click **Close**.

Phantom Power

10. To turn phantom power on or off, click the **PPWR** button (the button changes to light green if phantom power is on).

Coarse Gain

11. To change the coarse gain, drag the **Coarse Gain** slider.

Fine Gain

12. You can change the fine gain in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

AEC

13. To turn AEC on or off, click the **AEC** button (the button changes to light green if AEC is on).

The AEC Settings dialog box appears:

14. (Optional) Make any changes to the AEC Settings you want (as described in the table below):

Option	Description
Enable Acoustic Echo Canceller	Check this box to turn on the AEC feature.
Non-linear Processing (NLP)	NLP increases the power of echo cancellation for difficult acoustical environments. **Note:** Use NLP with care. There are trade-offs associated with NLP, including audio suppression and half-duplex operation.
Enable Push to Talk (PTT) Mode	PTT notifies AEC when a microphone is switched off, and freezes AEC convergence until the microphone is switched back on. As

	a result, PTT helps prevent AEC divergence and improves overall AEC performance with push-to-talk microphones.
	Note: When the microphone is off, set the PTT Threshold slider to the level of the Pre-Gain Meter for the channel
Echo Return Loss (ERL) Meter	Shows the coupling between the reference signal and the input to the echo canceller—the difference of the two levels. This is an average meter that updates when a receive-only signal is present.
	Note: This meter functions only if the application is in online mode.
Echo Return Loss Enhancement (ERLE) Meter	Shows the loss through the echo cancellation and non-linear processing chain—the difference of the two levels. This is an average meter that updates when a receive-only signal is present.
	Note: This meter functions only if the application is in online mode.
Total Echo Reduction Meter	A meter that shows the total echo reduction (ERL + ERLE). This is an average meter that updates when a receive-only signal is present.
	Note: This meter functions only if the application is in online mode.

15. Click **Close**.

Noise Cancellation

16. To turn noise cancellation on or off, click the **NC** button (the button changes to light green if NC is on).

The Noise Canceller dialog box appears:
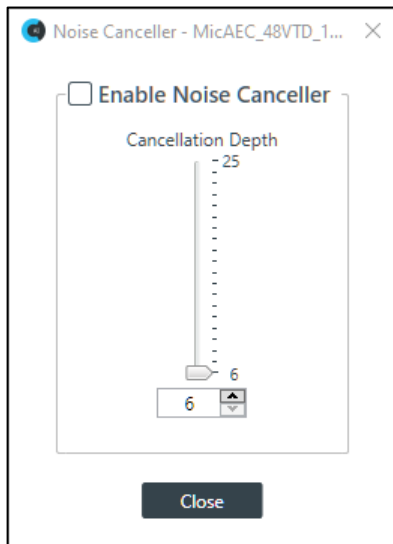
17. Check the **Enable Noise Canceller** check box to turn on NC.

18. Use any of the following methods to change the cancellation depth:

  • Drag the slider

  • Type a value in the text box

  • Click the incrementer and decrementer arrows beside the text box to set the value

19. Click **Close**

Mute

20. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Filter

21. To enable and configure a filter, click the **Filter** button.

  The Filters dialog box appears:

22. For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments.

Filter Type	Description
	Bandwidth is 0.05 to 5 octaves in 0.01 octave increments.
	Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

23. (Optional) If you don't want to use default values, change the filter options, as described in the table below.

Option	Description
Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring. Range is from -15to 15dB. The default is 0dB.
Q	Quality factor. The ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.

24. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

25. Repeat the process for each filter you want to add.

26. Click **Close**.

AGC/ALC

27. To turn ALC on, slide the **AGC**/**ALC Mode** slider to **ALC**. 28.To turn AGC on, slide the **AGC**/**ALC Mode** slider to **AGC**. 29.To change the AGC settings, click the **AGC** button.

The AGC settings dialog box appears:

30. Use any of the following methods to change the Maximum Gain, Target Level, Response Time, or Threshold (options described in the table below):

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

Option	Description
Maximum Gain	The dB value that should never be exceeded.
Target Level (RMS)	Target Level sets the dB level for AGC to maintain. Target level is set using the Root Mean Square (RMS) method to determine the average magnitude of the audio signal over time.
Response Time	The amount of time (in ms) over which the level is averaged before AGC is activated or deactivated.
Threshold	The dB level at which AGC engages.

31. Click **Close**.

Delay

32. To enable or disable a delay for this channel, click the **Delay** button.

The Enable Delay dialog box appears:
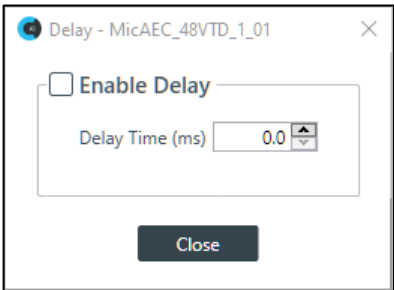
33. Check the **Enable Delay** check box to turn on the delay.

34. Specify the amount of the delay (in ms) by typing a value in the **Delay Time** field or using the incrementer and decrementer buttons next to the field to set a value.

35. Click **Close**.

Gate

36. To set gating options, click the **Gate** button.

The Gate Settings dialog box appears:

37. Choose an option from the Gate Mode drop-down list, as described in the table below:

Option	Description
Auto	The microphone gates on or off automatically, according to the specified settings.
Manual On	The microphone is always gated on.
Manual Off	The microphone is always gated off (though the way it turns off is controlled by the specified settings.

38. (Optional) Change any of the gating settings, as described in the table below:

Gate Ratio (Auto Only)	How much louder than the ambient level the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
Hold Time	How long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from 0.1 to 8.0 seconds. The default is 0.3 seconds.
Off Attenuation	The amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB. The default is 18dB.
Decay Rate	How fast a channel gates off after the Hold Time expires. The default is Medium.
Adaptive Ambient (Auto Only)	Adjusts the ambient reference level as noise and room conditions change. When Adaptive Ambient is on, the mic channel monitors the ambient noise level on the input and adjusts the ambient level reference automatically. This means that the gate threshold level automatically increases or decreases based on background noise. The default is On.
Manual Ambient Tracking (Auto Only)	The input will use the fixed ambient level you specify in the Ambient Level field as its gating reference.
Chairman Override	Provides gating priority for this mic input over any other mic input within the same gating group that is set to Auto gating mode. When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off. The default is Off.
PA Adaptive Mode	Uses the audio level on a specified output as the new ambient level when audio is present at the power amplifier. This prevents loudspeaker audio from gating on the mic while still allowing people in the room to gate on microphones when they speak (provided that their voices are louder than the loudspeaker audio). For example, you might decide to play background music from a CD player during a presentation. PA Adaptive Mode allows you to use the output routed from the CD player as the ambient reference to prevent the CD player's audio from gating on microphones.

39. Click **Close**.

Changing Channel Properties - Beamforming Mic (CP2)

You can use channel properties to modify a Beamforming Mic channel. You can make any of the following changes:

Feature	Description
BFM Config Button	Use to change a number of BFM configuration settings.
Gain	Gain adjusts the input volume level for a Beamforming Mic input.
Acoustic Echo Cancellation (AEC)	AEC (Acoustic Echo Cancellation) reduces or removes acoustical echo from an input signal, thereby improving audio clarity. CONVERGE Pro 2 devices perform AEC using the full bandwidth (20Hz to 22kHz) of the signal. AEC uses a reference source to perform AEC based on the acoustic characteristics and dynamics of a specific room.
Noise Cancellation (NC)	Noise Cancellation is a process in which ambient (background) noise is removed from an input signal, with no noticeable degradation in signal quality. This settings is used primarily for audio and video conferencing.
Mute	Mute a microphone.
Automatic Level Control (ALC)	ALC automatically keeps an input signal at a constant level, and is generally used to keep speech levels constant onMic Input channels.
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Gate Settings	Gate settings control when a microphone is gated on or off, based on audio environment factors for this microphone and other microphones in the same gating group.

To change the properties for a Beamforming Mic channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

   📝 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **Beamforming Mic** to open the channel list.

5. Select the Beamforming Mic channel you want to change. The Beamforming Mic Channel Properties block appears:
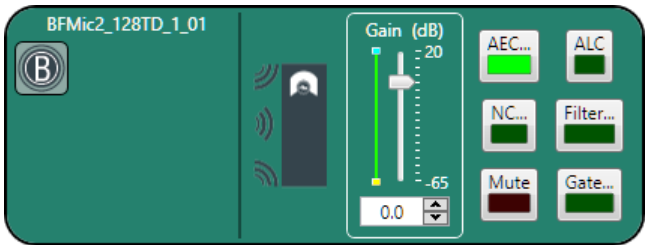
BFM Config

6. Click the BFM Config button (the button at the left side of the channel properties block that looks like a BFM2) to change the BFM Config settings.

The BFM Config dialog box appears:
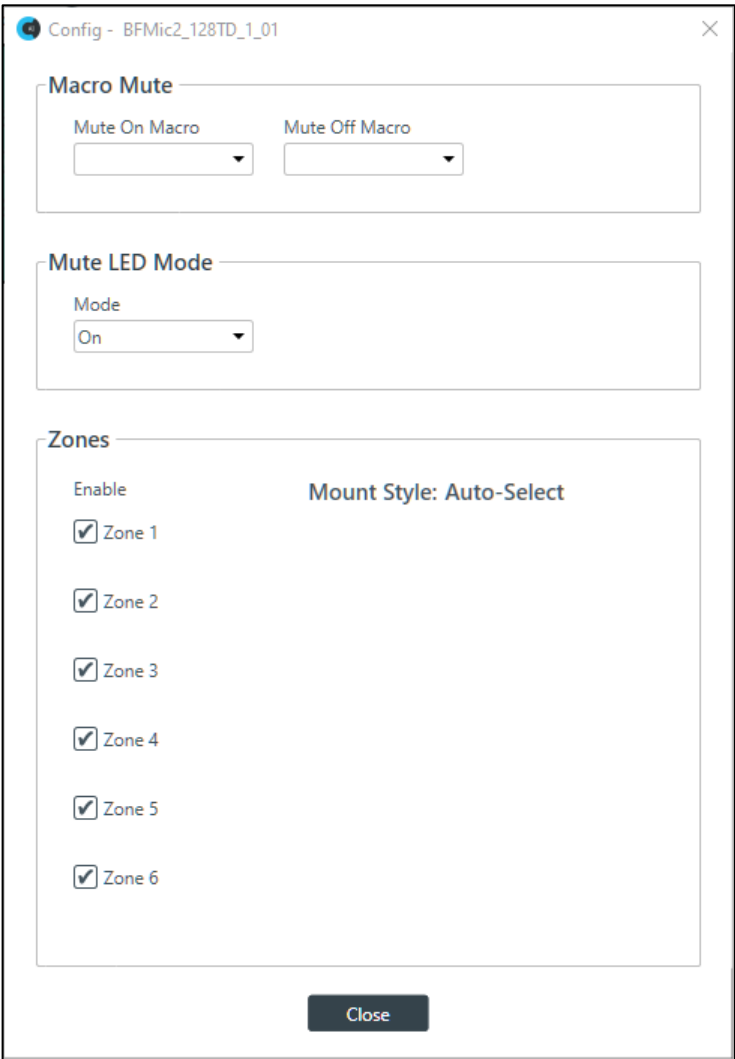
7. (Optional) Change any of the settings, as described in the table below:

Mute On Macro	If you want to run a macro when this BFM2 is muted, choose the macro to run from the drop-down list.
Mute Off Macro	If you want to run a macro when this BFM2 is unmuted, choose the macro to run from the drop-down list.
Mute LED Mode	From this drop-down list, you can choose how you want the LED light on the device to behave when the device is muted. Choose from: • Off: The LED light does not come on when the device is muted. • On-Steady: The LED light stays on when the device is muted. • On-Blink: The LED light blinks when the device is muted.
Zones	Choose which microphone zones are turned on.

Gain

8. You can change the fine gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

**AEC**

9. To turn AEC on or off, click the **AEC** button (the button changes to light green if AEC is on). The AEC Settings dialog box appears:
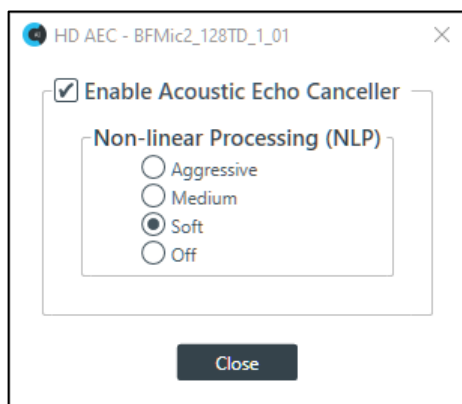
10. (Optional) Make any changes to the AEC Settings you want (as described in the table below).

Enable Acoustic Echo Canceller	Check this box to turn on the AEC feature.

Non-linear Processing (NLP)	NLP increases the power of echo cancellation for difficult acoustical environments. You can choose whether to use NLP and how aggressive the NLP should be.
	Note: Use NLP with care. There are trade-offs associated with NLP, including audio suppression and half-duplex operation.

11. Click **Close**.

Noise Cancellation

12. To turn noise cancellation on or off, click the **NC** button (the button changes to light green if NC is on).

The Noise Canceller dialog box appears:
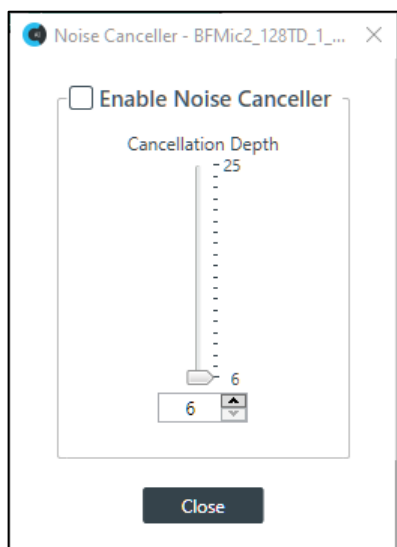
13. Check the **Enable Noise Canceller** check box to turn on NC.

14. Use any of the following methods to change the cancellation depth:

- Drag the slider
- Type a value in the text box
- Click the incrementer and decrementer arrows beside the text box to set the value

15. Click **Close**

Mute

16. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

ALC

17. To turn ALC on, click the **ALC** button (the button changes to light green if ALC is on).

Filter

18. To enable and configure a filter, click the **Filter** button.

The Filters dialog box appears:

19. For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments.

Filter Type	Description
	Bandwidth is 0.05 to 5 octaves in 0.01 octave increments.
	Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

20.(Optional) If you don't want to use default values, change the filter options, as described in the table below.

Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring. Range is from -15to 15dB. The default is 0dB.
Q	Quality factor. The ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.

21.(Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

22. Repeat the process for each filter you want to add.

23. Click **Close**.

Gate

24. To set gating options, click the **Gate** button.

The Gate Settings dialog box appears:

25. Choose an option from the Gate Mode drop-down list, as described in the table below:

Option	Description
Auto	The microphone gates on or off automatically, according to the specified settings.
Manual On	The microphone is always gated on.
Manual Off	The microphone is always gated off (though the way it turns off is controlled by the specified settings.

26. (Optional) Change any of the gating settings, as described in the table below:

Option	Description
Gate Ratio (Auto Only)	How much louder than the ambient level the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
Hold Time	How long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from 0.1 to 8.0 seconds. The default is 0.3 seconds.
Off Attenuation	The amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB. The default is 18dB.

Option	Description
Decay Rate	How fast a channel gates off after the Hold Time expires. The default is Medium.
Adaptive Ambient (Auto Only)	Adjusts the ambient reference level as noise and room conditions change. When Adaptive Ambient is on, the mic channel monitors the ambient noise level on the input and adjusts the ambient level reference automatically. This means that the gate threshold level automatically increases or decreases based on background noise. The default is On.
Manual Ambient Tracking (Auto Only)	The input will use the fixed ambient level you specify in the Ambient Level field as its gating reference.
Chairman Override	Provides gating priority for this mic input over any other mic input within the same gating group that is set to Auto gating mode. When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off. The default is Off.

27. Click **Close**.

Changing Channel Properties - BMA CT (CP2)

You can use channel properties to modify a BMA CT channel. You can make any of the following changes:

Feature	Description
BMA CT Config Button	Use to change a number of BMA CT configuration settings.
Gain	Gain adjusts the input volume level for a BMA CT input.
Acoustic Echo Cancellation (AEC)	AEC (Acoustic Echo Cancellation) reduces or removes acoustical echo from an input signal, thereby improving audio clarity. CONVERGE Pro 2 devices perform AEC using the full bandwidth (20Hz to 22kHz) of the signal. AEC uses a reference source to perform AEC based on the acoustic characteristics and dynamics of a specific room.
Noise Cancellation (NC)	Noise Cancellation is a process in which ambient (background) noise is removed from an input signal, with no noticeable degradation in signal quality. This settings is used primarily for audio and video conferencing.
Mute	Mute a microphone.
Automatic Level Control (ALC)	ALC automatically keeps an input signal at a constant level, and is generally used to keep speech levels constant.

Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Gate Settings	Gate settings control when a microphone is gated on or off, based on audio environment factors for this microphone and other microphones in the same gating group.

To change the properties for a BMA CT input channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

2. Click **BMA CT** to open the channel list.

3. Select the channel you want to change. The BMA CT Properties block appears:

BMA CT Config
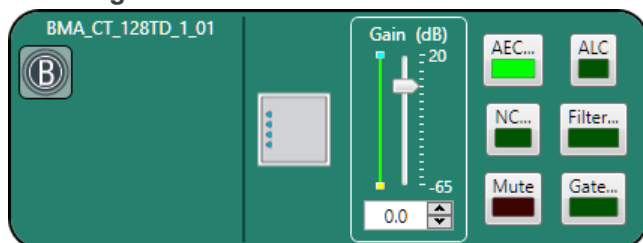
4. Click the BMA CT Config button (the button at the left side of the channel properties block that looks like a BMA CT) to change the Config settings.

The Config dialog box appears:

5. (Optional) Change any of the settings, as described in the following table:

Option	Description
Pattern	Choose from standard or wide angle modes.
Zones	Choose which microphone zones are turned on.
LED Settings	Configure how the LED lights behave.
Power Select	Use to turn the BMA CTH on or off.

Gain

6. You can change the gain in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

AEC

7. To turn AEC on or off, click the **AEC** button (the button changes to light green if AEC is on). The AEC Settings dialog box appears:

8. (Optional) Make any changes to the AEC Settings you want (as described in the table below).

9.

Enable Acoustic Echo Canceller	Check this box to turn on the AEC feature.
Non-linear Processing (NLP)	NLP increases the power of echo cancellation for difficult acoustical environments. You can choose whether to use NLP and how aggressive the NLP should be. 📋 **Note:** Use NLP with care. There are trade-offs associated with NLP, including audio suppression and half-duplex operation.

10. Click **Close**.

Noise Cancellation

11. To turn noise cancellation on or off, click the **NC** button (the button changes to light green if NC is on).

The Noise Canceller dialog box appears:

12. Check the **Enable Noise Canceller** check box to turn on NC.

13. Use any of the following methods to change the cancellation depth:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

14. Click **Close**

Mute

15. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

ALC

16. To turn ALC on, click the **ALC** button (the button changes to light green if ALC is on).

Filter

17. To enable and configure a filter, click the **Filter** button.

The Filters dialog box appears:

18. For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz.

Filter Type	Description
	Rolloff is 12dB/octave
	Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz.
	Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments.
	Level is fixed at -80dB.
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments.
	Bandwidth is 0.05 to 5 octaves in 0.01 octave increments.
	Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

18. (Optional) If you don't want to use default values, change the filter options, as described in the table below.

Frequency	The center frequency for the filter you are configuring.
	Range is from 20Hz to 20kHz in 1Hz increments.
	The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring.
	Range is from -15 to 15dB.
	The default is 0dB.
Q	Quality factor. The ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value.
	Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value.
	The range is 0.05 to 5.00 octaves.

19. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

20. Repeat the process for each filter you want to add.

21. Click **Close**.

Gate

22. To set gating options, click the **Gate** button.

The Gate Settings dialog box appears:

23. Choose an option from the Gate Mode drop-down list, as described in the table below:

Option	Description
Auto	The microphone gates on or off automatically, according to the specified settings.
Manual On	The microphone is always gated on.
Manual Off	The microphone is always gated off (though the way it turns off is controlled by the specified settings.

24. (Optional) Change any of the gating settings, as described in the table below:

Option	Description
Gate Ratio (Auto Only)	How much louder than the ambient level the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
Hold Time	How long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from 0.1 to 8.0 seconds. The default is 0.3 seconds.
Off Attenuation	The amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB. The default is 18dB.
Decay Rate	How fast a channel gates off after the Hold Time expires. The default is Medium.

Option	Description
Adaptive Ambient (Auto Only)	Adjusts the ambient reference level as noise and room conditions change. When Adaptive Ambient is on, the mic channel monitors the ambient noise level on the input and adjusts the ambient level reference automatically. This means that the gate threshold level automatically increases or decreases based on background noise. The default is On.
Manual Ambient Tracking (Auto Only)	The input will use the fixed ambient level you specify in the Ambient Level field as its gating reference.
Chairman Override	Provides gating priority for this mic input over any other mic input within the same gating group that is set to Auto gating mode. When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off. The default is Off.

25. Click **Close**.

Changing Channel Properties - BMA 360 (CP2)

You can use channel properties to modify a BMA 360 channel. You can make any of the following changes:

Feature	Description
BMA 360 Config Button	Use to change several BMA 360 configuration settings.
Gain	Gain adjusts the input volume level for a BMA 360 input.
Acoustic Echo Cancellation (AEC)	AEC (Acoustic Echo Cancellation) reduces or removes acoustical echo from an input signal, thereby improving audio clarity. CONVERGE Pro 2 devices perform AEC using the full bandwidth (20Hz to 22kHz) of the signal. AEC uses a reference source to perform AEC based on the acoustic characteristics and dynamics of a specific room.
Noise Cancellation (NC)	Noise Cancellation is a process in which ambient (background) noise is removed from an input signal, with no noticeable degradation in signal quality. This setting is used primarily for audio and video conferencing.
Mute	Mute a microphone.
Automatic Level Control (ALC)	ALC automatically keeps an input signal at a constant level. It is generally used to keep speech levels constant.

Feature	Description
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Gate Settings	Gate settings control when a microphone is gated on or off, based on audio environment factors for this microphone and other microphones in the same gating group.

To change the properties for a BMA 360 input channel:

1. From the Navigation Panel, choose **Channel Properties**.
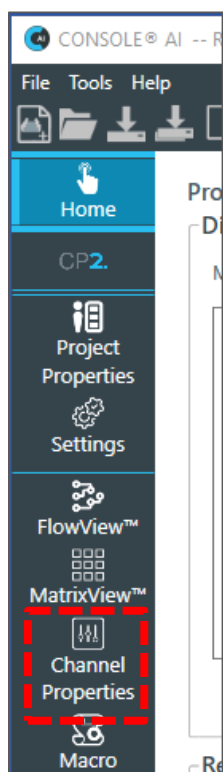
The Channel Properties block appears:
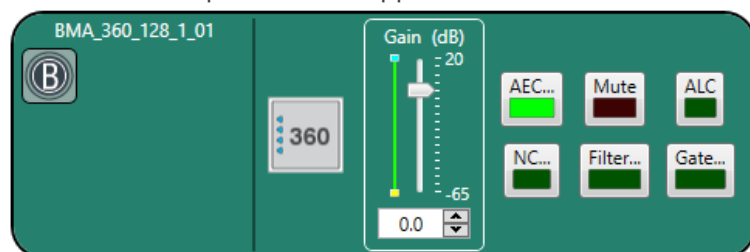
The following properties of the BMA 360 are set in the Configuration window, described in steps 2 through 10 below:

- Bridged or Non-bridged mode

- LED settings

- Beam Coverage – pattern and size

- Beam Silencing, Switching, & Filtering, and Number of Active Beams

- Voice Lift

2. Click the 360 icon, [360] .

CONSOLE AI opens the Config dialog box, and displays the General tab:

3. On the General tab dialog box, do the following:

    a. Based on the design of your system, use the radio buttons to select the Speaker Bridge Mode - either Not Bridged (4x 15 watts) or Bridged (2x 30 watts).

    b. In the LED Settings section, use the dropdowns to select your preferred settings.

4. Click the Beam Configuration tab.
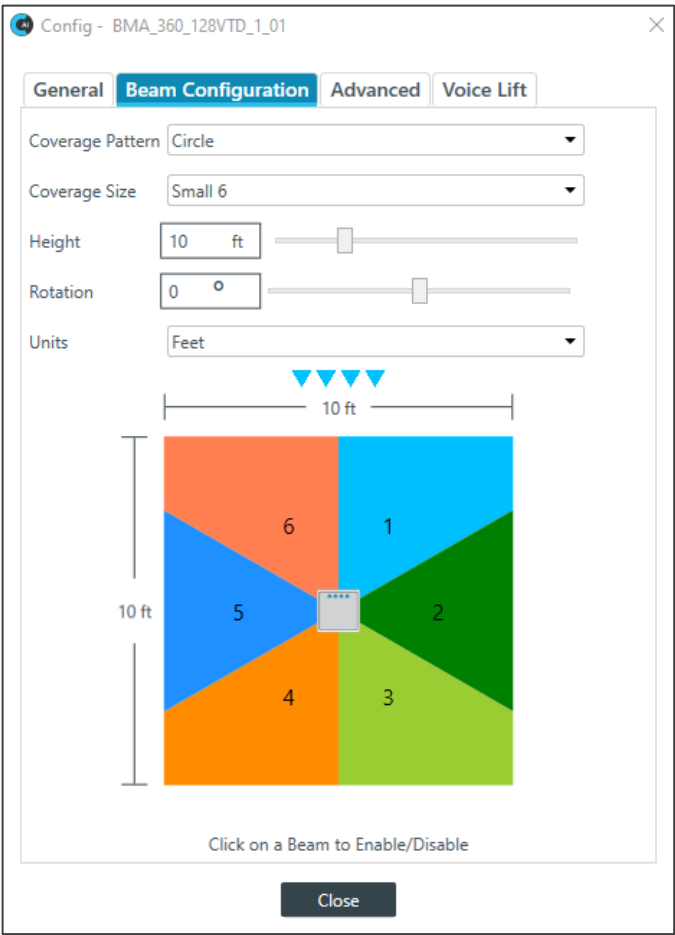
![Note icon] **Note the following about the colored-zone image**:

- A gray-colored zone is disabled.

- When online, the zone with a thicker/darker border is the active zone.

(Optional) Change any of the settings, as described in the following table:

Option	Description
Coverage Pattern	Options: Circle, Rectangle, and Semi Circle From the dropdown, select a coverage pattern.
Coverage Size	Options are dependent on the coverage pattern. From the dropdown, select a coverage pattern. **Note:** The number included in the Coverage Size options indicates the number of beams. For example, a Coverage Size of **Medium 8** has 8 beams.

	Coverage Pattern		
	Circle (in feet)	Semi Circle	Rectangle

Coverage Size	Dimensions at a Height of 10 ft (3.05 m)		
Small 6	10 x 10 ft 3.05 x 3.05 m	16 x 8 ft 4.88 x 2.44 m	10 x 14 ft 3.05 x 4.26 m
Medium 6	14 x 14 ft 4.26 x 4.26 m	16 x 12 ft 4.88 x 3.66 m	14 x 18 ft 4.26 x 5.48 m
Large 6	18 x 18 ft 5.48 x 5.48 m	22 x 16 ft 6.70 x 4.88 m	18 x 22 ft 5.48 x 6.70 m
Small 8	12 x 12 ft 3.66 x 3.66 m		10 x 16 ft 3.05 x 4.88 m
Medium 8	16 x 16 ft 4.88 x 4.88 m		14 x 20 ft 4.26 x 6.10 m
Large 8	20 x 20 ft 6.10 x 6.10 m		18 x 24 ft 5.48 x 7.32 m
Medium 12			12 x 22 ft 3.66 x 6.70 m
Large 10	22 x 22 ft 6.70 x 6.70 m		
Large 12			18 x 30 ft 5.48 x 9.14 m
Extra Large 10	24 x 24 ft 7.32 x 7.32 m		
Extra Large 11		24 x 18 ft 7.32 x 5.48 m	
Extra Large 12			20 x 36 ft

				6.10 x 10.98 m
Height	The height of the BMA 360 above the floor. You can type a number or use the slider. **Note:** A change in height drives changes in the indicated room dimensions. Minimum: 7 ft Maximum: 20 ft			
Rotation	From -180° to +180°			
Units	Feet or Meters			
Zones Image	To enable and disable a zone, in the colored zone image, click the zone you want to enable or disable. This same functionality (clicking a zone to enable or disable) is available in the Advanced screen. A change made in the Beam Configuration screen is reflected in the Advanced screen, and vice versa. **Note the following regarding a disabled zone:** • A disabled beam (zone) does not participate in the BMA 360's switching logic. • Another zone picks up sound in the disabled area, at a reduced level.			

Click the Advanced tab.

📋 **Note the following about the colored-zone image**:

- A gray-colored zone is disabled.

- When online, the zone with a thicker/darker border is the active zone.

Select your preferred settings as follows:

a. To enable and disable a zone, in the colored zone image, click the zone you want to enable or disable.

This same functionality (clicking a zone to enable or disable) is available in the Beam Configuration screen. A change made in the Advanced screen is reflected in the Beam Configuration screen, and vice versa.**.**

b. To set and unset a beam as silent, to the right of the Beam #, click the checkbox in the Silent column.

A checkmark indicates the beam is set as silent; a blank checkbox indicates the beam is not silent.

📋 **Note the following about Silent mode**:

- Different from Disabled, a beam that is Silent participates in the BMA 360's switching logic.

- When a silent beam switches on, the switching logic switches off the other beams, and attenuates them per the Off Attenuation setting.

- The default Off Attenuation value is -100 dB. This makes the beams appear to be silent.

- As you increase the Off Attenuation value towards -12 dB, the switched-off beams become more audible.

c. In the Beam Switching section, use either incrementer/decrementer arrows or the slider to select your switching preferences.

d. In the Beam Filtering section, click one of the radio buttons in each row (High Pass, Low Pass and Hum Filter)

e. Near the bottom of the window:

- Click the Last Beam On checkbox - a checkmark indicates Last On, no checkmark indicates disabled.

  o Disabling Last Beam On allows all beams to turn off when no one is talking.

- Select the maximum number of active beams

Max Active Beams limits how many beams of a BMA 360 can be active simultaneously.

To set this for your application, use the following information:

Setting	Allows…	Application
1 (Default)	Only one beam of a single BMA 360 to be active at a time.	Recommended for most installations.
2	Up to two beams of a single BMA 360 to be simultaneously active.	Beneficial when two people frequently talk simultaneously, or when the conversation is a rapid back-and-forth style.

6. Click the Voice Lift tab.

For detailed information about setting Voice Lift parameters, see the *Changing Channel Properties – Voice Lift* section.

Gain

You can change the gain in any of the following ways:

- Drag the slider
- Type a value in the text box
- Click the incrementer and decrementer arrows beside the text box to set the value
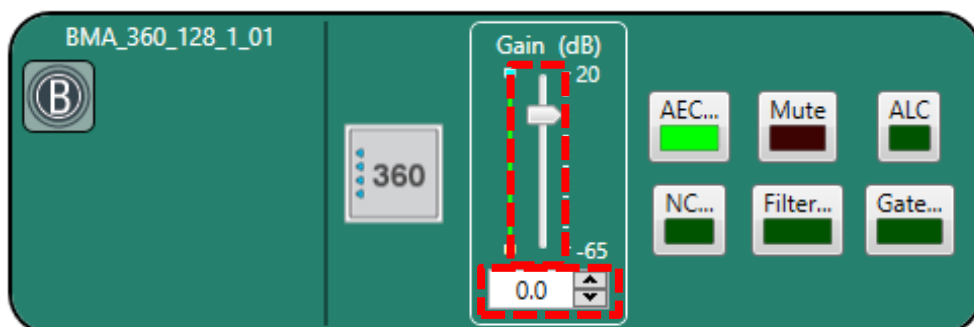
AEC

To turn AEC on or off, click the **AEC** button (the button changes to light green if AEC is on).
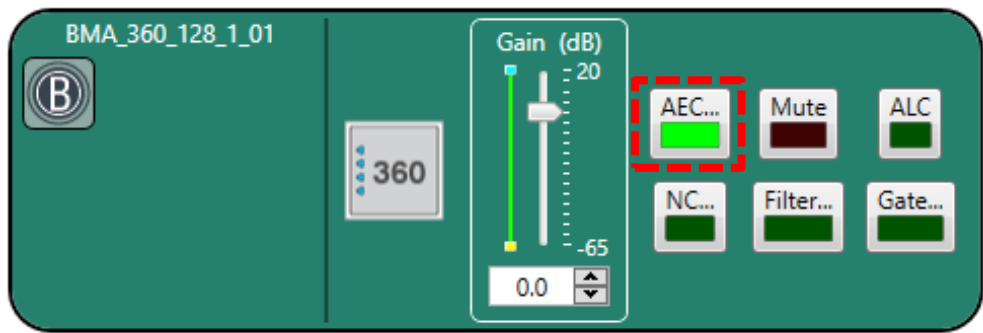
The AEC Settings dialog box appears:

(Optional) Make any changes to the AEC Settings you want (as described in the table below).

Option	Description
Enable Acoustic Echo Canceller	Check this box to turn on the AEC feature.
Non-linear Processing (NLP)	NLP increases the power of echo cancellation for difficult acoustical environments. 📄 **Note:** Use NLP with care. There are trade-offs associated with NLP, including audio suppression and half-duplex operation.

Click **Close**.

Noise Cancellation

To turn noise cancellation on or off, click the **NC** button (the button changes to light green if NC is on).
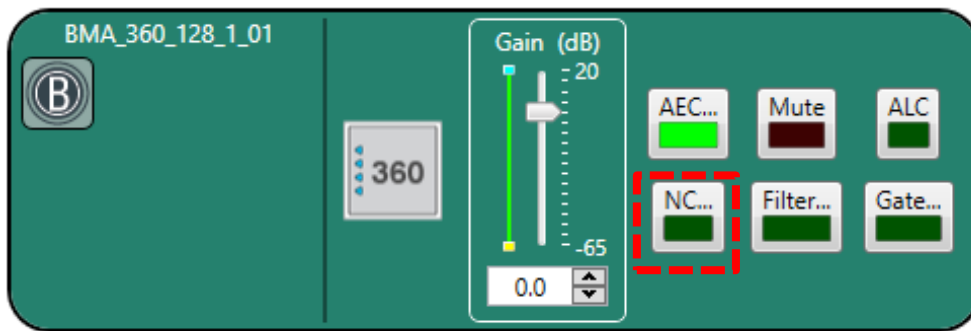
The Noise Canceller dialog box appears:
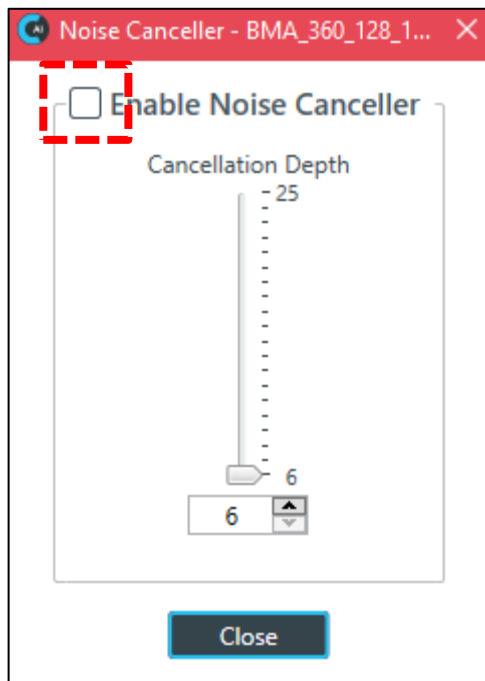
Check the **Enable Noise Canceller** check box to turn on NC.

Use any of the following methods to change the cancellation depth:

- Drag the slider
- Type a value in the text box
- Click the incrementer and decrementer arrows beside the text box to set the value

Click **Close**

Mute

To mute this channel, click the Mute button (the button changes to red if the channel is muted).
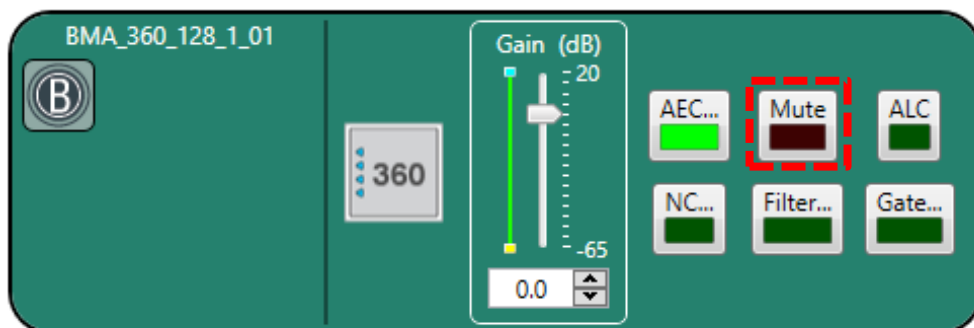
ALC

To turn ALC on, click the **ALC** button (the button changes to light green if ALC is on).
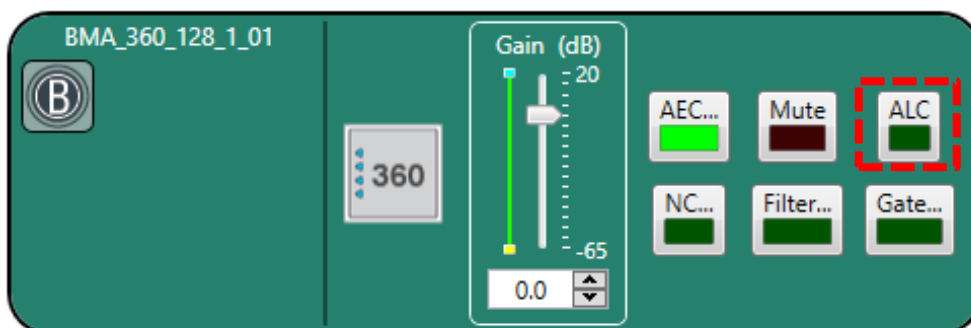
Filter

To enable and configure a filter, click the **Filter** button.

The Filters dialog box appears:

For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments.

Filter Type	Description
	Bandwidth is 0.05 to 5 octaves in 0.01 octave increments.
	Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

(Optional) If you don't want to use default values, change the filter options, as described in the table below.

Frequency	The center frequency for the filter you are configuring.
	Range is from 20Hz to 20kHz in 1Hz increments.
	The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring.
	Range is from -15to 15dB.
	The default is 0dB.
Q	Quality factor. The ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value.
	Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value.
	The range is 0.05 to 5.00 octaves.

(Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

Repeat the process for each filter you want to add.

Click **Close**.

Gate

To set gating options, click the **Gate** button.
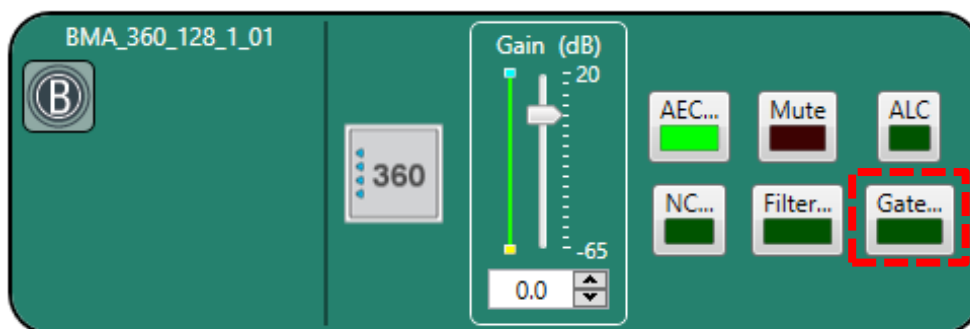
The Gate Settings dialog box appears:
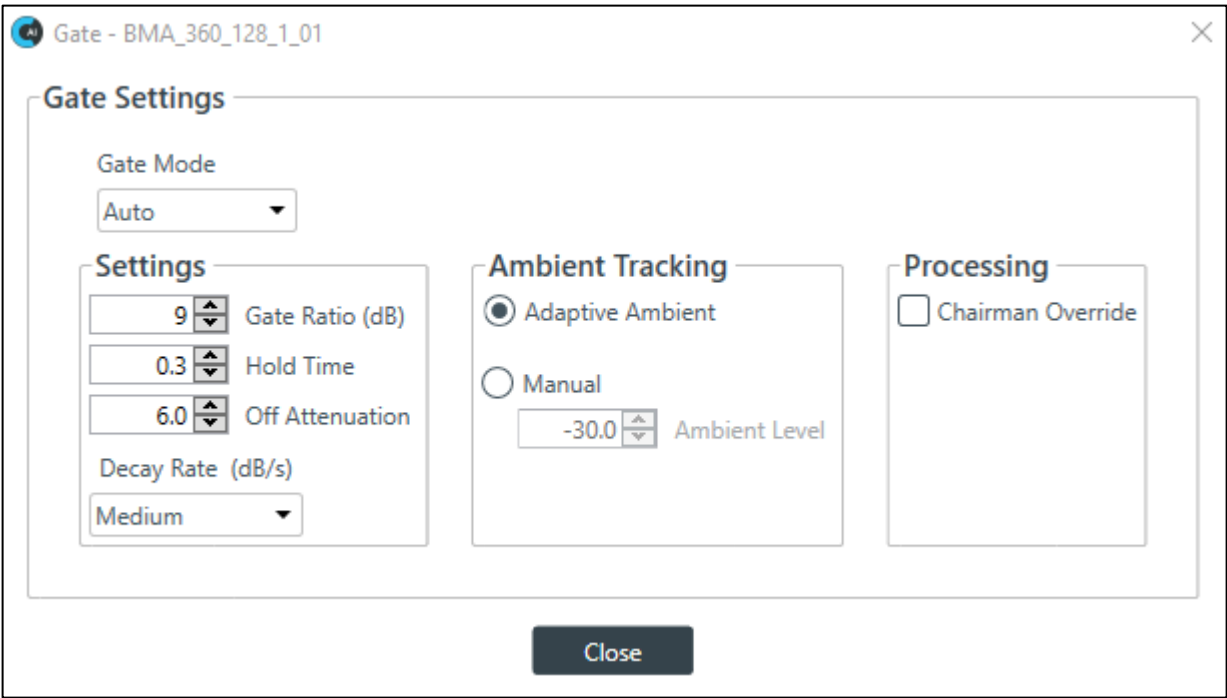
(Optional) Choose an option from the Gate Mode drop-down list, as described in the table below:

Option	Description
Auto	The microphone gates on or off automatically, according to the specified settings.
Manual On	The microphone is always gated on.
Manual Off	The microphone is always gated off (though the way it turns off is controlled by the specified settings.

(Optional) Change any of the gating settings, as described in the table below:

Option	Description
Gate Ratio (Auto Only)	How much louder than the ambient level the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
Hold Time	How long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from 0.1 to 8.0 seconds. The default is 0.3 seconds.
Off Attenuation	The amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB.

Option	Description
	The default is 18dB.
Decay Rate	How fast a channel gates off after the Hold Time expires.
	The default is Medium.
Adaptive Ambient (Auto Only)	Adjusts the ambient reference level as noise and room conditions change.
	When Adaptive Ambient is on, the mic channel monitors the ambient noise level on the input and adjusts the ambient level reference automatically.
	This means that the gate threshold level automatically increases or decreases based on background noise.
	The default is On.
Manual Ambient Tracking (Auto Only)	The input will use the fixed ambient level you specify in the Ambient Level field as its gating reference.
Chairman Override	Provides gating priority for this mic input over any other mic input within the same gating group that is set to Auto gating mode.
	When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off.
	The default is Off.

Click **Close**.

Changing Channel Properties - Voice Lift

To change the properties for a Voice Lift channel:

From the Navigation Panel, choose **Channel Properties**.
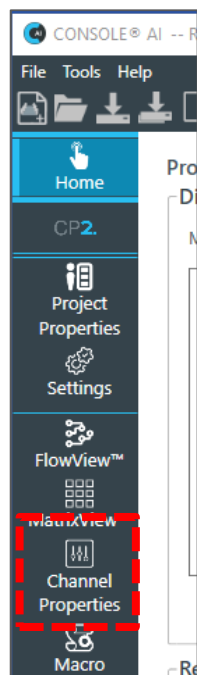
On the left, click BMA 360 VL.

The system displays the Voice Lift channel properties block.

Click the icon.
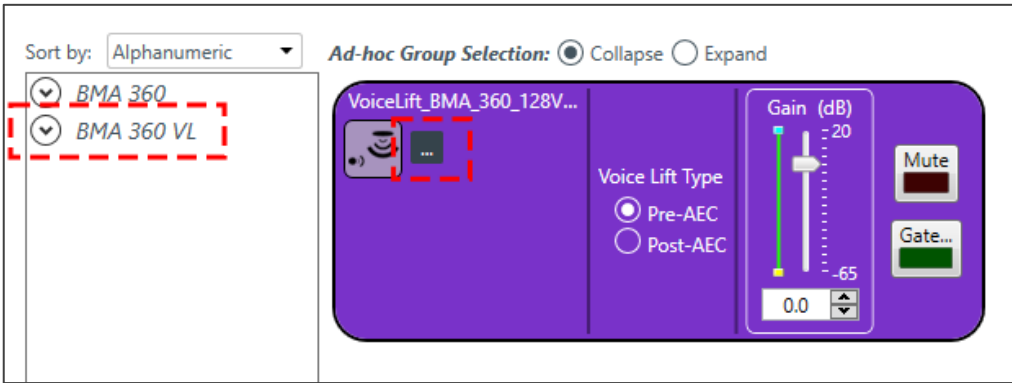
The system displays the Config window with the Voice Lift tab active.

One Voice Lift channel allocated	Four Voice Lift channels allocated
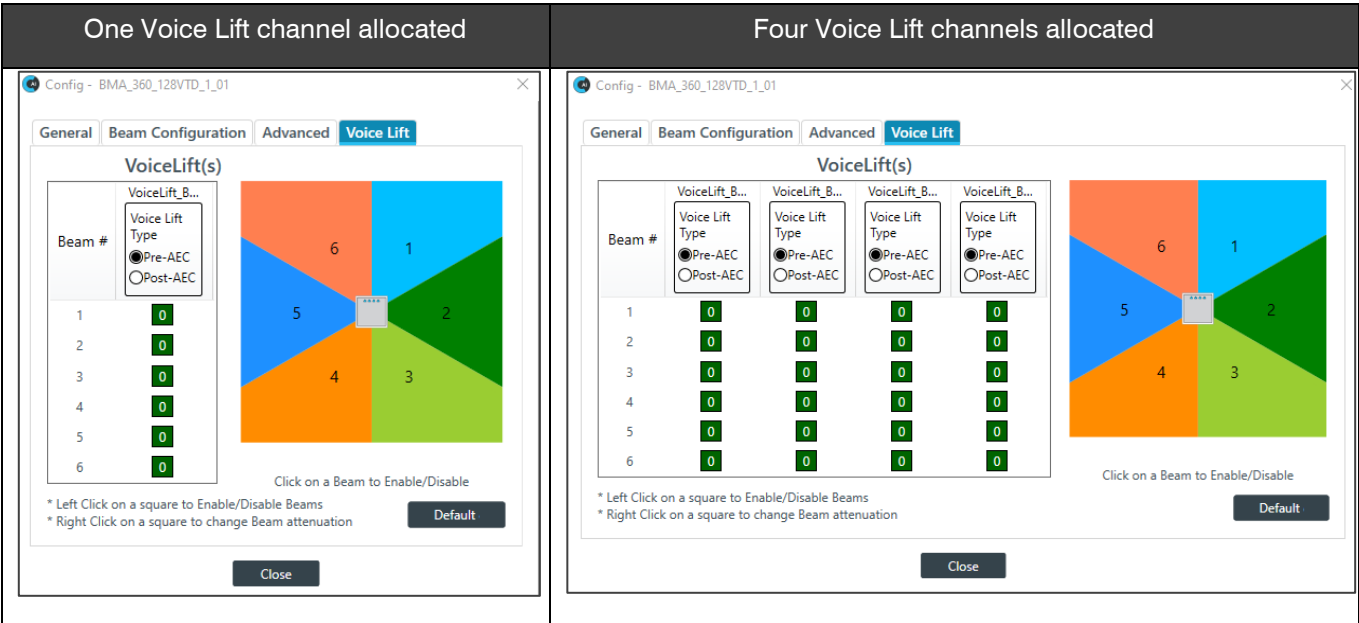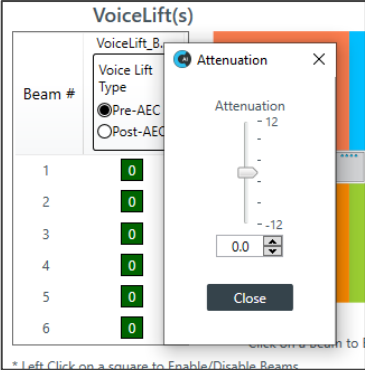
You can set voice lift parameters for each beam.

Use the following guidelines to select Pre-AEC or Post-AEC for each beam:

Setting	Application	Explanation and Examples
Pre-AEC	Local Voice Lift.	Minimal latency and full spectrum sound.
Post-AEC	Conferencing audio that involves 'far side' listeners.	Higher latency but removal of unwanted received audio sources.

As indicated near the bottom of the screen:

To…	Do the following…	Results:
Enable & disable a beam	Left-click the corresponding square `0`	The beam is disabled. The `0` changes to ☐
Change a beam's attenuation	Right-click the corresponding square `0` Attenuation values range from 12 dB to -12 dB.	The system displays the Attenuation dialog box.

On the Voice Lift properties block, click Gate.
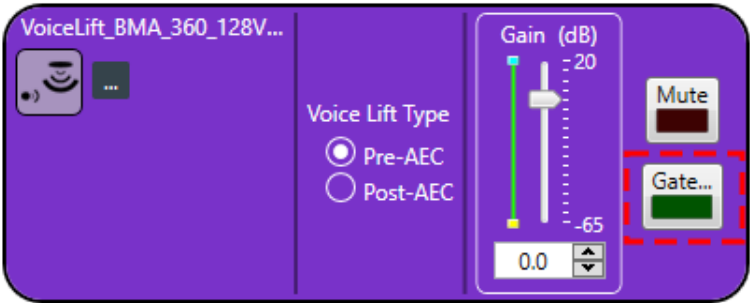
Select the Voice Lift channel gate values.
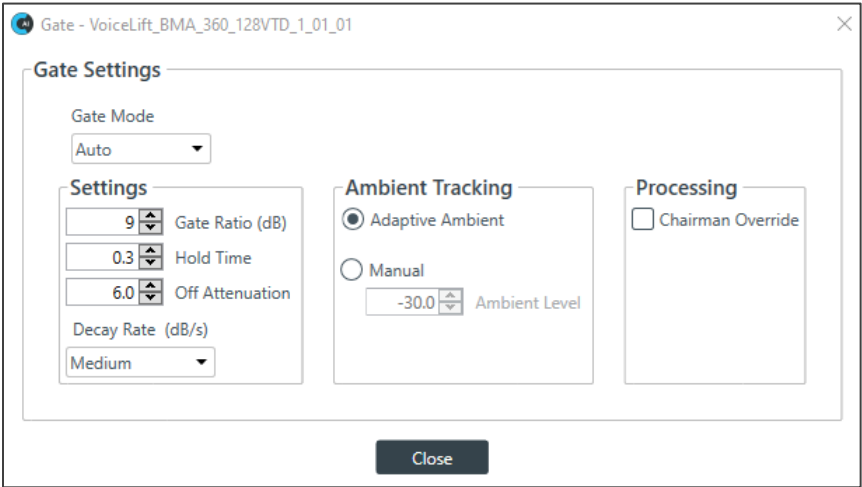
Changing Channel Properties - DIALOG® Microphone (CP2)

You can use channel properties to modify a DIALOG 20 mic channel. You can make any of the following changes:

Feature	Description
DIALOG 20 Device Properties	Allows you change the DIALOG 20 device properties.
Active (Group only)	Allows you choose which member of the group to show or modify.
Sync All (Group only)	Allows you synchronize all the members of the group to match the settings of the active member.
Mute	Mute a microphone.
Gain	Gain adjusts the input volume level for a DIALOG 20 channel in increments of 0.5dB.
Gate Settings	Gate settings control when a microphone is gated on or off, based on audio environment factors for this microphone and other microphones in the same gating group.

To change the properties for a DIALOG 20 channel:

1. From the Navigation panel, choose Channel Properties. The Channel Properties block appears.

    Note: You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the Partition drop-down list.

3. (Optional) Choose a preset from the Preset drop-down list.

4. Click Dialog Microphone to open the channel list.

5. Select the channel you want to change.

    The Dialog Microphone Channel Properties block appears:
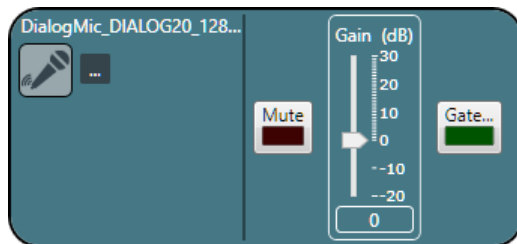
6. Device Properties

    Click to change the device properties.

    The DIALOG 20 Properties dialog box appears:

(Optional) Change any of the settings (described in the table below).

Option	Description
Device Name	The name of the device as it appears in the CONSOLE AI.
Serial Number	The serial number of the DIALOG 20 device. If the device is detected, this is filled automatically.
Receiver Name	The receive name that appears in the OLED panel of the receiver.
OLED Display Mode	Choose from: • **Bright while transmitter on**: Bright while any transmitter is on; dims after all transmitters are turned off and timer expires • **Bright while syncing:** Bright when syncing transmitter, dims after timer expires • **Always bright**: Does not ever dim

Option	Description
OLED Brightness Timer	The length of time, in minutes, after which the OLED display dims if you have selected **Bright while transmitter on** or **Bright while syncing** above.
RF Bandwidth	Whether to use Wide frequency ranges or Narrow frequency ranges. Using Wide works under most situations, but sometimes you may need to use Narrow to avoid interference or when you have a larger number of transmitters to connect.
Mixed Output Mute	Use to mute the mixed output signal from the receiver, affecting all audio output from that receiver.
Mixed Output Level	Use to adjust the gain for the mixed output signal.
GPIO Settings	Use to set the GPIO input or output pins (1 or 2) to control the audio, letting third-party controllers use the pins to mute the audio signal.
Redundancy	Redundancy allows the system to use designated backup channels in case there is a problem with a channel (due to low batteries or other problems).
Slot Name (Slot 1 or 2)	Slot name
Channel Number (Slot 1 or 2)	Channel number (1-8). If you are attached to a device, you can use RF Scan to determine which channels have the best signal. See *Performing an RF Scan for DIALOG 20* for more information.
Tour Mode (Slot 1 or 2)	Tour Mode enables multiple receivers to receive audio from a single transmitter
Key (Slot 1 or 2)	All receivers must use the same key as the transmitter to receiver audio. The Tour Mode function allows you to manually assign a key so that it can be shared between multiple receivers and a transmitter. When the key does not match, the audio is muted until there is a re-sync. **Note:** Keys can be 1 - 32 alphanumeric characters.
Output Mute (Slot 1 or 2)	Mute the signal from Slot 1 or Slot 2.
Output Gain (Slot 1 or 2)	Adjust the gain for the signal from Slot 1 or Slot 2.

7. Select the **Transmitters** tab.

(Optional) Change any of the settings (described in the table below).

Option	Description
Handheld: Tx Controls Lock	Locks the control buttons on hand-held transmitters so that end users cannot change parameters.
Body Pack: Tx Controls Lock	Locks the control buttons on beltpack transmitters so that end users cannot change parameters.
Podium: Button Mode	Choose from: • **Toggle Mode**: Pushing the button turns the mic on or off. • **Push to talk**: The mic functions only when the button is pushed. • **Push to mute**: Pushing the button mutes the mic.
Boundary: Button Mode	Choose from: • **Toggle Mode**: Pushing the button turns the mic on or off. • **Push to talk**: The mic functions only when the button is pushed. • **Push to mute**: Pushing the button mutes the mic.
Power Switch Mode	Choose from: • **On-Off:** The switch toggles between on and off. • **On-Mute:** The switch toggles between on and mute. • **On-On:** The mic remains on at all times, regardless of the state of the switch.

Low Cut	Toggles a 75 Hz low-cut audio filter.
Transmitter Power	The amount of power used by the transmitter: 1mW or 10mW.
RF Standby Mode	When RF Standby Mode is enabled, the transmitter turns off the RF output when the transmitter is muted.
Mute Mode	Choose from: • **Hard Mute**: Pressing the mute button mutes the receiver output. • **Logic Mute**: When Logic Mute is enabled, the audio output is not muted when the transmitter's mute switch is enabled. This option is used in combination with the GPIO outputs so that echo cancellers can use the audio as an input and mute the audio downstream.

8. Click **Close** to close the Dialog 20 Properties dialog box.

Mute

9. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gate

10. To set gating options, click the **Gate** button.

Choose an option from the Gate Mode drop-down list, as described in the table below:

Option	Description
Auto	The microphone gates on or off automatically, according to the specified settings.

Manual On	The microphone is always gated on.
Manual Off	The microphone is always gated off (though the way it turns off is controlled by the specified settings.

(Optional) Change any of the gating settings, as described in the table below:

Gate Ratio (Auto Only)	How much louder than the ambient level the audio level must be before the channel automatically gates on. The gate ratio range is from 0 to 50dB. The default is 15dB.
Hold Time	How long the channel stays gated on after the audio falls below the Gate Ratio threshold. The hold time range is from 0.1 to 8.0 seconds. The default is 0.3 seconds.
Off Attenuation	The amount of level reduction applied to a channel when it is gated off. The range is from 0 to 60dB. The default is 18dB.
Decay Rate	How fast a channel gates off after the Hold Time expires. The default is Medium.
Adaptive Ambient (Auto Only)	Adjusts the ambient reference level as noise and room conditions change. When Adaptive Ambient is on, the mic channel monitors the ambient noise level on the input and adjusts the ambient level reference automatically. This means that the gate threshold level automatically increases or decreases based on background noise. The default is On.
Manual Ambient Tracking (Auto Only)	The input will use the fixed ambient level you specify in the Ambient Level field as its gating reference.
Chairman Override	Provides gating priority for this mic input over any other mic input within the same gating group that is set to Auto gating mode. When a mic with Chairman Override enabled gates on, all mics which do not have Chairman Override enabled will gate off. The default is Off.

Click **Close**.

Changing Channel Properties - USB Rx and xUSB Rx (CP2)

You can use channel properties to modify a USB Receive channel (the xUSB Rx channel, which is for USB channels on CP2 COLLABORATE Versa USB units, functions exactly the same as the USB channels on the CP2 device). You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a USB or USB Rx Receive channel:

1. In the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears.

    📝 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **USB Rx** or **xUSB Rx** to open the channel list.

5. Select the channel you want to change.

    The USB or USBx Receive Channel Properties block appears:
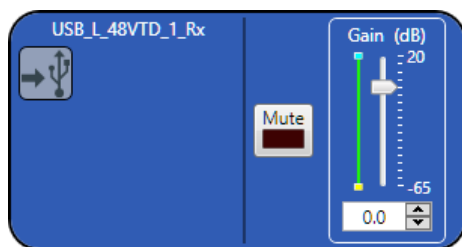
Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

7. You can change the gain in any of the following ways:

    •   Drag the slider

    •   Type a value in the text box

    •   Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Telco Rx (CP2)

You can use channel properties to modify a Telco Rx (analog phone line receive) channel. You can make any of the following changes:

Feature	Description
Receive Boost	Allows you to set the gain for the incoming Telco Rx signal. This is typically used for low-level telephone lines, allowing the signal to be boosted to an acceptable level of performance.
Noise Cancellation (NC)	Allows you reduce noise in the Telco Rx line and set the cancellation depth to provide the best combination of low noise and maximum clarity.
ClearEffect	To reduce bandwidth requirements, telephone lines limit audio bandwidth to a range of 300Hz–3.3kHz. ClearEffect™enhances the incoming signal from a telephone line to emulate wideband audio by adding high and low frequenciesto the audio signal.
Automatic Level Control (ALC)	Provides auto-leveling for all conference call participants on the Telco/ VoIP Rx line, keeping soft and loud participants at a consistent level.
Mute	Mute a channel.
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.

To change the properties for a Telco Rx channel:

1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**. The Channel Properties screen appears.

    Note: You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **Telco Rx** to open the channel list.

5. Select the channel you want to change.

    The Telco Rx Channel Properties block appears:
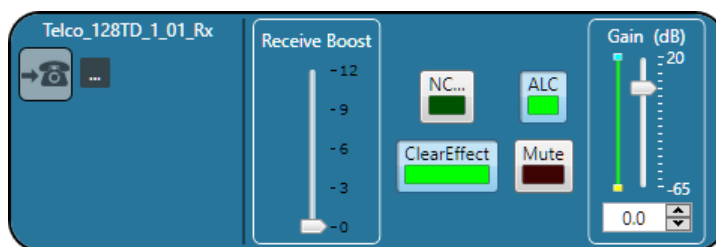
Telco Properties

6. To change the telco properties, click .

    The Telco Device Properties dialog box appears:

Change any of the Telco settings (as described in the table below).

Option	Description
Auto Answer	Whether to automatically answer and if so, specify after how many rings. Default is disabled.
Auto Disconnect	Select the auto disconnect mode to control when the unit disconnects a connected call. Modes include Loop Drop + Call Progress, Call Progress, and Loop Drop, and Off. Default is Loop Drop + Call Progress.
Ring Type	Select from three different ring tones (Type 1, Type 2, Type 3). To test a particular tone, click Test after you have selected the tone. Default is Type 1.
Telco Adaptation	Some applications require the unit to adapt to line conditions using a white-noise burst (Noise) rather than automatically (Auto). Default is Auto.

Hook Flash	Sends a momentary interruption in the line seizure, allowing activation of options such as 3-way calling, call waiting, and call hold. This feature is dependent on the services offered by your telephone company.
	You can set the duration of the hook flash using the slider or the selector box. Range is 50ms to 2 seconds in 10ms steps. Defaults is 250ms.
DTMF Level	This feature allows you to adjust the DTMF tone level in relationship to the participant audio level in the room. The level can be adjusted in 1dB steps from a nominal level of 0dB to plus or minus 12dB in 1dB increments.
	Default is 0dB.
Audible Ringer	When this feature is enabled, an audible ring is heard for incoming calls. The level adjustment allows you to customize the level in relationship to the participant audio level in the room. The level can be adjusted in 1dB steps from a nominal level 0 (default) to plus or minus 12dB in 1dB increments.
	Default is 0dB.
Audible Hook	When the unit goes off hook (connects) a beep is injected into the receive channel and transmit channel of the unit. When the unit goes on hook (disconnects), a series of two beeps is injected into the receive channel to indicate that the call has been dropped.
	Default is 0dB.
Ringer Cadence	Standard: Uses the cadence specified in the Country Code to detect the standard ring cadence per country.
	Custom: Set for distinctive ring cadences. When custom is set, the Min On and Min Off times must be selected from their respective drop-down boxes. PBX's can have distinctive ring cadences that are not country specific. These times are the minimum values the ring cadence must be for the unit to detect the ring. If the ring cadence signal provided by the PBX is greater than the custom settings, the unit will detect the ring.
	Default is Standard.
Local Number	The device's phone number.
Country Codes	Set the country for the device to specify which telco standards are used.

7. Click **Close**.

Receive Boost

8. To change the Receive Boost gain, drag the slider.

Noise Canceller (NC)

9. To enable and configure the Noise Canceller, click the **NC** button.

   The Noise Canceller dialog box appears:
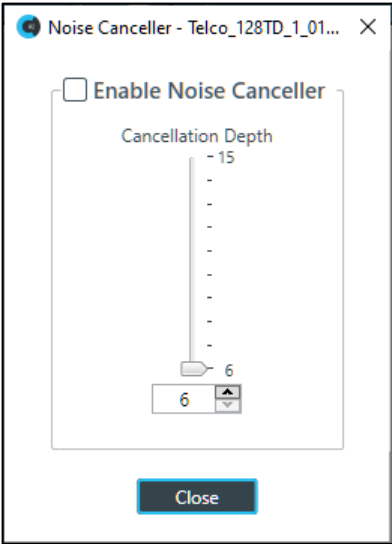
10. Check the Enable Noise Canceller check box to turn this feature on.

11. You can change the cancellation depth in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

12. Click **Close**.

ClearEffect

13. To enable or disable ClearEffect, click the **ClearEffect** button.

   If the feature is turned on the button changes to light green.

Automatic Level Control (ALC)

14. To enable or disable ALC, click the **ALC** button.

   If the feature is turned on the button changes to light green.

Mute

15. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

16. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - VoIP Rx (CP2)

You can use channel properties to modify a VoIP Rx channel. You can make any of the following changes:

Feature	Description

VoIP Device Properties	VoIP settings for this channel.
Gain	Gain adjusts the input volume level for a VoIP channel in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a VoIP Receive channel:

1. Under **Room Partitions**, choose **Channel Properties**. The Channel Properties screen appears.

    📝 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **VoIP Receive** to open the channel list.

5. Select the channel you want to change.

    The VoIP Receive Channel Properties block appears:

VoIP Device Properties

6. Click ![icon] to change the VoIP device properties for this channel. The VoIP Device Properties dialog box appears:

VoIP Device Properties

Phone Properties

Phone Number	
Name / Label	VoIP_48VTD_1_01
Active Ringtone	1 ▾
	☑ Enable
	☐ Auto Answer

Proxy 1

User Name	
Password	
Reenter Password	

Proxy 2

User Name	
Password	
Reenter Password	

[Close]

7. Change any of the options, as described in the table below:

Option	Description
Restart VoIP (online mode only)	Click to restart the connection to a SIP server. 📝 **Note:** This button appears only if you're in online mode (see *Online Mode vs. Offline Mode* for more information). The button becomes available only if you change one of the VoIP properties in the dialog box.
Phone Number	The number for the respective VoIP phone.
Name/Label	The channel name/label for this phone (user agent).
Active Ringtone	Which ringtone to use for this phone.
Enable	Enable the SIP phone.
Auto Answer	Whether to automatically answer incoming calls to this phone.
Proxy 1 User Name	The user name for the first proxy server.
Proxy 1 Password	The password for the first proxy server.

Proxy 1 Reenter Password	Reenter the proxy 1 server password (to confirm that you have typed it correctly).
Proxy 2 User Name	The user name for the second proxy server.
Proxy 2 Password	The password for the second proxy server.
Proxy 2 Reenter Password	Reenter the proxy 2 server password (to confirm that you have typed it correctly).

8. Click **Close**.

Mute

9. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

10. You can change the gain in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Bluetooth Rx (CP2)

You can use channel properties to modify a Bluetooth Receive channel (the settings are the same for both the L and R receive channels). You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a Bluetooth Receive channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

   📋 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.
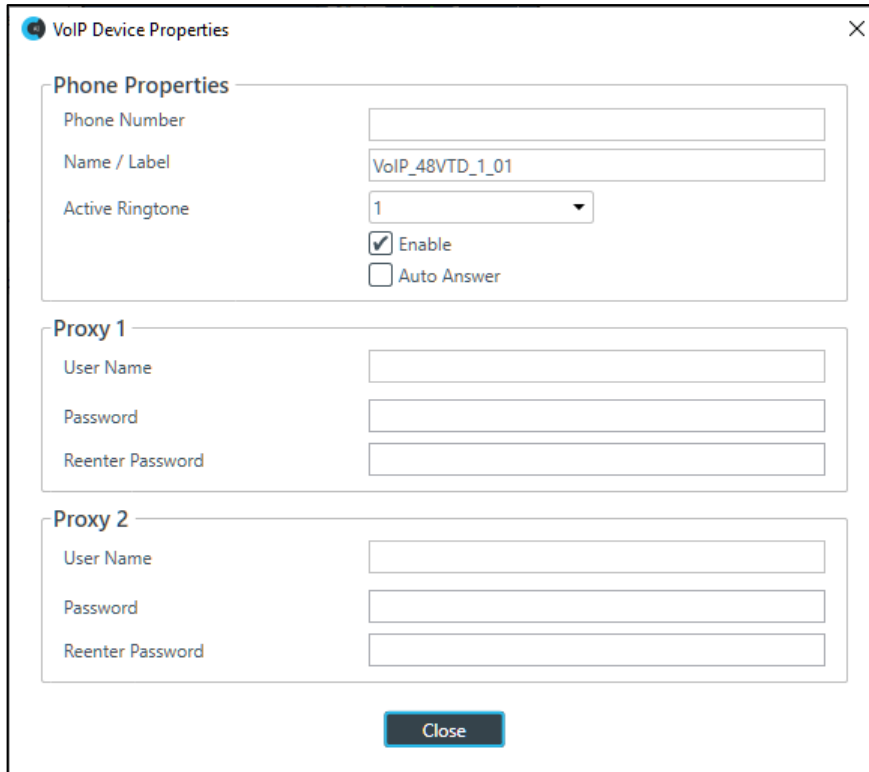
2. Click **Bluetooth Rx** to open the channel list.

3. Select the channel you want to change.

   The Bluetooth Rx Channel Properties block appears:
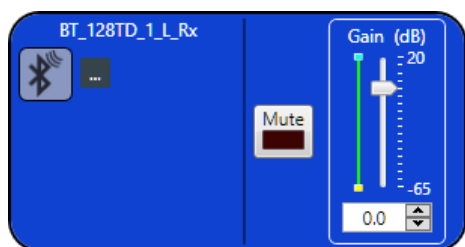
Device Properties

4. To change the Bluetooth device properties, click [...]. The Bluetooth Device Properties dialog box appears:

5. Type a value in the **Pair name** text box.
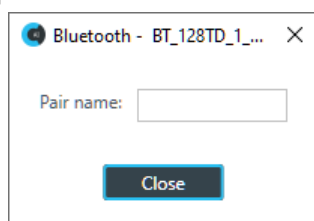
Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

7. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Processing Block (CP2)

You can use channel properties to modify a Processing Block channel. Processing Settings enable you to configure filters, delay, compression, and gain to create precise audio configurations for any venue. There are eight processing blocks available per device.

You can make any of the following changes:

Feature	Description
Active (Group only)	Let's you choose which member of the group to show or modify.
Sync All (Group only)	Let's you synchronize all the members of the group to match the settings of the active member.
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel.

	Available filter types are: • All Pass • High Pass • Low Pass • Notch • Parametric Equalizer (PEQ)
Delay	Delay Allows you add a specified amount of delay into specified channels. Introducing an appropriate amount of delay to the forward-mounted driver(s) re-establishes the acoustical alignment necessary for proper sound imaging in a room. The same principle of introducing delay applies to separate speaker enclosures located various distances from the listening area.
Compressor	A compressor Allows you change the gain transfer characteristics of the signal path and control the dynamics of a signal.
Mute	Mute a microphone.
Gain	Gain adjusts the volume level for a processing block in increments of 0.5 dB.
Feedback	DARE™ Feedback Eliminator Allows you configure a processing channel to discover and eliminate feedback. 📝 **Note:** Setting up feedback cancellation requires that you be in online mode. See *Online Mode vs. Offline Mode* for more information.

To change the properties for a Processing Block channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

   📝 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **Processing Block** to open the channel list.

5. Select the channel you want to change.

   The Processing Block Channel Properties block appears:
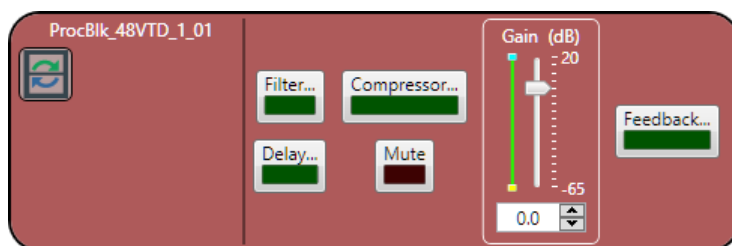
Filter

6. To enable and configure a filter, click the **Filter** button. The Filters dialog box appears:

7. For one of the available filters, choose a filter type from the **Type** drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	A filter that provides only phase shift or phase delay without appreciably changing the magnitude characteristic. The filter produces a flat amplitude response. It is useful for matching the delay of two processing channels with different delays.

Filter Type	Description
Bessel Crossover	A crossover using a low-pass filter design characterized by a linear phase response. This results in a constant time delay throughout the passband.
Butterworth Crossover	A crossover using a low-pass filter design characterized by a maximally flat magnitude response. This results in no amplitude ripple in the passband.
CD Horn EQ	Horn drivers used in arenas and auditoriums have an inherent 6dB/octave high frequency rolloff. The CD Horn EQ compensates for this characteristic.
High Pass	Passes high signal frequencies while attenuating low frequencies. Selectable frequency cutoff is 20.00Hz to 20.00kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
High Shelving	Provides boosting or attenuation of frequencies above a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/octave rate. The gain or loss above the corner frequency is adjustable to +/- 15dB.
Linkwitz-Riley Crossover	A fourth-order crossover consisting of a cascaded second order Butterworth low-pass filter. Offers a vast improvement over the Butterworth crossover and is the de facto standard for professional audio active crossovers.
Low Pass	Passes low frequencies while attenuating high frequencies. Selectable frequency cutoff is 20.00Hz to 20.00kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Shelving	Provides boosting or attenuation of frequencies below a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/octave rate. The gain or loss below the corner frequency is adjustable to +/- 15dB.
Notch	Passes most frequencies unaltered, but attenuates those in a specified range (e.g., the notch). Center frequency range is 20.00Hz to 20.00kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	A multi-band variable equalizer with control of gain, center frequency, and bandwidth. A properly configured PEQ enables Converge Pro devices to offset speaker anomalies and room acoustic imaging deficiencies. Center frequency range is 20Hz to 20kHz in 0.01Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

8. (Optional) If you don't want to use default values, change the filter options, as described in the table below:

Option	Description
Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB) (HighShelving, LowShelving, Notch, and PEQ only)	The gain value for the filter you are configuring. Range is from -15 to 15dB. The default is 0dB.
Q (Notch and PEQ only)	Quality factor. the ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth (Notch and PEQ only)	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.
Slope (Bessel, Butterworth, and LinkwitzRiley only)	The highpass or lowpass cutoff slope. A higher slope means that the frequencies near the cutoff point are attenuated more quickly (greater attenuation per frequency octave).
High/Low (Bessel, Butterworth, and LinkwitzRiley only)	Whether to pass high frequencies or low frequencies.

9. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

10. Repeat the process for each filter you want to add.

11. Click **Close**.

Delay

12. To enable or disable a delay for this channel, click the **Delay** button.

The Enable Delay dialog box appears:
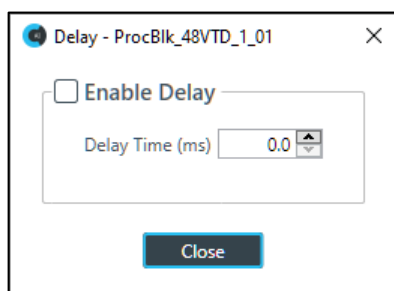
13. Check the **Enable Delay** check box to turn on the delay.

14. Specify the amount of the delay (in ms) by typing a value in the **Delay Time** field or using the incrementer and decrementer buttons next to the field to set a value.

15. Click **Close**.

Compressor

16. To enable or disable a compressor for this channel, click the **Compressor** button.

The Compressor dialog box appears:
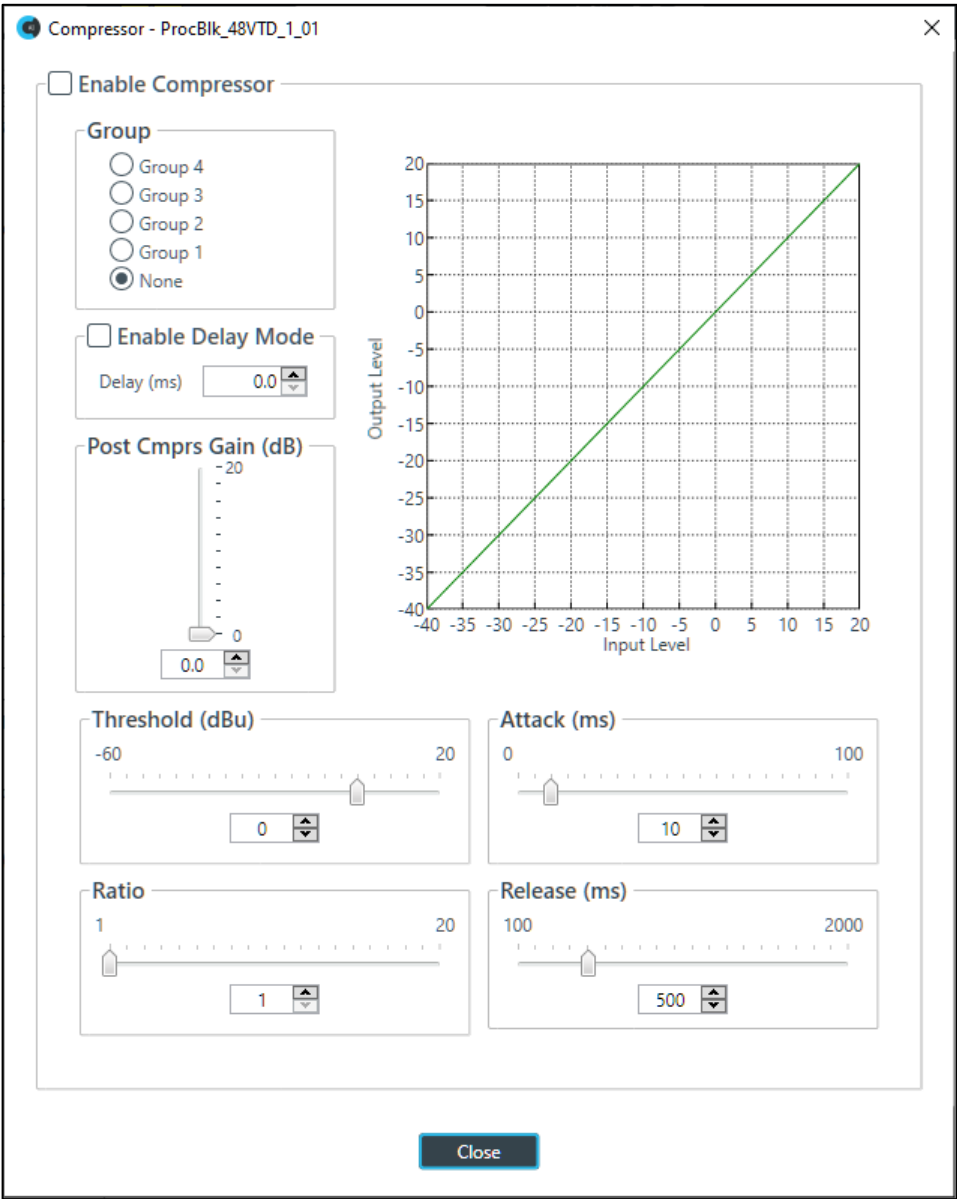
17. Change any of the Compressor options, as described in the table below.

Option	Description
Enable Compressor	Check the check box to activate the compressor on this channel.

Option	Description
Group	Use the Group radio buttons to assign this compressor to a compressor group. The default is None. When you assign a compressor to a compressor group—such as a group of two compressors configured for left and right stereo channels—the compressors will monitor each other. When one channel compresses, all compressors in the group compress together. **Note:** A compressor group must be configured for a single unit; a group cannot control compressors from multiple units.
Enable Delay Mode	Turning on delay mode gives the compressor time to make compression adjustments before the signal is sent to other channels. This can useful for making sure that a signal doesn't exceed a threshold that might damage a speaker, for example.
Delay	The amount of the delay (in ms).
Post Compression Gain	A level adjustment made after compression has occurred.
Threshold	Determines the RMS level at which the compressor begins to operate. The range is from -30 to +20dBu. The default is 0dBu.
Attack	Sets the time increment used to reduce the signal from input level to the prescribed output level when the threshold is exceeded. The range is 0 to 100ms in .5ms steps. The default is 10ms.
Ratio	Changes the rate of compression applied to the input signal as the signal exceeds the threshold level. The range is 1:1 to 1:20dB. The default is 1:1.
Release	Sets the time increment used to restore the signal to the input level when the signal drops below the threshold. The range is 100ms to 2 seconds, in 5ms increments. The default is 500ms.

Note: The graph reflects the input/output decibel levels with the gain, ratio, and threshold settings you select.

18. Click **Close**.

Mute

19. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

20. You can change the gain in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

DARE™ Feedback Eliminator

21. To enable or disable DARE™ Feedback Eliminator, click the **Feedback** button.

The Feedback Eliminator dialog box appears:
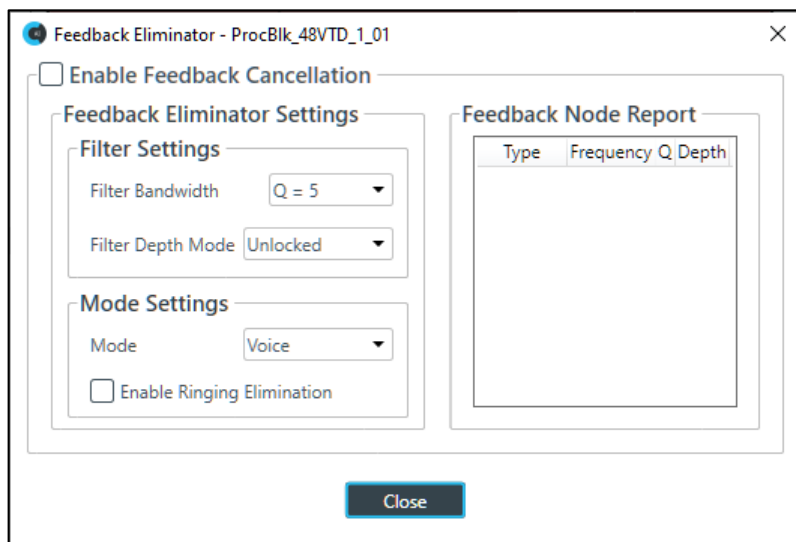
📋 **Note:** To set up Feedback Eliminator, you must be in online mode (connected to a device or stack). See *Online Mode vs. Offline Mode* for more information.

22. Change any of the Feedback Eliminator options, as described in the table below:

Option	Description
Enable Feedback Cancellation	Check the check box to activate the DARE™ Feedback Eliminator on this processor channel.
Filter Bandwidth	Bandwidth is determined by the specified Q factor. A lower Q creates a filter that works across a wider frequency range. A higher Q utilizes a narrower range.
Filter Depth Mode	**Locked**: Filters are re-used. A replacement filter, with new settings and increased filter depth is applied in place of an existing filter. **Unlocked**: Adds a new filter at a specific frequency. No filters are replaced, so this setting will count against the total number of filters available.
Mode	Choose Voice or Music, depending on the type of audio most frequently used on this channel. 📋 **Note:** Voice Mode is the more aggressive setting.

Option	Description
Enable Ringing Elimination	Allows the DARE™ feedback eliminator to suppress ringing. 📝 **Note:** This setting adjusts slowly to eliminate ringing.
Run Setup	Click to scan the audio channel for feedback loops and automatically create notch filters based on your choice of feedback cancellation settings. 📝 **Note:** Before you run the setup, you must select the microphones and gating groups that will be affected.
State	Shows the automatic setup status. **Off** if automatic setup has not been run. **Running** if the automatic setup is underway. **Complete** if the automatic setup has been run and is complete.
Number of Fixed Filters	Up to 16 Fixed Filters are applied. If the specified number of filters are not required, they become Dynamic Filters.
Target Gain Before Feedback	Set your desired dB rating. The unit slowly increases dB, adding notch filters at detected feedback frequencies until it either reaches the target level or reaches the number of Fixed Filters (see Number of Fixed Filters above). The system detects feedback through an open mic while levels are increased. If the target is reached without using the specified number of fixed filters, the remaining "slots" are used as Dynamic Filters to be applied as the environment changes.
Affected Microphones	Specify the microphone channels to which FBE will be applied. 📝 **Note:** You must make this selection prior to running the setup by clicking Run Setup.
Affected Gating Groups	Select the gating groups to which FBE will be applied. 📝 **Note:** You must make this selection prior to running the setup by clicking Run Setup.
Reset Feedback Eliminator	Clears all feedback cancellation settings.
Reset Dynamic Nodes	Clears all dynamic filters. Fixed filters remain in place.
Status	Shows how many fixed and dynamic filter nodes are being used.
Feedback Node Report	Creates a text report listing existing filter node details.

📝 **Note:** If you are not connected to a device or stack, not all the options appear.

23. Click **Close**.

Changing Channel Properties - Fader (CP2)

You can use channel properties to modify a Fader channel. Fader channels are internal sub-bus channels similar to Processing Block channels that provide additional sub-bus mixes to control volume settings within a site. There are eight fader channels per device.

You can make any of the following changes:

Feature	Description
Active (Group only)	Allows you choose which member of the group to show or modify.
Sync All (Group only)	Allows you synchronize all the members of the group to match the settings of the active member.
Mute	Mute a channel.
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.

To change the properties for a Fader channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

    📋 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.
3. (Optional) Choose a preset from the **Preset** drop-down list.
4. Click **Fader** to open the channel list.
5. Select the channel you want to change.

    The Fader Channel Properties block appears:

Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

7. You can change the gain in any of the following ways:

    •   Drag the slider
    •   Type a value in the text box

• Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Mic/Line Output (CP2)

You can use channel properties to modify a Mic/Line Output or Mic/Line Output (Group) channel. You can make any of the following changes:

| Feature	Description
Active (Group only)	Allows you to choose which member of the group to show or modify.
Sync All (Group only)	Allows you to synchronize all the members of the group to match the settings of the active member.
Delivery (Dante only)	Allows you to associate a Mic/Line Input channel with a Dante channel, so you can use the Mic/Line Input channel as a digital input. 📝 **Note:** This feature is available only if you have a Dante-enabled device in your stack (a device that has a "D" at the end of the model name).
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).
Compressor	A compressor Allows you change the gain transfer characteristics of the signal path and control the dynamics of a signal.
Delay	Delay Allows you add a specified amount of delay into specified channels. Introducing an appropriate amount of delay to the forward-mounted driver(s) re-establishes the acoustical alignment necessary for proper sound imaging in a room. The same principle of introducing delay applies to separate speaker enclosures located various distances from the listening area.
Mute	Mute a microphone.
Gain	Gain adjusts the volume level for a processing block in increments of 0.5dB.
Polarity	Reverses the polarity of an output channel.
EQ Filter	Adjusts specific frequency bands within a +/-12db range.
Limiter	Establishes a ceiling level for the channelFader output.
Mic/Line Switch	Allows you switch between line level output and mic level output.

To change the properties for a Mic/Line Output channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

> **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **Mic/Line Output** to open the channel list.

5. Select the channel you want to change.

   The Mic/Line Output Channel Properties block appears:
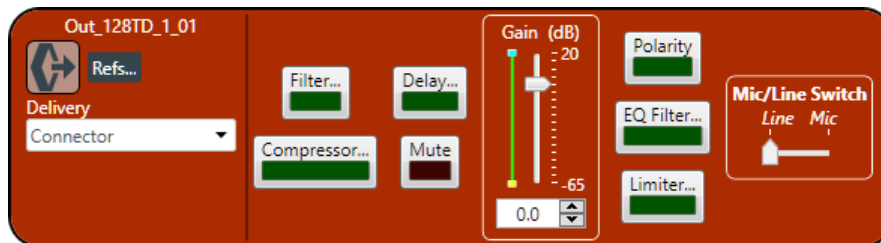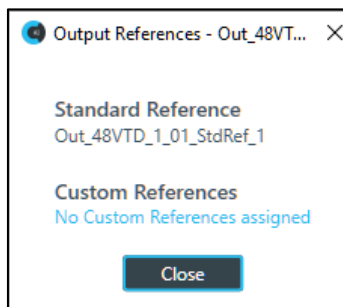

Digital Output

6. If you have added any Dante channels from the same device to the current partition, you can use one of the Dante channels as a digital output by selecting the corresponding Dante channel from the Delivery drop-down menu.

> **Note:** Once you have associated a Mic/Line Output channel with a Dante channel, you should perform all routing using the Mic/Line Output channel, rather than the Dante channel.
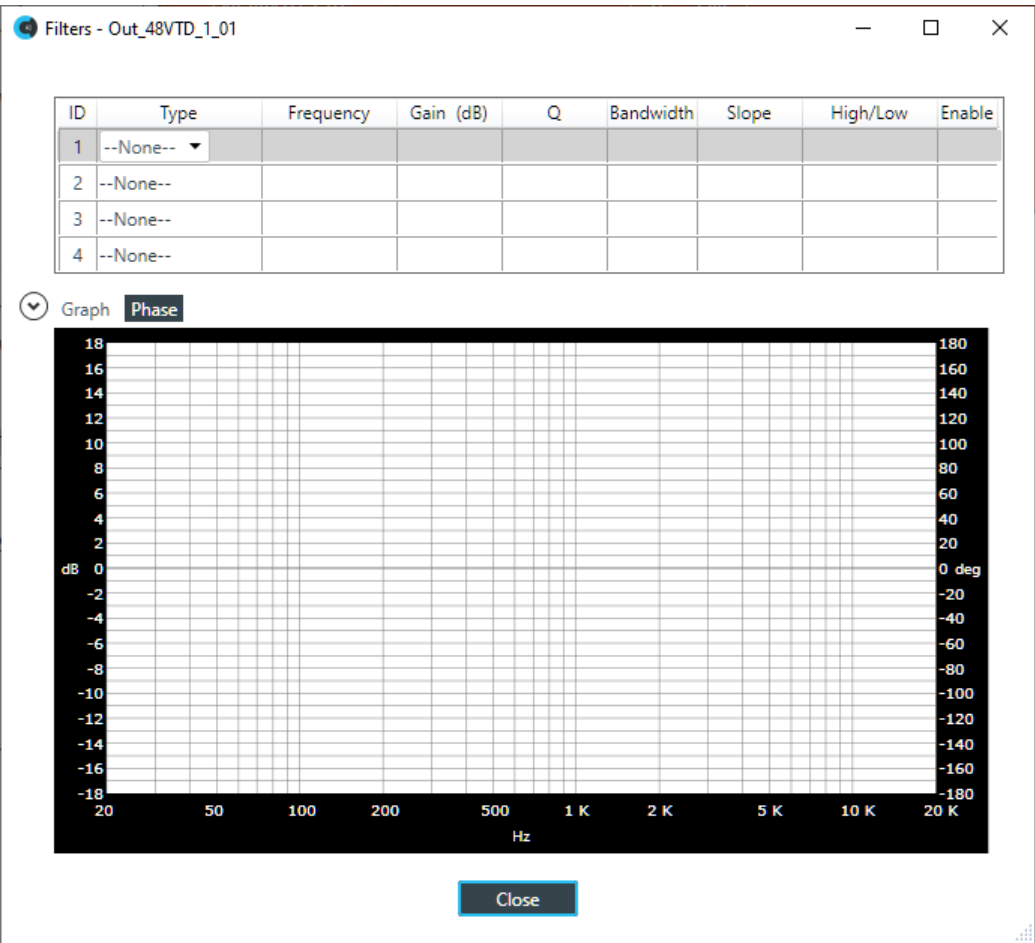
References

7. To view any references (standard or custom) associated with this channel, click **Refs**. The References dialog box appears, showing any existing reference assignments:

Filter

8. To enable and configure a filter, click the **Filter** button. The Filters dialog box appears:

9. For one of the available filters, choose a filter type from the **Type** drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	A filter that provides only phase shift or phase delay without appreciably changing the magnitude characteristic. The filter produces a flat amplitude response. It is useful for matching the delay of two processing channels with different delays.
Bessel Crossover	A crossover using a low-pass filter design characterized by a linear phase response. This results in a constant time delay throughout the passband.
Butterworth Crossover	A crossover using a low-pass filter design characterized by a maximally flat magnitude response. This results in no amplitude ripple in the passband.
CD Horn EQ	Horn drivers used in arenas and auditoriums have an inherent 6dB/octave high frequency rolloff. The CD Horn EQ compensates for this characteristic.

Filter Type	Description
High Pass	Passes high signal frequencies while attenuating low frequencies. Selectable frequency cutoff is 20.00Hz to 20.00kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
High Shelving	Provides boosting or attenuation of frequencies above a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/octave rate. The gain or loss above the corner frequency is adjustable to +/- 15dB.
Linkwitz-Riley Crossover	A fourth-order crossover consisting of a cascaded second order Butterworth low-pass filter. Offers a vast improvement over the Butterworth crossover and is the de facto standard for professional audio active crossovers.
Low Pass	Passes low frequencies while attenuating high frequencies. Selectable frequency cutoff is 20.00Hz to 20.00kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Shelving	Provides boosting or attenuation of frequencies below a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/octave rate. The gain or loss below the corner frequency is adjustable to +/- 15dB.
Notch	Passes most frequencies unaltered, but attenuates those in a specified range (e.g., the notch). Center frequency range is 20.00Hz to 20.00kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	A multi-band variable equalizer with control of gain, center frequency, and bandwidth. A properly configured PEQ enables Converge Pro devices to offset speaker anomalies and room acoustic imaging deficiencies. Center frequency range is 20Hz to 20kHz in 0.01Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

10. (Optional) If you don't want to use default values, change the filter options, as described in the table below:

Option	Description
Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB) (HighShelving, LowShelving, Notch, and PEQ only)	The gain value for the filter you are configuring. Range is from -15 to 15dB. The default is 0dB.

Option	Description
Q (Notch and PEQ only)	Quality factor. the ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth (Notch and PEQ only)	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.
Slope (Bessel, Butterworth, and LinkwitzRiley only)	The highpass or lowpass cutoff slope. A higher slope means that the frequencies near the cutoff point are attenuated more quickly (greater attenuation per frequency octave).
High/Low (Bessel, Butterworth, and LinkwitzRiley only)	Whether to pass high frequencies or low frequencies.

11. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.
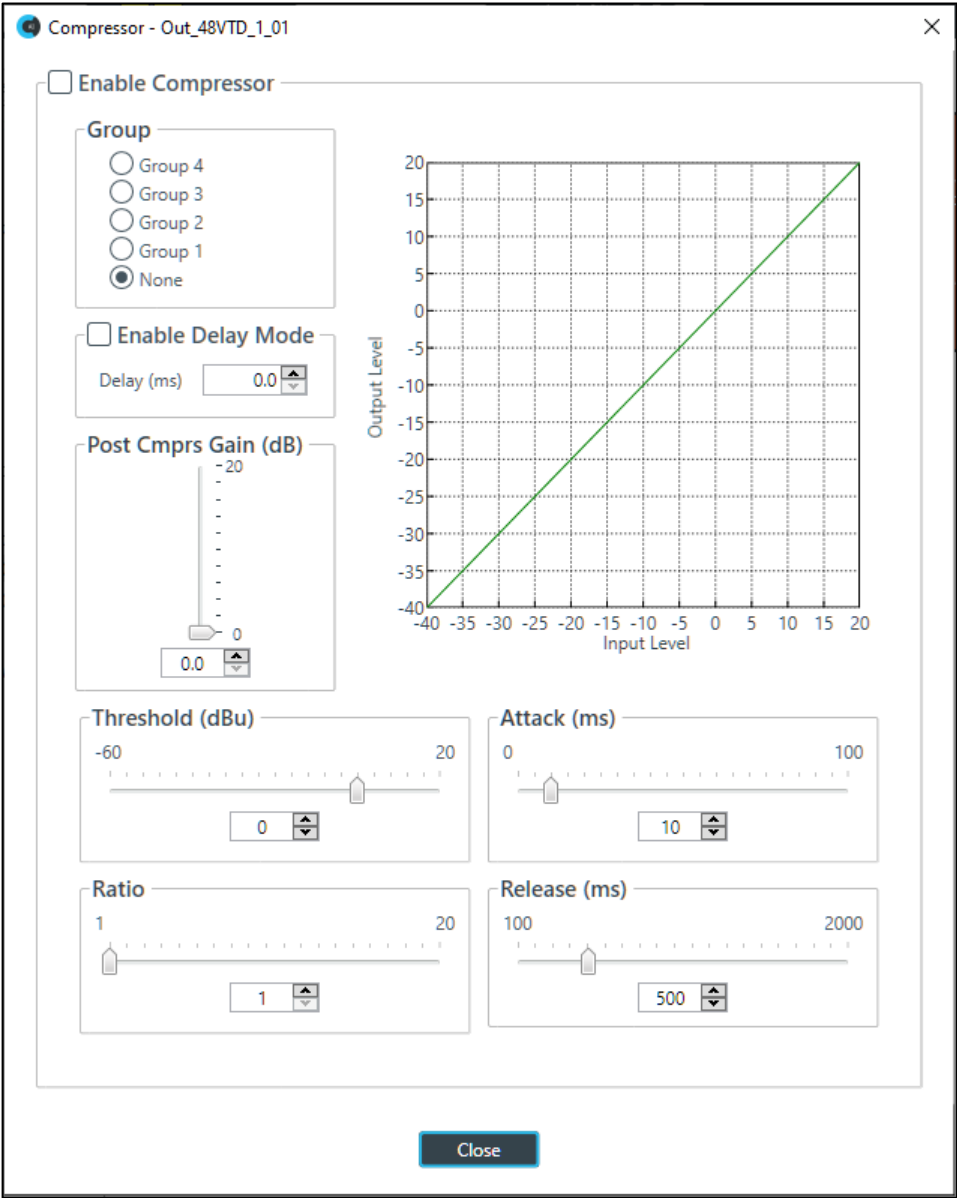
12. Repeat the process for each filter you want to add.

13. Click **Close**.

Compressor

14. To enable or disable a compressor for this channel, click the **Compressor** button.

The enable Compressor dialog box appears:

15. Change any of the Compressor options, as described in the table below.

Option	Description
Enable Compressor	Check the check box to activate the compressor on this channel.
Group	Use the Group radio buttons to assign this compressor to a compressor group. The default is None. When you assign a compressor to a compressor group—such as a group of two compressors configured for left and right stereo channels— the compressors will monitor each other. When one channel compresses, all compressors in the group compress together.

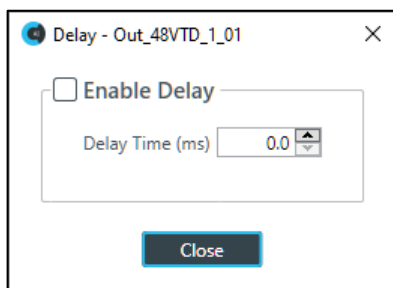| Option	Description
	📝 **Note:** A compressor group must be configured for a single unit; a group cannot control compressors from multiple units.
Enable Delay Mode	Turning on delay mode gives the compressor time to make compression adjustments before the signal is sent to other channels. This can useful for making sure that a signal doesn't exceed a threshold that might damage a speaker, for example.
Delay	The amount of the delay (in ms).
Post Compression Gain	A level adjustment made after compression has occurred.
Threshold	Determines the RMS level at which the compressor begins to operate. The range is from -30 to +20dBu. The default is 0dBu.
Attack	Sets the time increment used to reduce the signal from input level to the prescribed output level when the threshold is exceeded. The range is 0 to 100ms in .5ms steps. The default is 10ms.
Ratio	Changes the rate of compression applied to the input signal as the signal exceeds the threshold level. The range is 1:1 to 1:20dB. The default is 1:1.
Release	Sets the time increment used to restore the signal to the input level when the signal drops below the threshold. The range is 100ms to 2 seconds, in 5ms increments. The default is 500ms.

📝 **Note:** The graph reflects the input/output decibel levels with the gain, ratio, and threshold settings you select.

16. Click **Close**.

Delay

17. To enable or disable a delay for this channel, click the **Delay** button.

The Enable Delay dialog box appears:

18. Check the **Enable Delay** check box to turn on the delay.

19. Specify the amount of the delay (in ms) by typing a value in the **Delay Time** field or using the incrementer and decrementer buttons next to the field to set a value.

20. Click **Close**. **Mute**

21. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

22. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Polarity

23. To reverse the polarity of the output channel, click the **Polarity** button.

   If the polarity is reversed the button turns light green.

EQ Filter

24. To enable and configure an equalizer filter, click the **EQ Filter** button.

   The Graphic EQ dialog box appears:

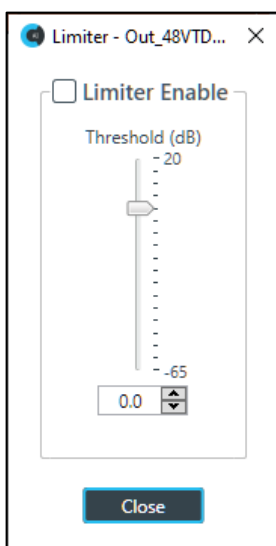25. You can change the gain value for any of the frequency ranges in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

26. Click **Close**.

Limiter

27. To enable and configure a limiter, click the **Limiter** button.

   The Limiter dialog box appears:

28. To activate the limiter, click the **Limiter Enable** check box.

29. Adjust the limiter threshold in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

30. Click **Close**.

Mic/Line Switch

31. To set the output channel to line level, set the **Mic/Line Switch** to **Line**. To set the output channel to mic level, set the **Mic/Line Switch** to **Mic**.

Changing Channel Properties - Speaker (CP2)

You can use channel properties to modify a Speaker channel. You can make any of the following changes:

Feature	Description
Active (Group only)	Allows you choose which member of the group to show or modify.
Sync All (Group only)	Allows you synchronize all the members of the group to match the settings of the active member.
Delivery (Dante only)	Allows you associate a Mic/Line Input channel with a Dante channel, so you can use the Mic/Line Input channel as a digital input. Note: This feature is available only if you have a Dante-enabled device in your stack (a device that has a "D" at the end of the model name).
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved audio quality. Up to four filters can be added to a mic input channel. Available filter types are All Pass, High Pass, Low Pass, Notch, and Parametric Equalizer (PEQ).

Compressor	A compressor Allows you change the gain transfer characteristics of the signal path and control the dynamics of a signal.
Delay	Delay Allows you add a specified amount of delay into specified channels. Introducing an appropriate amount of delay to the forward-mounted driver(s) re-establishes the acoustical alignment necessary for proper sound imaging in a room. The same principle of introducing delay applies to separate speaker enclosures located various distances from the listening area.
Mute	Mute a microphone.
Gain	Gain adjusts the volume level for a processing block in increments of 0.5dB.
Polarity	Reverses the polarity of an output channel.
EQ Filter	Adjusts specific frequency bands within a +/-12db range.
Limiter	Establishes a ceiling level for the channel Fader output.
Mic/Line Switch	Allows you switch between line level output and mic level output.

To change the properties for a Speaker channel:

1. From the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears.

> 📑 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **Mic/Line Output** to open the channel list.

5. Select the channel you want to change.

   The Mic/Line Output Channel Properties block appears:

References

6. To view any references (standard or custom) associated with this channel, click **Refs**. The Output References dialog box appears:
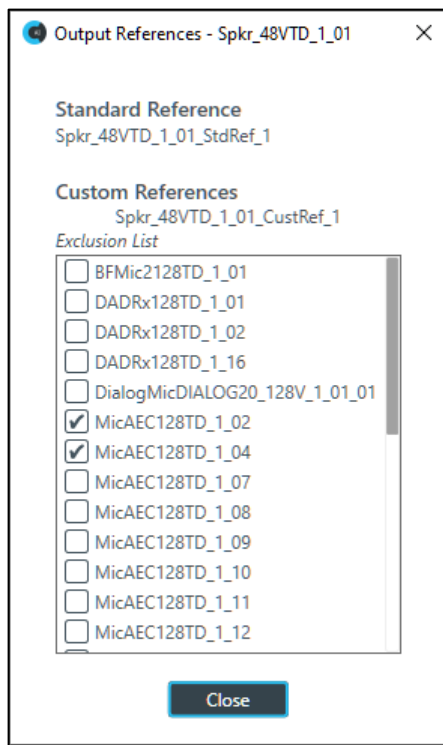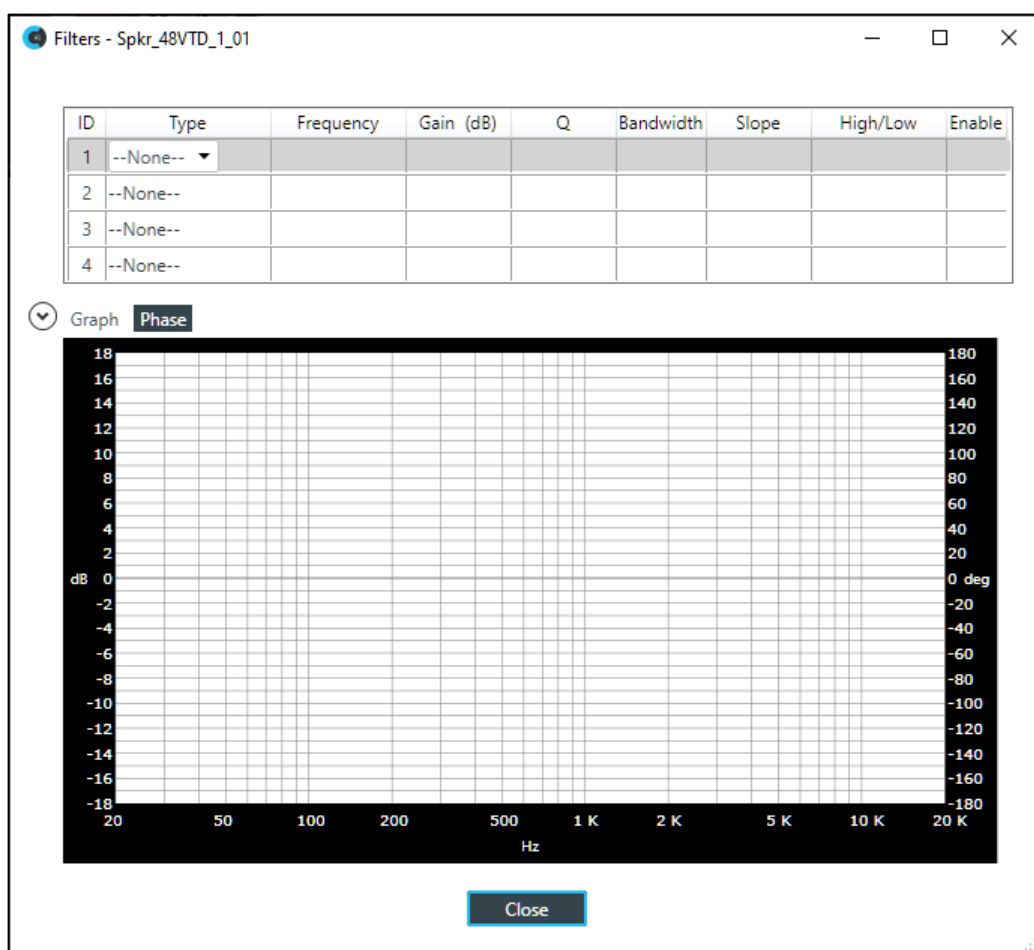
7. Check the box to the left of any inputs you want to exclude from the custom reference.

Filter

8. To enable and configure a filter, click the **Filter** button. The Filters dialog box appears:

9. For one of the available filters, choose a filter type from the **Type** drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	A filter that provides only phase shift or phase delay without appreciably changing the magnitude characteristic. The filter produces a flat amplitude response. It is useful for matching the delay of two processing channels with different delays.
Bessel Crossover	A crossover using a low-pass filter design characterized by a linear phase response. This results in a constant time delay throughout the passband.
Butterworth Crossover	A crossover using a low-pass filter design characterized by a maximally flat magnitude response. This results in no amplitude ripple in the passband.
CD Horn EQ	Horn drivers used in arenas and auditoriums have an inherent 6dB/octave high frequency rolloff. The CD Horn EQ compensates for this characteristic.
High Pass	Passes high signal frequencies while attenuating low frequencies. Selectable frequency cutoff is 20 Hz to 20 kHz. Rolloff is 12 dB/ octave. Level is fixed at 0 dB.

Filter Type	Description
High Shelving	Provides boosting or attenuation of frequencies above a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6 dB/octave rate. The gain or loss above the corner frequency is adjustable to +/- 15 dB.
Linkwitz-Riley Crossover	A fourth-order crossover consisting of a cascaded second order Butterworth low-pass filter. Offers a vast improvement over the Butterworth crossover and is the de facto standard for professional audio active crossovers.
Low Pass	Passes low frequencies while attenuating high frequencies. Selectable frequency cutoff is 20 Hz to 20 kHz. Rolloff is 12 dB/octave. Level is fixed at 0 dB.
Low Shelving	Provides boosting or attenuation of frequencies below a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/octave rate. The gain or loss below the corner frequency is adjustable to +/- 15 dB.
Notch	Passes most frequencies unaltered, but attenuates those in a specified range (e.g., the notch). Center frequency range is 20 Hz to 20 kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80 dB.
PEQ (Parametric Equalizer)	A multi-band variable equalizer with control of gain, center frequency, and bandwidth. A properly configured PEQ enables Converge Pro devices to offset speaker anomalies and room acoustic imaging deficiencies. Center frequency range is 20 Hz to 20 kHz in 0.01 Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15 dB in 0.5 dB increments.

Depending on the filter type you choose, some additional options become available.

10. (Optional) If you don't want to use default values, change the filter options, as described in the table below:

Option	Description
Frequency	The center frequency for the filter you are configuring. Range is from 20 Hz to 20 kHz in 1Hz increments. The default is 1kHz.
Gain (dB) (HighShelving, LowShelving, Notch, and PEQ only)	The gain value for the filter you are configuring. Range is from -15 to 15 dB. The default is 0 dB.
Q (Notch and PEQ only)	Quality factor. the ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, changing the Q value also changes the bandwidth value. Range is from 0.18 to 28.85.

Option	Description
Bandwidth (Notch and PEQ only)	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.
Slope (Bessel, Butterworth, and LinkwitzRiley only)	The highpass or lowpass cutoff slope. A higher slope means that the frequencies near the cutoff point are attenuated more quickly (greater attenuation per frequency octave).
High/Low (Bessel, Butterworth, and LinkwitzRiley only)	Whether to pass high frequencies or low frequencies.

11. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

12. Repeat the process for each filter you want to add.

13. Click **Close**.

Compressor

14. To enable or disable a compressor for this channel, click the **Compressor** button.

The enable Compressor dialog box appears:

15. Change any of the Compressor options, as described in the table below.

Option	Description
Enable Compressor	Check the check box to activate the compressor on this channel.
Group	Use the Group radio buttons to assign this compressor to a compressor group. The default is None. When you assign a compressor to a compressor group—such as a group of two compressors configured for left and right stereo channels—the compressors will monitor each other. When one channel compresses, all compressors in the group compress together.

Option	Description
	📝 **Note:** A compressor group must be configured for a single unit; a group cannot control compressors from multiple units.
Enable Delay Mode	Turning on delay mode gives the compressor time to make compression adjustments before the signal is sent to other channels. This can useful for making sure that a signal doesn't exceed a threshold that might damage a speaker, for example.
Delay	The amount of the delay (in ms).
Post Compression Gain	A level adjustment made after compression has occurred.
Threshold	Determines the RMS level at which the compressor begins to operate. The range is from -30 to +20 dBu. The default is 0 dBu.
Attack	Sets the time increment used to reduce the signal from input level to the prescribed output level when the threshold is exceeded. The range is 0 to 100 ms in .5 ms steps. The default is 10 ms.
Ratio	Changes the rate of compression applied to the input signal as the signal exceeds the threshold level. The range is 1:1 to 1:20 dB. The default is 1:1.
Release	Sets the time increment used to restore the signal to the input level when the signal drops below the threshold. The range is 100 ms to 2 seconds, in 5 ms increments. The default is 500 ms.

📝 **Note:** The graph reflects the input/output decibel levels with the gain, ratio, and threshold settings you select.

16. Click **Close**.

Delay

17. To enable or disable a delay for this channel, click the **Delay** button.

The Enable Delay dialog box appears:

18. Check the **Enable Delay** check box to turn on the delay.

19. Specify the amount of the delay (in ms) by typing a value in the **Delay Time** field or using the incrementer and decrementer buttons next to the field to set a value.

20. Click **Close**.

Mute

21. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

22. You can change the gain in any of the following ways:

    • Drag the slider

    • Type a value in the text box

    • Click the incrementer and decrementer arrows beside the text box to set the value

Polarity

23. To reverse the polarity of the output channel, click the **Polarity** button.

    If the polarity is reversed the button turns light green.

EQ Filter

24. To enable and configure an equalizer filter, click the **EQ Filter** button.

    The Graphic EQ dialog box appears:

25. You can change the gain value for any of the frequency ranges in any of the following ways:

    • Drag the slider

    • Type a value in the text box

    • Click the incrementer and decrementer arrows beside the text box to set the value

26. Click **Close**.

Limiter

27. To enable and configure a limiter, click the **Limiter** button.

    The Limiter dialog box appears:

28. To activate the limiter, click the **Limiter Enable** check box.

29. Adjust the limiter threshold in any of the following ways:

- Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

30. Click **Close**.

Mic/Line Switch

31. To set the output channel to line level, set the **Mic/Line Switch** to **Line**. To set the output channel to mic level, set the **Mic/Line Switch** to **Mic**.

Changing Channel Properties - BMA CT and BMA 360 Speaker (CP2)

You can use channel properties to modify a BMA CT Speaker channel and a BMA 360 Speaker channel. You can make any of the following changes:

Feature	Description
Active (Group only)	Allows you choose which member of the group to show or modify.
Auto Sync	Automatically sync every channel in the group when you make changes to one channel.
Sync All (Group only)	Allows you synchronize all the members of the group to match the settings of the active member.
Mute	Mute a channel.
Gain	Gain adjusts the volume level for a processing block in increments of 0.5dB.
Polarity	Reverses the polarity of a speaker channel.
EQ Filter	Adjusts specific frequency bands within a +/-12db range.

Limiter	Establishes a ceiling level for the output.

To change the properties for a BMA CT or BMA 360 Speaker channel:

1. From the Navigation panel, choose **Channel Properties**.

   The Channel Properties screen appears.

   > 📑 **Note:** You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. Click **BMA CT Speaker** to open the channel list.

3. Select the channel you want to change.

   The BMA CT Speaker Channel Properties block appears:

Filter

4. To enable and configure a filter, click the **Filter** button. The Filters dialog box appears.

For one of the available filters, choose a filter type from the Type drop-down list (see the table below for a brief description of the available filter types).

Filter Type	Description
All Pass	Frequency range is 20Hz to 20kHz. All pass changes the phase of the audio signal at the set frequency.
High Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave. Level is fixed at 0dB.
Low Pass	Selectable frequency cutoff is 20Hz to 20kHz. Rolloff is 12dB/octave Level is fixed at 0dB.
Notch	Center frequency range is 20Hz to 20kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.
PEQ (Parametric Equalizer)	Center frequency range is 20Hz to 20kHz in 0.01Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

Depending on the filter type you choose, some additional options become available.

5. (Optional) If you don't want to use default values, change the filter options, as described in the table below.

Option	Description
Frequency	The center frequency for the filter you are configuring. Range is from 20Hz to 20kHz in 1Hz increments. The default is 1kHz.
Gain (dB)	The gain value for the filter you are configuring. Range is from -15 to 15dB. The default is 0dB.
Q	Quality factor. the ratio of the center frequency divided by the bandwidth. Q is the inverse of bandwidth, and the two parameters are linked. Therefore, a change in the Q value changes the bandwidth value. Range is from 0.18 to 28.85.
Bandwidth	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.

6. (Optional) Alternatively, you can drag the filter nodes in the filter graph to change some filter option values.

7. Repeat the process for each filter you want to add.

8. Click **Close**.

Mute

9. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

10. You can change the gain in any of the following ways:

    •   Drag the slider

    •   Type a value in the text box

    •   Click the incrementer and decrementer arrows beside the text box to set the value

Polarity

11. To reverse the polarity of the speaker channel, click the **Polarity** button.

    If the polarity is reversed the button turns light green.

12. Click **Close**.

Changing Channel Properties - USB Tx and xUSB Tx (CP2)

You can use channel properties to modify a USB Tx or xUSB Tx (a USB transmit channel from a COLLABORATE Versa USB) channel. You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the output volume level for a USB channel in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a USB Transmit channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **USB Transmit** to open the channel list.

5. Select the channel you want to change.

    The USB Transmit Channel Properties block appears:

Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

7. You can change the gain in any of the following ways:

    •   Drag the slider

- Type a value in the text box

- Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Telco Tx (CP2)

You can use channel properties to modify a Telco Tx (analog phone line transmit) channel. You can make any of the following changes:

Feature	Description
Pre-Gain	Adjusts the gain prior to any other channel modifications.
Mute	Mute a channel.
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.

To change the properties for a Telco Tx channel:

1. From the Navigation Panel, choose **Channel Properties**. The Channel Properties screen appears.

   Note: You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **Telco Tx** to open the channel list.

5. Select the channel you want to change.

   The Telco Tx Channel Properties block appears:
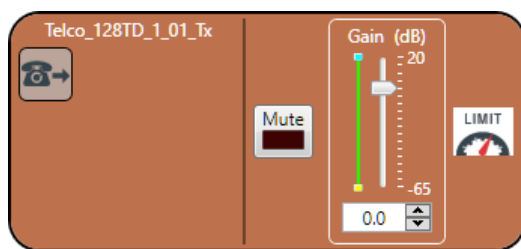
Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

7. You can change the gain in any of the following ways:

   - Drag the slider

   - Type a value in the text box

   - Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - VoIP Tx (CP2)

You can use channel properties to modify a VoIP Tx channel. You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the output volume level for a VoIP channel in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a VoIP Tx channel:

1. From the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears.

   Note: You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **VoIP Transmit** to open the channel list.

5. Select the channel you want to change.

   The VoIP Transmit Channel Properties block appears:

Mute

6. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

7. You can change the gain in any of the following ways:

   - Drag the slider
   - Type a value in the text box
   - Click the incrementer and decrementer arrows beside the text box to set the value

Changing Channel Properties - Bluetooth Tx (CP2)

You can use channel properties to modify a USB Tx channel. You can make any of the following changes:

Feature	Description
Gain	Gain adjusts the input volume level for a USB input in increments of 0.5dB.
Mute	Mute a channel.

To change the properties for a Bluetooth Tx channel:

1. From the Navigation panel, choose **Channel Properties**. The Channel Properties screen appears.

   Note: You can also view and change the channel properties in FlowView. See *Connecting Channels Using FlowView™ (CP2)* for more information.

2. (Optional) If you're using Advanced Room mode, choose a partition from the **Partition** drop-down list.

3. (Optional) Choose a preset from the **Preset** drop-down list.

4. Click **USB Tx** to open the channel list.

5. Select the channel you want to change.

   The USB Tx Channel Properties block appears:
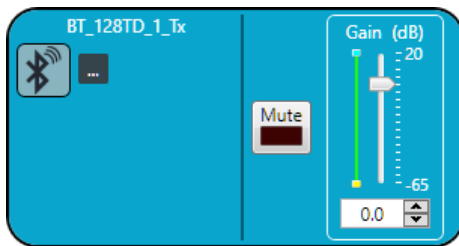
Device Properties

6. To change the Bluetooth device properties, click ▪. The Bluetooth Device Properties dialog box appears:

7. Type a value in the **Pair name** text box.
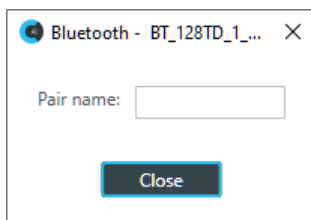
Mute

8. To mute this channel, click the **Mute** button (the button changes to red if the channel is muted).

Gain

9. You can change the gain in any of the following ways:

   • Drag the slider

   • Type a value in the text box

   • Click the incrementer and decrementer arrows beside the text box to set the value

Chapter 9: Online Mode (Huddle)

This chapter contains information about connecting to a Huddle device and changing device settings while in online mode.

Note: The options described in this chapter are accessible only when the CONSOLE AI application is in online mode. See *Online Mode vs. Offline Mode* for more information.

Connecting to a Device (Huddle)

You can connect to a Huddle device. Doing so Allows you work in online mode, which provides you with different options. See *Online Mode vs. Offline Mode* for more information.

To connect to a Huddle device:

1. From the Navigation Panel, click **Home**. The Home screen appears:

2. If you haven't already done so, select **CONVERGE Huddle** next to Product Filter.

All discovered Huddle devices are listed under **Discovered on current LAN subnet**. Devices that have been connected to the CONSOLE recently are shown under **Recent Connections**.

Note: If the device you want to connect to is not shown, check the following:

a. Make sure device is turned on.

b. Make sure the device is on the same subnet as your computer (this can include connecting via the USB connection on the front of the device);

c. If you aren't connecting using a USB cable, make sure are connected to the network.

If you have checked all these and the device is still not shown, you can also try to connect to the device by IP address.

See *Direct Connect* for more information.

3. Select a device to connect to from the **Discovered on current LAN subnet** or **Recent Connections** lists.

    If the device you want to connect to doesn't appear, and you want to add a device manually, skip to the Direct Connect section below.

4. Click **Connect**.

    The Authenticate dialog box appears:
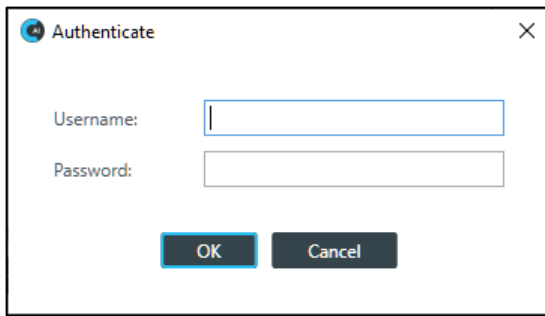
5. Type the username and password for the device, and then click **OK**.

   Assuming you have provided the correct credentials, you are connected to the device.

   📝 **Note:** Huddle projects created after a certain date include a BMA CTH and a Bluetooth Expander. Depending on when you created your Huddle project and whether you have a BMA CTH and a Bluetooth Expander, you may see the following dialog box:
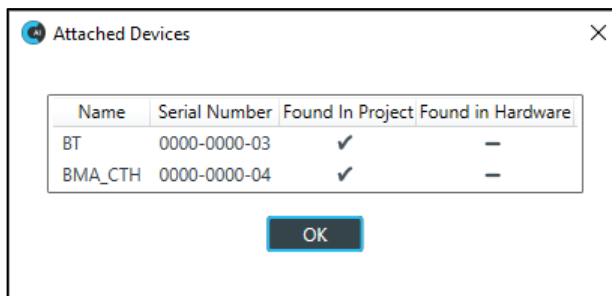
   This dialog shows you when there are devices found in the project that are not found in the hardware. There's no need to be concerned. Just click **OK**. You will see this dialog box each time you connect and the hardware found doesn't match the devices listed in the project.

Direct Connect

6. If the device you want to connect to isn't listed, you can also connect to the device by specifying the IP address manually by clicking **Direct Connect**.

   A warning dialog box appears:

7. If you want to not have this dialog box shown when using Direct Connect, deselect the **Show Again** check box.

8. Click **OK**.

   The Direct Connect dialog box appears:

9. Type an IP address, then click **Connect**. The Authenticate dialog box appears:

10. Type the username and password for the device, and then click **OK**.

Assuming you have provided the correct credentials, you are connected to the device or stack.

11. If the CONSOLE AI software detects that a newer version of the firmware is available for the device(s) you are connecting to, a message appears to let you know that you can update the firmware. If you wish, you can take this opportunity to upgrade the firmware of the device.

 Note the following:

- If you don't want this warning to appear in the future, uncheck the **Show Again** check box.

- Huddle projects created after a certain date include a BMA CTH and a Bluetooth Expander. Depending on when you created your Huddle project and whether you have a BMA CTH and a Bluetooth Expander, you may see the following dialog box:
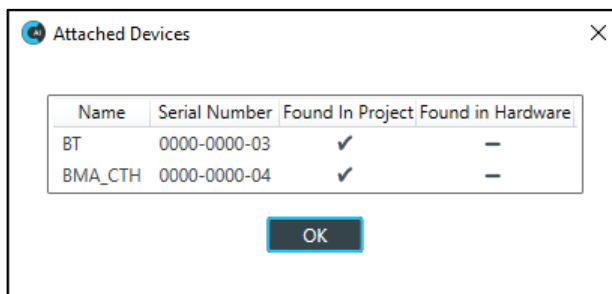
This dialog shows you when there are devices found in the project that are not found in the hardware. There's no need to be concerned. Just click **OK**. You will see this dialog box each time you connect and the hardware found doesn't match the devices listed in the project.

12. Click **OK**.

View Network Info (Huddle)

You can view the network settings for a Huddle device.

Note: These settings are available only when you are connected to a Huddle device. For more information, see *Connecting to a Device (Huddle)*.

To view the network settings for a device:

1. If you have not already done so, connect to a Huddle device.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

3. Details about the device and network connection are shown in the Device and Network Information area of the screen.

Send Project File to a Device (Huddle)

When you have made all the project changes you want to make, you can send the project file to a connected Huddle device to make those changes live.

To send a project file to a device:

1. If you have not already done so, connect to a Huddle device.

   For more information about connecting to a device, see *Connecting to a Device (Huddle)*.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

3. Under Huddle, click **Send Project File**.

    An Open dialog box appears to let you choose a project file.

4. Choose a project file and then click **Open**.

    A message appears to let you know that the project is being loaded to the device:
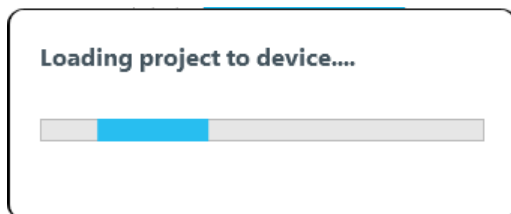
Note: Loading a file to the device could take several minutes.

Save Project to PC (Huddle)

When you are in online mode (connected to a device), you can make changes to attached Huddle device. However, those changes are not reflected in the project settings in the CONSOLE AI application. To save the device to a project file, use Save Project to PC.

For more information about the relationship between online mode, offline mode, and saved project settings, see About Projects.

To save online mode project settings to project file on your PC:

1. If you have not already done so, connect to a Huddle device.

    For more information about connecting to a device, see *Connecting to a Device (Huddle)*.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

3. Make any changes you want to device settings while in online mode.

4. Click **Save Project To PC**.

   A Save As dialog box appears to let you choose a name and location for the file.

5. Choose a name and location for the project file and then click **Save**.

Restarting a Device (Huddle)

You can restart a Huddle device. To restart a Huddle:

1. If you have not already done so, connect to a Huddle device.

   For more information about connecting to a device, see *Connecting to a Device (Huddle)*.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

3. Click **Restart**.

    The Confirm Reset dialog box appears:

4. To restart the Huddle, click **Yes**.

    📒 **Note:** Restarting a device does not remove any device settings you have changed for the device. If you want to remove all device settings, you must restore the device to factory defaults. See *Restoring a Device to Factory Defaults (Huddle)* for more information.

    The Huddle is restarted and you are disconnected from the device. You must reconnect to perform any further operations in online mode.

Restoring a Device to Factory Defaults (Huddle)

You can restore a Huddle to factory defaults.

To restore the factory defaults on a Huddle device:

1. If you have not already done so, connect to a Huddle device.

    For more information about connecting to a device, see *Connecting to a Device (Huddle)*.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

3. Click **Restore Factory Defaults**. The Confirm dialog box appears:

4. To restore the connected Huddle to factory defaults, click **Yes**.
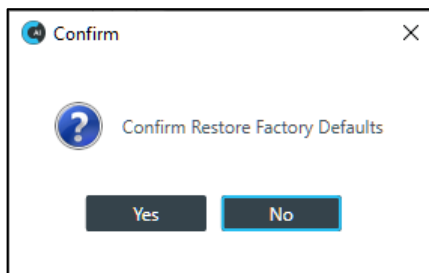
⚠️ **Important:** Restoring the factory defaults for a device removes all settings you have configured for the device.

You are disconnected from the device, and the device is restored to its factory defaults.

Retrieving and Monitoring Log Files (Huddle)

You can retrieve the log files from a Huddle device and save them to your computer. You can use the in- application Log Viewer tool to view the device logs (see *Using the Log Viewer* for more information). You can also open up the log files and monitor them in real time.

To get and save the Huddle log files or to monitor them in real time:

1. If you have not already done so, connect to a Huddle device.

   For more information about connecting to a stack, see *Connecting to a Device (Huddle)*.

2. From the Navigation Panel, select **Admin**. The Admin screen appears:

9. Using the Browse dialog box, specify the folder where you want to save the log file.

10. (Optional) If you want to create a sub-folder within the Log folder, to organize logs, click **Make New Folder**, type a name for the new folder, then press Enter.

11. Click **OK**.

The log files from that device are saved to the specified location and then opened in the Log Viewer so that you can monitor any changes to the log file in real time.

Updating Device Firmware (Huddle)

Periodically, ClearOne releases firmware updates to improve device performance. You can download firmware updates from within the CONSOLE AI (see *Downloading Updates (Huddle)*) and then you can update the device firmware.

To update the device firmware:

1. If you have not already done so, connect to a Huddle device.

   For more information about connecting to a device, see *Connecting to a Device (Huddle)*.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

Available updates are shown in the Available From Web area.

3. To download an available firmware update file, select it in the Available From Web area and click

Download Files.

The Download Files dialog box appears and shows download progress.

4. Once download progress is 100%, click **OK**.

The downloaded file will appear in the My Computer area of the screen. If this is the firmware file you want to use to update the device, skip the following two steps.

5. (Optional) If you have a firmware file on your computer that you want to use to update the device, rather than using one from the Available From Web updater, click **Select Firmware File**.

6. From the dialog box that appears, locate the firmware file you want to use, then click **Open**.

The selected firmware now appears in the My Computer list.

7. Click the **Send** button next to the firmware file you want to send to the device. The Firmware Update dialog box appears:

8. Click **Yes** to update the firmware using the file you selected. The Firmware Update dialog box appears:

Firmware update start....
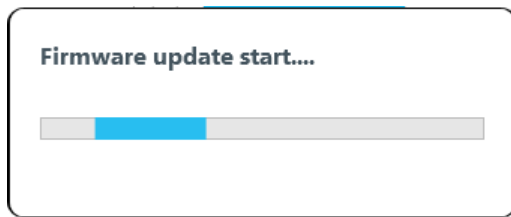
Once the update is complete, the device restarts and you are disconnected.

Downloading Updates (Huddle)

You can check for available updates, such as firmware, documentation updates, and software installation files, and download them to your computer.

Note: Your computer must be connected to the Internet to use this feature.

To check for and download updates:

1. If you have not already done so, connect to a Huddle device.

    For more information about connecting to a device, see *Connecting to a Device (Huddle)*.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

Available updates are shown in the Available From Web area.

3. Some files have additional information available. You can click the **Additional Information** button below a file to see more information about that file.

4. To download a file, select it in the Available From Web area and click **Download Files**.

    The Download Files dialog box appears and shows download progress.

5. Once download progress is 100%, click **OK**.

    If you have downloaded a firmware file, the file you downloaded now appears in the My Computer list in the upper right of the Firmware screen. If you have downloaded an updated Help file, the file is

placed in the correct location so that it is available from the Help menu. Other files, such as the Dialer installer, are available in the following location: *<user>*\Download, where user is your Windows user folder location.

Turning on Safety Mute

To protect against damage to audio assets, you can turn on Safety Mute to mute all connected channels for both CP2 and Huddle devices.

To turn on Safety Mute:

1. If you have not already done so, connect to a stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. Click on the toolbar.

   The icon changes to orange to indicate that Safety Mute is turned on. Safety Mute remains on for all channels until you turn it off.

Chapter 10: Online Mode (CP2)

This chapter contains information about connecting to a CP2 device and changing device settings while in online mode.

Note: The options described in this chapter are accessible only when the CONSOLE AI application is in **online** mode. See *Online Mode vs. Offline Mode* for more information.

Connecting to a Device or Stack (CP2)

You can connect to a CP2 device or stack. Doing so Allows you work in online mode. See *Online Mode vs. Offline Mode* for more information.

To connect to a CP2 device or stack:

1. From the Navigation Panel, click **Home**. The Home screen appears:
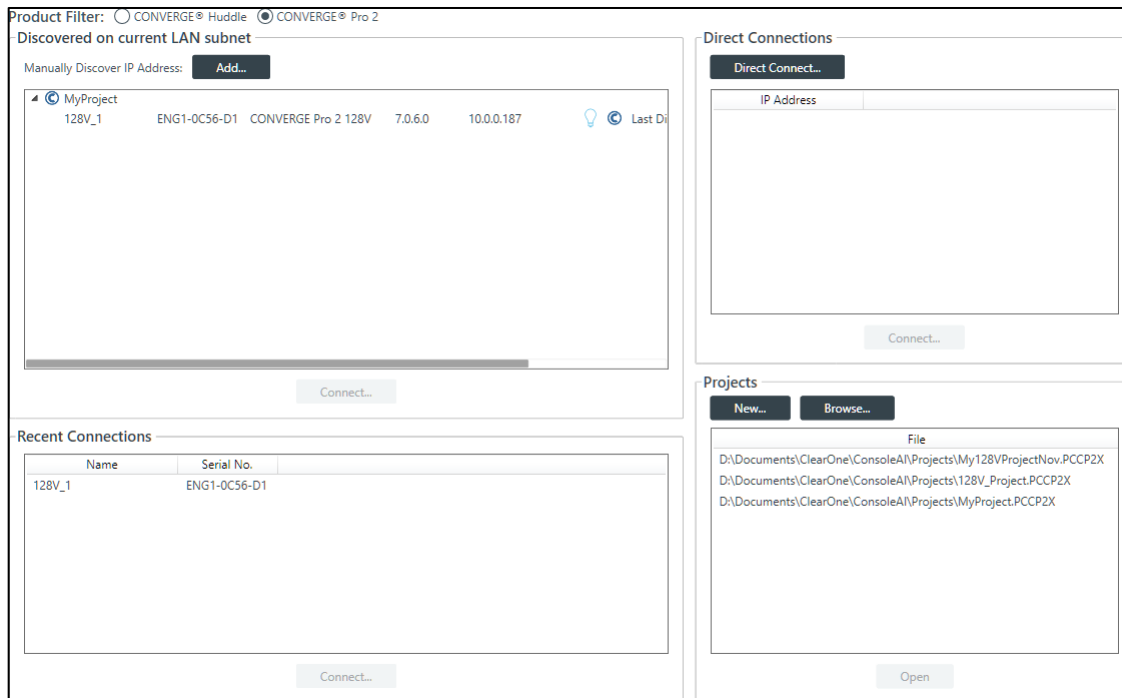
All discovered CONVERGE Pro 2 devices are listed under **Discovered on current LAN subnet**. Devices that have been connected to the CONSOLE recently are shown under **Recent Connections**.

 Note the following:

If the device you want to connect to is not shown, check the following:

- Make sure device is turned on;
- Make sure the device is on the same subnet as your computer (this can include connecting via the USB connection on the front of the device)
- If you aren't connecting using a USB cable, make sure you are connected to the network.

If you have checked all these and the device is still not shown, you can also try to connect to the device by IP address. See Direct Connect below for more information.

2. If you have chosen to have both Huddle and CP2 as active products, then before you connect to a device, you must choose CONVERGE Pro 2 from the Product Filter options.
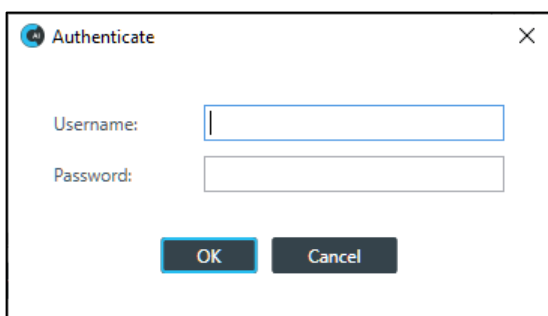
For more information about which products are active, see *Choosing Active Products*.

3. Choose a device to connect to from the **Discovered on current LAN subnet** or **Recent Connections** lists.

If the device you want to connect to doesn't appear, and you want to add a device manually, skip to the Direct Connect section below.

4. Click **Connect**.

The Authenticate dialog box appears:

5. Type the username and password for the device, and then click **OK**.

   Assuming you have provided the correct credentials, you are connected to the device or stack.

Direct Connect

6. If the device you want to connect to isn't listed, you can also connect to the device by specifying the IP address manually by clicking **Direct Connect**.

   A warning dialog box appears:

7. If you want to not have this dialog box shown when using Direct Connect, deselect the **Show Again** check box.

8. Click **OK**.

   The Direct Connect dialog box appears:

9. Type an IP address, then click **Connect**. The Authenticate dialog box appears:

10. Type the username and password for the device, and then click **OK**.

Assuming you have provided the correct credentials, you are connected to the device or stack.

11. If the CONSOLE AI software detects that a newer version of the firmware is available for the device(s) you are connecting to, a message appears to let you know that you can update the firmware. If you wish, you can take this opportunity to upgrade the firmware of the device.

> **Note:** If you don't want this warning to appear in the future, uncheck the **Show Again** check box.

12. Click **OK**.

Live Control (CP2)

When you are connected to a device or stack, you can:

- Run macros
- Run presets
- Run timers
- Change GPIO pin states (including divider states)

For more information about creating macros, see *Recording Macros* and *Adding Macros*. For more information about creating presets, see *Adding or Modifying Presets (CP2)*. For more information about creating timers, see *Adding and Modifying Timers*. For more information about configuring GPIO, see *Changing GPIO Configuration*.

To run macros, presets, or timers or to set GPIO pin states:

1. Connect to a device.

See *Connecting to a Device or Stack (CP2)* for more information.

2. Be sure you're in Control Panel mode.

3. From the Navigation Panel, under **Room Partitions**, choose **Control**. The Control screen appears:

All available macros, presets, timers, and divider state GPIO pins appear here.
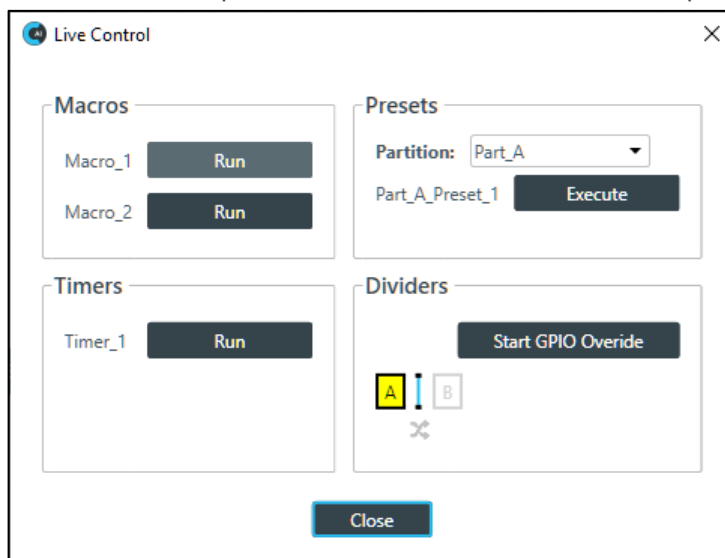
4. To run a macro, under Macros click **Run** next to the name of the macro. The specified macro is run.

5. To run a preset, under Presets choose a partition from the Partition drop-down list and then click Execute next to the preset you want to run.

> **Note:** You must choose a partition only if you are using Advanced Room mode.

The specified preset is run.

6. To run a timer, under Timers click Run next to the name of a timer.

The specified timer is run.

7. To open or close a divider, under Dividers click Start GPIO Override.

8. When you're done running macros, presets, timers, or doing GPIO divider overrides, click Close to close the Live Control Dialog box.

9. To control the state of other GPIO pins, click ⟷ in the toolbar. The GPIO Configuration dialog box appears:

10. Click a pin you want to set the state for on the left side of the dialog box.
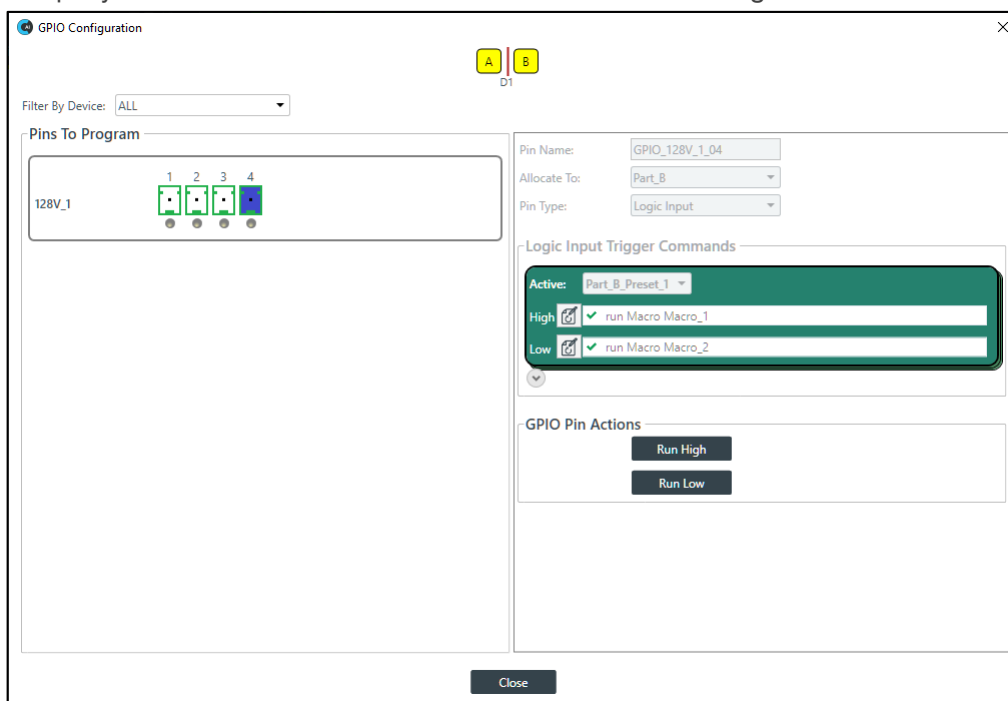
The pin settings appear on the right side of the dialog box.

11. Click Run High or Run Low to run the actions associated with high or low states for this pin.

12. If desired, click another pin on the left and repeat step 10 for that pin.

13. When you're done, click **Close**.

Viewing Equipment Information (CP2)

You can view the following details about the CP2 devices in a stack:

- Device Name
- Firmware
- Product Type
- Serial Number

- • Which device in a stack you are connected to

You can also:

- • Locate a device

- • See a device's network information

- • Reset a device

- • Change device settings

To view equipment details about the devices in a stack:

1. If you have not already done so, connect to a device or stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Equipment**. The Equipment screen appears:

   All devices in the stack are listed here. You can see the details about any particular device. If you are looking at a stack, the device to which you are currently logged in has the ⇥⇤ icon next to it.

Locate Device

Stack: CS5-4_0_15_0-128_128SR_D20x3_USB

Device Name	Firmware	Product	Serial Number	
AUDIO-FEED-3	4.5.26.0	CONVERGE Pro 2 128D	1026-1711-08	
128	4.5.26.0	CONVERGE Pro 2 128	2204-1629-06	
USB	1.0.1.11	CONVERGE Pro 2 USB Expander	2222-2222-01	
D20-1	1.0.0.0	DIALOG 20	0133-1707-09	
D20-2	1.0.0.0	DIALOG 20	0037-1728-09	
D20-3	1.0.0.0	DIALOG 20	0020-1714-09	
128SR	4.5.26.0	CONVERGE Pro 2 128SR	2742-1630-06	

3. To locate a particular device by causing its Locate LED light to blink, click 💡 next to that device.

   The Locate light on the device will blink, and the Locate LED light in the CONSOLE becomes solid: 💡.

View Network Settings

4. To view the network information for a device, click 🖧 next to that device. The Network Information dialog box appears:

Network Information   ✕

128V_1

Type	IP Address	MAC Address	Subnet	Gateway	DNS 1	DNS 2	
Ethernet	10.0.0.187	00:06:24:0c:56:d1	255.255.255.0	10.0.0.1	75.75.75.75	75.75.76.76	Up
USB	169.254.99.202	00:06:24:0c:56:d2	255.255.255.0	10.0.0.1			Up
VoIP							Down
Vlan							Down

Close

5. Click **Close** to close the Network Information dialog box.

Change Device Settings

6. To view the device settings for a device, click 🔧 next to that device.

The Device Settings dialog box for that device appears. More information is available in the following sections:

- *Changing CP2 Device Settings*

- *Changing CP2 Device Settings - Network*

- *Changing CP2 Device Settings - VoIP*

- *Changing CP2 Device Settings - IP Phone (VoIP/SIP)*

- *Changing CP2 Device Settings - Telco*

Note: When you are connected a device, you cannot change most of the device settings.

7. To restart all the devices in a stack, click ⊟ next to a device. The Confirm Reset dialog box appears:

8. To reboot the stack devices, click **Yes**.
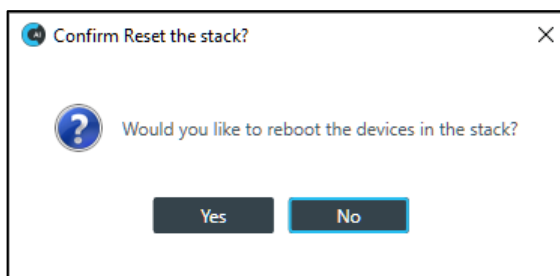
Note: Restarting a device does not remove any device settings you have changed for the device. If you want to remove all device settings, you must restore the device to factory defaults. See *Restoring a Stack to Factory Defaults (CP2)* for more information.

Viewing Network Information (CP2)

You can view the following network information about the devices in a stack:

- Device Name

- Network Port IP Address, MAC Address, Subnet, Gateway, DNS, and Status

- VoIP Port IP Address, MAC Address, Subnet, Gateway, DNS, and Status

- USB Network Port IP Address, MAC Address, Subnet, Gateway, DNS, and Status

You can also locate a device by causing its Locate LED to blink, reset any device in the stack, and change a device's settings.

To view network information about the devices in a stack:

1. If you have not already done so, connect to a stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Network**. The Network screen appears:

All devices in the stack are listed here. You can see the details about any particular device.

Locate Device

3. To locate a particular device by causing its Locate LED light to blink, click 💡 next to that device.

The Locate light on the device will blink, and the Locate LED light in the CONSOLE becomes solid: 💡.

Change Device Settings

4. To view the device settings for a device, click 🔧 next to that device.

The Device Settings dialog box for that device appears.

More information is available in the following sections:

- *Changing CP2 Device Settings*

- *Changing CP2 Device Settings - Network*

- *Changing CP2 Device Settings - VoIP*

- *Changing CP2 Device Settings - IP Phone (VoIP/SIP)*

- *Changing CP2 Device Settings - Telco*

5. To restart all the devices in the stack, click ⇄ next to a device. The Confirm Reset dialog box appears:

6. To reboot the stack devices, click **Yes**.
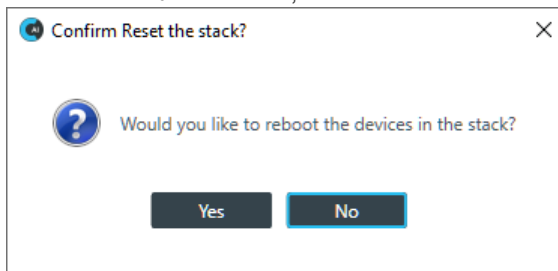
Note: Restarting a device does not remove any device settings you have changed for the device. If you want to remove all device settings, you must restore the device to factory defaults. See *Restoring a Stack to Factory Defaults (CP2)* for more information.

Loading a Project File to a Device or Stack (CP2)

Before a CONVERGE Pro 2 device can function, it must have a project file loaded. Once you have configured project settings, you can load a project file to the device or stack.

To load a project file to a device or stack:

1. If you have not already done so, connect to a stack.

For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)* .

2. From the Navigation Panel, select **Load**. The Load screen appears:
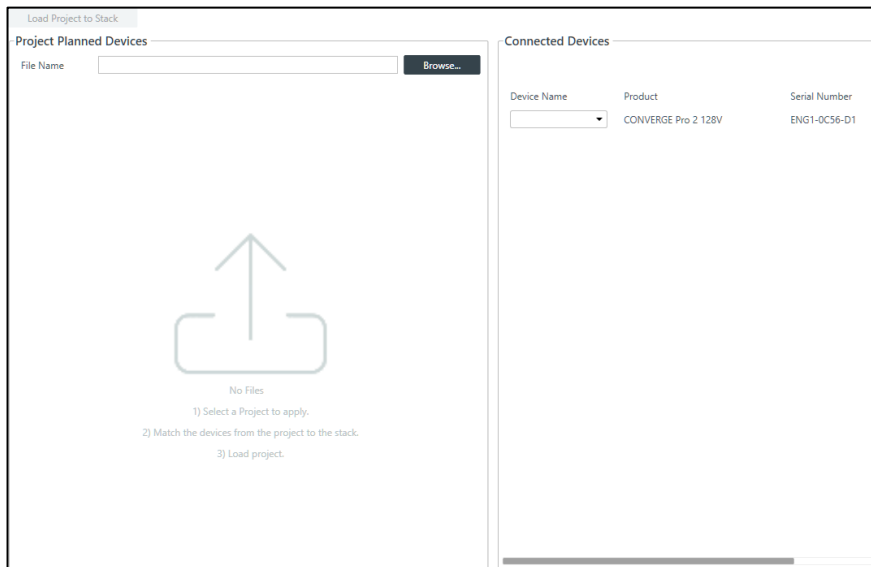
3. To choose a project file from disk, click **Browse**.

    The Open dialog box appears.

4. Use the Open dialog box to locate a project file. Select the file, and then click **Open**.

5. Next you must match the device specified in the project with a connected device. Under **Project Planned Devices**, choose an option from the **Serial Number** drop-down list OR under **Connected Devices**, choose an option from the **Device Name** drop-down list.

    Note: The device name is set using the device settings. See *Changing CP2 Device Setting* for more information. If you have not set a device name, the CONSOLE application gives the device a default name, such as Name1.

6. Once the project device and the connected device are matched, they both appear highlighted in green:
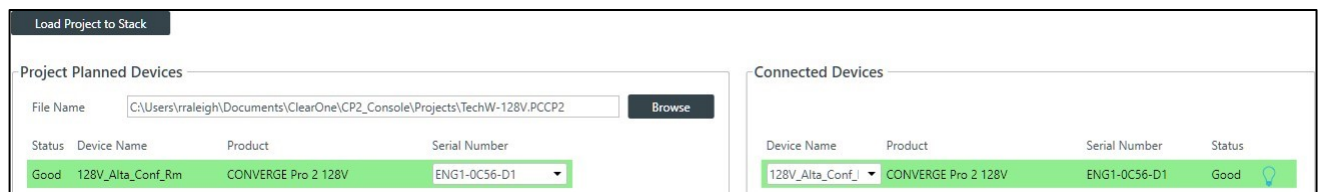
7. Click **Load Project to Stack**.

    If the project includes an IP address change, the following warning appears:
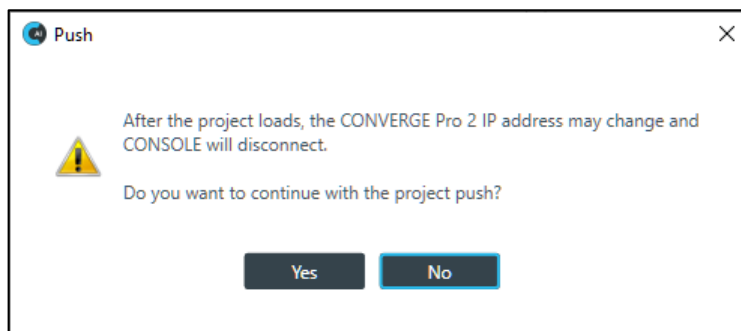
8. Click **Yes** to continue.

    The Loading project to device status dialog box appears:

Loading project to device....
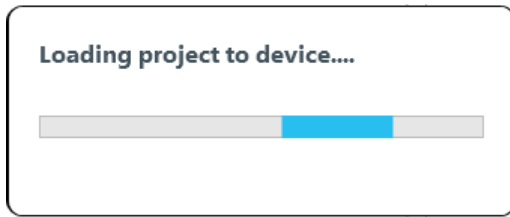
Note: Loading a file to a device or stack takes several minutes per device, so larger stacks can take substantially longer to load.

The Loading project to device dialog box closes when the project has been loaded to the device.

Commit Changes to Hardware (CP2)

If you are connected to a device, you can commit any project changes you have made to connected device(s).

To load project changes to connected devices:

1. If you have not already done so, connect to a device or stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. After you have made changes to the project, click ![toolbar icon] in the Toolbar to load any project changes you've made to the connected device.

   A confirmation dialog box appears:

   Commit

   Commit Changes to Hardware?

   ☑ Save Project + Changes to Disk
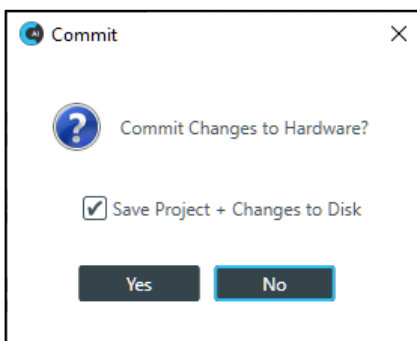
   Yes   No

3. If you want to also save those changes to a project file on disk, check the **Save Project + Changes to Disk** option.

4. Click **Yes**.

   Note: Loading a file to the device could take several minutes.

   Once the file is saved, the following confirmation message appears:

   Info

   File saved to disk successfully...

   OK
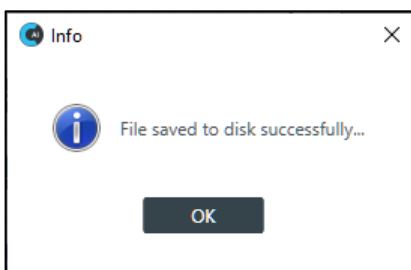
5. Click **OK**.

    If the file is committed successfully to the hardware, a dialog box appears to notify you of the successful transfer:
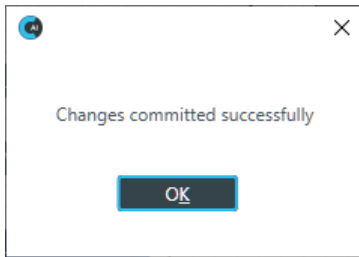
6. Click **OK**.

Retrieving or Monitoring Log Files (CP2)

You can retrieve the log files from a CP2 device or stack and save them to your computer. You can use the in-application Log Viewer tool to view the device logs (see *Using the Log Viewer* for more information). You can also monitor log files (retrieve them and then monitor them in real time).

To get and save or monitor the log files:

1. If you have not already done so, connect to a stack.

    For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Admin**. The Admin screen appears:

3. Under **Log File(s)** in the **Admin** screen, click **Retrieve**.

    A dialog box appears to let you choose where to save the log files.

4. Specify the folder where you want to save the log file.

5. (Optional) If you want to create a sub-folder within the Log folder, to organize logs, click New Folder, type a name for the new folder, then press Enter.

6. Click **OK**.

    The log files from that device are saved to the specified location.

7. (Optional) You can view log files you have retrieved by clicking the **Open**/**View** button.

    For more information about viewing log files, see *Using the Log Viewer*.

8. To retrieve the log files and then monitor them in real time, click **Monitor**.

    A dialog box appears to let you choose where to save the log files.

9. Specify the folder where you want to save the log file.

10. (Optional) If you want to create a sub-folder within the Log folder, to organize logs, click New Folder, type a name for the new folder, then press Enter.

11. Click **OK**.

    The log files from that device are saved to the specified location and then opened in the Log Viewer so you can monitor updates in real time.

Setting the Stack Time (CP2)
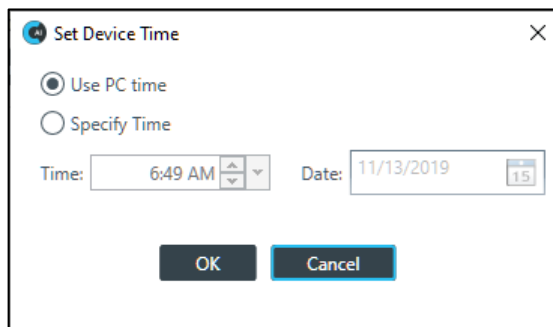
You can set the time for a stack. To set the time for a stack:

1. If you have not already done so, connect to a stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Admin**. The Admin screen appears:

3. Under **Time**, click **Set Time**.

   The Set Device Time dialog box appears:

4. To use the system time from the computer running the CONSOLE application, select **Use PC Time**.

5. To specify a time, select **Specify Time**.

6. Specify a time and date using the provided controls.

   You can type in the time and date directly, use the incrementer and decrementer buttons to set the time, or use the time drop-down menu to choose a time and the date control to choose a date.

7. Click **OK**.

Restarting a Stack (CP2)
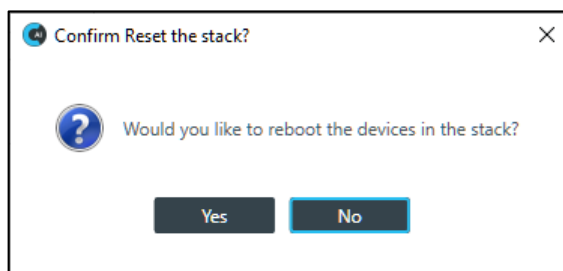
You can restart all the devices in a stack. To restart a stack:

1. If you have not already done so, connect to a stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Admin**. The Admin screen appears:

3. Under **Stack** in the Admin screen, click **Restart**. The Confirm Reset dialog box appears:

   To reboot all the devices in the stack, click **Yes**.

> 📝 **Note:** Restarting a device does not remove any device settings you have changed for the device. If you want to remove all device settings, you must restore the device to factory defaults. See *Restoring a Stack to Factory Defaults (CP2)* for more information.

4. All devices in the stack are restarted and you are disconnected from the stack. You must reconnect to perform any further operations. See *Connecting to a Device or Stack (CP2)* for more information.

Restoring a Stack to Factory Defaults (CP2)

You can restore all the devices in a stack to factory defaults. To restore all the devices in a stack to factory defaults:

1. If you have not already done so, connect to a stack.

    For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Admin**. The Admin screen appears:

3. In the Admin screen, click **Restore Factory Defaults**. The Confirm dialog box appears:

4. To restore all devices in the stack to factory defaults, click **Yes**.
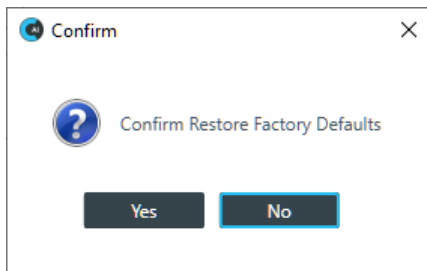
> ⚠️ **Important:** Restoring the factory defaults for a stack removes all settings you have configured for all the devices in the stack.

You are disconnected from the stack, and all devices in the stack are restored to their factory defaults.

Retrieving Project from Hardware and Save to Disk (CP2)

You can retrieve the project information from the stack and save it to your computer. You can also retrieve the project information and save it along with any live changes you have made to disk.

To retrieve the active project from the hardware and save it to disk:

1. If you have not already done so, connect to a device or stack.

2. From the Navigation Panel, choose **Admin**. The Admin screen appears:

3. Under **Save to Disk**, click **Project**.

    The current project information is retrieved from the stack, and then a Save As dialog box appears.

4. Using the Save As dialog box, specify the name and location of the project file.

5. Click **Save**.

> 📝 **Note:** Alternatively, you can choose to save the project and any live changes you have made to disk.

6. To retrieve the project information from the device(s) along with any live changes you have made and then commit this to disk as a project file, click **Project + Changes**.

   The current project information and all live changes are retrieved from the stack, and then a Save As dialog box appears.

7. Using the Save As dialog box, specify the name and location of the project file.

8. Click **Save**.

Downloading Updates (CP2)

You can check for available updates, such as firmware, documentation updates, and software installation files, and download them to your computer.

> 📝 **Note:** Your computer must be connected to the Internet to use this feature.

To check for and download updates:

1. If you have not already done so, connect to a CP2 device or stack.

   For more information about connecting to a CP2 stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Firmware**. The Firmware screen appears:

Any available updated files appear in the Available From Web list in the lower right of the Firmware screen.

3. Some files have additional information available. You can click the **Additional Information** button below a file to see more information about that file.

4. To download a file, select the check box next to the item in the list.

5. Click **Download Files**.

    The Download Files dialog box appears and shows you the download progress for any files you have selected.

6. When the downloads are complete, click **OK**.

    If you have downloaded a CP2 firmware file, the file you downloaded now appears in the My Computer list in the upper right of the Firmware screen. Firmware files are saved in the following location: *<user>*

    \Documents\ClearOne\Equipment*<device>*\Firmware (where *<user>* refers to the Windows user and

    <device> refers to the device name. If you have downloaded an updated Help file, the file is placed in the correct location so that it is available from the Help menu. Other files, such as the Dialer installer, are available in the following location: <user>\Download.

    📋 **Note:** Using the method described above searches for updates related to the CONVERGE Pro 2. To search for updates for both the CONVERGE Pro 2 and the CONVERGE Huddle, choose **Check for updates** from the **Help** menu, and then choose the correct tab for the updates you want to see.

Updating Device Firmware (CP2)

Periodically, ClearOne releases firmware updates to improve device performance. You can download firmware updates from within the CONSOLE AI (see *Downloading Updates (CP2)*) and then you can update the device firmware.

To update the device firmware:

1. If you have not already done so, connect to a stack.

    For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. From the Navigation Panel, select **Firmware**. The Firmware screen appears:

    Any available firmware files appear in the My Computer list in the upper right of the Firmware screen.

3. If you don't see the firmware file you want to use to update the device and you have the firmware update file on your computer, click **Select Firmware File**.

4. From the dialog box that appears, locate the firmware file you want to use, then click **Open**.

The selected firmware now appears in the My Computer list.

5. Click the **Send** button next to the firmware file you want to send to the device. The Firmware Update dialog box appears:
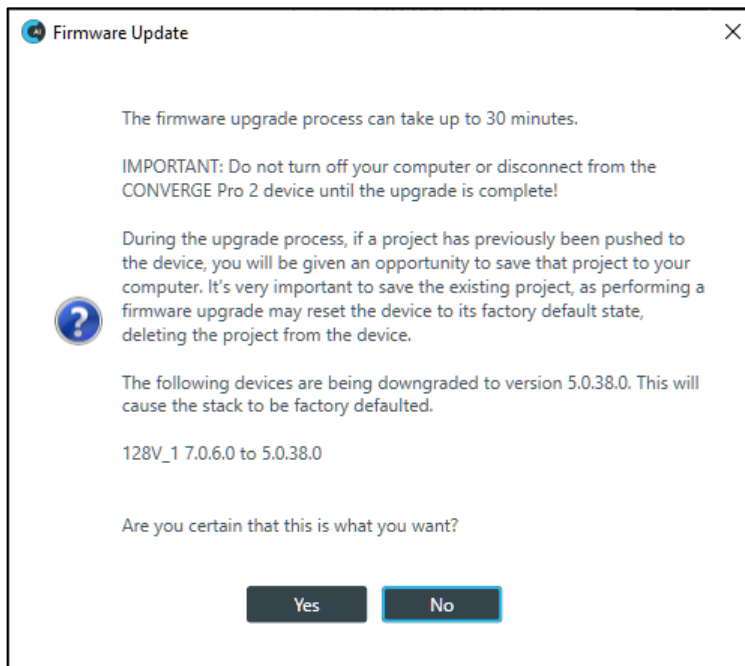
6. Click **Yes** to update the firmware using the file you selected. The Firmware Update progress dialog box appears.

Once the firmware update completes, the device restarts and you are disconnected.

Turning on Safety Mute

To protect against damage to audio assets, you can turn on Safety Mute to mute all connected channels for both CP2 and Huddle devices.

To turn on Safety Mute:

1. If you have not already done so, connect to a stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack (CP2)*.

2. Click on the toolbar.

   The icon changes to orange to indicate that Safety Mute is turned on. Safety Mute remains on for all channels until you turn it off.

Disconnecting from a Stack

You can disconnect from a stack to which you are connected. To disconnect from a stack:

1. Click on the toolbar.

If you have made any changes to the live values, you are asked whether you want to commit these changes to the hardware before disconnecting:

When Changes Have Been Made to Live Values

2. You are asked whether you want to commit the changes to the hardware and save them to disk:
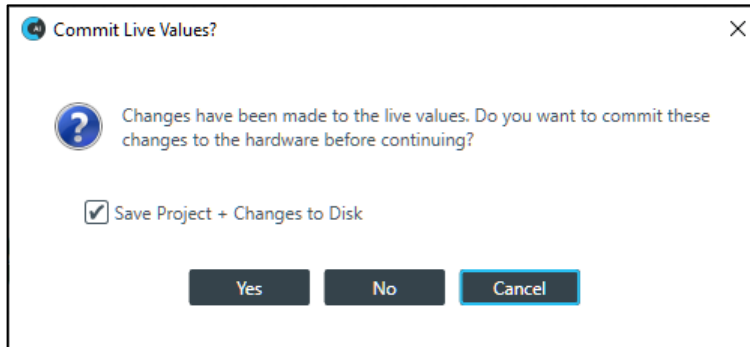
3. If you want to save the changes you have made to live values to a project files on the disk, make sure there is a check mark next to **Save Project + Changes to Disk**. To commit the changes to the hardware without saving them to a project file, deselect this check box.

4. To commit the changes to the hardware, click **Yes**.

   The changes you have made are loaded to the hardware and you are returned to online mode without being disconnected from the stack. Return to step 1 to continue.

5. To continue disconnecting without committing your changes to hardware, click **No**. The Confirm Disconnnect dialog box appears:

6. To disconnect from the stack, click **OK**.

When No Changes Have Been Made to Live Values

7. If you haven't made any changes to live values since the project was last committed to the device, the Confirm Disconnect dialog box appears:
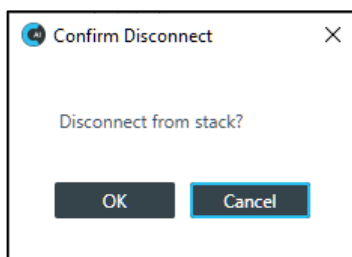
8. To disconnect from the stack, click **OK**.

Chapter 11: Glossary

To view the definition, click the term.

Acoustic Echo Cancellation (AEC)	*Gain warping*
Adaptive Ambient	*Gate Ratio*
AEC Reference	*Gating*
Ambient Level	*Gating Controls*
Ambient Noise	*Gating Groups*
Attack Time	*GPIO (General Purpose Input/Output)*
Attenuation	*Hold Time*
Audible Hook Indication	*Last Mic Mode*
Audible Ringer Indication	*Macro*
Audio Routing	*Manual Gating*
Automatic Gain Control (AGC)	*Matrix*
Automatic Level Control (ALC)	*Maximum Number of Mics*
Bandwidth	*Mute*
Baud Rate	*NLP (Non-Linear Processing)*
Beamforming Microphone Array 2 (BMA2)	*Noise Cancellation*
BMA 360	*NOM (Number of Open Mics)*
Chairman Override	*Off Attenuation*
ClearEffect®	*PA Adapt/AEC Reference*
Clipping	*PA Adaptive Mode*
Compression	*Phantom Power*
Compressor	*Pink Noise*
Cross Point	*Pre-AEC Cross Point*
Crossover	*Preset*
Decay Rate	*Processing Blocks*
Delay	*Project File*
Dial Tone Level	*Q (Quality Factor)*
Filter	*Ratio*
First Mic Priority	*Release Time*
Frequency distortion	*Reverberation*
Frequency invariant beamwidth	*Signal Generator*
Frequency invariant sidelobes	*Threshold*
Gain	*Ultra-low sidelobes*
Gain Structure	*Voice Lift*

White Noise

Wideband Frequency Invariant Beamforming

Acoustic Echo Cancellation (AEC)

A process in which acoustical echo is removed from a signal. AEC can be used to remove unwanted signals from mic audio if the unwanted acoustic signal is available separately as an electronic signal.

Adaptive Ambient

This portion of the mixer monitors the varying ambient noise level in the room and changes the threshold level at which a microphone gates on.

AEC Reference

AEC References allow you to combine multiple audio sources for applications where there are two speakers (left and right), combined audio/video conferencing, and audio/video teleconferencing. In these and other multiple output applications, using AEC references improves AEC performance.

Ambient Level

A user-defined background noise level used to control microphone gating (used only if Adaptive Ambient is disabled).

Ambient Noise

The existing room-level noise, such as that caused by ventilation systems, paper shuffling, and background chatter.

Attack Time

Determines how quickly compression is enabled (calibrated in milliseconds). See also Compression, Compressor, and Threshold.

Attenuation

A reduction of signal amplitude.

Audible Hook Indication

A series of beeps that indicates when the telephone line goes on or off hook. This feature can be turned on or off, and the level can be adjusted in the Telco Receive Channel Properties.

Audible Ringer Indication

When a call comes in, you can hear it ring if Audible Ringer Indication is turned on in the Telco Receive Channel Properties. The ringer level can also be adjusted.

Audio Routing

The process of routing input signals to output channels in the Matrix based on default or user-defined cross points. See also Matrix.

Automatic Gain Control (AGC)

Automatically increases or decreases audio gain to maintain a consistent audio level.

Automatic Level Control (ALC)

ALC can be selected for Telco Receive and Mic/Line Input AEC channels. ALC keeps soft and loud telephone participants at a consistent level. ALC can be turned on or off in the Telco Receive and Mic/Line Input AEC Channel Properties. The default is on for both Telco Receive and Mic/Line Inputs.

Bandwidth

The difference between the lower and upper end points of an audio band. Also, the range or differences between the limiting frequencies of a continuous frequency band.

Baud Rate

The number of signal transitions per second, or the clock rate of the serial bit stream in hertz. Given 7 or 8 bits for data plus start and stop, the approximate ASCII character transmission rate is one-tenth the baud rate.

Beamforming Microphone Array 2 (BMA2)

The BMA2 uses multiple microphone elements to steer its pickup pattern towards participants in the room and reject unwanted noise and reflections.

BMA 360

A Wideband Frequency Invariant Beamforming Microphone Array (BMA). The wideband beamforming range of a BMA 360 is 100 Hz to 20,000 Hz. See [Wideband Frequency Invariant Beamforming](#).

Chairman Override

Provides gating priority for chairman override enabled microphones within the same gating group. When a mic with chairman override gates on, all mics that don't have chairman override enabled and are in the same gating group will gate off.

ClearEffect®

To reduce bandwidth requirements, telephone lines limit audio bandwidth to a range of 300Hz-3.3kHz. ClearEffect enhances the incoming signal from a telephone line to emulate wideband audio by adding 371 high and low frequencies to the audio signal, creating a richer, fuller sound. All output signals routed from an input channel with ClearEffect enabled are routed as wideband audio.

Clipping

Clipping occurs when a signal level exceeds the maximum level a circuit can handle. This is usually caused by improper gain settings. Clipping causes distortion, listener fatigue, and accelerated failure of speakers.

Compression

An induced reduction in the dynamic range of all or part of an audio signal. Compression is usually used to protect individual loudspeaker components from damage caused by transient peaks in audio signals.

Compressor

A signal processor used to perform compression and control the dynamic range of an audio signal.

Cross Point

The intersection between an input and an output in the routing matrix. Cross point cells are color coded according to input type: yellow = gated; blue = non-gated; brown = pre-AEC; green = cross point. See also Gating, Pre-AEC Channel.

Crossover

A device that passes designated frequency ranges of an audio signal to specified loudspeaker elements in a sound system. Converge Pro provides the following types of crossovers:

- **Bessel**. A crossover using a low-pass filter design characterized by a linear phase response. This results in a constant time delay throughout the passband.

- **Butterworth**. A crossover using a low-pass filter design characterized by a maximally flat magnitude response. This results in no amplitude ripple in the passband.

- **Linkwitz-Riley**. A fourth-order crossover consisting of a cascaded second order Butterworth low- pass filter. Offers a vast improvement over the Butterworth crossover and is the de facto standard for professional audio active crossovers.

Decay Rate

Determines how fast a Mic/Line Input channel gates off after the specified Hold time expires (slow, medium, fast). The default is medium.

Delay

Delay calculates the amount of signal delay based on the distance between audio source and audience, and the temperature. Introducing an appropriate amount of delay can maintain acoustical alignment and proper sound imaging in a room regardless of speaker location. This setting can also compensate for propagation delay caused by signal processing, such as analog to digital conversion. Delay is set in the Processing Channel Property. See also Processing Blocks.

Dial Tone Level

A setting in the Channel Property Configuration window for Telco Rx channels that allows you to adjust the dial tone level in 1dB steps to ±12dB.

Filter

A device that passes and blocks audio signals based on user-definable requirements of the system. Filter types used by CONVERGE Pro 2:

- **All Pass**. A filter that provides only phase shift or phase delay without appreciably changing the magnitude characteristic. The filter produces a flat amplitude response. It is useful for matching the delay of two processing channels with different delays.

- **Bessel Crossover**. A crossover using a low-pass filter design characterized by a linear phase response. This results in a constant time delay throughout the passband.

- **Butterworth Crossover**. A crossover using a low-pass filter design characterized by a maximally flat magnitude response. This results in no amplitude ripple in the passband.

- **CD Horn EQ**. Horn drivers used in arenas and auditoriums have an inherent 6dB/octave high frequency rolloff. The CD Horn EQ compensates for this characteristic.

- **High Pass**. A filter that passes high signal frequencies while attenuating low frequencies.

- **High Shelving**. Provides boosting or attenuation of frequencies above a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/ octave rate. The gain or loss above the corner frequency is adjustable to +/-15dB.

- **Linkwitz-Riley Crossover**. A fourth-order crossover consisting of a cascaded second order Butterworth low-pass filter. Offers a vast improvement over the Butterworth crossover and is the de facto standard for professional audio active crossovers.

- **Low Pass**. A filter that passes low frequencies while attenuating high frequencies.

- **Low Shelving**. Provides boosting or attenuation of frequencies below a designated frequency. The transition between the spectrum above and below the designated frequency occurs at a fixed 6dB/ octave rate. The gain or loss below the corner frequency is adjustable to +/-15dB.

- **Notch**. Passes most frequencies unaltered, but attenuates those in a specified range (e.g., the notch). Center frequency range is 20.00Hz to 20.00kHz. Bandwidth is from 0.05 to 5.00 octaves in 0.01 octave increments. Level is fixed at -80dB.

- **PEQ (Parametric Equalizer)**. A multi-band variable equalizer with control of gain, center frequency, and bandwidth. A properly configured PEQ enables Converge Pro devices to offset speaker anomalies and room acoustic imaging deficiencies. Center frequency range is 20Hz to 20kHz in 0.01Hz increments. Bandwidth is 0.05 to 5 octaves in 0.01 octave increments. Level range is -15 to +15dB in 0.5dB increments.

First Mic Priority

Increases the audio level required to gate on additional microphones after the first mic is on. This helps ensure that only one mic gates on when a person speaks.

Frequency distortion

A property in beamforming where a beam gain pattern breaks down, or deviates from the intended direction and gain as a function of frequency.

Frequency invariant beamwidth

A beamwidth is the angular distance between half power points of the mainlobe in a two-dimensional slice of the gain pattern. To be frequency invariant, the beamwidth remains constant with varying frequency.

Frequency invariant sidelobes

In beamforming, a gain pattern that varies with frequency can cause the sidelobes to rise with changing frequency and thus not provide the off-axis rejection for all frequencies in the band. Frequency invariant sidelobes do not waiver with frequency so the undesired signal directions are not coming in and out of notice.

Gain

The amount a signal is increased over a given reference, typically 0, normally specified in dB (decibels). On Converge Pro 2 devices, gain is adjustable from -65 to 20dB (85dB range) in 0.5dB increments.

Gain Structure

A set of configuration parameters that define the gain characteristics of a signal. The optimal input gain setting is one which provides both an adequate signal-to-noise ratio and reasonable headroom.

Gain warping

A property of a gain pattern where the polar plot starts to distort, break down, or depart from the goal.

Gate Ratio

Specifies how much louder the microphone audio level must be over the ambient sound level before a microphone gates on.

Gating

The activation and deactivation of mic inputs. Converge Pro 2 provides three types of microphone gating:

- Auto. The microphone gates on according to the input level, assigned gating parameters, and gating group.
- Manual On. The microphone gates on unless it exceeds the NOM requirements of the gating group.
- Manual Off. The microphone is deactivated.

Gating Controls

The gating parameters that are assigned to a gating group, including:

- **Maximum Number of Mics**. Sets the maximum number of mics that can be gated on simultaneously.
- **First Mic Priority**. Increases the audio level required to gate on additional microphones after the first mic is gated on.
- **Last Mic Mode**. Sets the last-activated mic to Last On, Mic 1-8, or Off.

Gating Groups

A set of gating parameters which can be applied to microphones connected to the stack. Gating groups provide greater flexibility and control of mics.

GPIO (General Purpose Input/Output)

GPIO connections enable external devices to access the Converge Pro 2 functions, including common functions such as volume control, muting, room combining, and preset changes.

Hold Time

The length of time that a microphone remains on after the voice (input) level drops below the gate ratio. This can be used to prevent the microphone from gating off during brief pauses in speech.

Last Mic Mode

Sets the last-activated mic to Last On, Mic 1-8, or Off. The Last On setting leaves the last-activated mic gated on until another mic input gates on.

Macro

A series of commands stored and executed together. Macros can be executed from within CONVERGE Pro 2 CONSOLE, using serial commands, and using timers.

Manual Gating

Provides the ability to gate a microphone on or off manually. See also Gating.

Matrix

The Matrix, shown in the MatrixView, displays inputs as rows and outputs as columns and Allows you create connections at cross points (spots in the matrix where input rows and output columns intersect).

Maximum Number of Mics

Sets the maximum number of mics that can be gated on simultaneously. See Gating.

Mute

A condition in which an audio signal is attenuated below the audible threshold.

NLP (Non-Linear Processing)

NLP increases the power of echo cancellation for difficult acoustical environments. NLP has four settings: Soft (6dB), Medium (12dB), Aggressive (18dB), and Off. NLP settings are found in the Channel Properties for Mic/Line Input channels.

Noise Cancellation

A process which removes ambient noise from a signal.

NOM (Number of Open Mics)

Adjusts the output level to maintain a specified gain level based on the number of mics gated on and routed to an output. Also known as Constant Gain Mode.

Off Attenuation

The amount of level reduction a microphone is given when the microphone is not gated on.

PA Adapt/AEC Reference

This setting determines which output channel (typically a loudspeaker) is used as the reference for AEC. See also PA Adaptive Mode and AEC.

PA Adaptive Mode

PA Adaptive Mode allows you to specify an output as the ambient reference. This prevents an audio signal from gating on microphones without interfering with speech from conference participants.

Phantom Power

Power supplied by Converge Pro units to power condenser microphones. This feature can be switched off for microphones that do not require phantom power.

Pink Noise

An audio test signal containing all the frequencies in a given audio spectrum, with equal energy in each octave.

Pre-AEC Cross Point

Setting a Pre-AEC Cross Point in the Matrix bypasses the cross-pointed input audio from the AEC (Acoustic Echo Cancellation) reference. This is primarily used for sound reinforcement applications to prevent mic input channel audio from being degraded by AEC artifacts.

Preset

Presets provide the configuration flexibility needed to meet changing conference room requirements. These changes include audio routing, gating, muting, levels, AEC referencing, and signal processing, as well as room combining and room configuration. Presets allow you to make configuration changes instantaneously—without interrupting or affecting any conferences in progress.

Processing Blocks

Processing blocks enable you to configure filters, delay, compression, and gain to create precise audio configurations for any venue. A single input or group of inputs can be routed through a processing block and then routed to an output or multiple outputs.

Project File

Project Files allow you to store configuration settings for one or more Converge Pro 2 devices, including Inputs, Outputs, Fader channels, Processing channels, Matrix routing, and Presets, for a specific application or venue. Project files also provide Console with the necessary information to communicate with project hardware using your PC.

Q (Quality Factor)

It is the ratio of the center frequency divided by the bandwidth. Q reflects an inverse relationship to the bandwidth, and is adjustable from 0.02:1 to 40:1.

Ratio

The amount of compression applied to the output signal compared with the input signal as the signal exceeds the threshold level. See also Compressor, Compression, and Threshold.

Release Time

Release is a parameter which determines how quickly compression is released after the input signal drops below the specified threshold. See also Compressor, Compression, and Ratio.

Reverberation

A diffused acoustic energy field fed and maintained by sound reflections from the room surfaces.

Signal Generator

A device for generating a reference tone for sound system calibration purposes.

Threshold

The upper or lower level at which a signal processing begins or terminates.

Ultra-low sidelobes

Sidelobes are the region outside the mainlobe, or off-axis, where undesired signal directions are to be rejected. Ultra-low sidelobes reach large attenuation depths so those undesired signal directions are significantly rejected.

Voice Lift

Voice lift picks up a talker's voice and amplifies it through loudspeakers into others' areas of the room, allowing everyone to clearly hear what the talker is saying. The voice lift submixes in the BMA 360 provide a powerful, yet simple way to drive multiple mix-minus speaker zones.

White Noise

Acoustical noise with equal energy throughout a given frequency range.

Wideband Frequency Invariant Beamforming

Wideband refers to a full range of frequencies as compared to narrowband beamforming. Frequency Invariant beamforming refers to a consistent gain pattern as frequency changes across a band, and specifically refers to consistent mainlobe beamwidth, and sidelobe depths that remain low for ideal unwavering off-axis rejection even as the frequency changes. Wideband Frequency Invariance is a performance goal to attain a near frequency independent gain pattern across a wideband spectrum.

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