ClearOne

CONVERGE® Pro 2 CONSOLE®

User Manual

Notices

Technical Support

Telephone	1.801.975.7200
Fax	1.801.303.5711
Email	tech.support@clearone.com
Web	*www.clearone.com*

CONVERGE Pro 2 CONSOLE User Guide

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Contents

Chapter 1

Introduction

Topics:

This chapter contains some basic concepts and tasks important to understanding and using the CONVERGE Pro 2 CONSOLE application.

CONVERGE Pro 2 Product Family Overview

Congratulations! You have purchased a ClearOne® CONVERGE® Pro 2 (CP2) audio conferencing solution. The CONVERGE Pro product family represents a revolutionary advance in state-of-the-art audio technology for large-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 2 product family, 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 product family 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

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 48T
- CONVERGE Pro 2 48V
- CONVERGE Pro 2 120
- CONVERGE Pro 2 012
- CONVERGE Pro 2 128SR
- CONVERGE Pro 2 128SRD
- CP2 USB Expander
- CP2 GPIO Expander
- CP2 Touch Panel Controller
- Beamforming Microphone Array 2

Feature Matrix

CONVERGE Pro 2	Conferencing										Sound Reinforcement	
	128	128D	128T	128TD	128V	128VD	48T	48V	120	012	128SR	128SRD
Mic/Line Inputs	12	12	12	12	12	12	4	4	12	☒	12	12
Mic/Line Outputs	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	☒	☒	☑	☑	☒	☒	☑	☒	☒	☒	☒	☒
Built-in VoIP for VoIP Conferencing	☒	☒	☒	☒	☑	☑	☒	☑	☒	☒	☒	☒
Built-in Skype for Business Conferencing	☒	☒	☒	☒	☑	☑	☒	☑	☒	☒	☒	☒
Sound Reinforcement Applications	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Built-in Dante for Audio Networking	☒	☑	☒	☑	☒	☑	☒	☒	☒	☒	☒	☑
Beamforming Microphone Array 2	☑	☑	☑	☑	☑	☑	☑	☑	☑	☒	☒	☒
DIALOG 20 Wireless Mic System	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
GPIO Expander	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
USB Expander	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
New CONSOLE 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 common to all products in the CONVERGE Pro 2 family include:

- USB connector on front panel for easy connectivity with a laptop or PC
- 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, DIALOG 20 Receiver, CP2 USB Expander, CP2 GPIO 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 CONVERGE Pro 2 CONSOLE

You can install the CONVERGE Pro 2 CONSOLE 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)

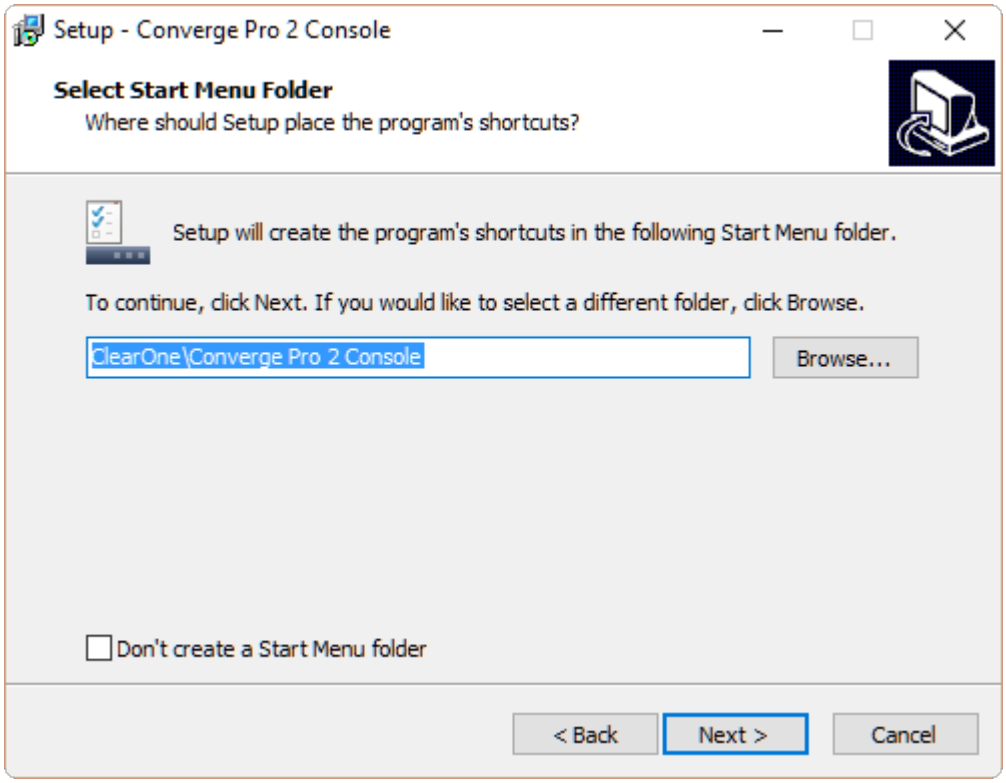
To install the CONVERGE Pro 2 CONSOLE:

1. Run the installation application, Setup_CP2_Console_Vx.x.x.x (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 CONVERGE Pro 2 installation wizard begins, and the Setup License Agreement screen appears:

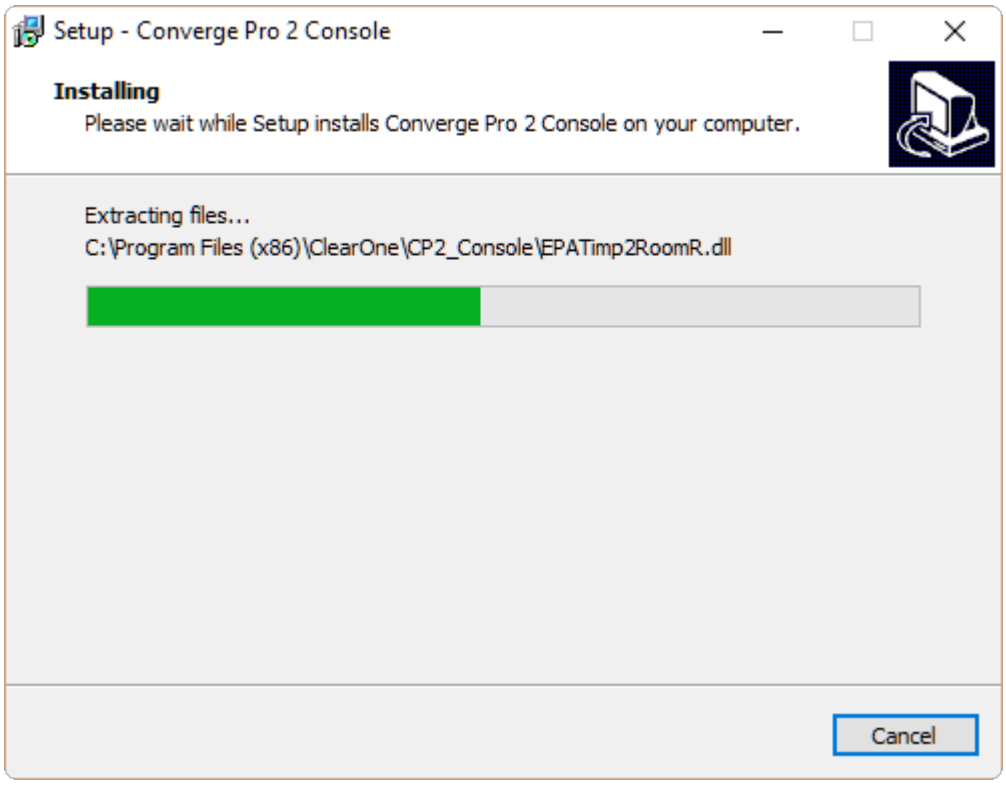
3. Read the license agreement.
4. Select the **I accept the agreement** option, and then click **Next**.

The Select Start Menu Folder screen appears:

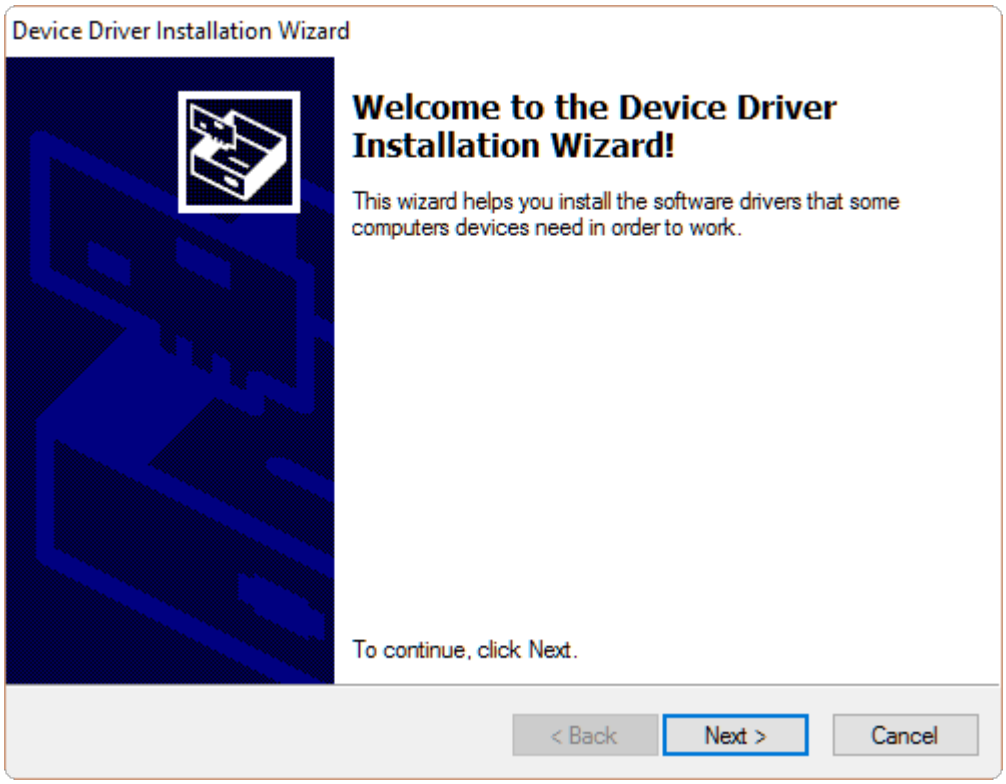


5. If you want to install the application somewhere other than to the default location (ClearOne\Converge Pro 2 Console), click **Browse** and then choose an alternate location.
6. If you don't want a shortcut to the CONSOLE added to the Start menu, check the **Don't create a Start Menu folder** check box.
7. Click **Next**.

   The Installing screen appears:

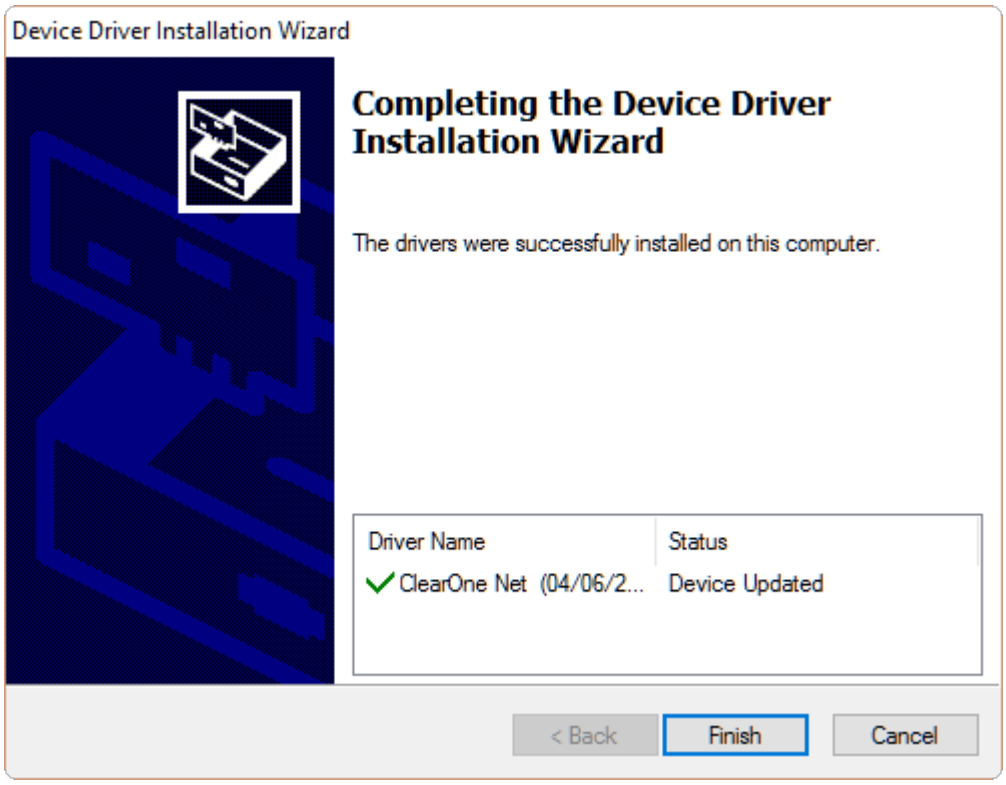


When the program is done installing, the Device Driver installation wizard begins, and the Welcome screen appears:



8. Click **Next**.

When the devicer driver installation is complete, the Completion screen appears:



9. Click **Finish**.

The Device Driver Installation wizard closes and the CONVERGE Pro 2 installation wizard Completion screen appears:

10. Click **Finish**.

About Projects

The CONVERGE Pro 2 CONSOLE lets you change the settings for a CONVERGE Pro 2 device, as well as for how the device interacts with audio and control devices.

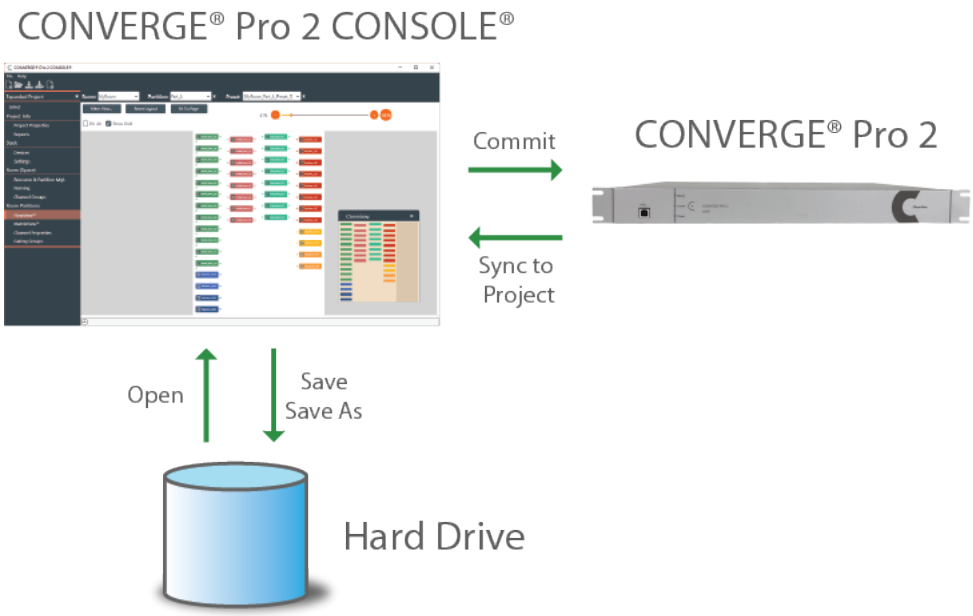
These settings can be saved together as a *project*. A project contains all the settings for one or more devices. The settings are saved in a project file. You can create and save multiple projects and then load them in the CONSOLE as needed.

Project File Versions

When you are working in the CONVERGE Pro 2 CONSOLE, 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 Project mode version of the project to the drive.
CONSOLE application (Project 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 application Project mode.	Make changes to the project settings while in one of the Project modes. **Note:** Changes you make to this project file have no effect unless the project is loaded to a CP2 device.
CONSOLE application (Live mode)/ CONVERGE Pro 2 Device	When you commit a project file to a CONVERGE Pro 2 device, a version of the project file exists on the device and is reflected in the CONSOLE Live mode.	Make changes to the project settings while in one of the Live modes.

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:



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Committing Project Changes to a Device on page 216
Syncing Device Settings to the CONSOLE on page 217
Opening a Project on page 41
Saving a Project on page 41
Retrieving Active Project on page 208

Live Mode vs. Project Mode

The CONVERGE Pro 2 CONSOLE can be in one of two possible modes: Live mode (connected to a stack) or Project mode. When you start CONSOLE, it begins in Project mode. In order to see the live modes, you have to connect to a device or stack. See *Connecting to a Device or Stack* for more information.

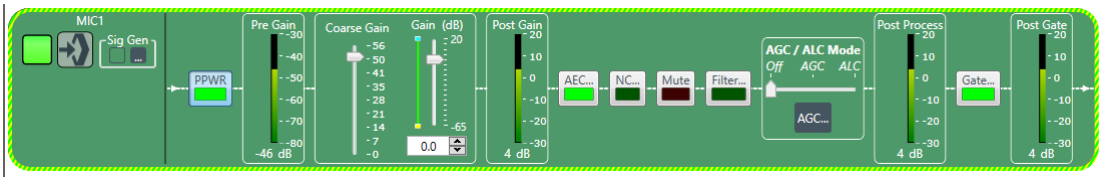
Note: It's important to understand that the CONSOLE application does not have all the same interface options available in Live mode that it has in Project mode. There are some interface options that are available in both modes, but there are some options that are unique to one or the other of the two modes.

Live Mode

The CONSOLE application is in Live mode when you have chosen one of the live modes within the CONSOLE interface: Admin (Update), Room, or Control Panel. Those modes are available only when the CONSOLE is connected to at least one CONVERGE Pro 2 device and is actively communicating with the stack.

Important: When you're in any of the Live modes, you are seeing the state of the device or devices to which you are connected. When you make changes while in Live mode, you're making 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 as shown while in Project mode. For more information about the different versions of a project file and how to synchronize Live mode changes to a project, see *About Projects* and *Syncing Device Settings to the CONSOLE*.

Being in Live mode gives you some capabilities that are unavailable in Offline mode. For example, here is the channel properties block for a Mic/Line Input AEC channel named MIC1:



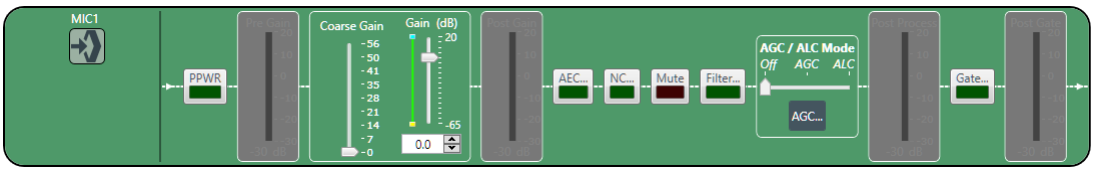
Notice that the property block is surrounded by a dashed light green border, which tells you that the CONSOLE application is connected to a CP2 device. This properties block has several meters to help you make properties adjustments. For example, it has a Pre-Gain meter immediately after the PPWR button 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. They show a level, however, only if you are in one of the live modes.

Project Mode

The CONSOLE application is in Project mode when you have chosen one of the project interface modes: Project (Classic) or Project (Room). Project modes are available whether or not you are connected to a CONVERGE Pro 2 device.

Important: When you're in any of the Project modes, you are seeing the state of the project as loaded in the CONSOLE. When you make changes to a project while in Project mode, those changes are not reflected on any device unless you load the changes to the stack. For more information about the different versions of a project file and how to synchronize project changes, see *About Projects* and *Loading Project Changes to a Device*.

The following figure shows the same channel properties block, for a Mic/Line Input AEC channel, but in Project mode:



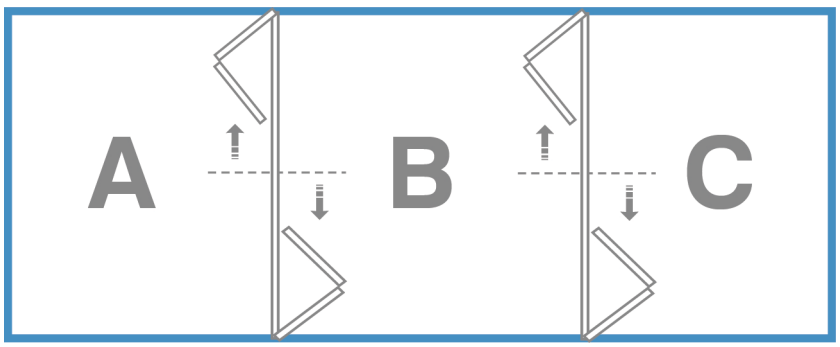
Notice that the border of the block is black, which tells you that the CONSOLE application is either not connected to the stack or is connected but in one of the project modes. In Project mode, the meters are dimmed, because the CONSOLE can't display any meter information when it isn't connected to a device or is in one of the project modes.

There are a number of features that are unavailable when in Project mode. However, there are some features that are available only when in Project Mode.

About Room Partitions

Rooms that have dividers can be divided into a number of room segments, called *partitions*.

The illustration below 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.

The CONVERGE Pro 2 CONSOLE application lets you specify how many partitions are in a room. When you add assets, you add them to a particular partition. Then when you want to connect assets, using FlowView or MatrixView, you can create different configurations for different partitions.

For more information about adding a partition, see *Adding a Room Partition*.

For information about using GPIO logic input pins to set divider states, see *Adding Assets to a Partition*.

For information about changing divider states manually, see *Closing a Divider*.

About Channel Groups

Channel groups let you group channels together under a name of your choosing.

Channel groups are a very convenient way to configure related or similar audio assets. You can name each group, to help you keep track of your assets, and you can make configuration changes to the entire group. For example, if you have a conference room with several microphones, you could have one group for podium mics, another for ceiling mics, and still another for handheld mics. Or, if you wanted, you could make a group for mics in the front half of the room, and another for the mics in the back half of the room.

You can apply settings to a channel group just as you would an individual asset, and you can also create audio paths that involve entire groups, to make audio routing simpler.

About References

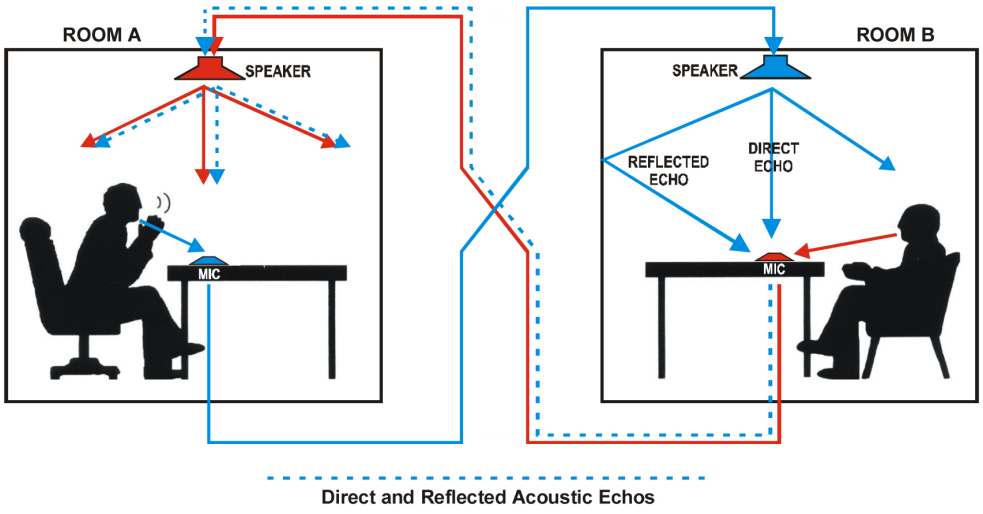
Acoustic Echo Cancellation (AEC) uses audio references to determine which signals to cancel. This topic explains AEC and how it uses references to cancel echo.

For information about adding references to a room partition, see *Adding Assets to a Partition*.

For information about making reference associations (between inputs and outputs), see *Connecting Assets Using FlowView™* and *Connecting Assets Using MatrixView™*.

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:



Direct and Reflected Acoustic Echos

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 speaker at the top of ROOM B, as shown by the solid blue line. The microphone 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.

References

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

In the diagram above, to eliminate the echo, we would add the speaker at the top of ROOM B (which we'll call SPEAKER 1) as a reference for the microphone on the table in ROOM B (which we'll call MIC 1) and turn on AEC. 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 have multiple outputs in a room, and you want to be able to specify which signals to exclude and which signals not to exclude. This is called a *custom reference*.

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 kind of relationships between several microphones.

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

Note:

You can also execute macros at a specified time, or times, using a Timer. See *About Timers* for more information.

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.

For more information about creating and modifying timers, see *Adding and Modifying Timers*.

You can also execute a timer at any point. See *Running a Timer* for more information.

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.

For more information about creating presets, see *Adding or Modifying Presets*. For more information about executing a preset, see *Executing a Preset*.

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 Assets to a Partition*.

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)*.

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

About Gain Optimization

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

Note:

Specific information about optimizing gain for particular 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 the Telco 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 CONVERGE Pro 2 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 CONVERGE Pro 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. Speech Lift
- **User Gain Control**. User control of room audio levels should be done within the CONVERGE Pro 2 system. 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.

Checking for Updates

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

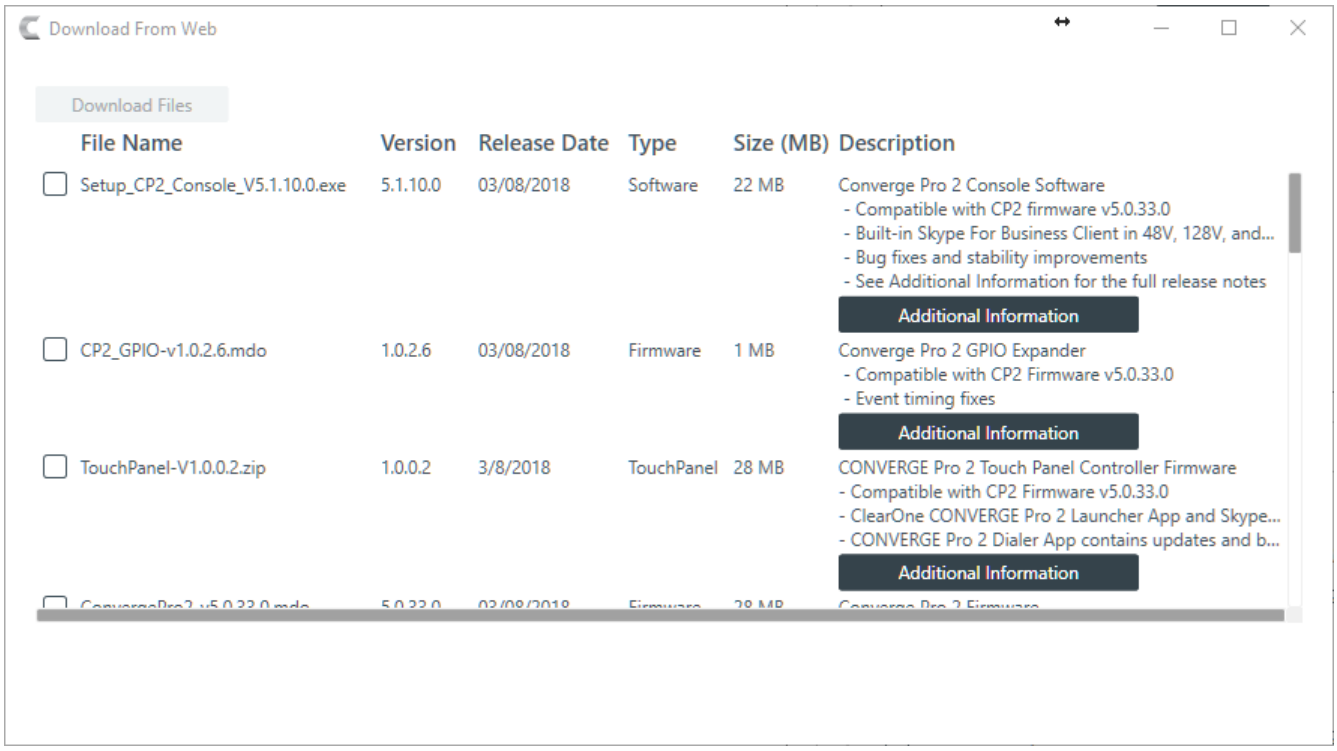
Note:

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**.

   The selected items are downloaded to the following location on your computer: `{Documents}\ClearOne\CP2_Console\Updates`.

   Note:

   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.

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
- Place and receive calls via a Skype for Business Server (feature currently available using the Touch Panel Controller; future releases of the Android and iOS dialers will support Skype for Business; feature not supported using the Windows and macOS Dialer applications)
- 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*.

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 Firmware from the CONSOLE, see *Upgrading Touch Panel Controller Firmware*.

About CONVERGE Pro 2 Expanders

CONVERGE Pro 2 expanders can be used to add USB or GPIO ports (and corresponding channels) to a CONVERGE Pro 2.

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 Beamforming Microphone Array 2 and the DIALOG 20 Wireless Mic) and expander units (USB Expander and GPIO Expander).

- Adding microphones adds mic channels for the respective type of device being added. See *Adding a Beamforming Microphone Array 2* and *Adding a DIALOG 20 Wireless Mic*.

  Note:

  If you are using Long-distance P-link, you can add only Beamforming Microphone Array 2 devices, and only up to three units. See *About Long-distance P-link* for more information.

- Adding a 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 USB Expander* for more information.

  Note:

  When you add a 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* 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.

About P-link Devices and Channels

Several devices, the Beamforming Mic Array 2, DIALOG 20 Wireless Mic System, GPIO Expander, and the USB Expander, can be attached to a CONVERGE Pro 2 using ClearOne's proprietary P-link connections.

Note:

If you are using Long-distance P-link, you can attach only Beamforming Microphone Array 2 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 Beamforming Microphone Array 2*

- *Adding a DIALOG 20 Wireless Mic*
- *Adding a GPIO Expander*
- *Adding a USB Expander*

Adding P-link Assets to a Project

After you have added the device(s) to the project, their assets become available to include in a room partition. You must add the assets to a partition in order to route them to other devices or process their audio channels. 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
DIALOG 20 Wireless Mic System	Dialog Mics	Dialog Microphones
CONVERGE Pro 2 GPIO Expander	GPIOs	N/A
CONVERGE Pro 2 USB Expander	xUSB	xUSB Rx xUSB Tx

For information about adding assets to a partition, see *Adding Assets to a Partition*.

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 Assets*), add the channels to groups (see *Assigning Assets to Channel Groups*), and route and process the channels (see *Connecting Assets Using FlowView™* and *Connecting Assets Using MatrixView™*). 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, 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* 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 Device Settings - General* for more information.
- Long-distance P-link applies only to Beamforming Microphone Array 2 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 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 devices to one CP2 when using Long-distance P-link.

Chapter 2

Interface

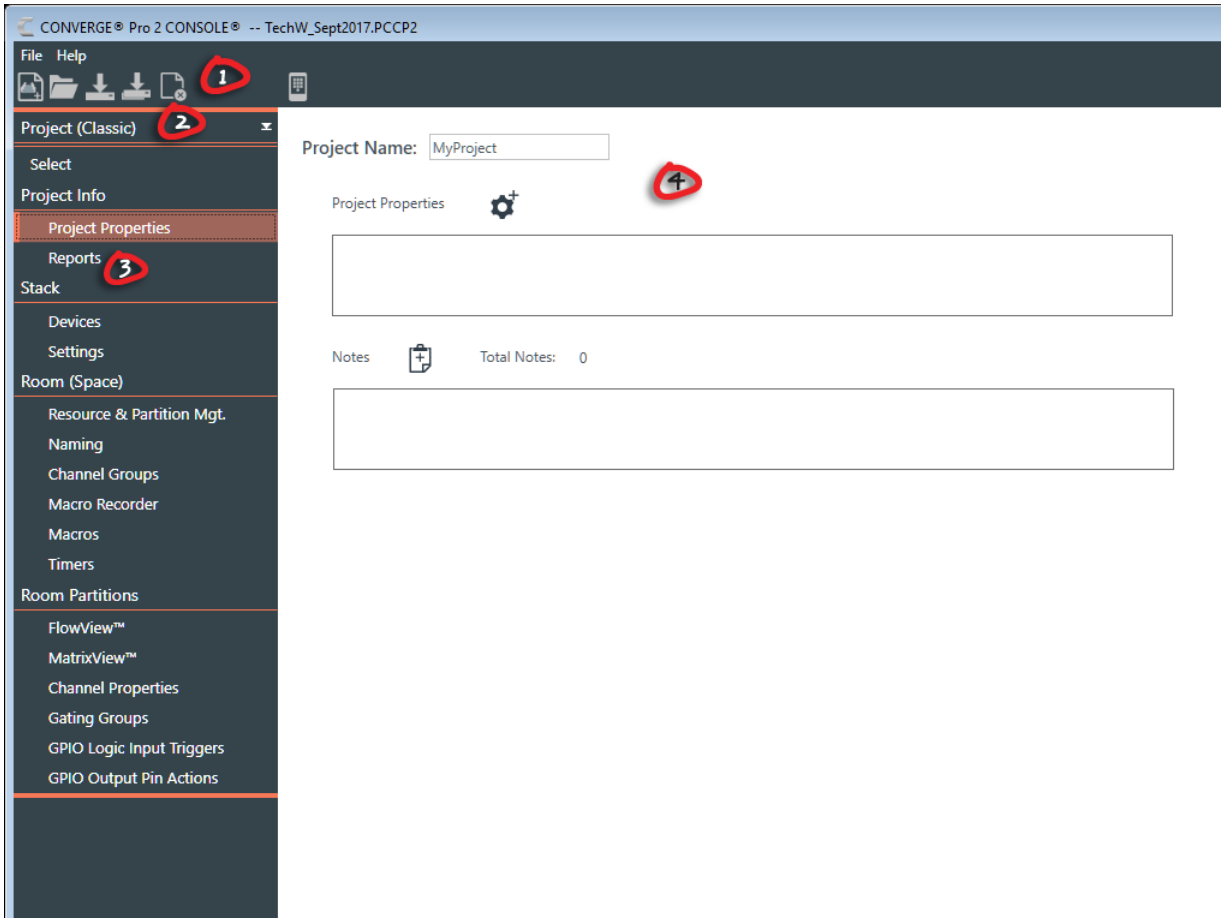
Topics:

This chapter contains about the CONVERGE Pro 2 CONSOLE user interface.

About CONSOLE Interface

The CONVERGE Pro 2 CONSOLE interface has been completely redesigned to make it easier and more intuitive to configure and control your audio environment.

Interface Layout



1. The Toolbar shows tools that give you easy access to essential features. The tools that appear here depend on the interface mode being used. See *About Interface Modes* for more information.
2. The Interface Mode drop-down list lets you choose between the five available interface modes (three of which are available only if you are connected to a stack). See *About Interface Modes* for more information.
3. The Navigation Panel lets you choose between a number of different screens. The contents of the Navigation Panel vary depending on the interface mode being used. See *About Interface Modes* for more information.
4. The interface screen area is where you can 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 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).

About Interface Modes

The CONVERGE Pro 2 CONSOLE can be in one of five different modes, two Project modes and three Live modes (Live modes are available only if you are connected to a stack). See *Choosing Interface Modes* for more information about how to switch between modes.

Note:

For documentation purposes, this manual describes all procedures assuming you are in either Project (Classic) mode or Control Panel mode.

The following modes are available:

Mode	Description
Project (Classic)	Administrative functions and routing and mixing functions are laid out by the order in which you are most likely to perform them when setting up a project.
Project (Room)	Administrative functions, including reporting, are at the top with routing and mixing functions organized by room and partition.
Admin (Update) (available only when attached to a stack)	Only administrative functions you can perform when connected to a device are shown (no routing and mixing functions).
Room (available only when attached to a stack)	Administrative functions and routing and mixing functions you can perform when connected to a device are shown. Routing and mixing functions are organized by room and partition, so you choose your room and partition first, and then choose the routing and mixing function you want to perform.
Control Panel (available only when attached to a stack)	Administrative functions and routing and mixing functions you can perform when connected to a device are shown. Routing and mixing functions are not organized by room and partition, so you choose the routing and mixing function you want to perform first, and then choose the room and partition.

Choosing Interface Modes

When using the CONVERGE Pro 2 CONSOLE, you can choose from five interface modes (see *About Interface Modes* for more information about the available modes). To see and use the Live interface modes (Admin, Room, and Control Panel), you must be connected to a device or stack (see *Connecting to a Device or Stack* for more information).

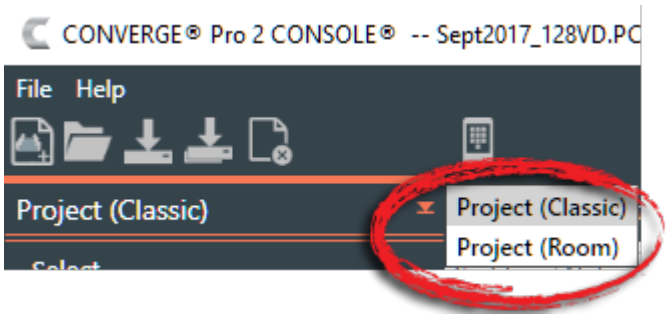
Note:

For documentation purposes, this manual describes all procedures assuming you are in either Project (Classic) mode (when not attached to a stack) or Control Panel mode (when attached to a stack).

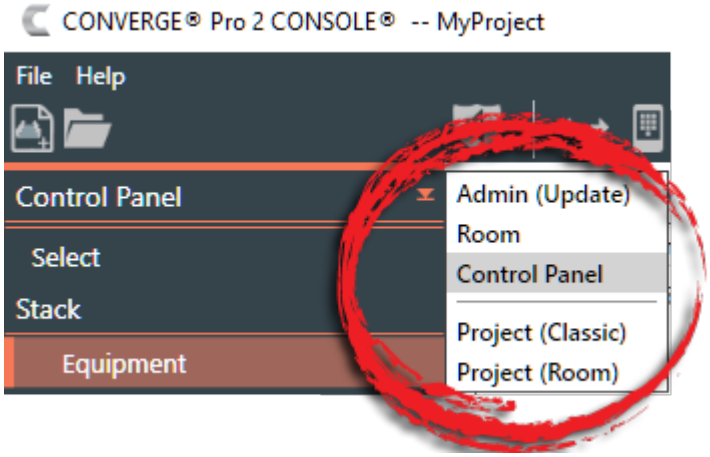
To choose an interface mode:

1. Click the Interface Mode drop-down list at the upper left of the CONSOLE interface.

   If you’re not connected to a device, there are two possible modes:



If you're connected to a device, there are five possible modes:



2. Choose a mode.

Changing the CONSOLE Interface Language

You can change the language used in the CONSOLE user interface.

You can choose any of the following languages:

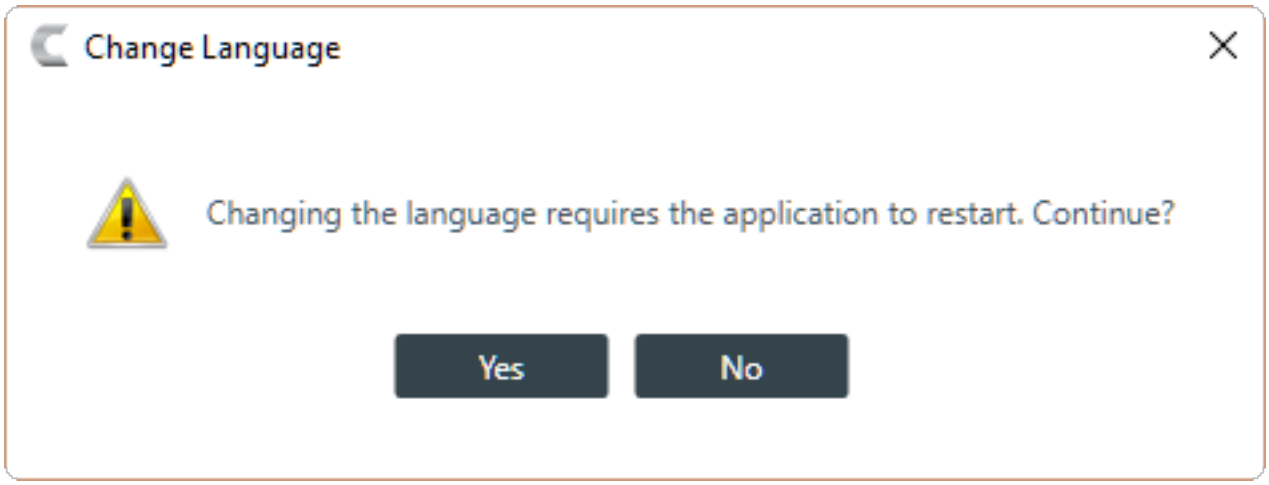
- Arabic
- Chinese
- English
- French
- German
- Japanese
- Korean
- Russian
- Spanish

To change the CONSOLE 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 and change the user interface language:



3. Click **Yes**.

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

Changing CONSOLE Options

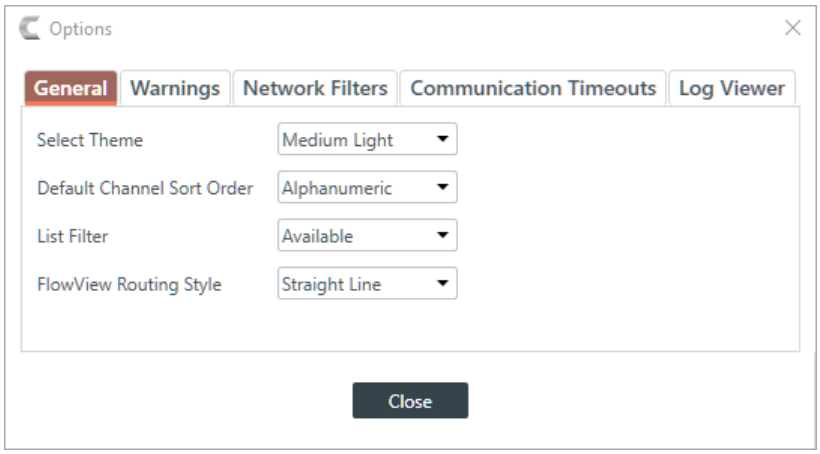
The CONVERGE Pro 2 CONSOLE Options lets you change the following:

- General
  - Select an interface theme
  - Select the default sort order for channels
  - Select the default list filter
  - Change the FlowView routing style
- Warnings (specify which of the following warnings to show)
  - Add Partition
  - VoIP Type Changes
  - VoIP UA Enable
  - Software Upgrade
  - Firmware Upgrade
- Network Filters (to specify which network interfaces and properties to display)
- Communication Timeouts (to specify timeout values for various CONSOLE communications functions)
- Log Viewer (to specify how to sort the results and which Log Viewer columns to display)

To change the CONSOLE options:

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

   The Options dialog box appears:

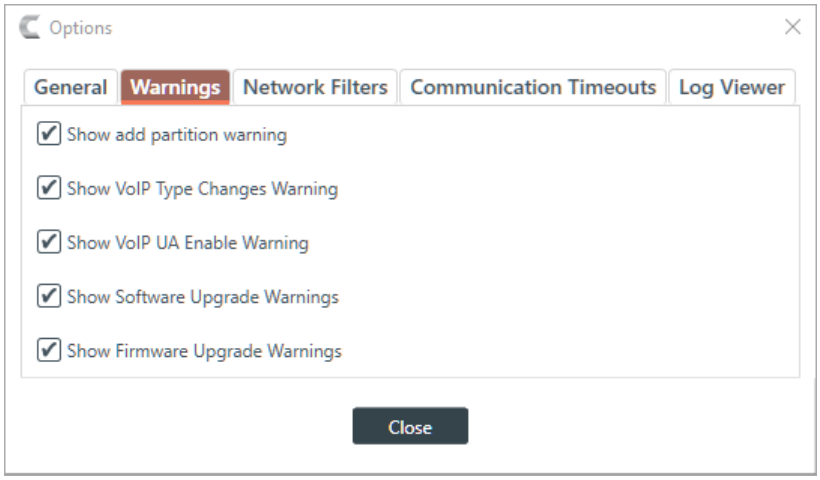


2. (Optional) Change any of the options, as described in the table below:

Option	Description
Select Theme	Changes the appearance of the CONSOLE user interface.
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.
FlowView Routing Style	Specify whether FlowView connectors are straight lines connecting two objects or go around any objects between them.

3. (Optional) To specify which warnings appear, click the **Warnings** tab.

   The Options Warnings tab appears:



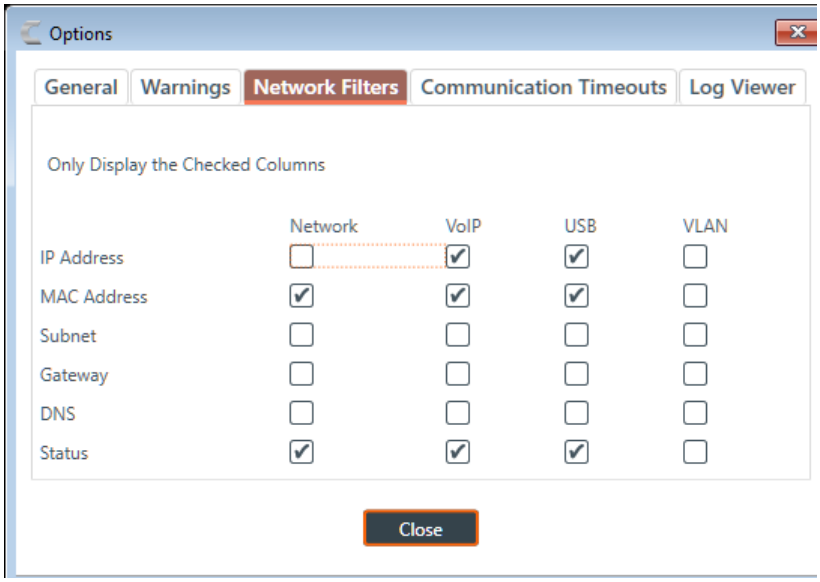
4. (Optional) Select which warnings appear, as described in the table below:

Option	Description
Show add partition warning	Show a warning about the results of adding a partition each time a partition is added.
Show VoIP Type Changes Warning	Show a warning when you switch between SIP and Skype for Business VoIP configurations.
Show VoIP UA Enable Warning	Show a warning regarding how many concurrent calls can be placed, based on how many UAs have been enabled.

Option	Description
Show Software Upgrade Warnings	Show warnings about the implications of upgrading the CONSOLE software.
Show Firmware Upgrade Warnings	Show warnings about the implications of upgrading the CP2 firmware.

5. (Optional) To filter which information appears on the Stack Network screen (when in one of the live modes), click the **Network Filters** tab.

   The Options Network Filters tab appears:



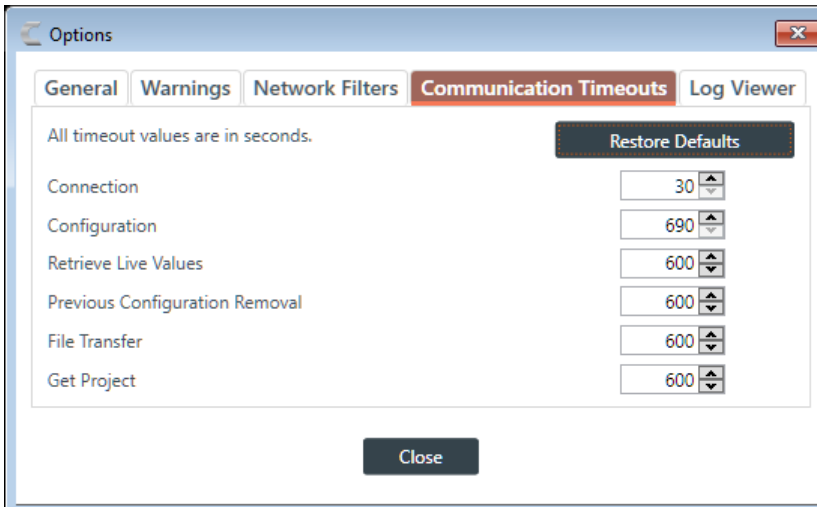
6. Select the interfaces and network details you want to display.

   Note:

   Interfaces are shown in columns; network details appear in rows.

7. (Optional) To set the timeouts for various CONSOLE communications functions, click the **Communication Timeouts** tab.

   The Options Communication Timeouts tab appears:

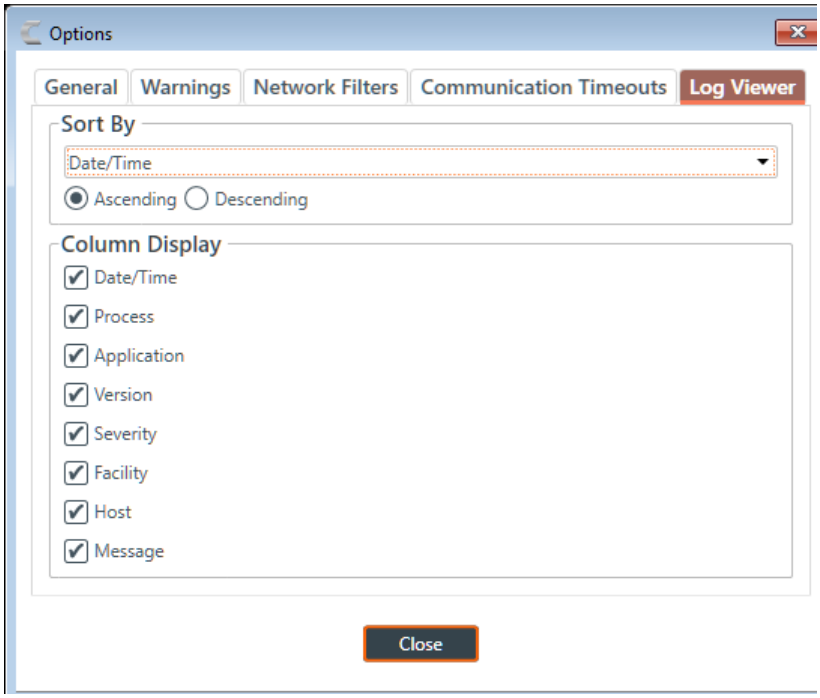


8. Change any of the communication timeout values, or click Restore Defaults to change all timeouts to their default values. See the table below for details:

Item	Description
Connection	Maximum time the CONSOLE 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 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 and a CP2 device) for any single file.
Get Project	Maximum time to request and process a CONSOLE project file.

9. (Optional) To specify which log information appears in the Log Viewer, click the **Log Viewer** tab.

   The Options Log Viewer tab appears:



10. (Optional) Select a sorting option from the **Sort By** drop-down list and specify whether you want to sort in **Ascending** or **Descending** order.
11. (Optional) Specify which columns to display by checking or unchecking boxes under **Column Display**.
12. Click **Close**.

Launching the CONVERGE Pro 2 Dialer

If you have installed the CONVERGE Pro 2 Dialer, you can launch it from the CONSOLE Toolbar.

Note:

The Windows Dialer supports connections to VoIP/SIP servers, but not to Skype for Business servers.

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  .

The Dialer application is launched.

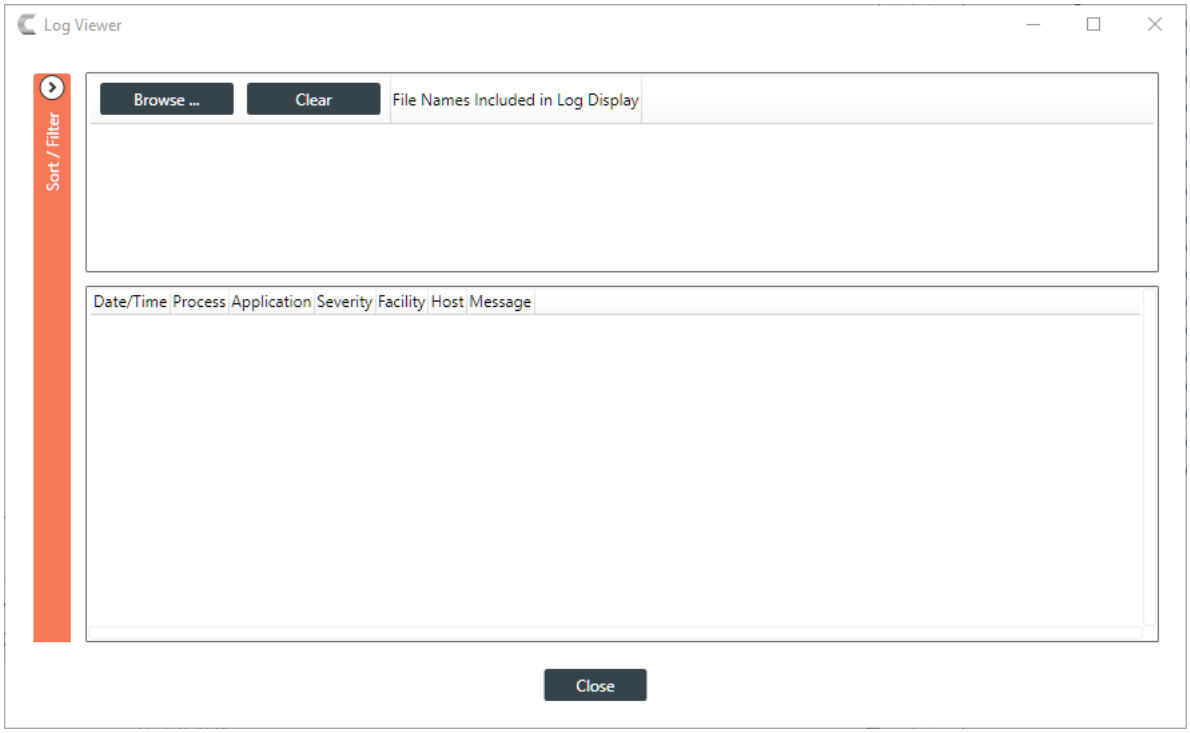
Using the Log Viewer

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

To use the Log Viewer:

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

   The Log Viewer appears:

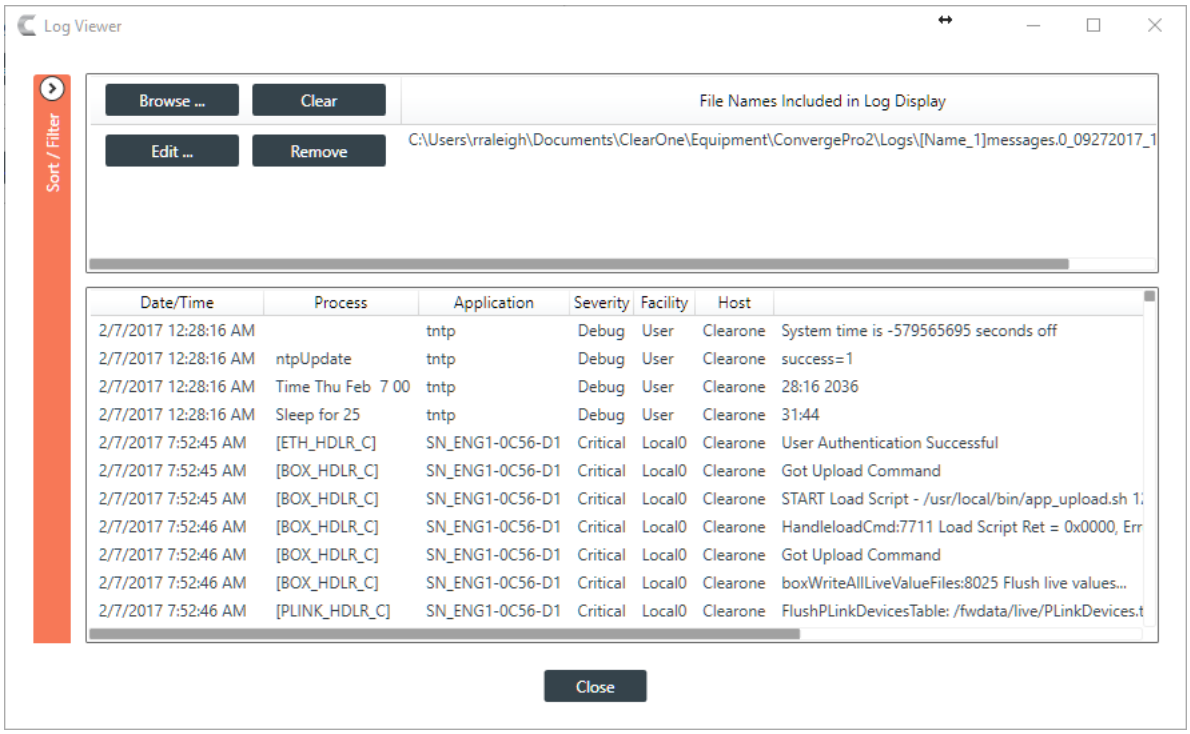


2. Click Browse to select one or more log files to view.

   A windows Open dialog box appears, showing any log files at the default location where log files are placed when retrieved from a device.

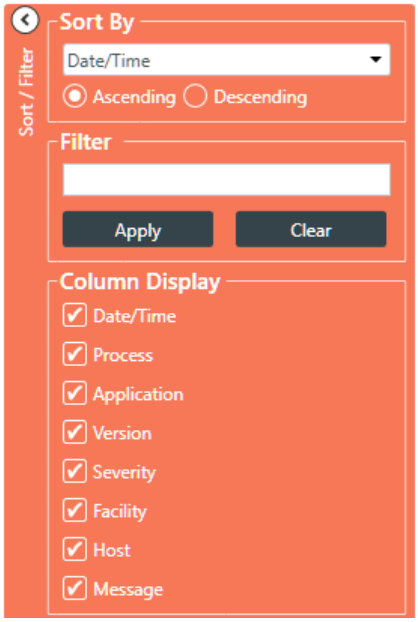
3. Locate the log file(s) you want to view and select one or more, then click Open.

   The log file(s) appear in the Log Viewer:



4. To sort/filter the information in the log file, click .

   The Sort/Filter controls appear:



5. (Optional) You can sort the data by a particular column by choosing it from the **Sort By** drop-down menu, and you can specify whether to sort that column in **Ascending** or **Descending** order.
6. (Optional) You can filter which parts of the log file you see by putting a text string in the **Filter** field. The Log Viewer will show only log entries that contain that string.
7. (Optional) You can choose which columns of the log file to display by checking or unchecking columns under **Column Display**.
8. When you're done viewing log files, click **Close**.

Upgrading Touch Panel Controller Firmware

You can upgrade the Touch Panel Controller Firmware using the CONVERGE Pro 2 CONSOLE application.

CAUTION:

Upgrading the Touch Panel Controller firmware removes all settings, phone book entries, contacts, connections, or other data stored in the device.

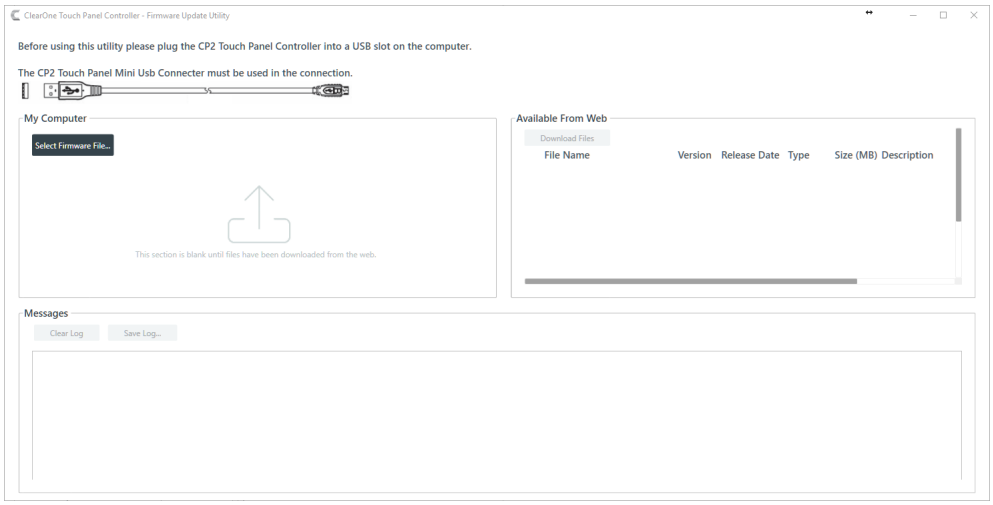
To upgrade the Touch Panel Controller firmware:

1. Using 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), connect the Touch Panel Controller to a PC that has CP2 CONSOLE installed.

   Connect the TPC using the Mini USB port shown below:

2. Open the CONVERGE Pro 2 CONSOLE.
3. From the **File** menu, choose **CP2 Touch Panel Controller Updater**.

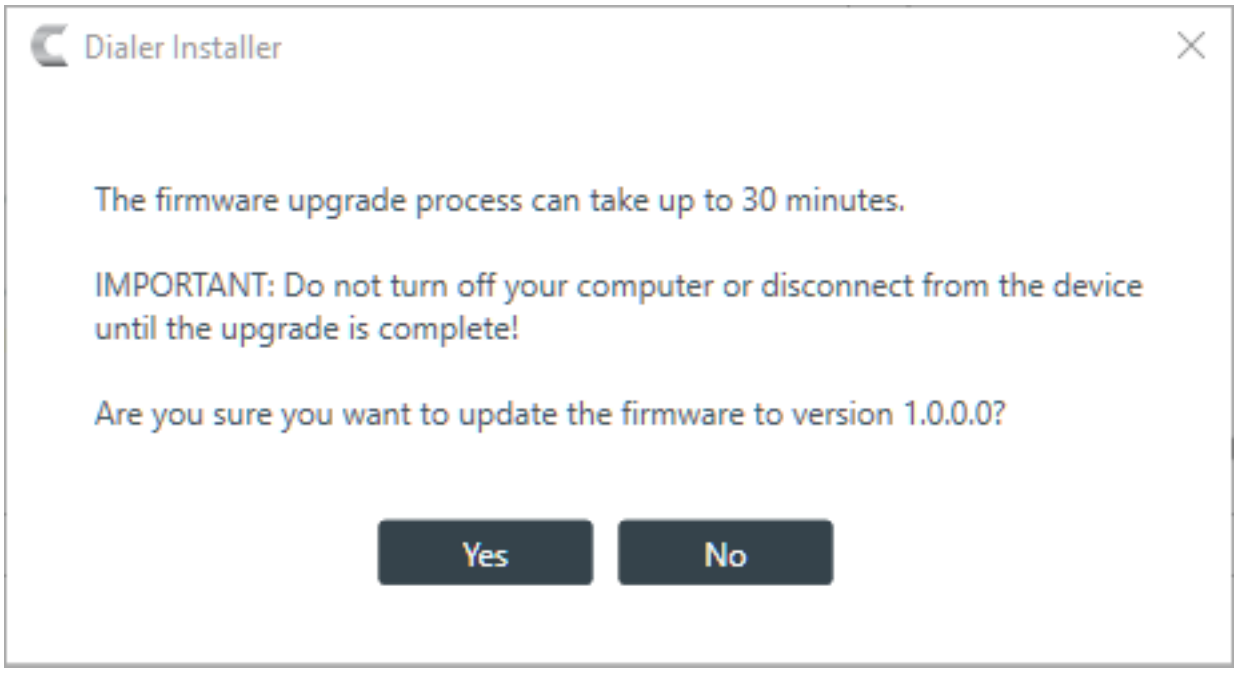
   The Touch Panel Controller Firmware Update Utility appears:



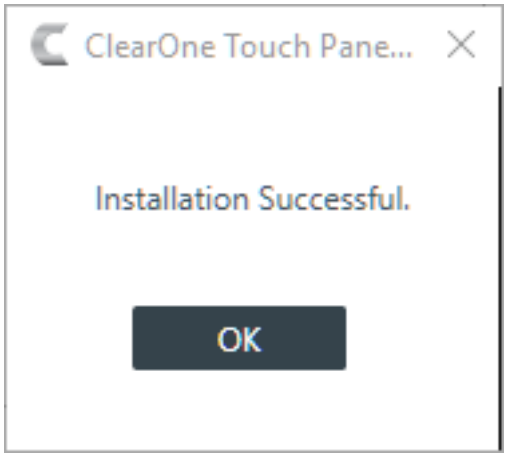
4. If any firmware update files are available from ClearOne, they appear under Available From Web. Select the check box next to a file you want to download and click **Download Files**.

   The selected file is downloaded to your computer and appears in the My Computer box with a Send button next to it.
5. Click **Send** next to a firmware file under My Computer to send it to the attached Touch Panel Controller.

   A dialog box appears to let you confirm whether you want to complete the firmware upgrade:



6. Click **Yes** to send the firmware file to the Touch Panel Controller.
7. Alternatively, you can browse for and select a firmware file to send by clicking **Select Firmware File** and choosing a file from the Open dialog box that appears.
8. The selected firmware file is sent to the Touch Panel Controller, and update details appear under Messages.
9. If the firmware update is successful, the following dialog box appears:



The Touch Panel Controller restarts using the updated firmware.

10. Click **OK**.

The firmware update is complete.

Chapter 3

Project - Offline

Topics:

This chapter contains information about creating and modifying projects.

Note:

The options described in this chapter are accessible only when the CONVERGE Pro 2 CONSOLE application is in Project mode. See *Live Mode vs. Project Mode* for more information.

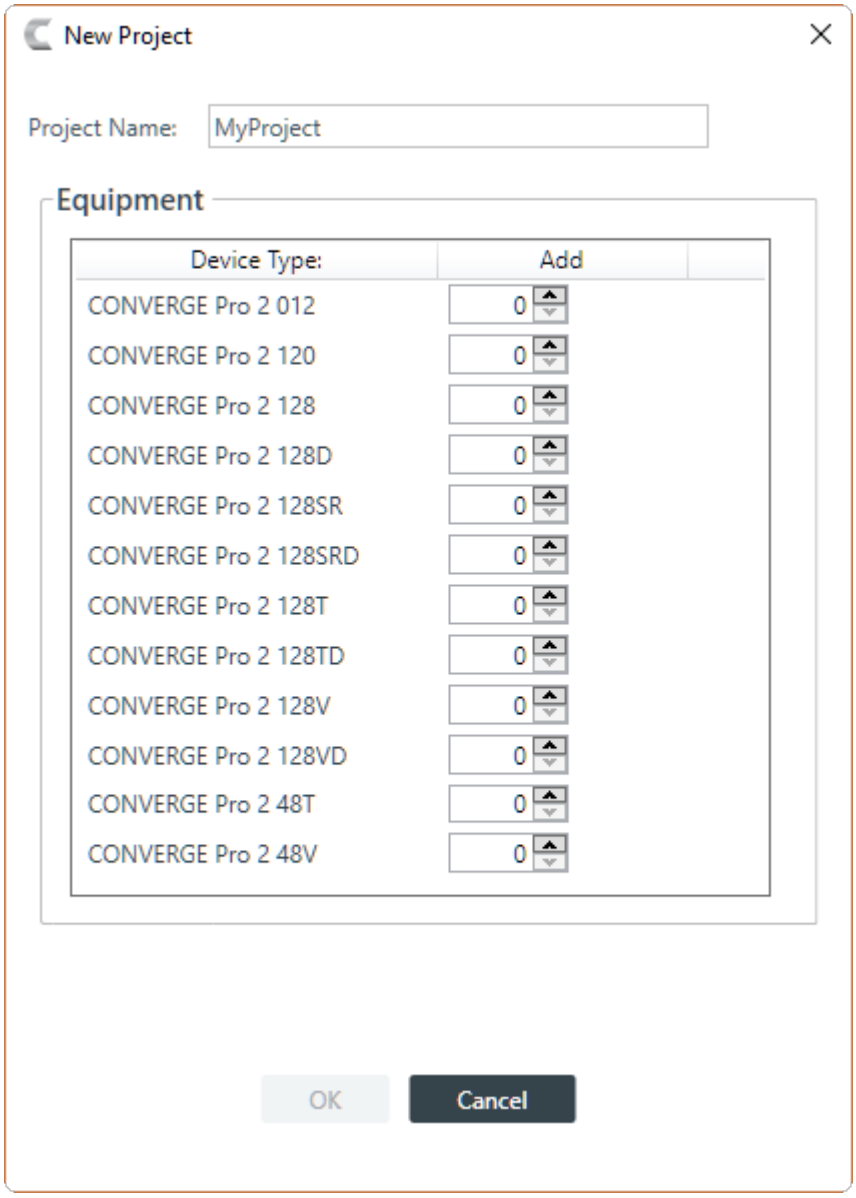
Creating a Project

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

To create a project:

1. Click **Select** in the Navigation Panel.
2. Under Projects in the right side of the Select screen, click **New**.

   The New Project dialog box appears:



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

   Note:

   Project names cannot have spaces.

4. Add devices by increasing the count for the correct device type.
5. Click **OK**.

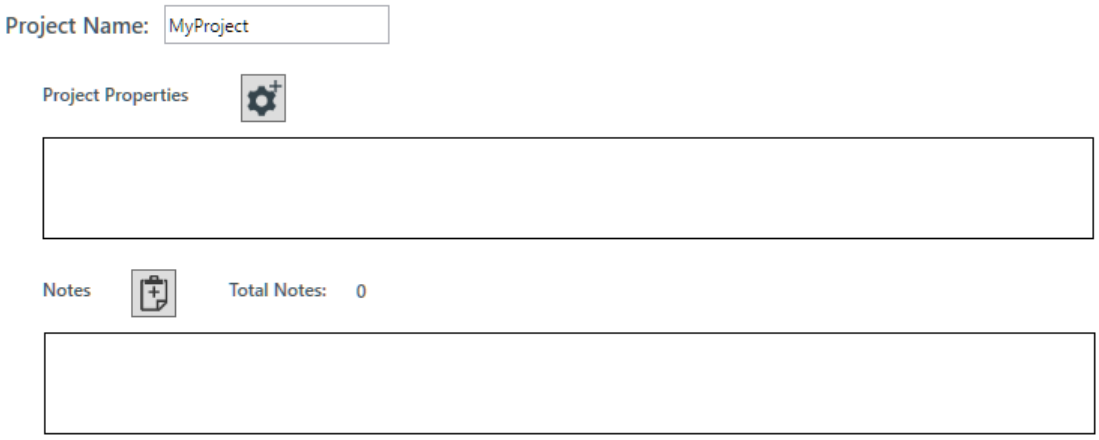
Adding Project Properties

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:

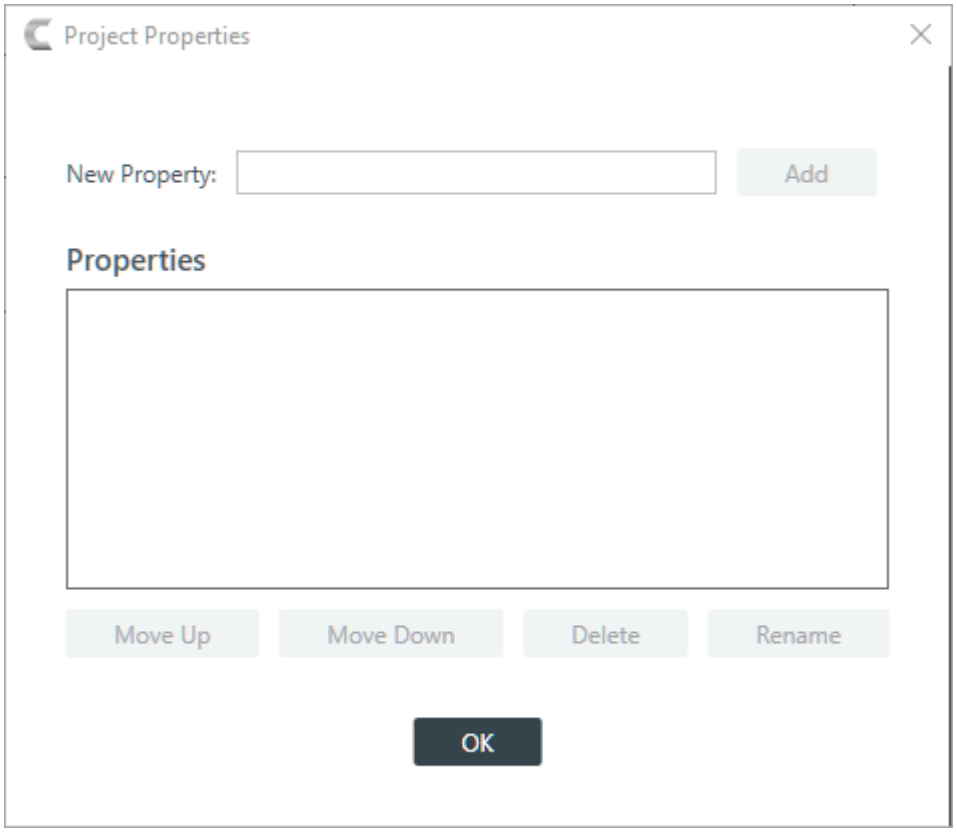
1. Under **Project Info** in the Navigation bar, select **Project Properties**.

   The Project Properties screen appears:



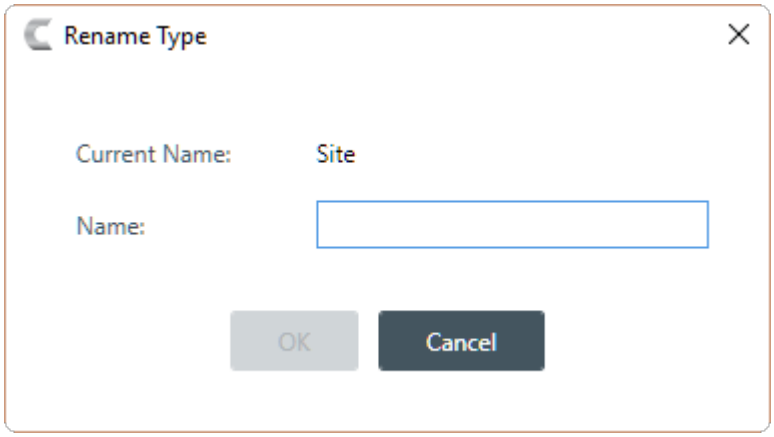
2. Click the **Add Project Properties** button: 

   The **Project Properties** dialog box appears:

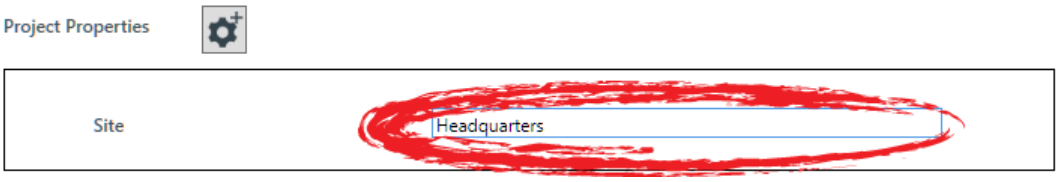


3. Type a property name in the **New Property** field.
4. Click **Add**.
5. (Optional) Repeat steps 3-4 for each property you want to add.
6. (Optional) To change the order of properties, select a property in the list and click **Move Up** or **Move Down**.
7. (Optional) To rename a property, select 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:



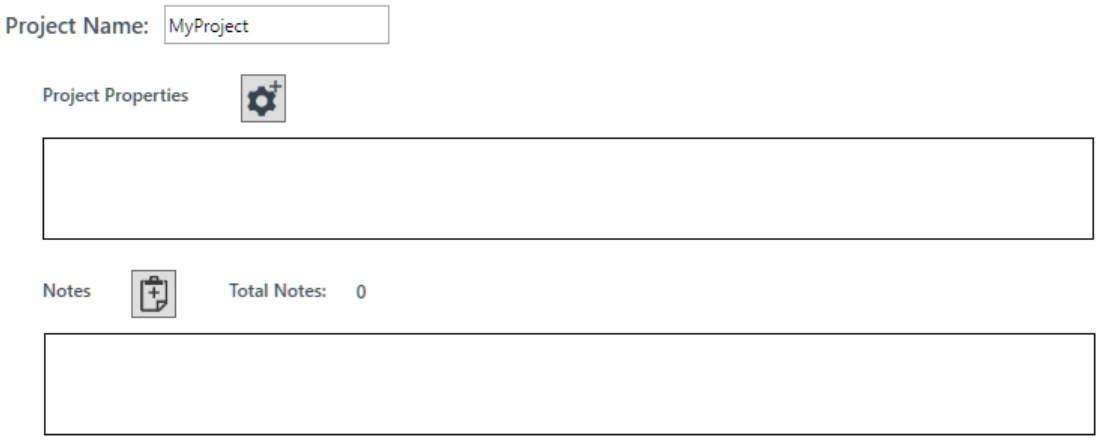
Adding Project Notes

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

To add project notes:

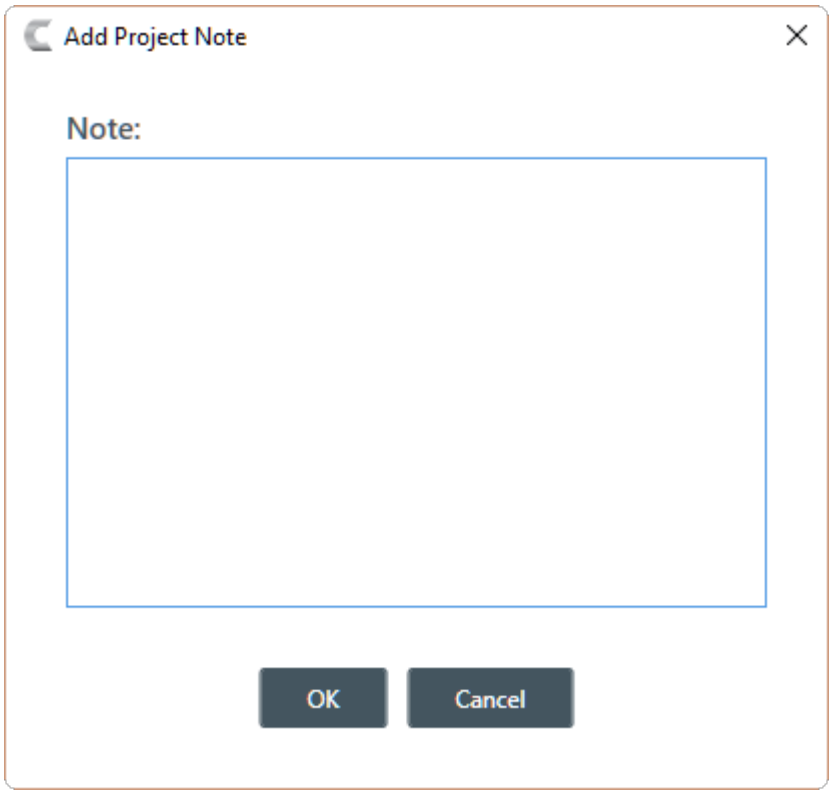
1. Under **Project Info** in the Navigation bar, select **Project Properties**.

   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. You may add additional notes, or remove a note by clicking the remove icon:

Opening a Project

You can open a previously saved project file.

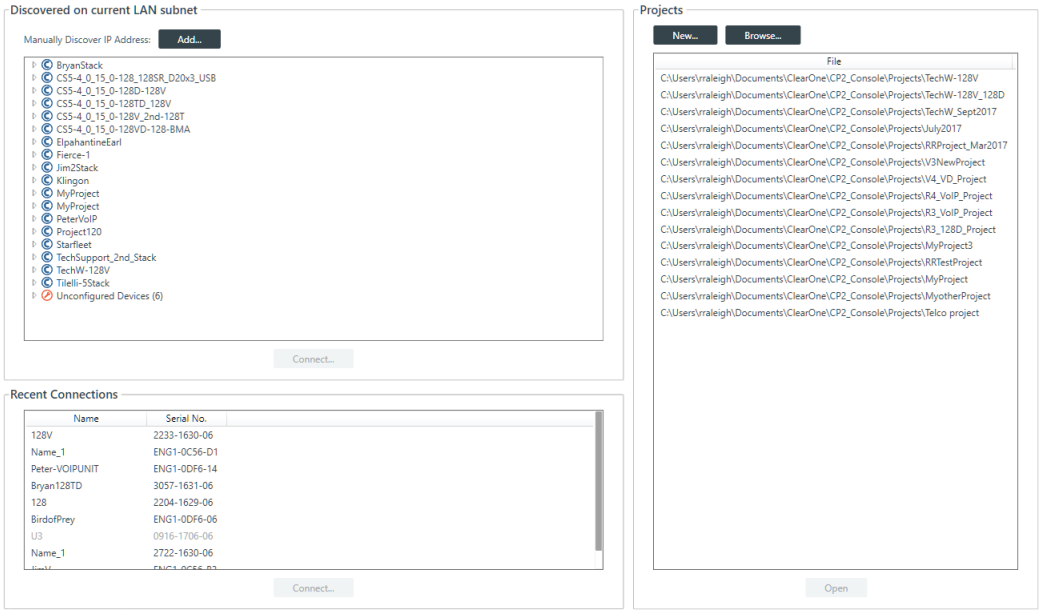
Note:

Opening a project file loads the project settings into the CONSOLE, 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 **Select**.

   The Select screen appears:



   All discovered projects are listed under **Projects**.
2. Select a file in the Projects list, then click **Open**.
3. 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.
4. When you have located the file you want, click **Open**.

   The project file is loaded into the CONSOLE.

Saving a Project

When you are in Project mode, 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. If you are in one of the Project modes (Project, Adv. Project, or Expanded Project), click (Save) on the toolbar to save any changes under the existing name and location.

   Note:

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

2. If you are in one of the Project modes (Project, Adv. Project, or Expanded Project), click  (Save As) on the toolbar to save any changes under a different name and/or location.

Chapter 4

Stack - Offline

Topics:

This chapter contains information about changing the device and stack settings.

Note:

The options described in this chapter are accessible only when the CONVERGE Pro 2 CONSOLE application is in Project mode. See *Live Mode vs. Project Mode* for more information.

Adding a CONVERGE Pro 2 Device

You can add CONVERGE Pro 2 devices to an existing project.

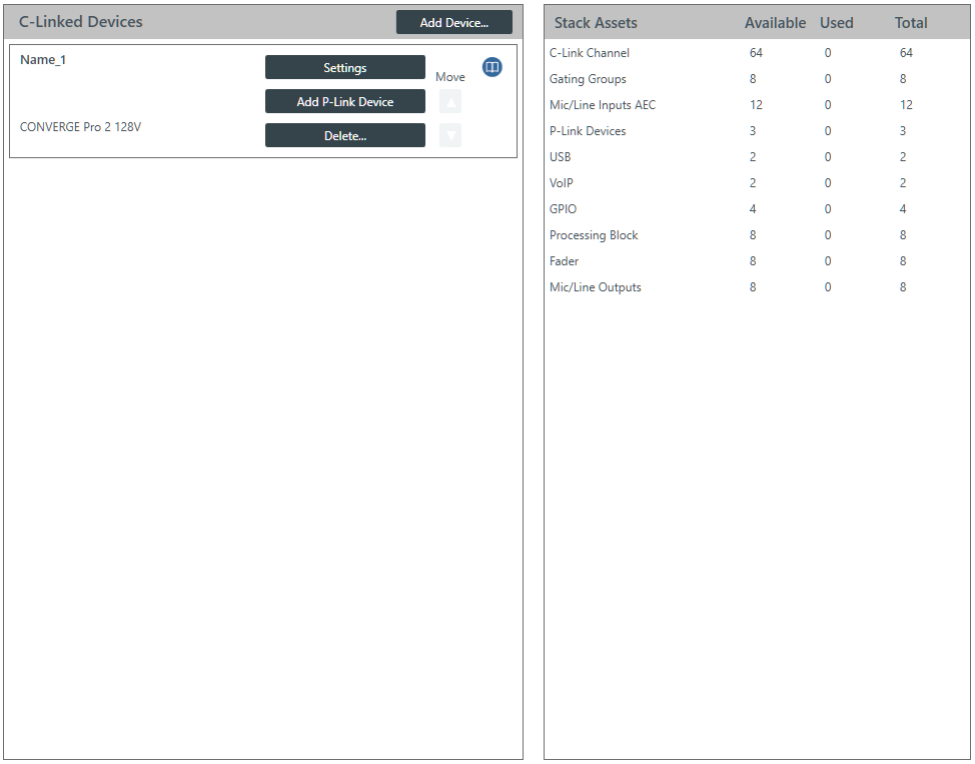
Note:

Adding a device does not make its assets (audio channels, GPIO pins, etc.) available to the project. Additionally, you must specify which of its assets to add to which room partitions. See *Adding Assets to a Partition* for more information.

To add a CONVERGE Pro 2 device:

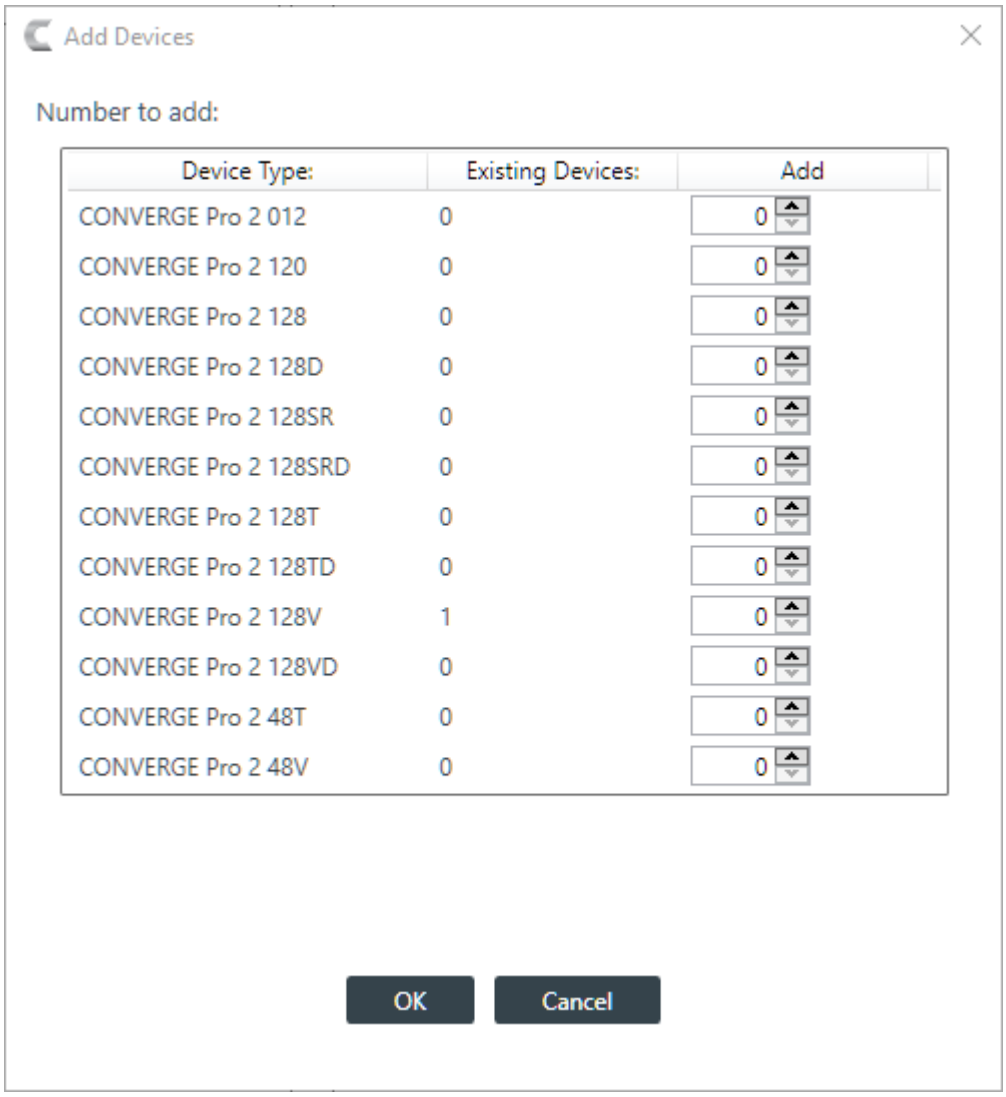
1. From the Navigation Panel, under **Stack**, choose **Devices**.

   The Devices screen appears:



2. Click **Add Device**.

   The **Add Devices** dialog box appears:



3. Next to the device model you want to add, either type the number of devices of that type you want to add or use the incrementer and decrementer buttons to specify how many devices of that type to add. Repeat for each of the devices you want to add.
4. Click **OK**.

   The specified devices are added to the project.

Adding a Beamforming Microphone Array 2

You can add a Beamforming Microphone Array 2 device to a CONVERGE Pro 2 CONSOLE project.

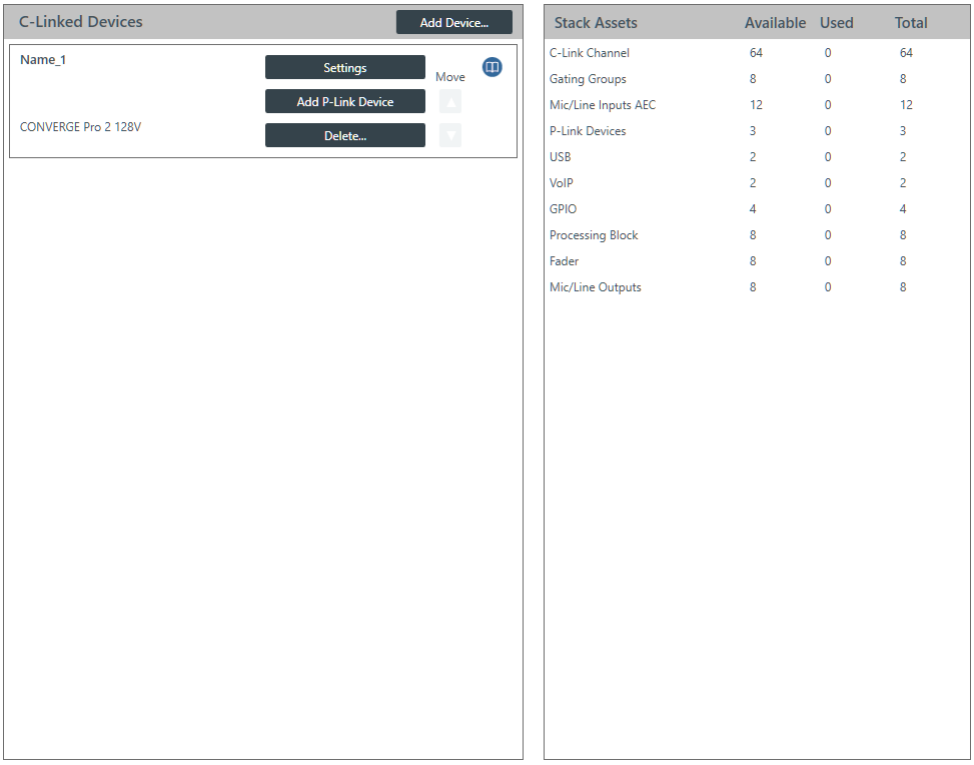
Note:

If you are not using Long-distance P-link, you can add up to six Beamforming Microphone Array 2 devices. If you are using Long-distance P-link, you can add up to three Beamforming Microphone Array 2 devices. See *About Long-distance P-link* for more information.

To add a Beamforming Microphone Array 2 device:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

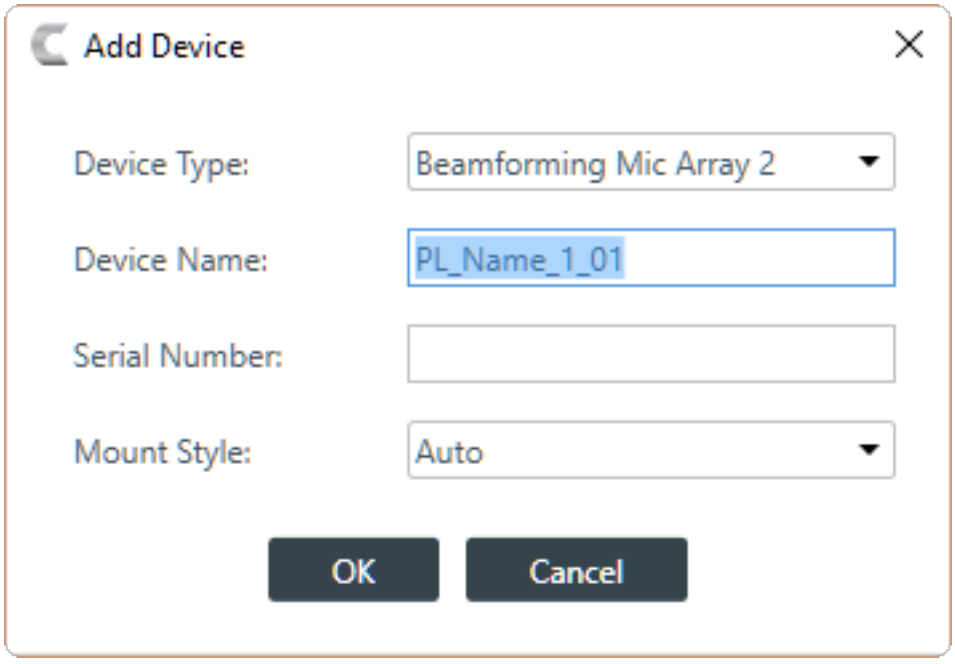
   The Devices screen appears:



2. Click **Add P-Link Device** for the CONVERGE Pro 2 to which the Beamforming Microphone Array 2 is attached.

   CONVERGE Pro 2 connects to the Beamforming Microphone Array 2 using a proprietary P-Link connection.

   The Add Device dialog box appears:



3. If it's not already selected, select **Beamforming Mic Array 2** from the **Device Type** list.
4. Type a name in the **Device Name** field.

   The Serial Number is filled in automatically if a device is detected.

5. Choose a mounting style from the **Mount Style** drop-down list.

   If you choose Auto, the device attempts to detect the mounting orientation and adjust accordingly.
6. Click **OK**.

   The device is added to the specified CONVERGE Pro 2.

Adding a DIALOG 20 Wireless Mic

You can add a DIALOG 20 Wireless Mic device to a CONVERGE Pro 2 CONSOLE project.

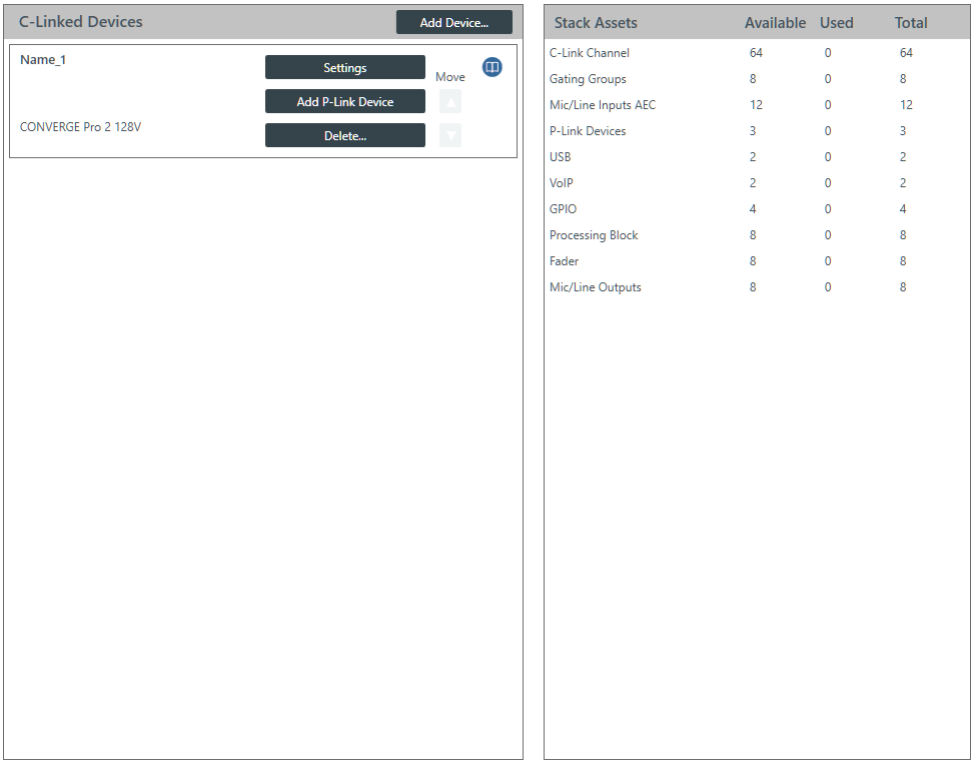
Important:

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 Wireless Mic device:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

   The Devices screen appears:



2. Click **Add P-Link Device** for the CONVERGE Pro 2 to which the DIALOG 20 is attached.

   CONVERGE Pro 2 connects to the DIALOG 20 using a proprietary P-Link connection.
3. Select **DIALOG 20** from the **Device Type** list.

4. Type a name in the **Device Name** field.

   The Serial Number is filled in automatically if a device is detected.
5. Click **OK**.

   The device is added to the specified CONVERGE Pro 2.

Adding a USB Expander

You can add a USB Expander device to a CONVERGE Pro 2 CONSOLE project.

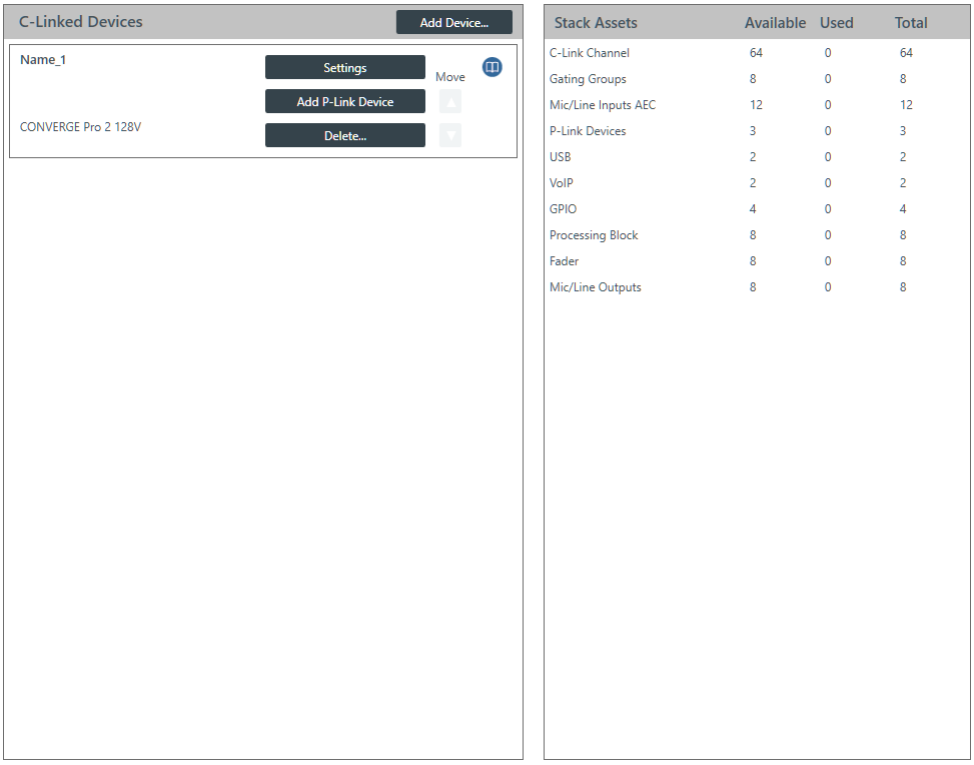
Note:

See *About CONVERGE Pro 2 Expanders* for more information.

To add a USB Expander device:

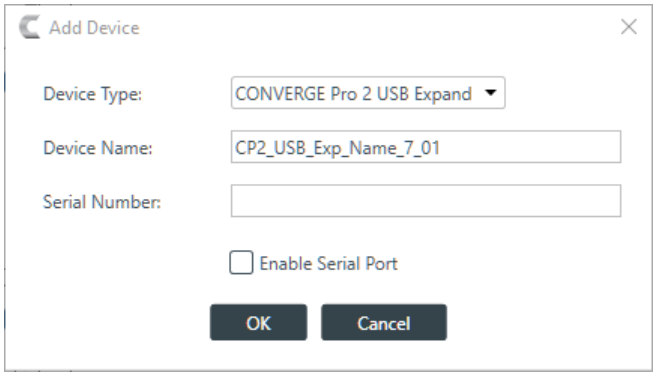
1. In the Navigation Panel, under **Stack**, choose **Devices**.

   The Devices screen appears:



2. Click **Add P-Link Device** for the CONVERGE Pro 2 to which the USB Expander is attached.

   CONVERGE Pro 2 connects to a USB Expander using a proprietary P-Link connection.
3. Select **CONVERGE Pro 2 USB Expander** from the **Device Type** list.



4. Type a name in the **Device Name** field.

   The Serial Number is filled in automatically if a device is detected.
5. If you intend to have the device pass serial port communications, such as from a Touch Panel Controller, check **Enable Serial Port**.
6. Click **OK**.

   The device is added to the specified CONVERGE Pro 2.

Adding a GPIO Expander

You can add a GPIO Expander device to a CONVERGE Pro 2 CONSOLE project.

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.

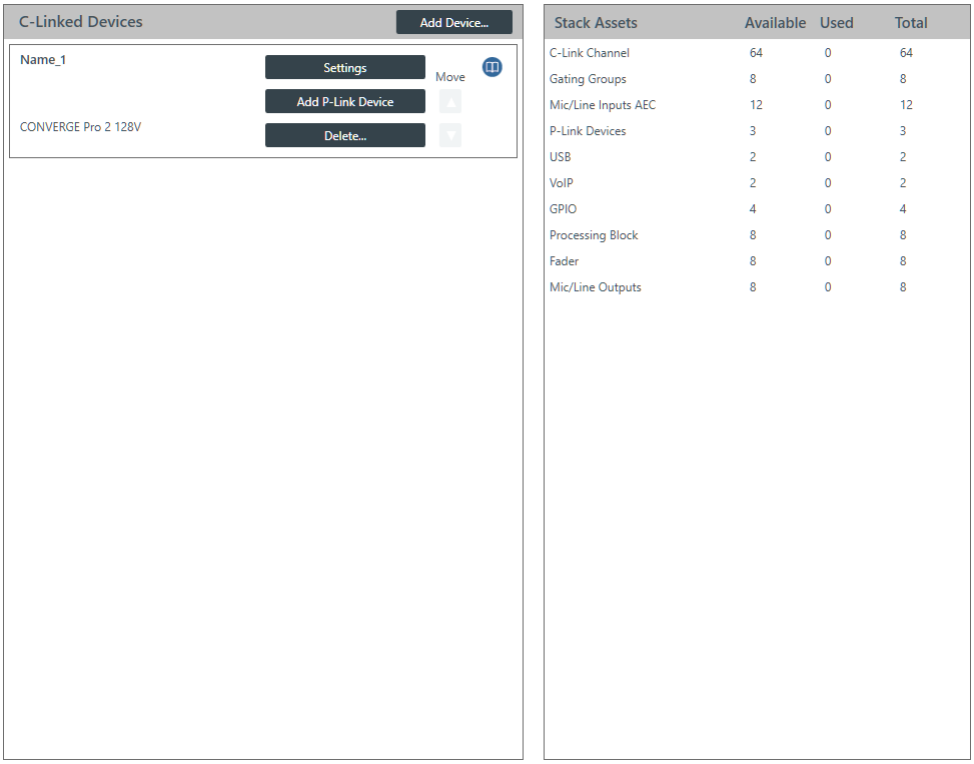
Note:

See *About CONVERGE Pro 2 Expanders* for more information.

To add a GPIO Expander device:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

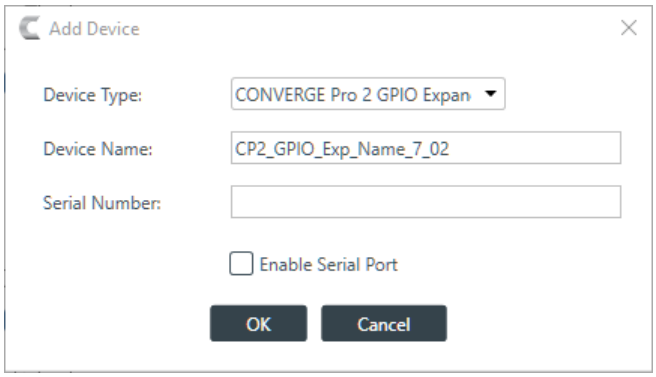
   The Devices screen appears:



2. Click **Add P-Link Device** for the CONVERGE Pro 2 to which the GPIO Expander is attached.

   CONVERGE Pro 2 connects to a GPIO Expander using a proprietary P-Link connection.

3. Select **CONVERGE Pro 2 GPIO Expander** from the **Device Type** list.



4. Type a name in the **Device Name** field.

   The Serial Number is filled in automatically if a device is detected.

5. If you intend to have the device pass serial port communications, such as from a Touch Panel Controller, check **Enable Serial Port**.

6. Click **OK**.

   The device is added to the specified CONVERGE Pro 2.

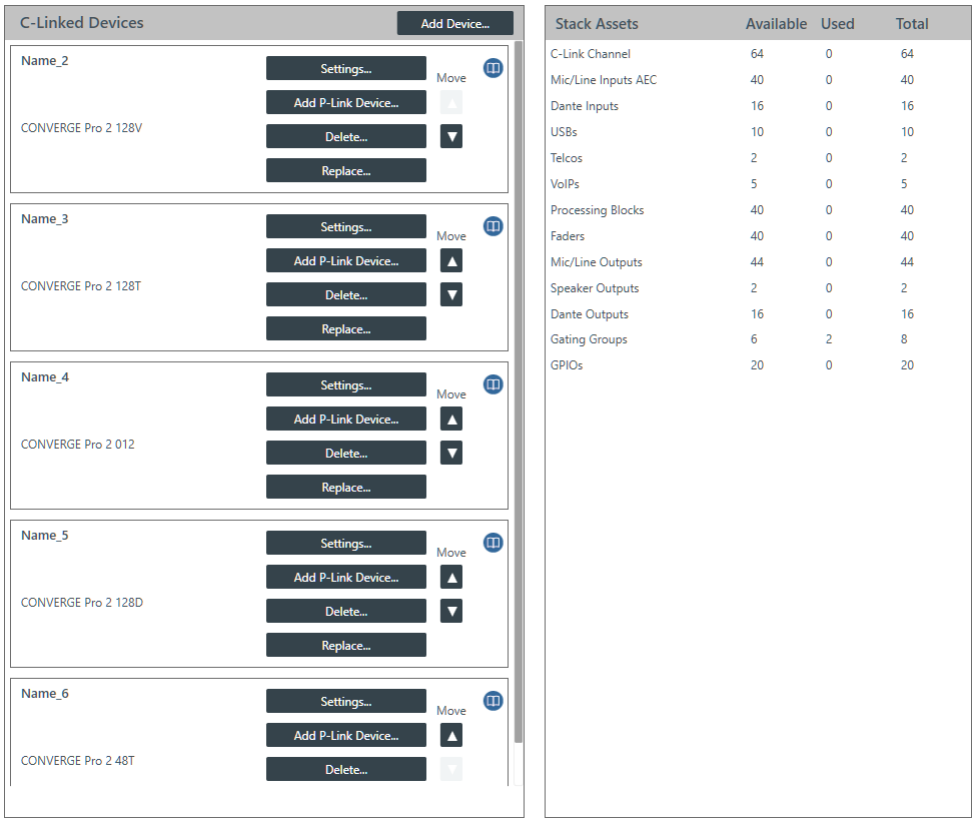
Changing Device Settings - General

You can change the general settings for a CONVERGE Pro 2 device.

To change the settings for a device:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

   The Devices screen appears:

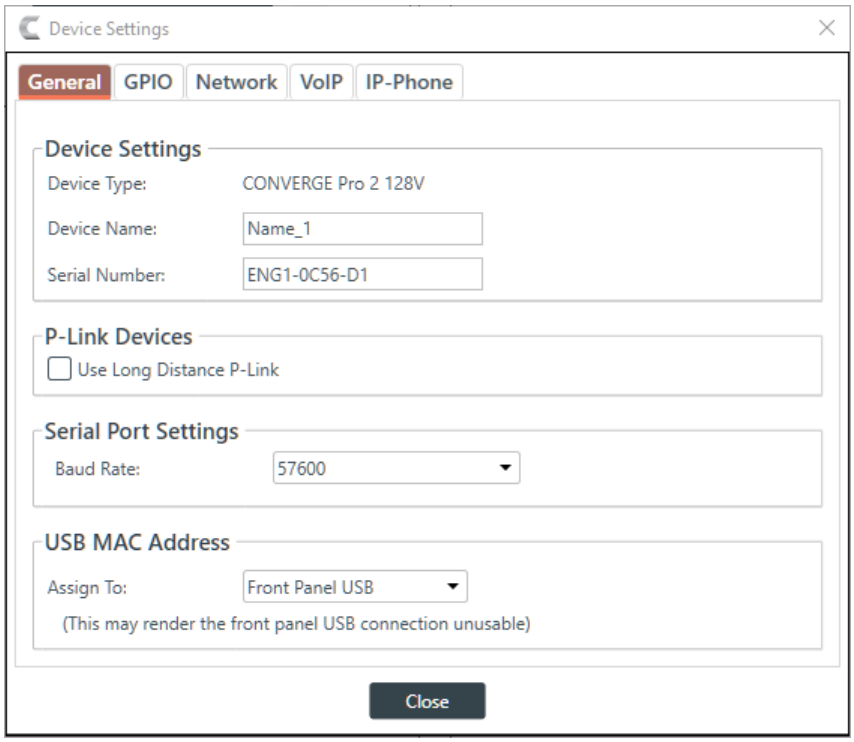


Note:

Multiple CONVERGE Pro 2 units (up to 12) can be daisy chained together using ClearOne's proprietary C-Link port.

2. For the device you want to change, click **Settings**.

   The Device Settings dialog box appears:



Note:

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

3. If it isn't already selected, select the **General** tab.
4. (Optional) Change any of the settings (described in the table below).

Option	Description
Device Name	The name of the CP2 Device as it will 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 lets 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	Set the baud rate of the serial port.
USB MAC Address-Assign To	Specify whether to assign a MAC address to 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.
Configure VoIP for (VoIP only)	Specify whether you will be connecting to a SIP server or a Skype for Business server for VoIP connections.
VoIP Lan Assignment (VoIP only)	Specify whether VoIP traffic will be sent through the regular Ethernet port or through the VoIP Ethernet port.

Option	Description
	Note: This assignment works only if you have a device that has both an Ethernet port and a VoIP Ethernet port. If you assign VoIP traffic to the VoIP Ethernet port but your device does not have a VoIP Etherneet port, the device will return an error when you load the project file to the device, and the VoIP features will not function correctly. **Note:** If you assign VoIP traffic to the VoIP Ethernet port, then the VoIP port can be used ONLY for VoIP traffic.
Enable SIP Logging (VoIP only)	Specify whether to turn on SIP logging.

5. 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.

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

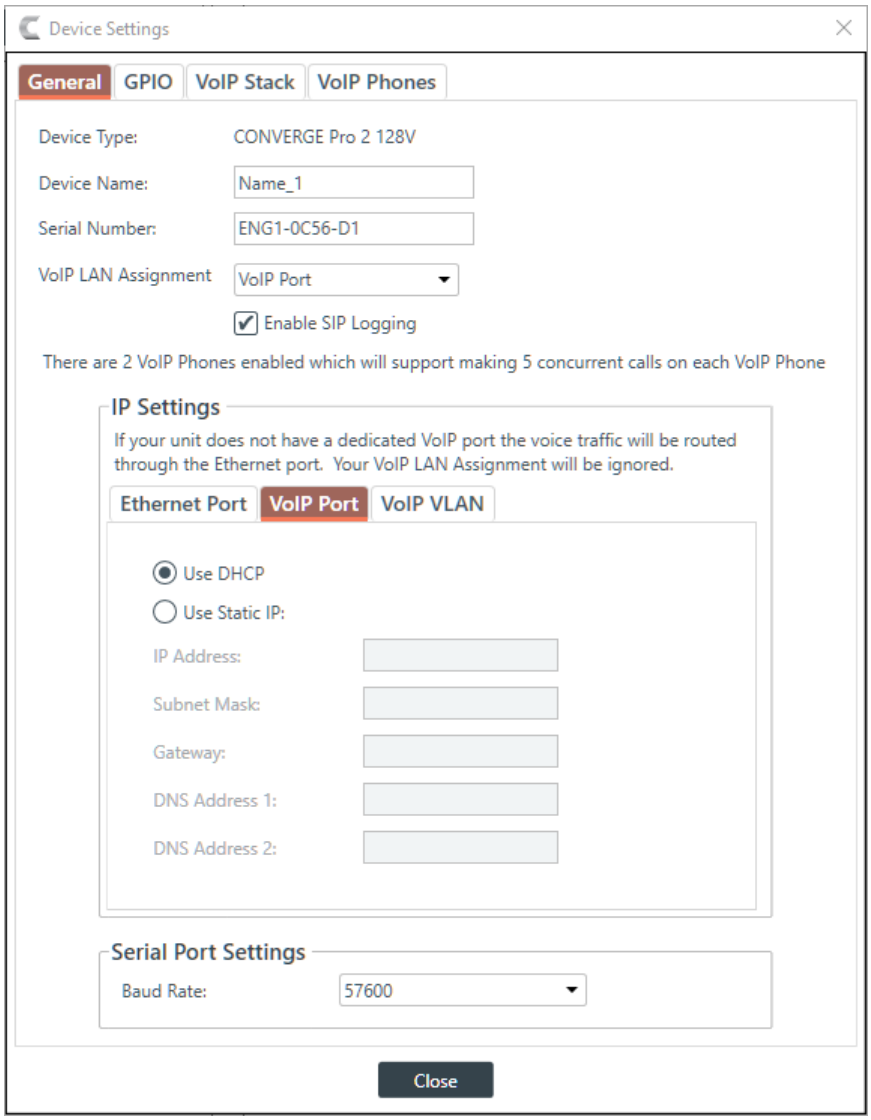
Option	Description
Use DHCP	Select to use DHCP to automatically configure network settings for the device.
Use Static IP	Select to set a static IP address.
IP Address (Static IP only)	When using a static IP address, specify the IP address.
Subnet Mask (Static IP only)	When using a static IP address,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

VoIP Settings (VoIP only; the VoIP Port tab appears only if you have selected VoIP Port as the VoIP LAN Assignment option)

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

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

   The VoIP Port settings appear:



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

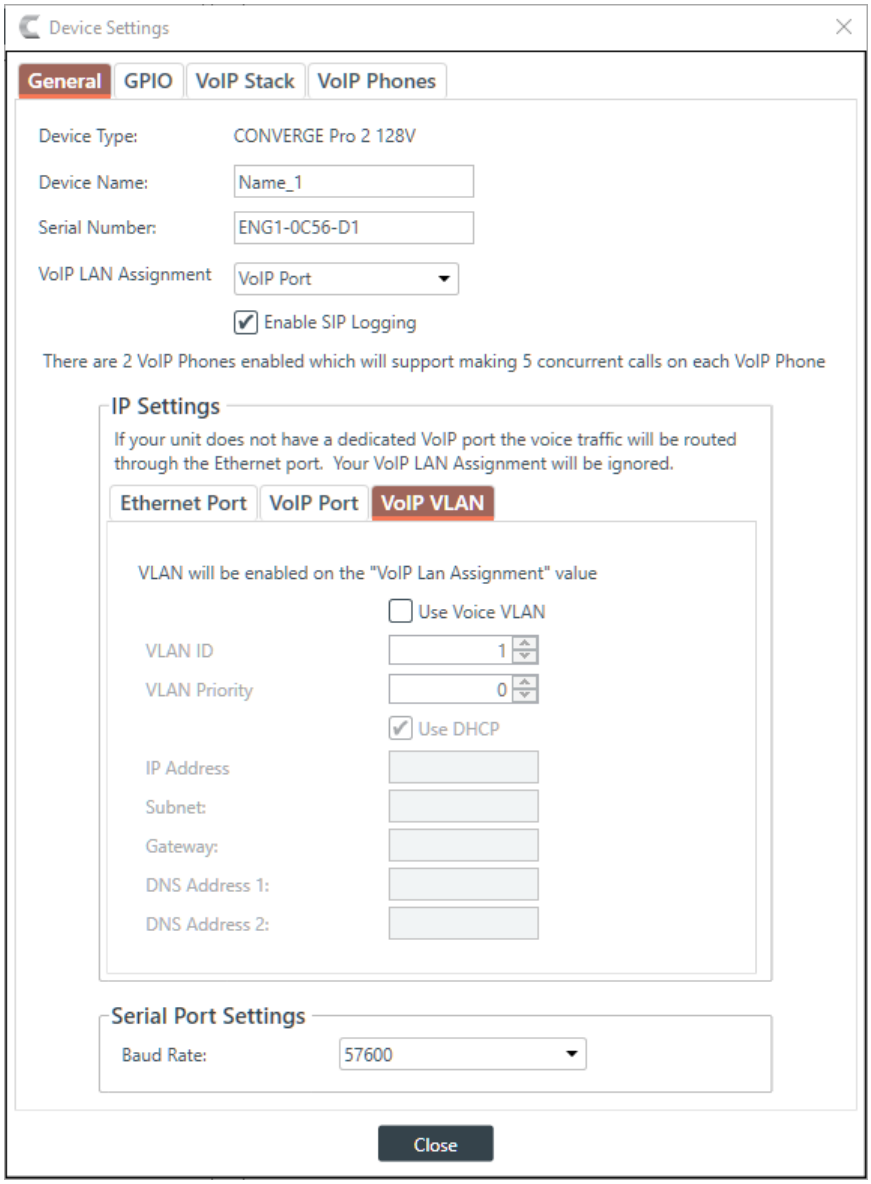
Option	Description
Use DHCP	Select to use DHCP to automatically configure network settings for the device.
Use Static IP	Select to set a static IP address.
IP Address (Static IP only)	When using a static IP address, specify the IP address.
Subnet Mask (Static IP only)	When using a static IP address,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

VoIP VLAN Settings (VoIP only)

9. Under IP Settings, select the VoIP VLAN tab.

These settings apply to the VoIP port on the back panel of the CP2 device and should be used only if the network attached to that port is configured as a VLAN.

The VoIP VLAN settings appear:



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

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.

Option	Description
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.

Serial Port Settings

11. Specify a baud rate from the **Baud Rate** drop-down box.

This is the baud rate used for connections to a CP2 device via the RS232 serial port on the back panel.

12. Click **Close**.

Changing Device Settings - GPIO

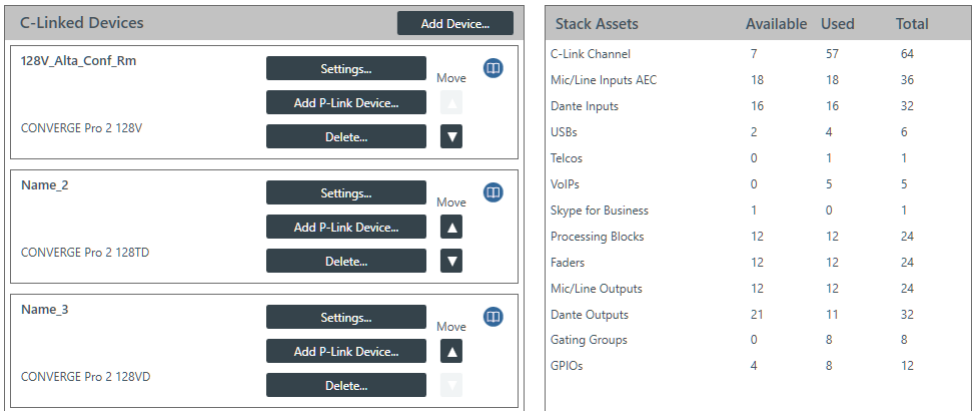
You can change the GPIO settings for a device.

GPIO stands for General-Purpose Input/Output. CONVERGE Pro 2 units have four GPIO pins that let you 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:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

The Devices screen appears:

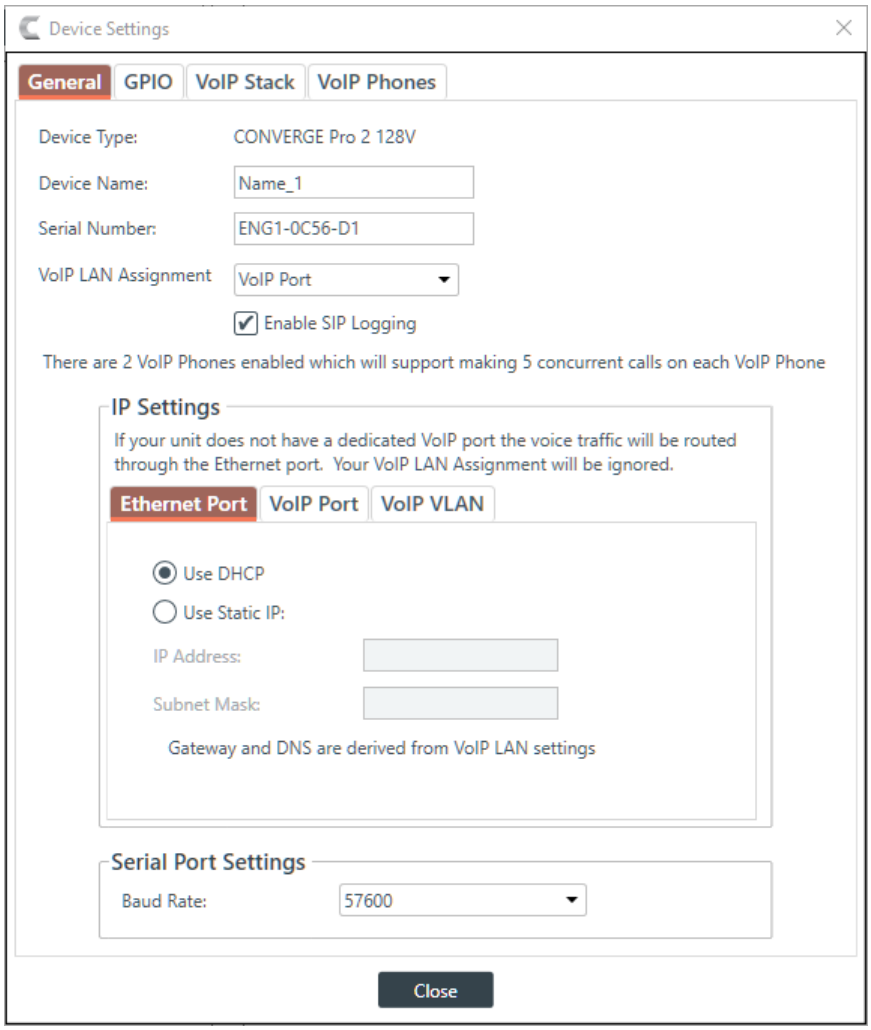


Note:

Multiple CONVERGE Pro 2 units (up to 12) can be daisy chained together using ClearOne's proprietary C-Link port.

2. For the device you want to change, click **Settings**.

The Device Settings dialog box appears:

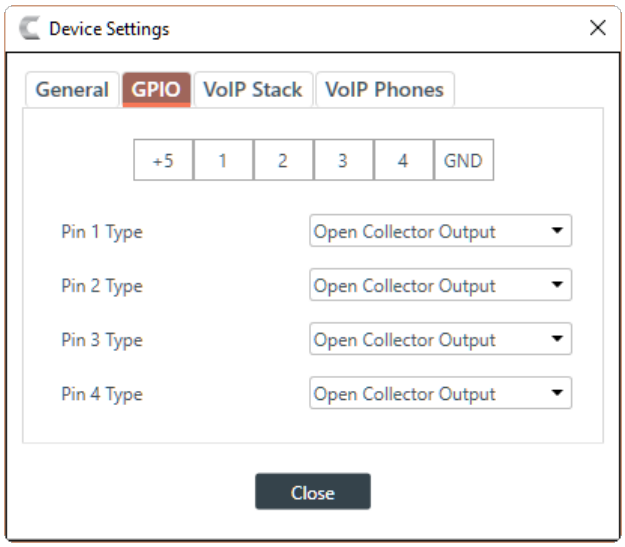


Note:

The tabs shown on this dialog box depend on the type of device. Devices with VOIP capability have VoIP Stack and VoIP Phones tabs. Devices with Telco capability have a Telco tab. Devices with neither of these capabilities have only General and GPIO tabs.

3. Select the **GPIO** tab.

   The GPIO settings appear:



4. For each pin, choose a pin type from the drop-down list.
5. Click **Close**.

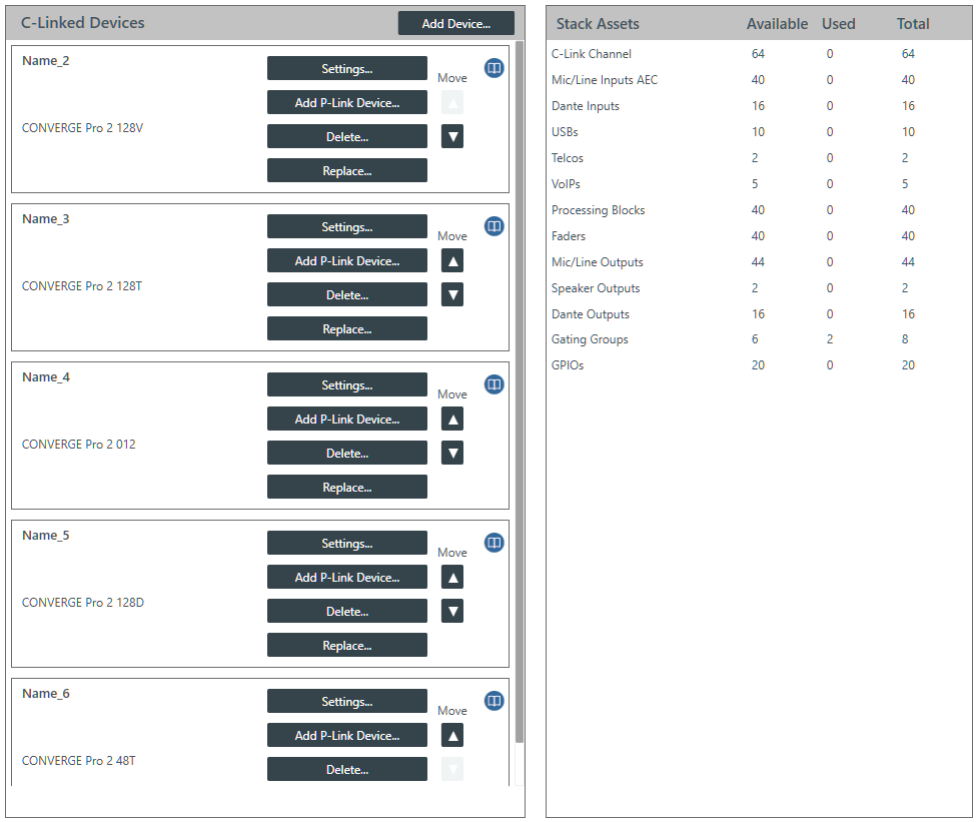
Changing Device Settings - VoIP

You can change the VoIP settings for a CONVERGE Pro 2 device.

To change the VoIP settings for a device:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

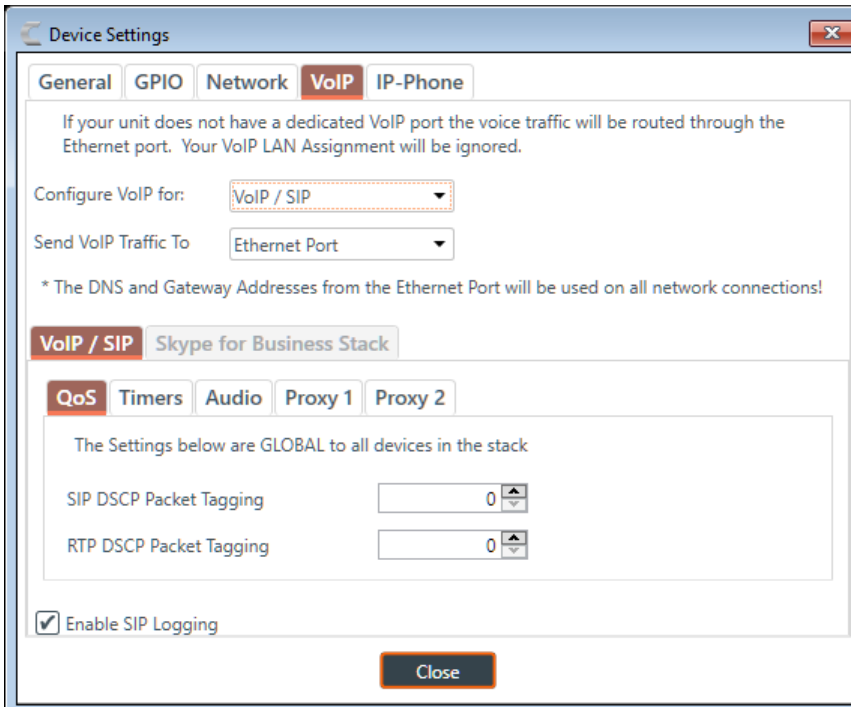
   The Devices screen appears:



2. For the device you want to change, click **Settings**.

   The Device Settings dialog box appears.
3. Click the VoIP tab.

   The VoIP settings appear:



4. Specify whether to use a VoIP/SIP server or a Skype for Business server by choosing an option from the **Configure VoIP for** drop-down list.

   Since the VoIP/SIP and Skype for Business options are mutually exclusive, when you change this option, a warning appears to let you confirm the choice.
5. Specify whether to send VoIP traffic (whether for VoIP/SIP or for Skype for Business) 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.
6. If you selected Skype for Business as the Configure VoIP for option, skip to the Skype for Business section later. For VoIP/SIP, continue to the next step.

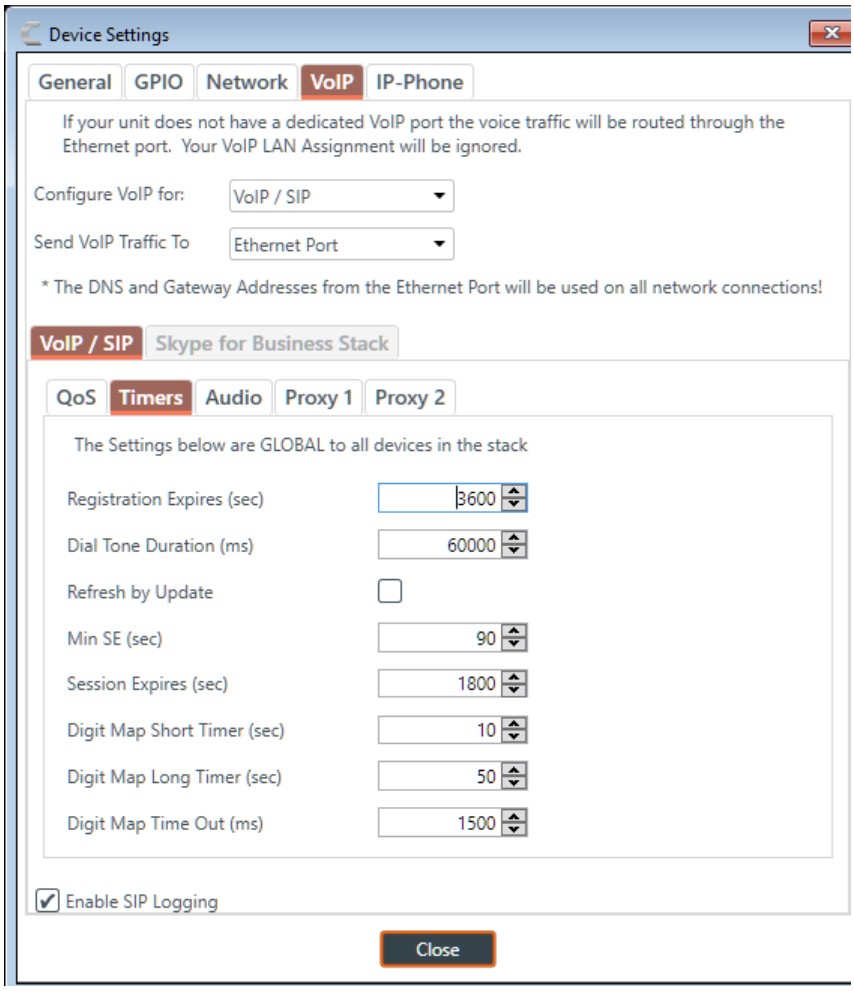
VoIP/SIP Settings

7. (Optional) Change any of the settings on the **QoS** tab (described in the table below), used to specify the QoS settings.

Option	Description
SIP DSCP Packet Tagging	Quality of Service priority level for SIP packets (1-63) as a decimal value. Default: 0 (feature is turned off). 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.

Option	Description
RTP DSCP Packet Tagging	Quality of Service priority level for RTP packets (1-63) as a decimal value. Default: 0 (feature is turned off). 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.
Enable SIP Logging	Whether to turn on SIP logging for troubleshooting purposes.

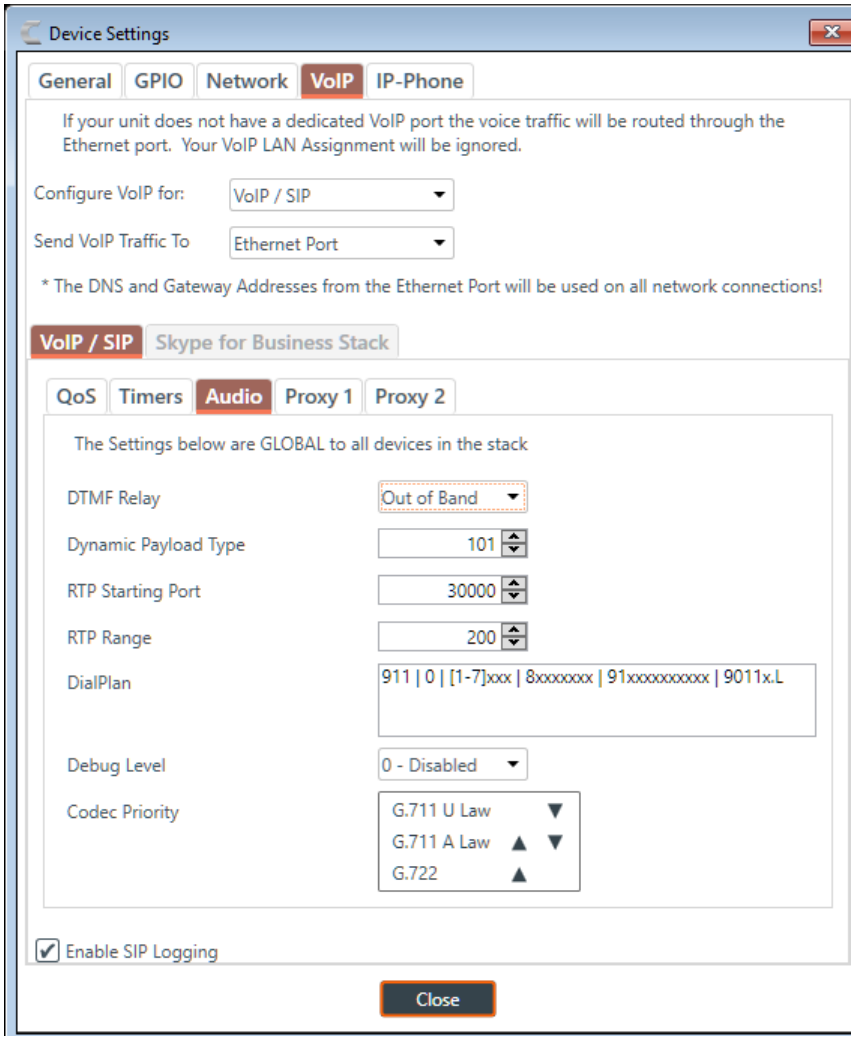
8. (Optional) Select the **Timers** tab and change any of the settings (described in the table below). Timers are used to keep SIP sessions “alive” on the network.



Option	Description
Registration Expires	The time (in seconds) a given device is registered on the network. Default: 3600. Min: 120. 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 is Off.

Option	Description
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: 0. Min: 0. Max: 65535.
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.

9. (Optional) Select the Audio tab and change any of the settings (described in the table below).



Option	Description
DTMF Relay	The DTMF Relay type. Possible options are SIP Info, Inband, and Out of Band. Default is Out of Band.

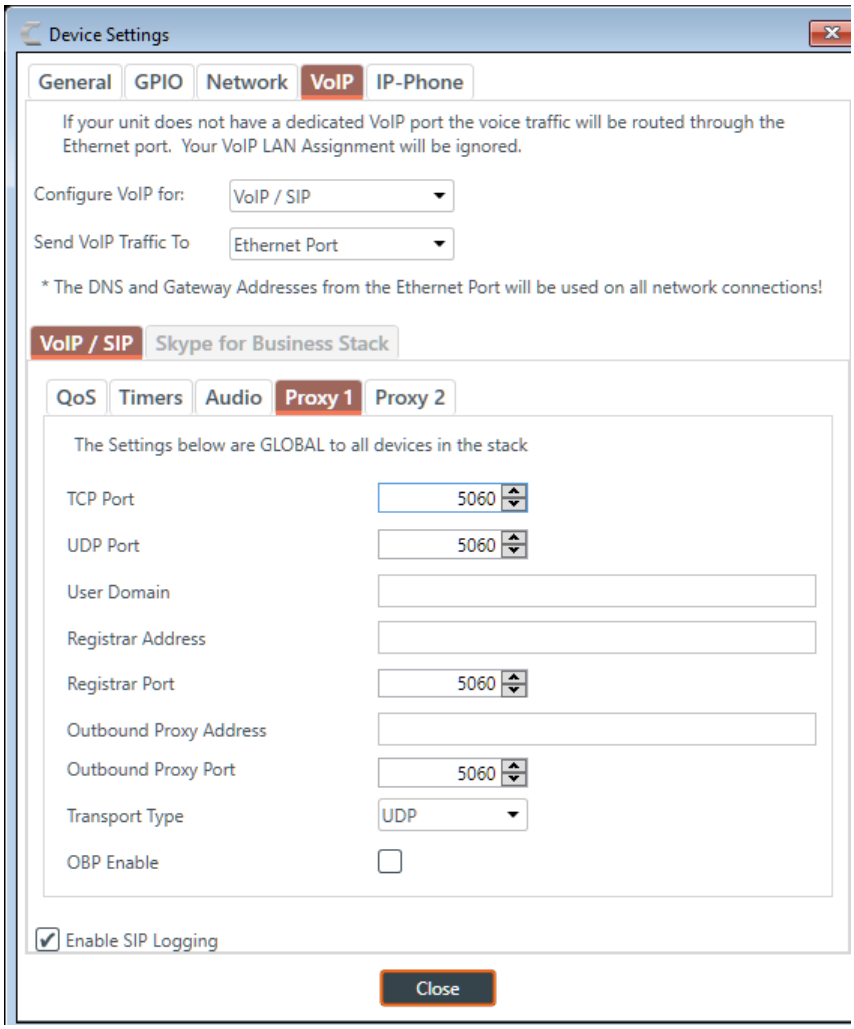
Note:

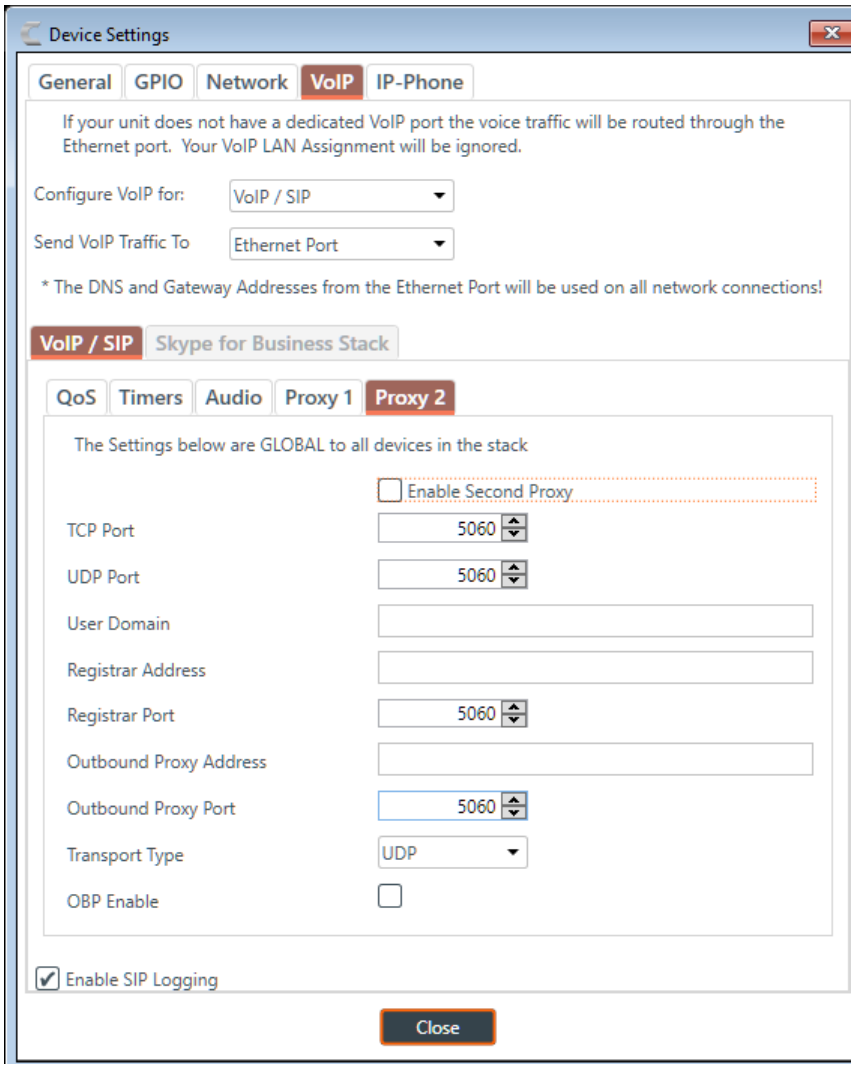
Option	Description
	Inband DTMF Relay is more likely to work on lossless codecs, such as G.711. The SIP Info method works only on SIP dial peers.
Dynamic Payload Type	
RTP Starting Port	The starting port for RTP sessions. Default: 30000. Min: 1025. Max:
RTP Range	The number of ports that can be used for RTP sessions. Default: 200. Min: 10. Max: 5000.
DialPlan	A VoIP dial plan. For more information, see *VoIP Dial Plan Syntax*. Default dial plan is: `911 | 0 | [1-7]xxx | 8xxxxxxx | 91xxxxxxxxxx | 9011x.L`
Debug Level	The level of logging that occurs. Leave this as is unless directed by ClearOne Customer Support for troubleshooting purposes. Default is Debug.
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 will be attempted next, etc.

10. (Optional) Select the Proxy 1 or Proxy 2 tab and change any of the settings (described in the table below).

Note:

The Proxy 2 server is used only if the connection to the Proxy 1 server fails.

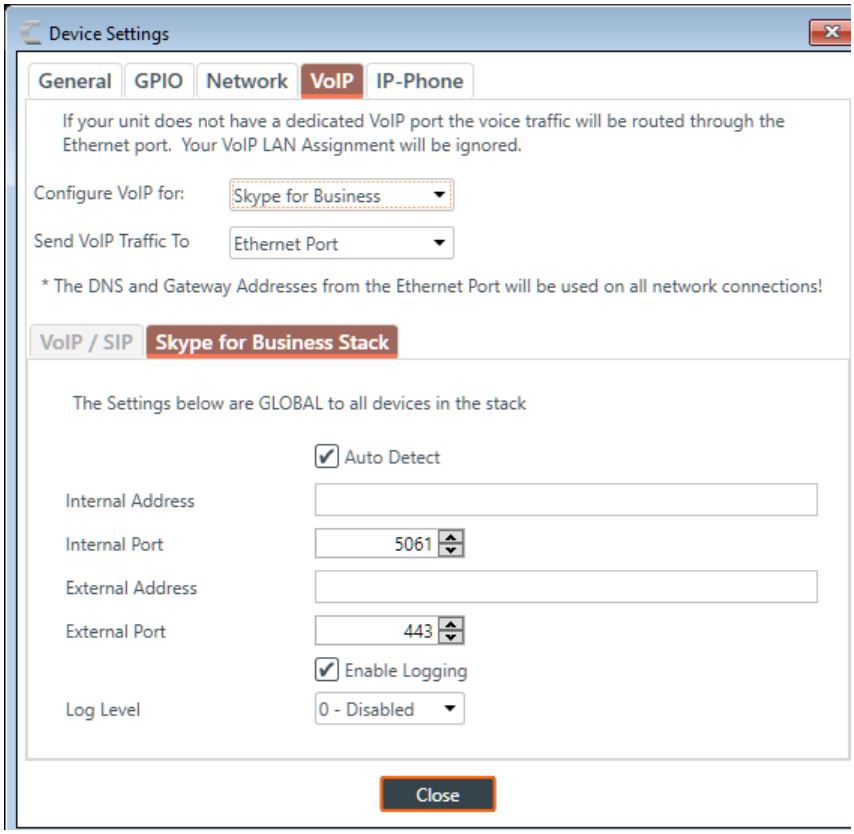

Device Settings
General
GPIO
Network
VoIP
IP-Phone
If your unit does not have a dedicated VoIP port the voice traffic will be routed through the Ethernet port. Your VoIP LAN Assignment will be ignored.
Configure VoIP for:
VoIP / SIP
Send VoIP Traffic To
Ethernet Port
* The DNS and Gateway Addresses from the Ethernet Port will be used on all network connections!
VoIP / SIP
Skype for Business Stack
QoS
Timers
Audio
Proxy 1
Proxy 2
The Settings below are GLOBAL to all devices in the stack
TCP Port
5060
UDP Port
5060
User Domain
Registrar Address
Registrar Port
5060
Outbound Proxy Address
Outbound Proxy Port
5060
Transport Type
UDP
OBP Enable
Enable SIP Logging
Close



Option	Description
TCP Port	The TCP port to use for a proxy connection. Applies only if Transport Type is TCP. Default is 5060.
UDP Port	The UDP port to use for a proxy connection. Applies only if Transport Type is UDP. Default is 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 is 5060.
Outbound Proxy Address	The address of an outbound proxy (if applicable).
Outbound Proxy Port	The outbound proxy port (if applicable). Default is 5060.
Transport Type	Whether to transport the signal via TCP or UDP. Default is UDP.
OBP Enable	Whether to use an outbound proxy. Default is Off.
Enable Second Proxy (Proxy 2 only)	Whether to use a second proxy. Default is Off.

Skype for Business Settings

11. If you selected Skype for Business as the Configure VoIP for option, the Skype for Business Stack settings appear:



12. Change any of the Skype for Business Stack settings, as described in the table below:

Option	Description
Auto Detect	Turn on to have the CP2 automatically detect the address of the Skype for Business server. **Note:** If you turn on Auto Detect, you do not need to enter values for the Internal Address or External Address, unless Auto Detect fails to detect the Skype for Business server address.
Internal Address	The IP address of FQDN of an internal address for a Skype for Business server. **Note:** You do not need to provide this if you are using Auto Detect.
Internal Port	The port to use for an internal Skype for Business server. **Note:** The default port for Skype for Business network traffic is automatically selected. If you are not using the default port, specify the port you're using here.
External Address	The IP address of FQDN of an external address for a Skype for Business server. **Note:**

Option	Description
	You do not need to provide this if you are using Auto Detect.
External Port	The port to use for an external Skype for Business server.
	Note: The default port for Skype for Business network traffic is automatically selected. If you are not using the default port, specify the port you're using here.
Enable Logging	Specify whether to turn on logging for Skype for Business.
Log Level	Specify what level of logging to capture if you have enabled logging.

13. Click **Close**.

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. The CONVERGE Pro 2 CONSOLE 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

Plan	Description
[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]xxxxxxxxS | 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

Changing Device Settings - IP Phone (VoIP/SIP)

You can change the IP Phones settings for a CONVERGE Pro 2 device when using a VoIP/SIP server.

Note:

When using a Skype for Business server, the IP Phone settings are different. See *Changing Device Settings - IP Phone (S4B)* for more information.

Note:

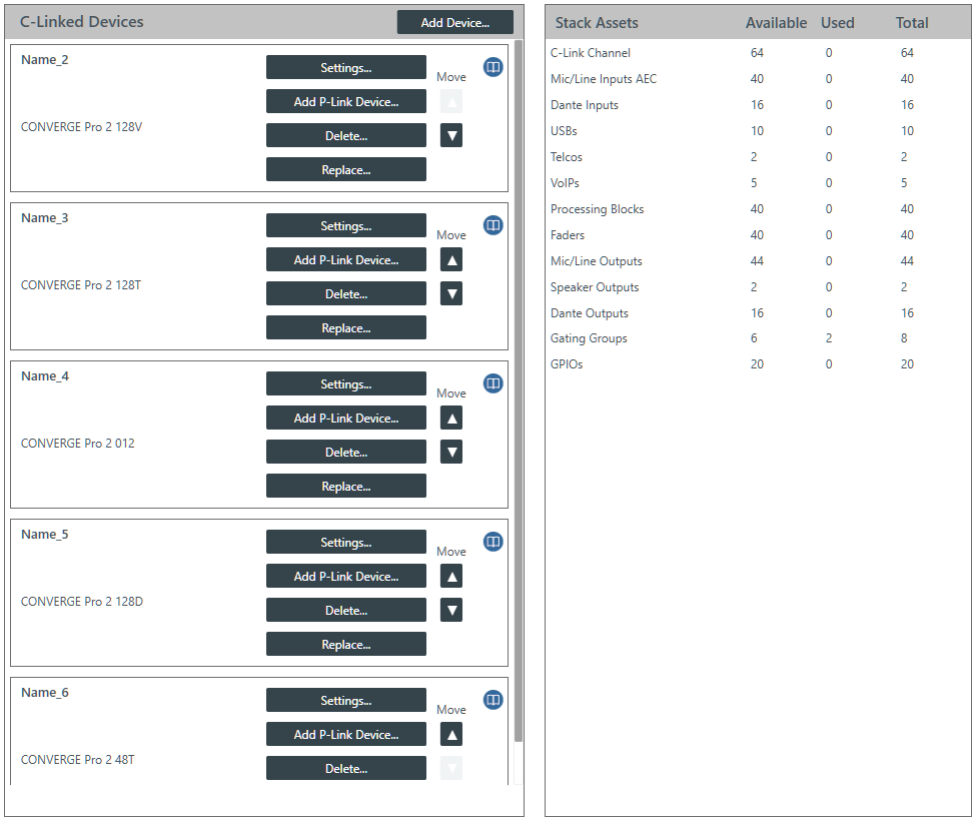
The maxiumum number of simultaneous calls that can be made depends on the number of user agents (UAs) being used, as shown in the table below:

UAs	Max Calls
1	5
2	5
3	4
4	3
5	2

To change the VoIP Phones settings for a device:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

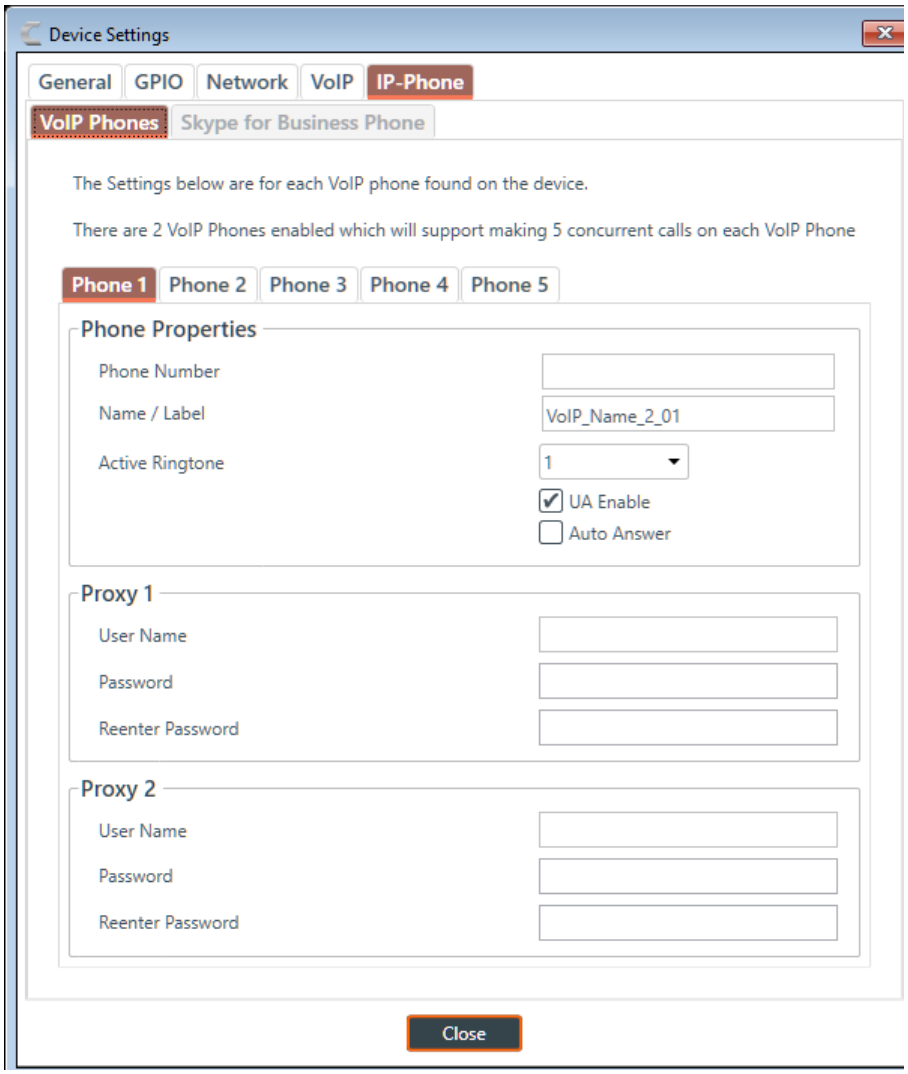
   The Devices screen appears:



2. For the device you want to change, click **Settings**.

   The Device Settings dialog box appears.
3. Click the **IP-Phone** tab.

   The IP Phone VoIP Phones settings appear:



4. (Optional) Change any of the settings on the Phone 1, Phone 2, Phone 3, Phone 4, or Phone 5 tabs (as described in the table below).

Option	Description
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.
UA Enable	Enable the SIP User Agent (UA).
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).

Option	Description
	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.

5. Click **Close**.

Changing Device Settings - Skype for Business Stack

You can change the Skype for Business Stack settings for a CONVERGE Pro 2 device.

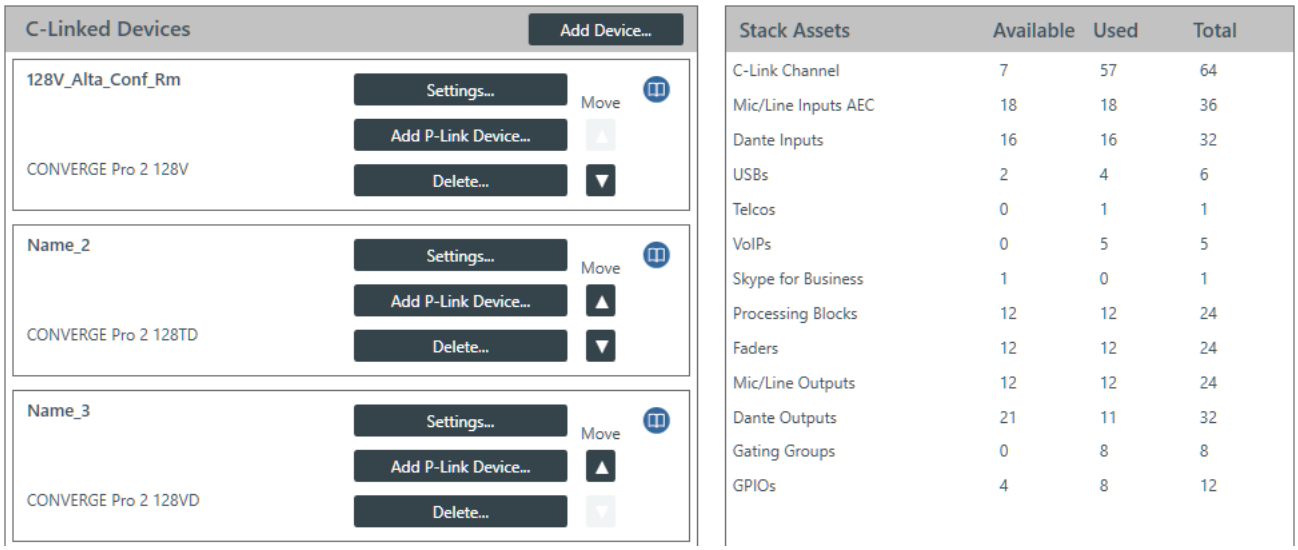
Note:

Support for Skype for Business will be added to a future release.

To change the Skype for Business Stack settings for a device:

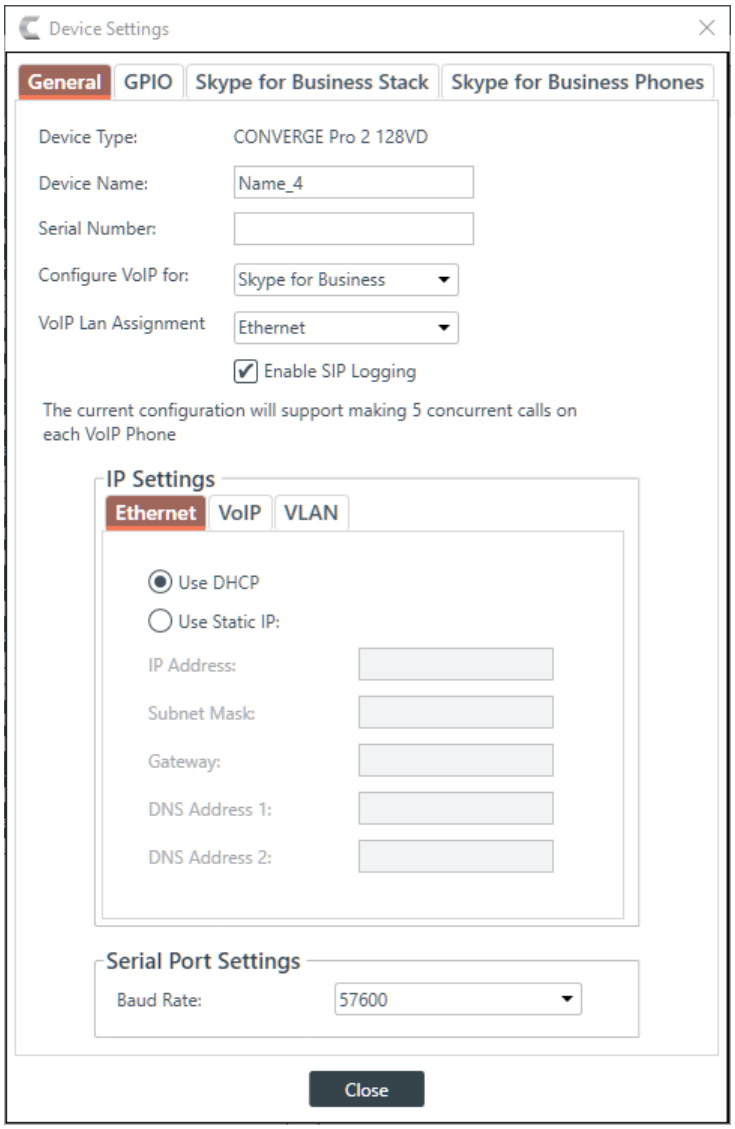
1. In the Navigation Panel, under **Stack**, choose **Devices**.

   The Devices screen appears:



2. For the device you want to change, click **Settings**.

   The Device Settings dialog box appears:

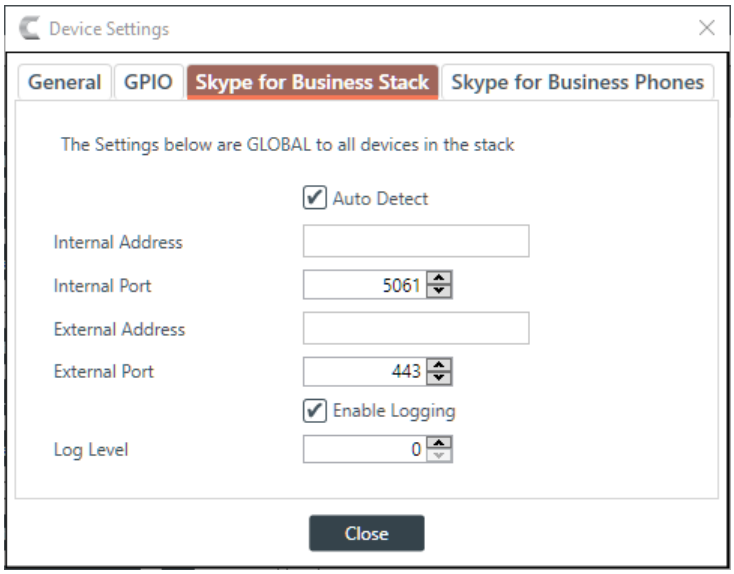


Note:

Before you can configure the Skype for Business Stack, you must have selected **Skype for Business** as the **Configure VoIP for** option in the General tab.

3. Click the **Skype for Business Stack** tab.

   The Skype for Business Stack settings appear:



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

Option	Description
Auto Detect	Specify whether to try to automatically detect and configure the Skype for Business server settings.
Internal Address	Specify the Skype for Business Server internal address (FQDN or IP address).
External Address	Sepcify the Skype for Business Server external address (FQDN or IP address).
External Port	Specify the external port to use to connect.
Enable Logging	Specify whether to turn on logging.
Log Level	Specify the level of logging to perform if logging has been enabled.

5. Click **Close**.

Changing Device Settings - Skype for Business Phones

You can change the Skype for Business Phones settings for a CONVERGE Pro 2 device.

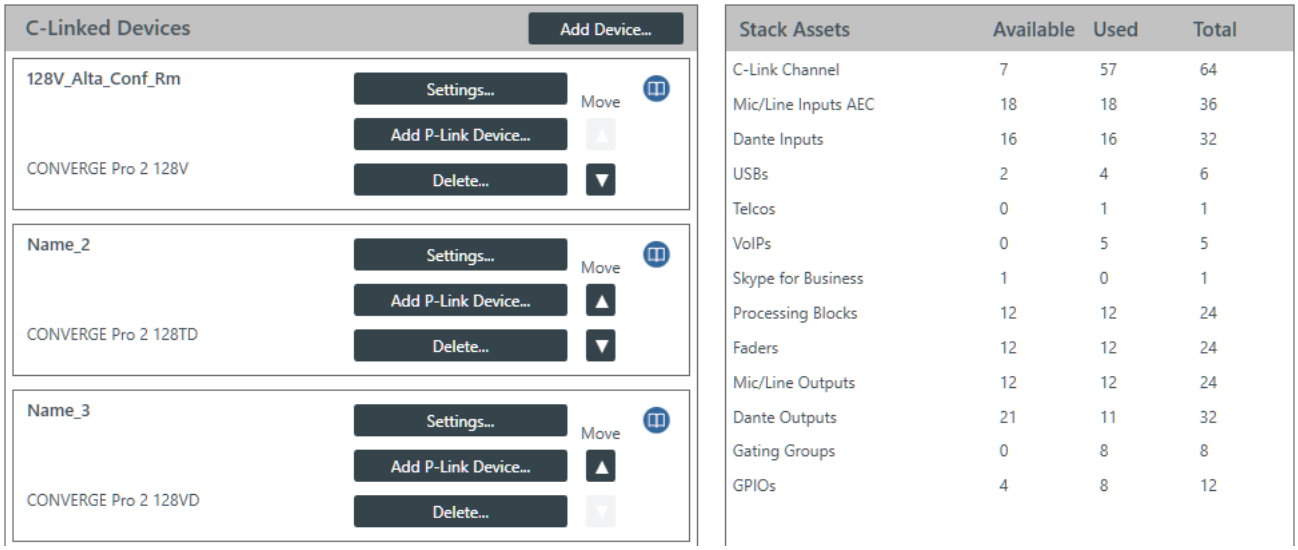
Note:

Support for Skype for Business will be added to a future release.

To change the Skype for Business Phones settings for a device:

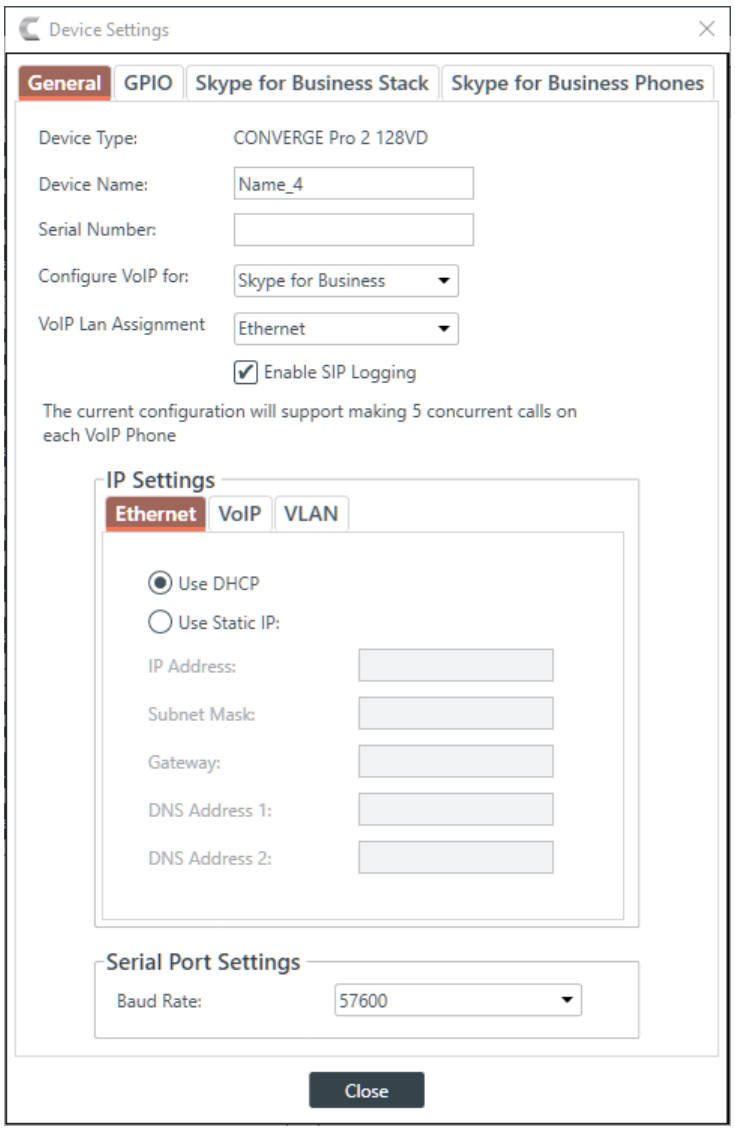
1. In the Navigation Panel, under **Stack**, choose **Devices**.

   The Devices screen appears:



2. For the device you want to change, click **Settings**.

   The Device Settings dialog box appears:

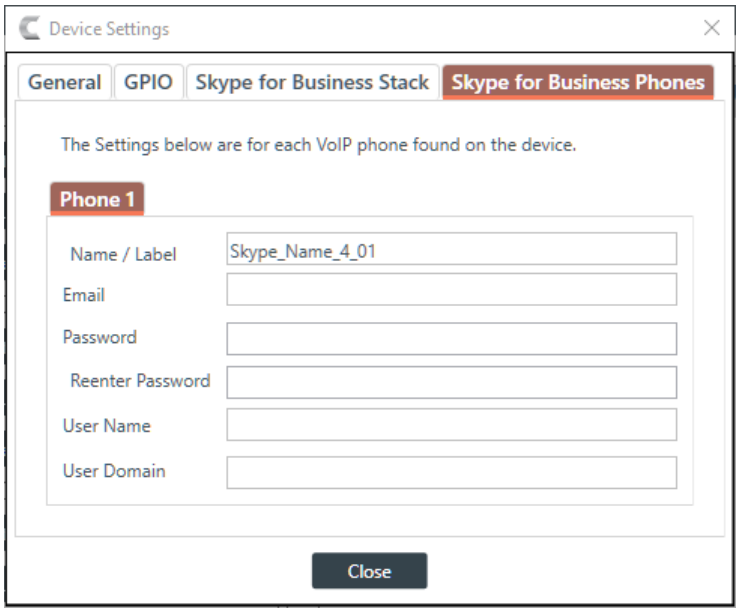


Note:

Before you can configure the Skype for Business Stack, you must have selected **Skype for Business** as the **Configure VoIP for** option in the General tab.

3. Click the **Skype for Business Phones** tab.

   The Skype for Business Phones tab appears:



4. Enter the Skype for Business server credentials, as described in the table below:

Option	Description
Name/Label	The channel name/label for this phone (user agent).
Email	The email address of the account used to log in to the Skype for Business server.
Password	The password of the account used to log in to the Skype for Business server.
Reenter Password	Repeat the password above, to make sure no error occurred.
User Name	The user name of the account used to log in to the Skype for Business server.
User Domain	The domain of the account used to log in to the Skype for Business server.

5. Click **Close**.

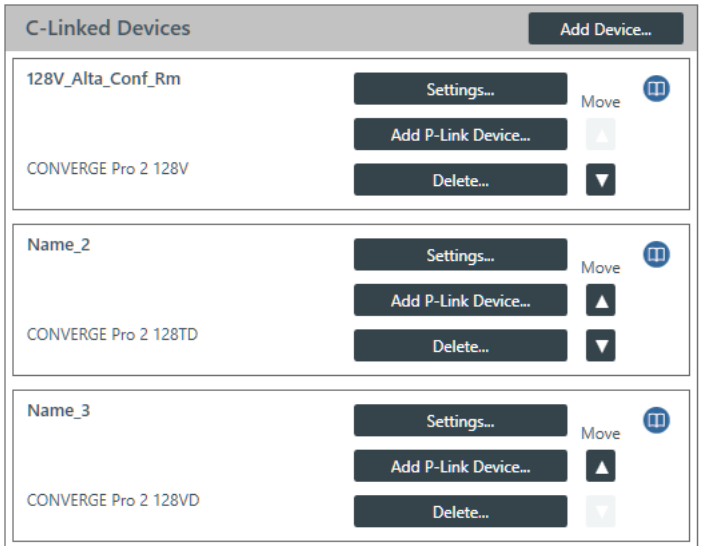
Changing Device Settings - Telco

You can change the Telco (analog phone line) settings for a CONVERGE Pro 2 device.

To change the Telco settings for a device:

1. In the Navigation Panel, under **Stack**, choose **Devices**.

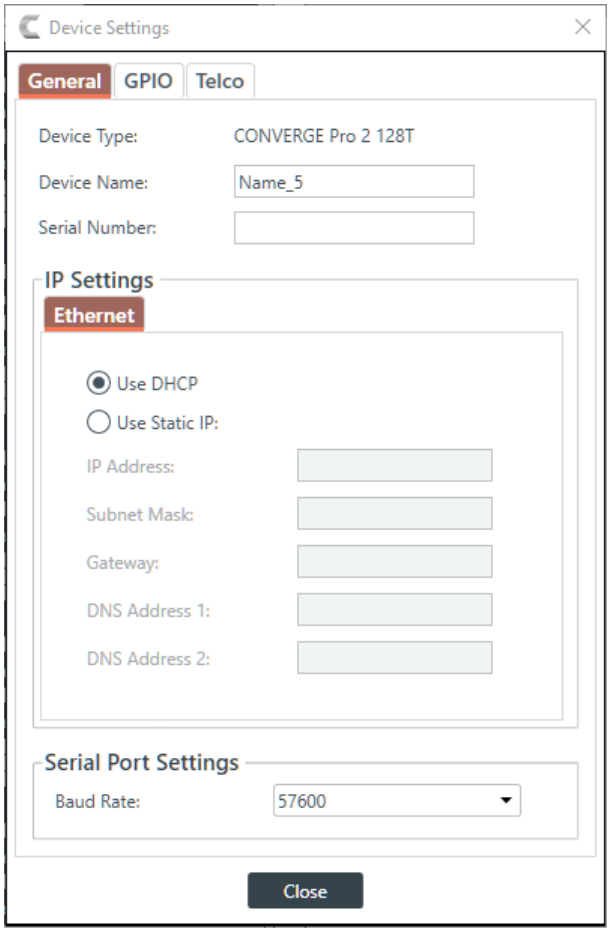
   The Devices screen appears:



Stack Assets	Available	Used	Total
C-Link Channel	7	57	64
Mic/Line Inputs AEC	18	18	36
Dante Inputs	16	16	32
USBs	2	4	6
Telcos	0	1	1
VoIPs	0	5	5
Skype for Business	1	0	1
Processing Blocks	12	12	24
Faders	12	12	24
Mic/Line Outputs	12	12	24
Dante Outputs	21	11	32
Gating Groups	0	8	8
GPIOs	4	8	12

2. For the device you want to change, click **Settings**.

   The Device Settings dialog box appears:

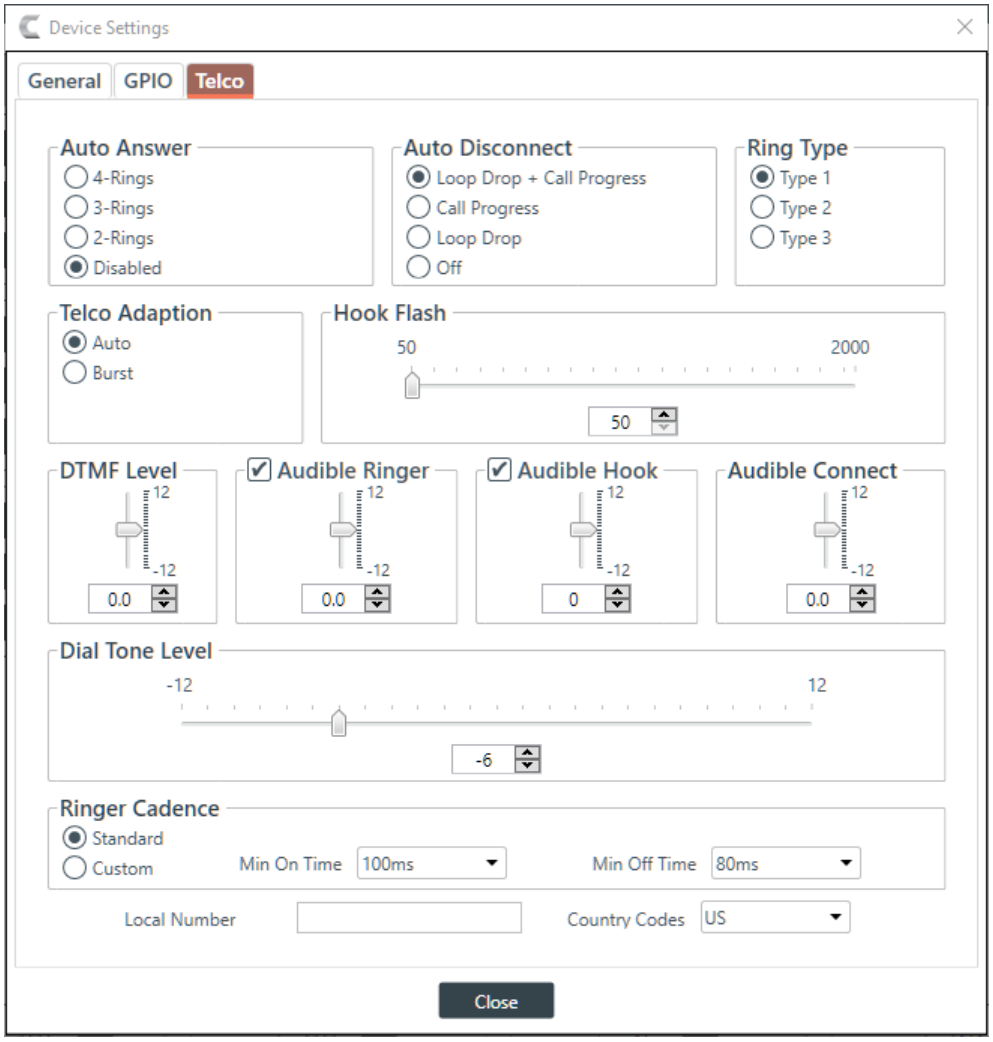


Note:

The tabs shown on this dialog box depend on the type of device. Devices with VOIP capability have VoIP Stack and VoIP Phones tabs. Devices with Telco capability have a Telco tab. Devices with neither of these capabilities have only General and GPIO tabs.

3. Click the **Telco** tab.

The Telco settings appear:



4. 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.

Option	Description
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.

5. Click **Close**.

Changing Device Properties -DIALOG 20

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

Note:

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.

Note:

The CP2 CONSOLE cannot be used to upgrade the firmware of a DIALOG 20. You must use the WS800 & DIALOG 20 Remote Software to do that. The CP2 CONSOLE software also doesn't support Narrowband mode selection.

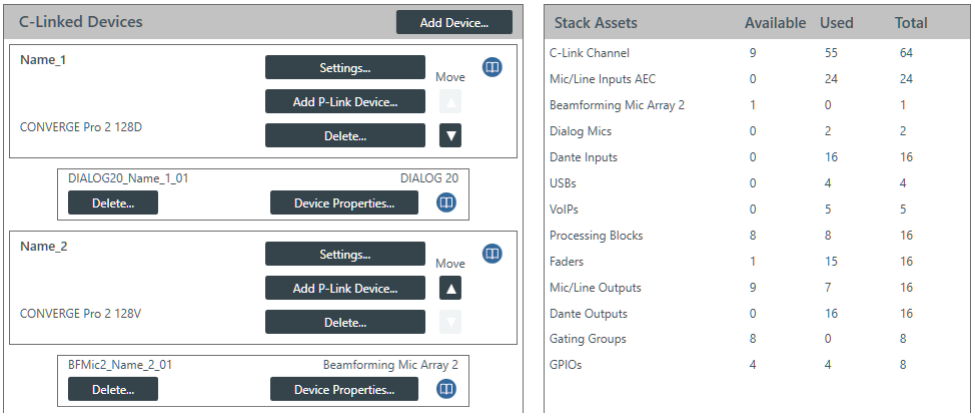
Note:

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:

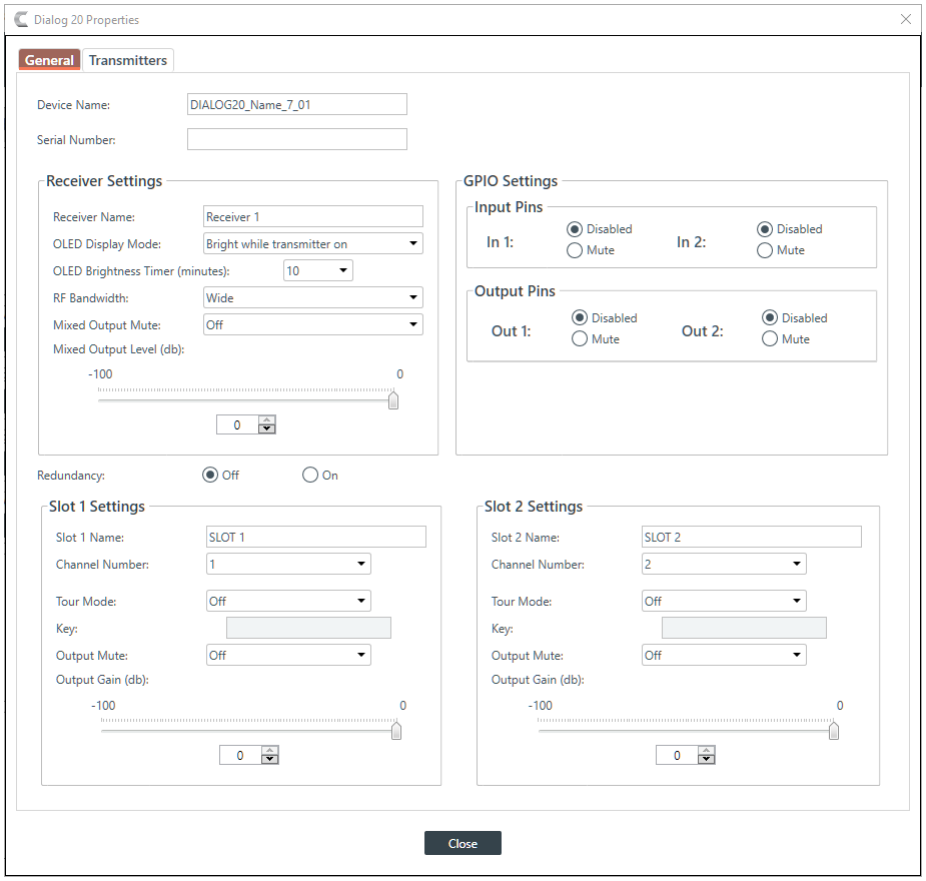
1. In the Navigation Panel, under **Stack**, choose **Devices**.

   The Devices screen appears:



2. For the DIALOG 20 device you want to change, click **Device Properties**.

   The DIALOG 20 Properties dialog box appears:



General Settings

3. If it isn't already selected, select the **General** tab.
4. (Optional) Change any of the settings (described in the table below).

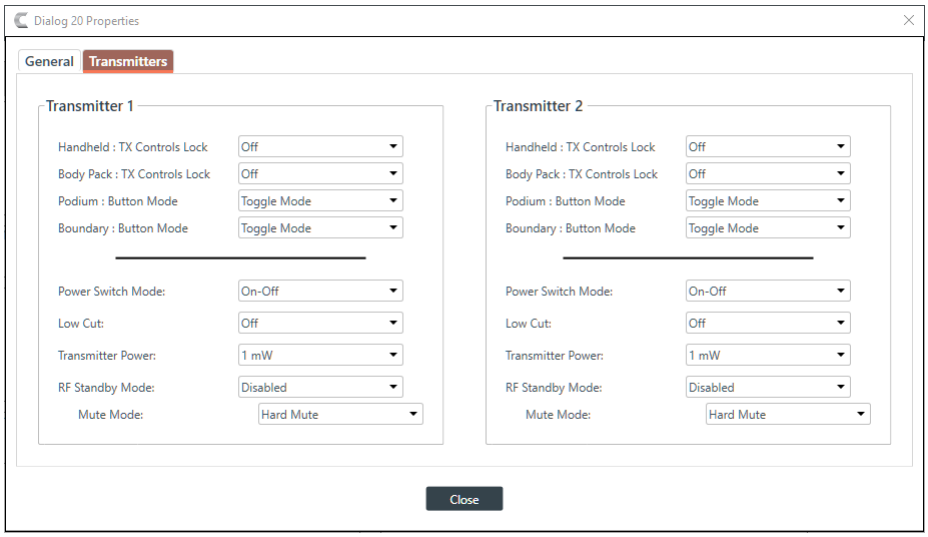
Option	Description
Device Name	The name of the device as it appears in the CP2 CONSOLE.
Serial Number	The serial number of the DIALOG 20 device. If the device is detected, this is filled automatically.

Option	Description
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.
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

5. Select the Transmitters tab.

   The Transmitters settings appear:



6. (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. 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.

Option	Description
	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.

7. Click **Close**.

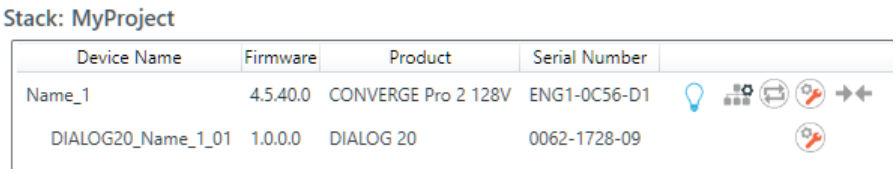
Performing an RF Scan for DIALOG 20

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

To perform an RF Scan:

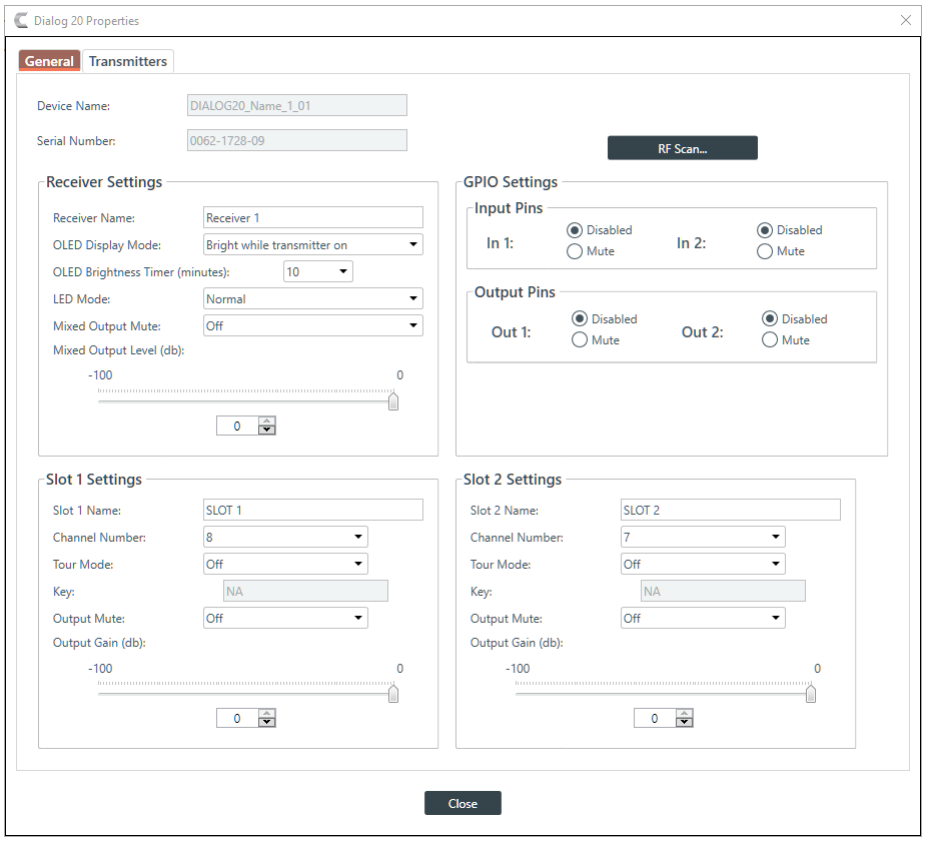
1. If you have not already done so, add a DIALOG 20 P-link device to the project. See *Adding a DIALOG 20 Wireless Mic* for more information.
2. If you have not already done so, you need to load the project with the DIALOG 20 included to the CP2 device. See *Loading a Project File to a Device* for more information.
3. If you have not already done so, you must connect to the device that has the DIALOG 20 attached to it. See *Connecting to a Device or Stack* for more information.
4. In the Navigation Panel, under Stack, choose Equipment.

   The Stack Equipment screen appears:



5. Click  next to a DIALOG 20 device in the project list.

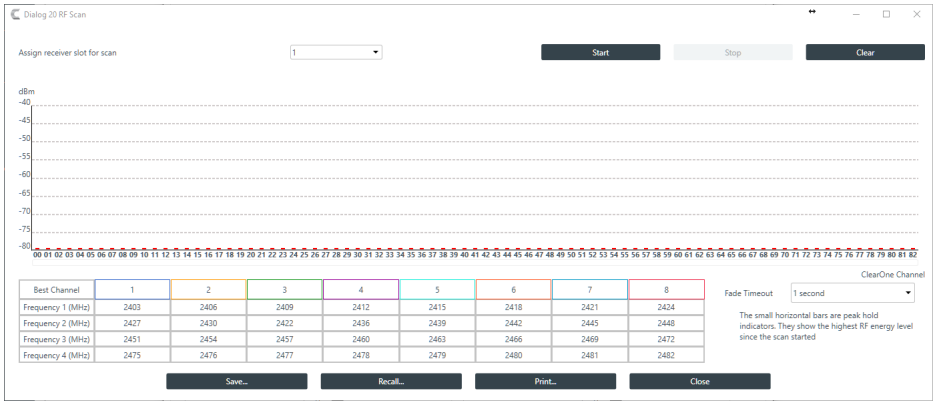
   The DIALOG 20 Properties dialog box appears:



6. Click **RF Scan** (in the upper right of the dialog box).

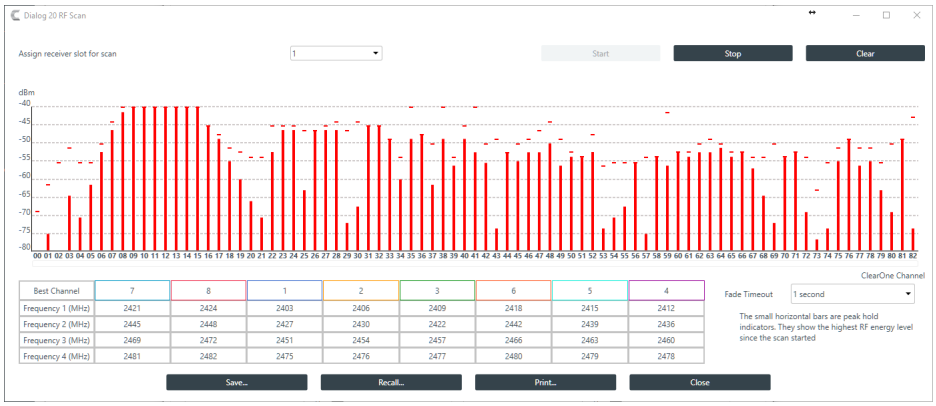
> **Note:**
>
> This button appears only if you are connected to a device, so if you don't see the button, make sure you are connected to both the CP2 and DIALOG 20 devices.

The DIALOG 20 RF Scan dialog box appears:

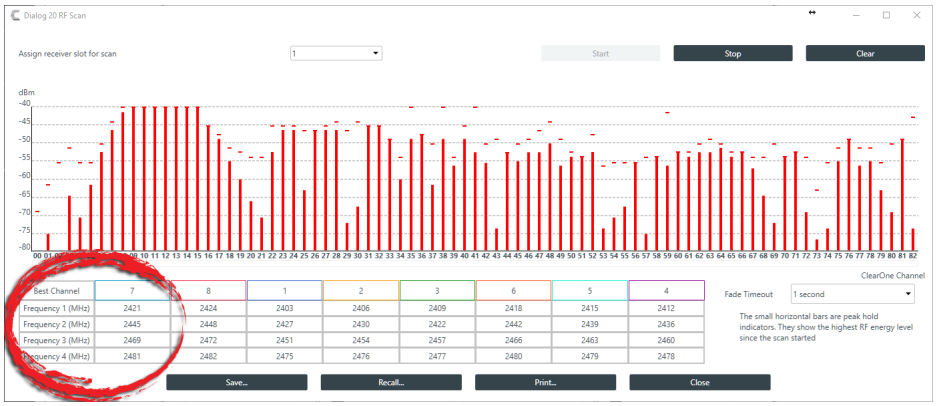


7. (Optional) Choose a receiver slot (the drop-down list to the left of the Start button).
8. Click **Start** to begin scanning.

The scan results appear as strength bars:



9. 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:



10. (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.

11. Click **Close** to close the RF Scan dialog box.
12. (Optional) If desired, you can change the **Channel Number** setting being used under **Slot 1 Settings** and **Slot 2 Settings**.
13. Click **Close** to close the DIALOG 20 Properties dialog box.

Changing Stack Settings

You can change the settings for a device stack.

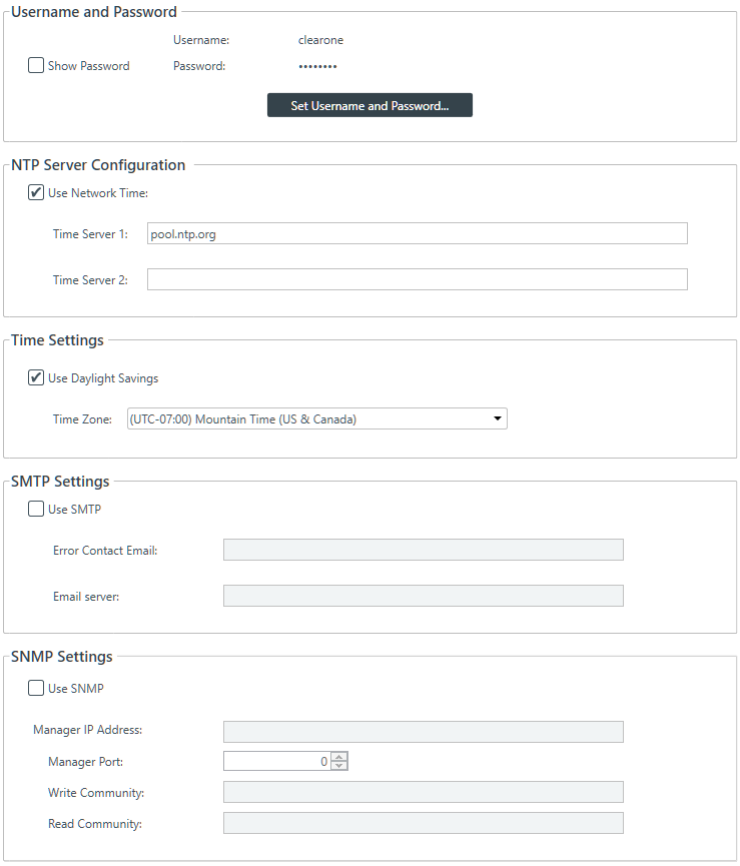
Note:

Stack settings apply to all the devices in a stack.

To change the stack settings:

1. In the Navigation Panel, under **Stack**, choose **Settings**.

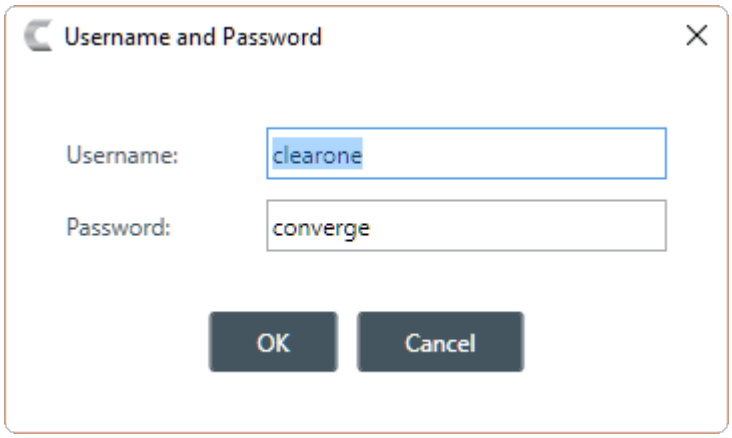
   The Stack Settings screen appears:



Username and Password

2. 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”.

3. 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

4. To have the device automatically set its time using a Network Time Protocol (NTP) server, select the **Use Network Time** check box.
5. Add the address of an NTP server in the **Time Server 1** field.

   Note:

   The server name can have up to 30 characters.
6. (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

7. To have the stack automatically adjust the time for daylight savings, check the **Use Daylight Savings** check box.
8. To set the time zone, choose an option from the **Time Zone** drop-down list.

SMTP Settings

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

SNMP Settings

12. To turn on the Simple Network Management Protocol (SNMP), check the **Use SNMP** check box.
13. Type the address of the SNMP Manager in the Manager IP Address field.
14. Type the port to use to communicate with the SNMP Manager in the Manager Port field.
15. Type the name of the SNMP Write community string in the Write Community field.
16. Type the name of the SNMP Read community string in the Read Community field.

Opening the Serial Commands Reference Manual

You can connect to a CONVERGE Pro 2 device using a serial port or by telnet to control the device in the same ways that you can using the CONSOLE interface, but using commands (though there are some features that are available only through the CONSOLE). You can find out more details about how to use serial commands, which commands are availabale, and the syntax and details about particular commands in the CONVERGE Pro 2 Serial Commands Reference Manual. You can open the Serial Commands Reference Manual from within CONSOLE.

To open the Serial Commands Reference Manual:

1. From the Navigation Panel, under Stack, click Devices.
2. Click to open the Serial Commands Reference Manual.

Chapter 5

Room - Offline

Topics:

This chapter contains information about changing the Room (Space) settings.

Note:

The options described in this chapter are accessible only when the CONVERGE Pro 2 CONSOLE application is in Project mode. See *Live Mode vs. Project Mode* for more information.

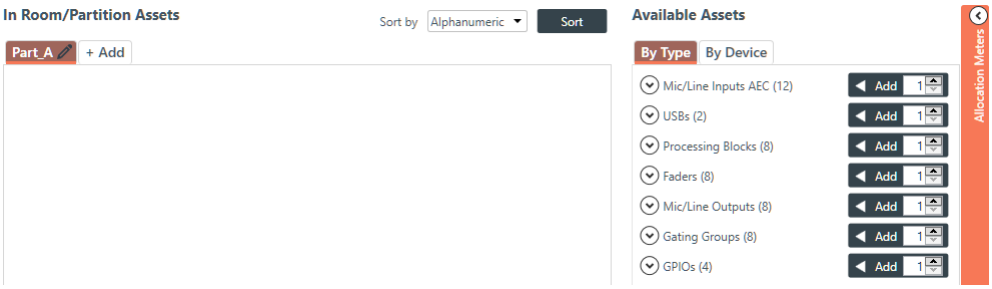
Adding a Room Partition

You can add partitions to a room (for more information about partitions, see *About Room Partitions*.)

To add a partition to a room:

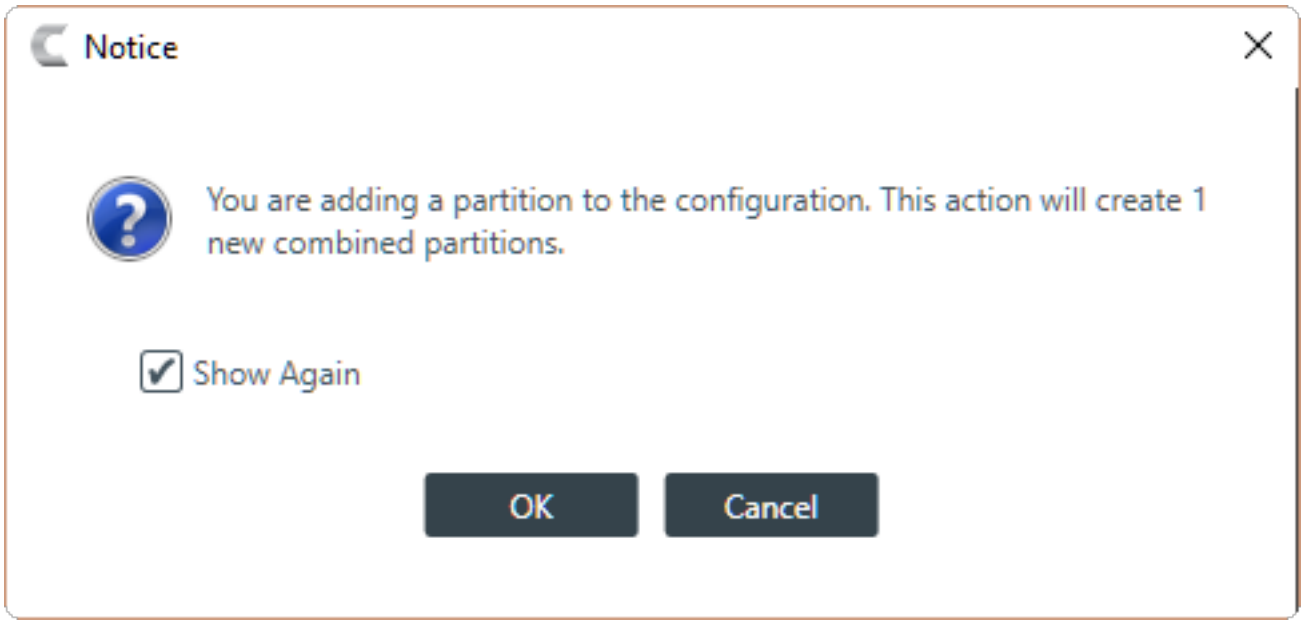
1. In the Navigation Panel, under **Room (Space)**, select **Resource & Partition Mgt**.

   The Resource & Partition Mgt. screen appears:



2. Under the **In Room/Partition Assets** column, click **+ Add**.

   The Notice dialog box appears:



3. If you don't want the Notice dialog box to appear each time you add a partition, deselect the **Show Again** check box.

   Note:

   You can turn off this warning permanently in the Options dialog box. See *Changing CONSOLE Options* for more information.

4. Click **OK**.

   The new partition appears as a new tab, and that partition and any other partition combinations created by adding a partition now appear in every screen where you can select a partition.

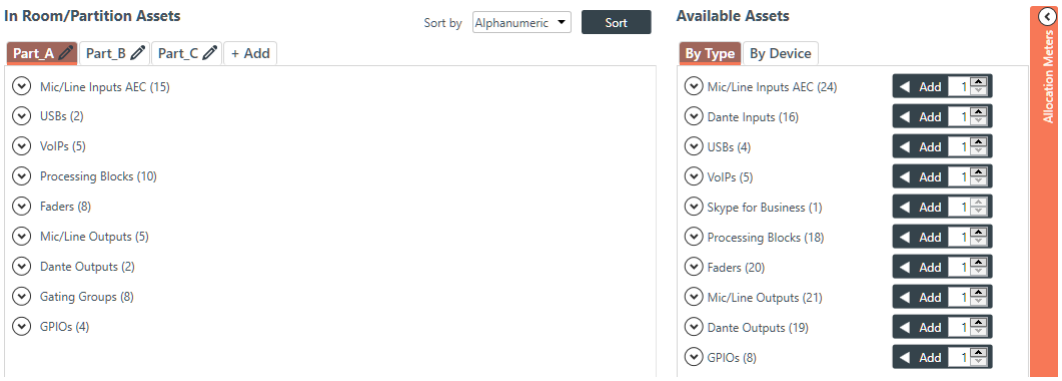
Deleting a Room Partition

You can delete partitions from a room (for more information about partitions, see *About Room Partitions*.)

To delete a partition:

1. Under **Room (Space)**, select **Resource & Partition Mgt**.

   The Resource & Partition Mgt. screen appears:



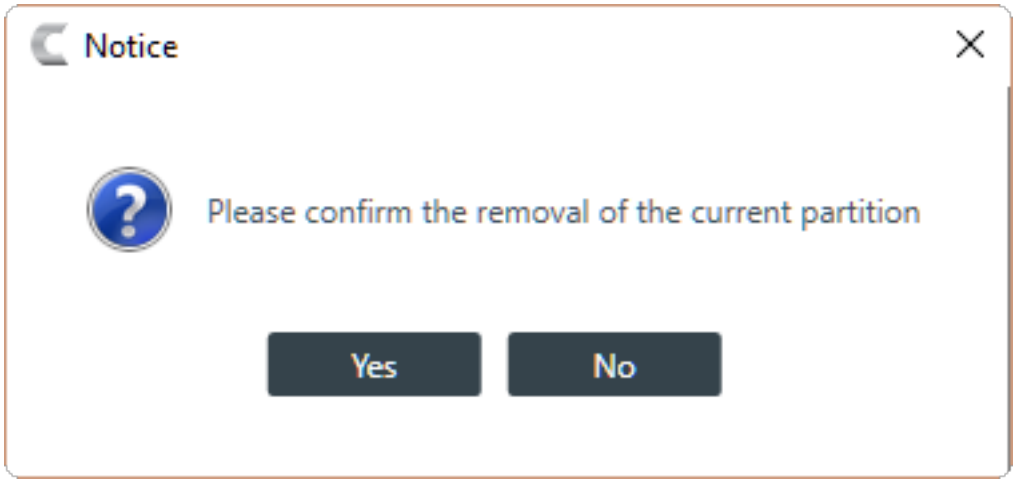
2. In the partition tabs under **In Room/Partition Assets**, select the last partition you created.

   Note:

   You can delete only the last partition in the list. For example, if you have three partitions, Part_A, Part_B, and Part_C, only Part_C has a Delete Partition button.

3. Click the **Delete Partition** button (it appears at the end of the list of assets).

   The Notice dialog box appears:



4. Click **Yes**.

   The partition is deleted, along with any presets or other configuration information associated with that partition.

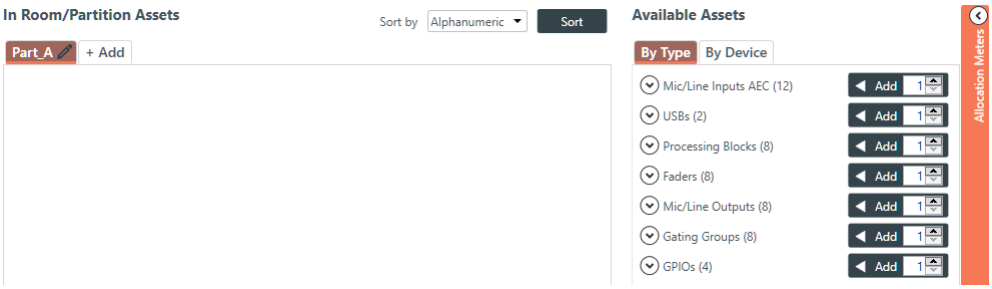
Adding Assets to a Partition

Before you can configure any audio assets, you must add them to a room partition. See *About Room Partitions* and *Adding a Room Partition* for more information about room partitions. See *Releasing Assets from a Room Partition* for information about releasing assets after they have been added.

To add assets to a partition:

1. In the Navigation Panel, under **Room (Space)**, select **Resource & Partition Mgt**.

   The Resource & Partition Mgt. screen appears:



2. Select a partition from the tabs under **In Room/Partition Assets**.

   Note:

   For information about adding a partition, see *Adding a Room Partition*.

3. Add items in the **Available Assets** list to the **In Room/Partition Assets** list.

   There are several ways to add assets:

   By Type:

   - You can view assets by type (click the By Type tab) and then use the counter and the Add button to the right of each type specify how many of that type to add.
   - You can view assets by type (click the By Type tab) and then expand the list of devices of that particular type by clicking the down arrow button next to the device type, then click Add for each specific asset you want to add.

   By Device:

   - You can view assets by device (click the By Device tab) and then add all the assets for a particular device by clicking the Add button to the right of a device.
   - You can view assets by device (click the By Device tab) and then expand the assets available for a particular device by clicking the down arrow button next to a device and then use the counter and Add button next to the asset type to specify how many of that type to add.
   - You can view assets by device (click the By Device tab) and then expand the assets available for a particular device and then expand a particular type by clicking the down arrow button next to that type, and then click Add for each specific asset you want to add.

     Note:

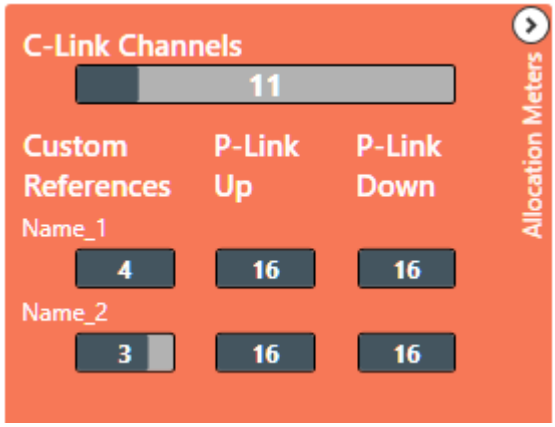
     Gating Groups do not appear when you select By Device, so if you want to add Gating Groups, you must select By Type.

4. To see how many of the available channels are being used by the selected assets, and how they are being used (C-Link Channels, Custom References, P-Link Up, or P-Link Down), click the Allocation Meters bar at the right of the screen.

   Note:

   C-Link cables can carry a maximum of 64 audio channels, so the allocation meter shows you how many of the 64 channels you're using. Each device can have up to four custom reference (for more information about custom references, see *About References*). P-link Up and P-link Down refers to the fact that each CP2 device can have a maximum of 16 inbound (or Down) P-link channels and 16 outbound (or Up) P-link channels, so the allocation meter shows you how many of those channels are in use given the assets you have selected.

   The Allocation Meters bar expands:



Note:

Assets that require C-Link channels are:

- Output channels
- USB (input and output) channels
- VoIP (input and output) channels
- Telco (input and output) channels
- Processing Block channels
- Fader channels
- AEC References

Add References

5. If you have added Mic/Line Output channels, you can also add references for those outputs. To add a reference, click ⌄ next to Mic/Line Outputs under In Room/Partition Assets to view output channels.

   Note:

   For more information about references, see *About References*.

6. Click ⌄ next to the output channel you want to use as a reference.

   The References options appear:

7. Click **Add Standard** to add a standard reference or **Add Custom** to add a custom reference.

   To understand the difference between standard and custom references, see *About References*.

8. If you have already added a reference, you can click **Release** to remove the reference (standard or custom).

Change GPIO Settings

9. If you have added GPIO channels that are Logic Input type (see *Changing Device Settings - GPIO* for more information), on any partition but the first one, you can change the GPIO settings. Click ⌄ next to the GPIO channel under In Room/Partition Assets to view the GPIO options.

10. Change either of the settings, as described in the table below:

Option	Description
Use on Divider	Select this check box if you're using this GPIO input to control the state of a room divider.
Open when GPIO pin is High	Ordinarily, the divider is considered to be open when the GPIO pin is high, so this check box is selected by default. Deselect this check box to use the reverse setting.

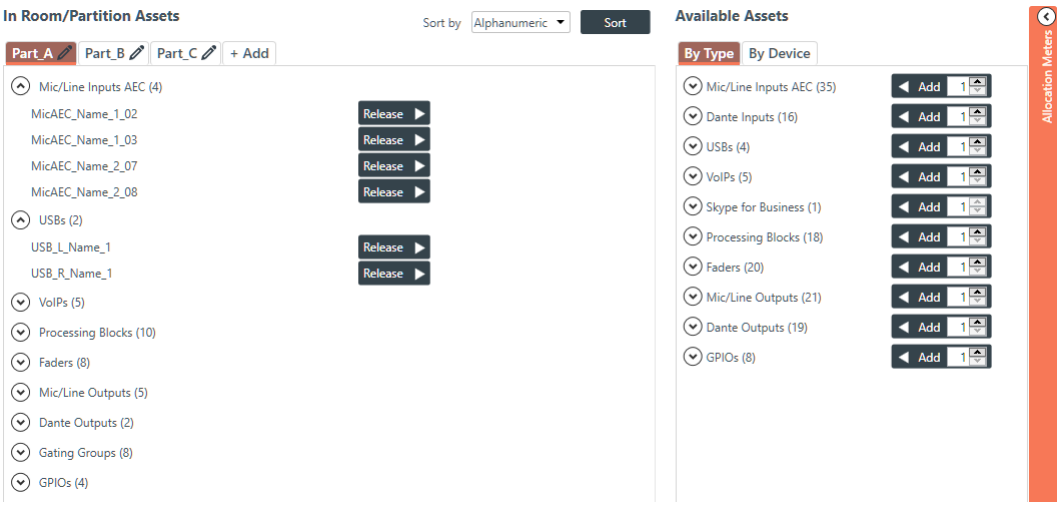
Releasing Assets from a Room Partition

You can release assets you have added to a room. See *Adding Assets to a Partition* for information about adding assets to rooms.

To release assets from a room:

1. From the options at the left of the interface, under **Room (Space)**, choose **Resource & Partition Mgt**.

The Resource & Partition Mgt. screen appears:



Assets that have already been added to the room appear on the left of the screen, under In Room/Partition Assets.

2. Click the Release button next to an asset you want to remove the room/partition.

The asset is removed the room/partition and now appears under Available Assets instead of under In Room/Partition Assets.

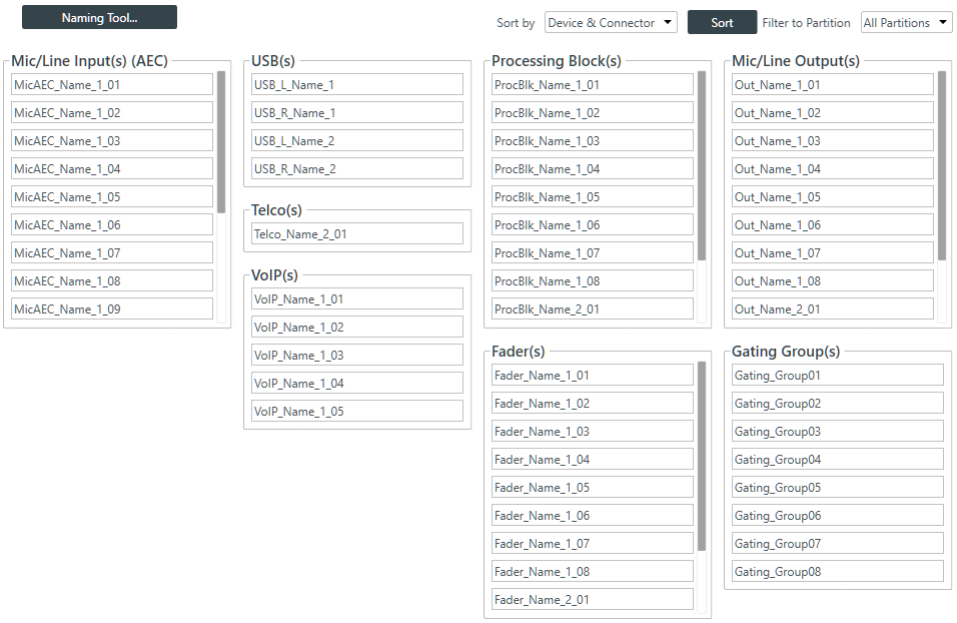
Naming Assets

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

To name assets:

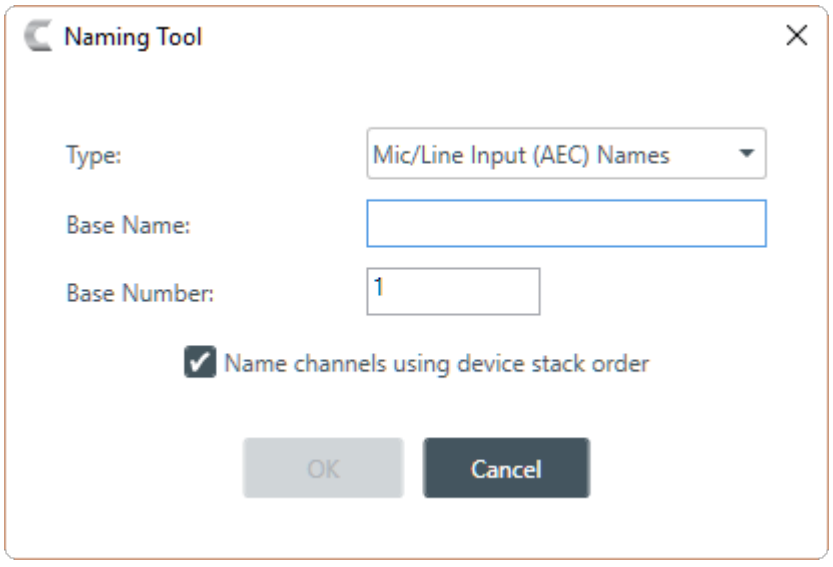
1. In the Navigation Panel, under **Room (Space)**, choose **Naming**.

   The Naming screen appears with all the assets you have added shown, along with the generic names already assigned to them:



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.
3. (Optional) To filter which channels appear by available partitions or all partitions, choose an option from the **Filter to Partition** drop-down list at the top of the Naming screen.
4. (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.
5. (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:



6. (Optional) Choose an asset type from the Type drop-down list.
7. (Optional) Type a base name (the text that makes up the first part of the asset name) in the Base Name field.

8. (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.

   Using the Naming Tool can significant speed up the process of naming many assets. For example, if the line input microphones attached to a particular CONVERGE Pro 2 device were 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 partion at 9.
9. (Optional) Check the check box to name the channels using the device stack order.
10. Click OK.

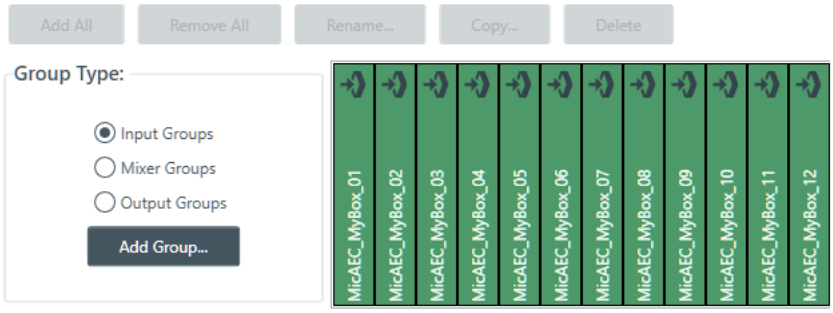
Assigning Assets to Channel Groups

You can assign assets to channel groups to make it easier to configure multiple assets as a group instead of individually.

To assign assets to channel groups:

1. In the Navigation Panel, under **Room (Space)**, choose **Channel Groups**.

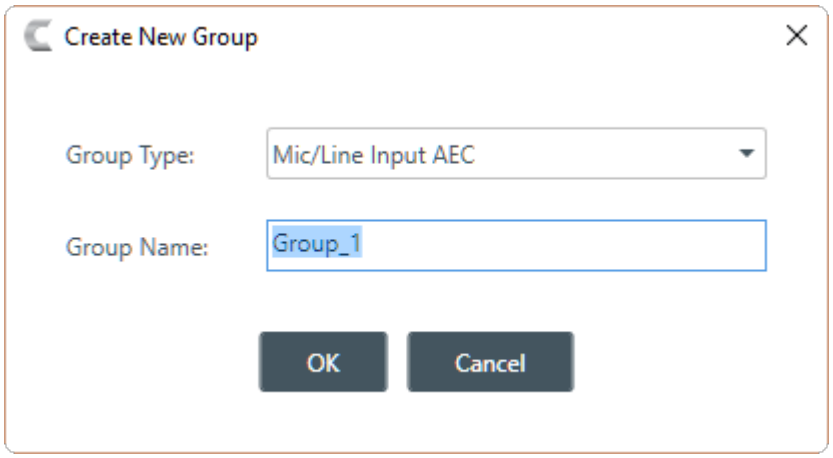
   The Channel Groups screen appears:



2. Click **Input Groups**, **Mixer Groups**, or **Output Groups** to specify which type of assets you want to add to a group.

   The available assets of the specified type appear on the right side of the screen.
3. Click **Add Group** to create a group.

   The Create New Group dialog box appears:



4. Choose the type of group to create from the **Group Type** drop-down list.
5. Type the name of the group in the **Group Name** field.

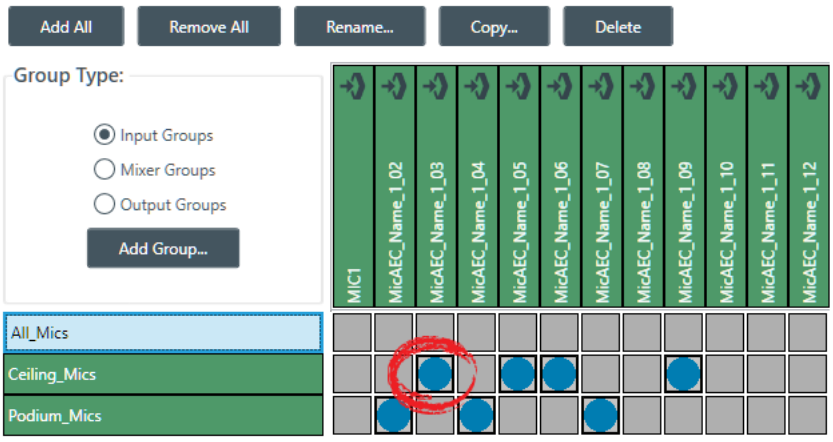
   Note:

   Names cannot have spaces or special characters (such as !, #, &, etc.). Names can include numbers, but a number cannot be the first character of the name.

6. Click **OK**.

   The newly created group appears in the group list just below
7. In the row for the group you just created, click the box just below the name of an asset you want to add. Alternatively, you can click **Add All** or **Remove All** to add or remove all available assets from the selected group.

   A dot appears in the box below the name to indicate that an asset has been added to the group:

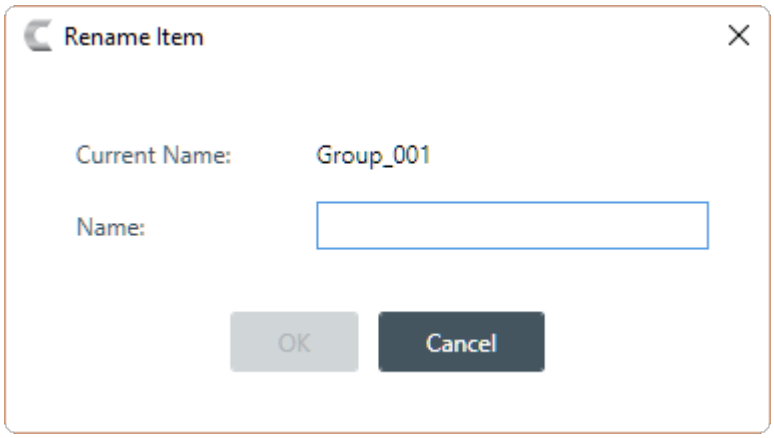


8. Add or remove assets as needed until you are satisfied with the group assignments.
9. To create additional groups, repeat steps 3-8.

Renaming a Channel Group

10. (Optional) To rename a group, select it and then click **Rename**.

    The Rename Item dialog box appears:

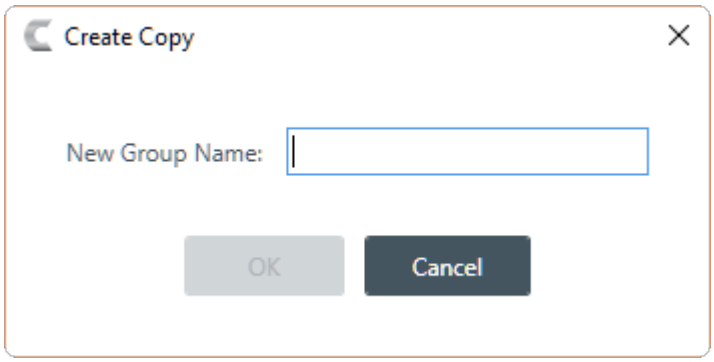


11. (Optional) Type a new name for the group in the **Name** field, then click **OK**.

Copying Channel Groups

12. (Optional) To create a copy of an existing group, select it, then click **Copy**.

The Create Copy dialog box appears:

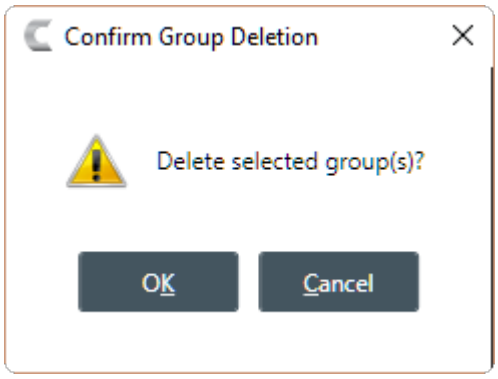


13. (Optional) Type a name for the copied group in the **New Group Name** field, then click **OK**.

Deleting Channel Groups

14. (Optional) To delete a group, select it, then click **Delete**.

The Confirm Group Deletion dialog box appears:



15. Click **OK**.

Recording Macros

You can create a macro by recording actions using FlowView, MatrixView, or channel properties. For more information about macros, see *About Macros*. For information about running a macro, see *Running a Macro*.

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.

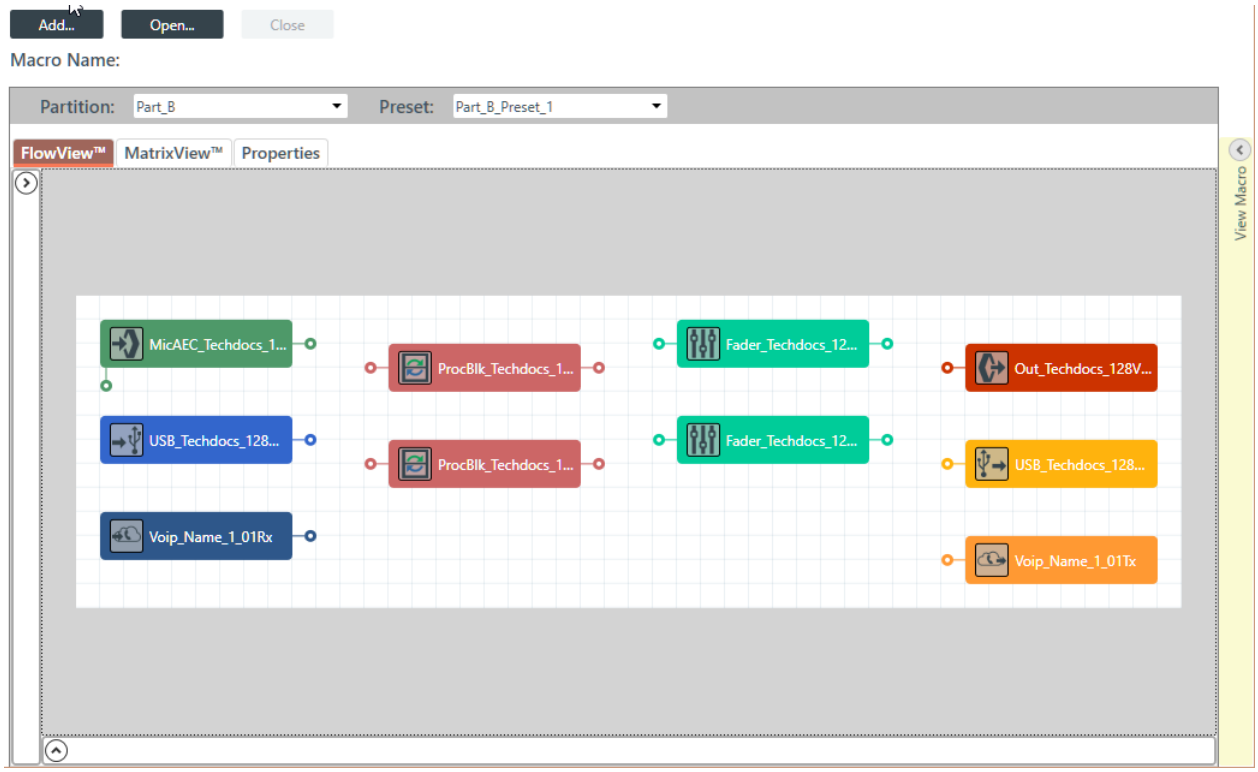
Note:

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. Under **Room (Space)**, choose **Macro Recorder**.

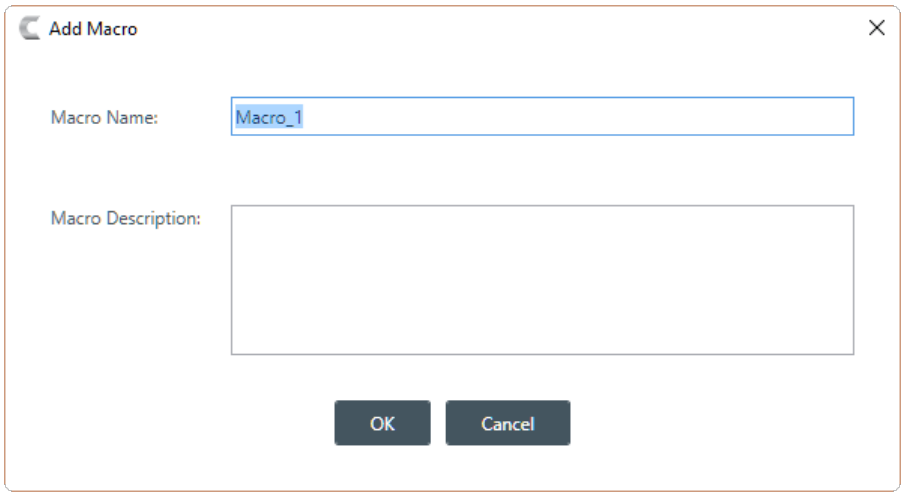
   The Macro Recorder screen appears:



Add a New Macro

2. To create a new macro, click **Add**.

   The Add Macro dialog box appears:

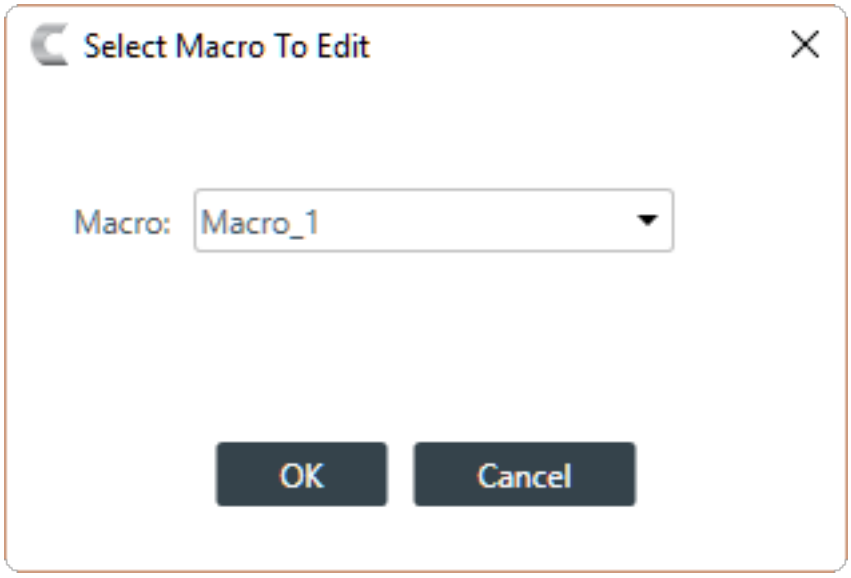


3. Type a name for the macro in the **Macro Name** field.
4. (Optional) Type a description for the macro in the **Macro Description** field.
5. Click **OK**.

Open an Existing Macro

6. Alternatively, you can open an existing macro by clicking **Open**.

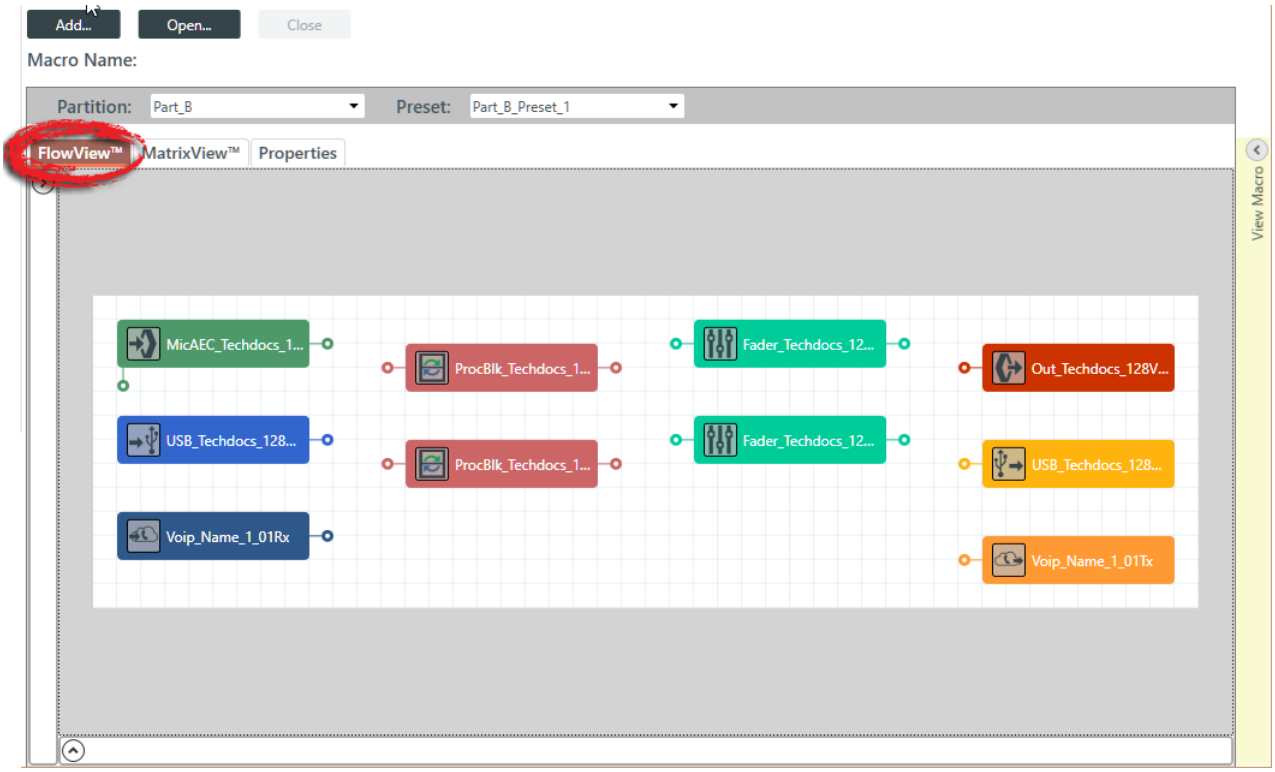
   The Select Macro to Edit dialog box appears:



7. Select a macro to open from the **Macro** drop-down list.
8. Click **OK**.

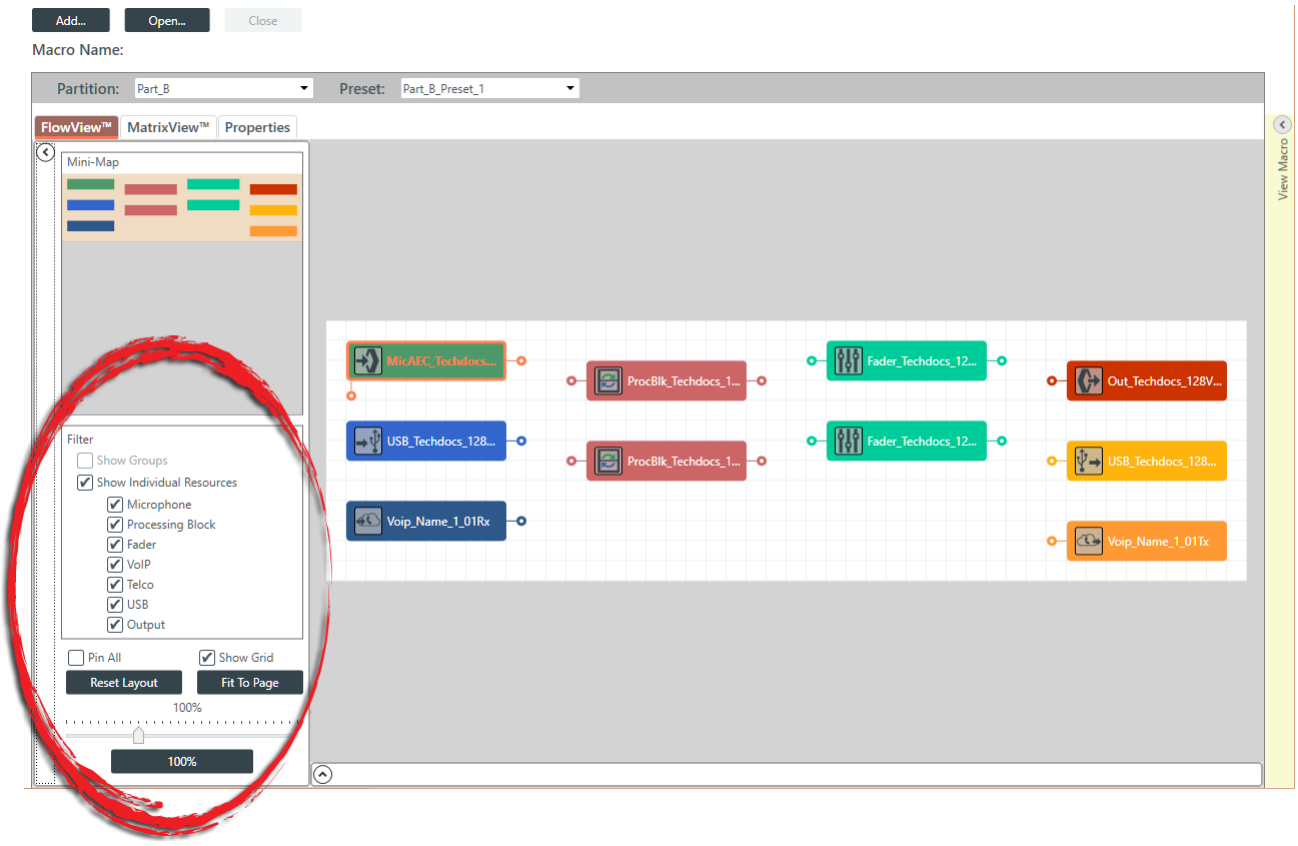
Record Commands Using FlowView

9. To record macro commands using FlowView, click the **FlowView** tab:



10. Choose a partition from the Partition drop-down list.
11. Choose a preset from the Preset drop-down list.
12. (Optional) You can make changes to how FlowView displays devices by clicking  below the FlowView tab to open the options panel.

    The FlowView options panel appears:

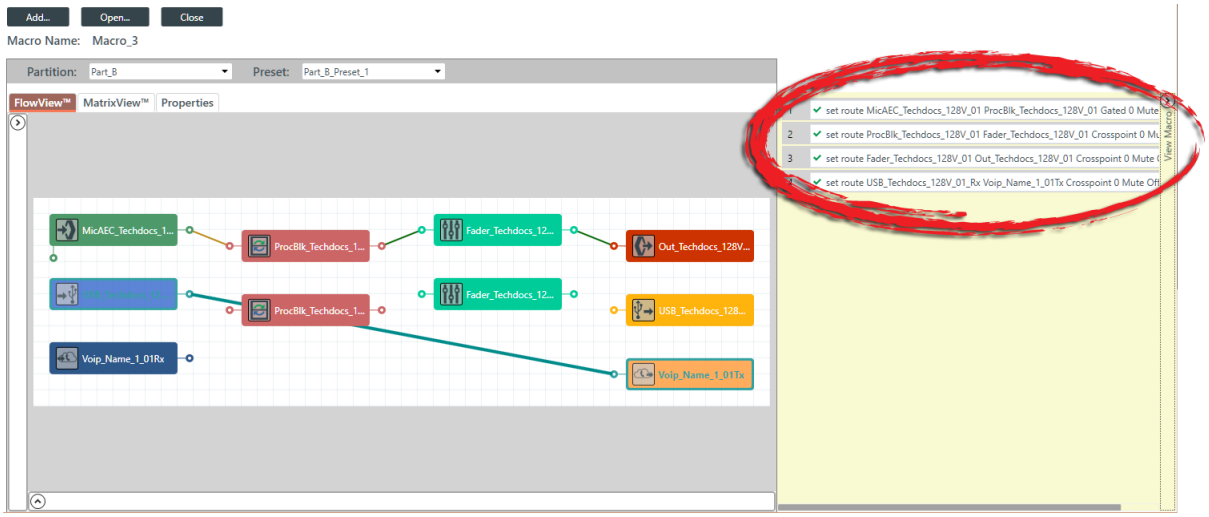


13. (Optional) Make changes to the display options as needed. See *Connecting Assets Using FlowView™* for more details about the various options.
14. Use FlowView to set routes between devices and/or groups. See *Connecting Assets Using FlowView™* for more details about the various options.
15. Double-click a channel icon to change its properties.

    The Properties block for that channel appears at the bottom of the FlowView screen, as shown in this example:

16. Make changes to the channel properties as desired. For more information about channel properties, see the *Room Partitions* chapter, which contains topics for changing the channel properties for each of the channel types.
17. (Optional) To see which commands have been added to the macro, click the **View Macro** control on the right side of the FlowView screen:

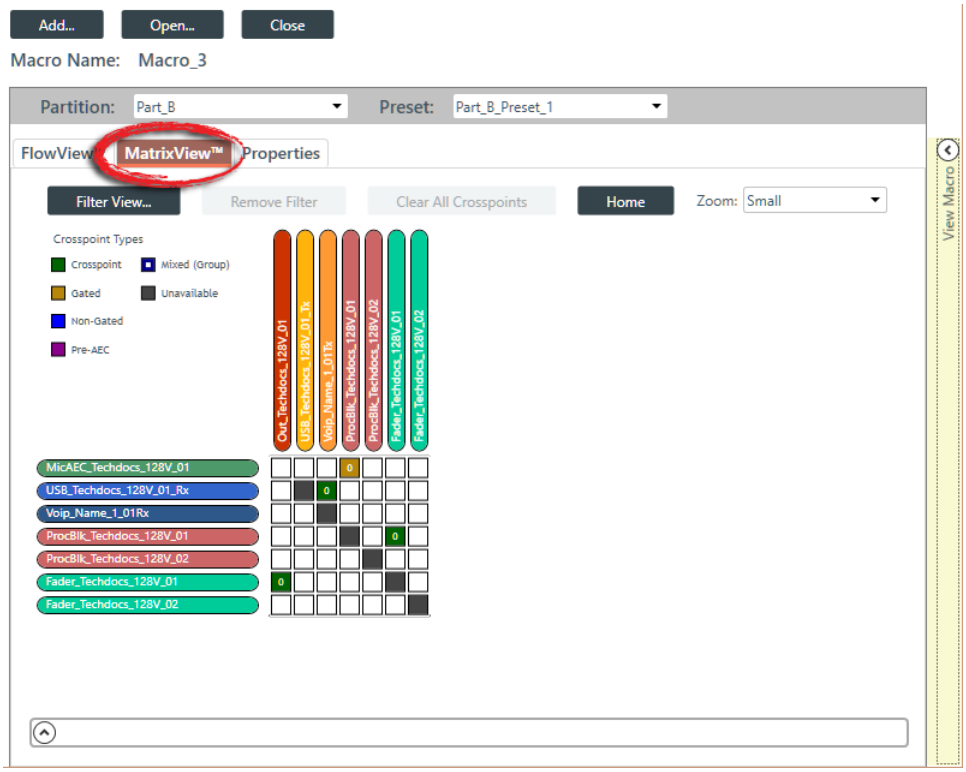
The macro commands recorded appear in the View Macro panel, as shown in this example:



18. When you are done recording commands, click **Close**.

Record Commands Using MatrixView

19. To record macro commands using MatrixView, click the **MatrixView** tab:



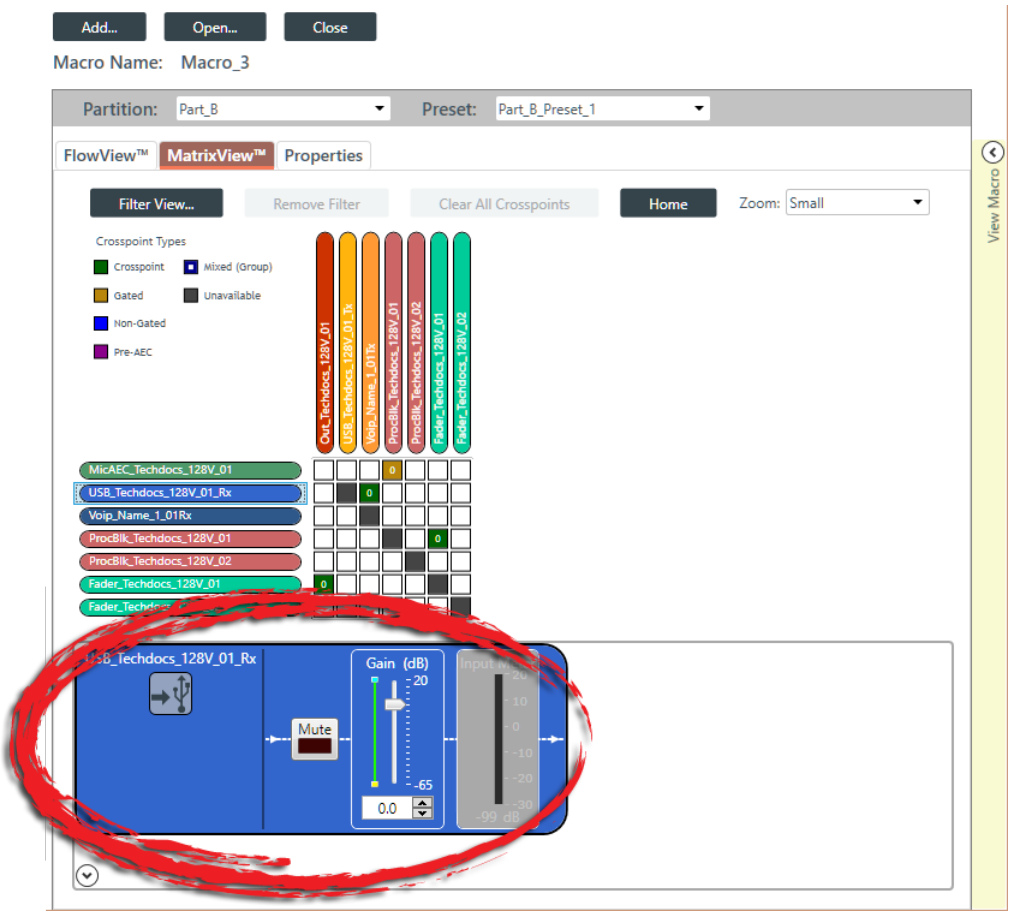
20. (Optional) You can choose which partition and preset to change by choosing options from the **Partition** and **Preset** drop-down lists.

21. (Optional) Make changes to the display options as needed. See *Connecting Assets Using MatrixView™* for more details about the various options.

22. Add and modify crosspoint routes as desired. See *Connecting Assets Using MatrixView™* for more details about the various options.

23. Double-click a channel to change its properties.

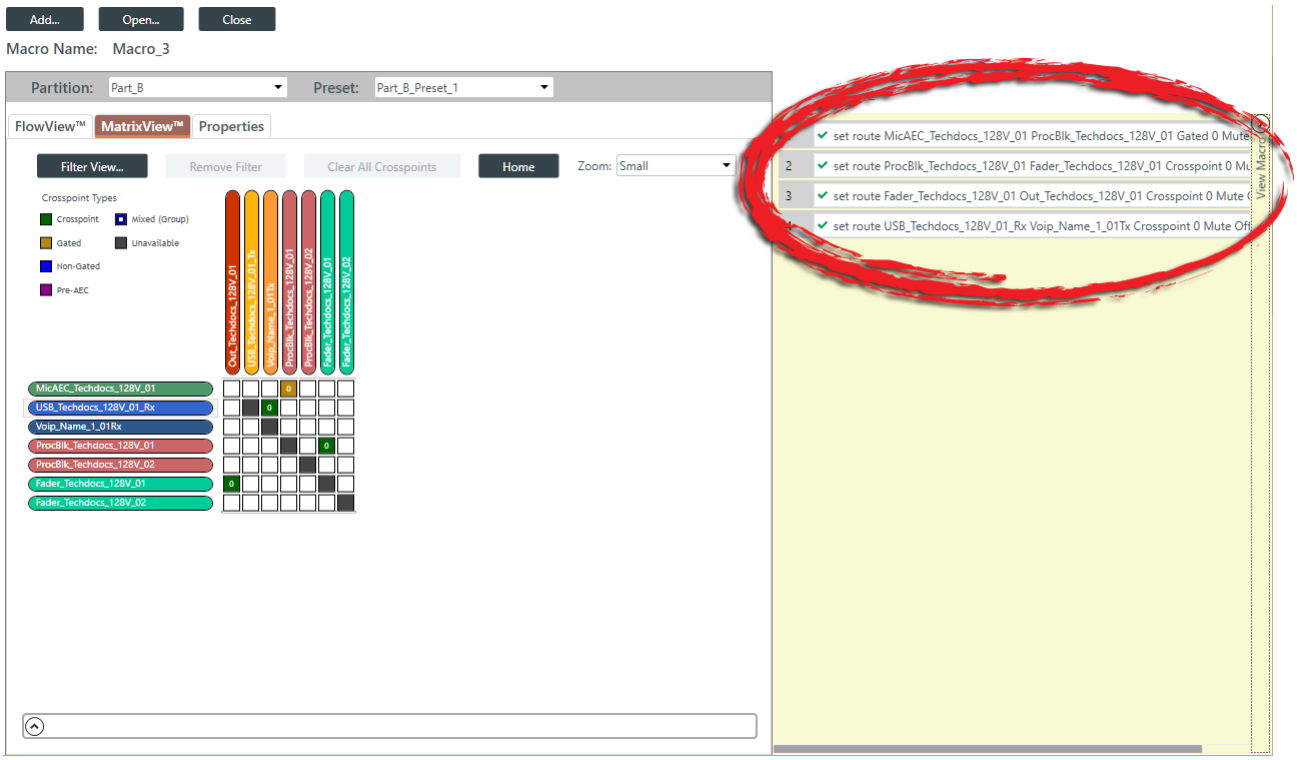
The Properties block for that channel appears at the bottom of the MatrixView screen, as shown in this example:



24. Make changes to the channel properties as desired. For more information about channel properties, see the *Room Partitions* 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 MatrixView screen:

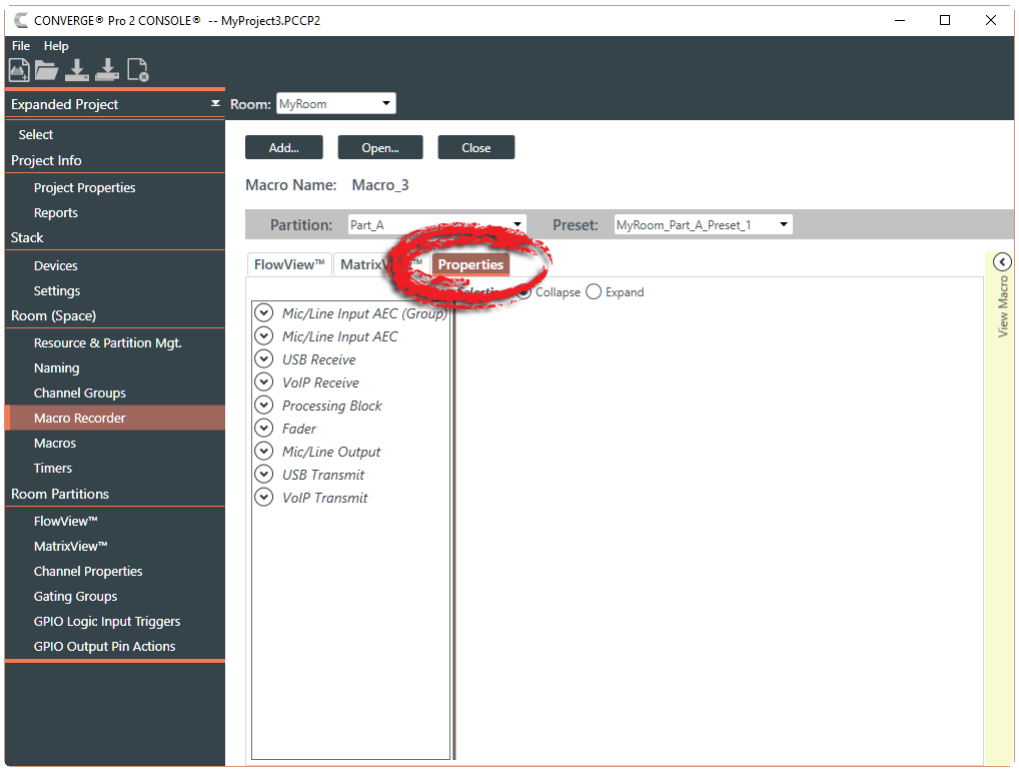
The macro commands recorded appear in the View Macro panel, as shown in this example:



26. When you are done recording commands, click **Close**.

Record Commands Using Channel Properties

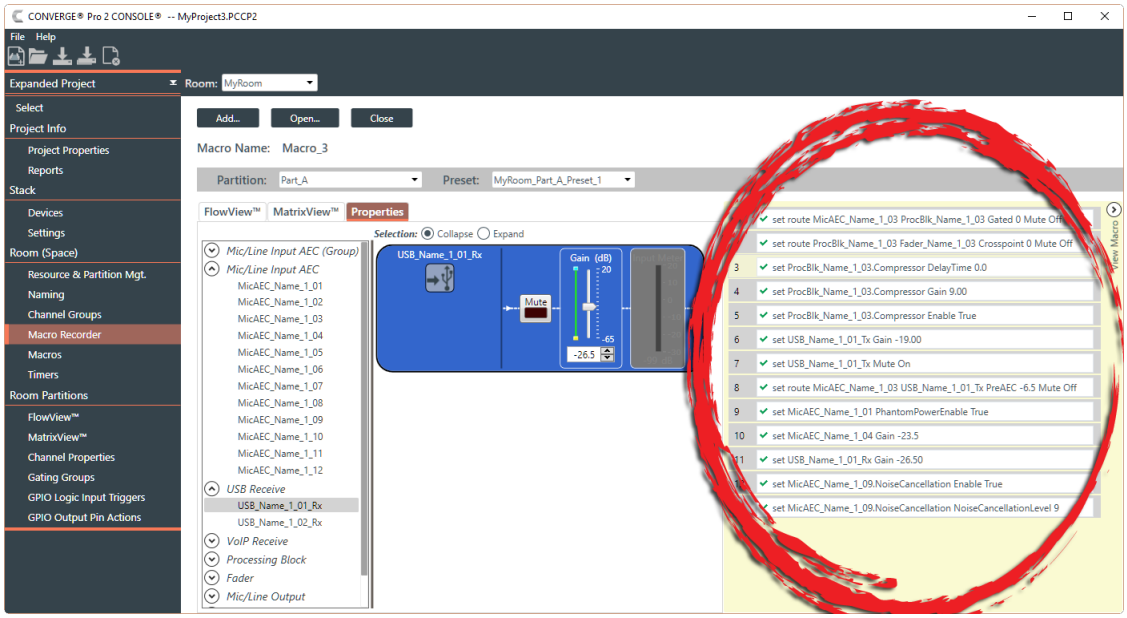
27. To record macro commands using channel properties, click the **Properties** tab:



28. (Optional) You can choose which partition and preset to change by choosing options from the **Partition** and **Preset** drop-down lists.

29. Make changes to the channel properties as desired. For more information about channel properties, see the *Room Partitions* chapter, which contains topics for changing the channel properties for each of the channel types.
30. (Optional) To see which commands have been added to the macro, click the **View Macro** control on the right side of the Properties screen:

The macro commands recorded appear in the View Macro panel, as shown in this example:



31. When you are done recording commands, click **Close**.

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*.

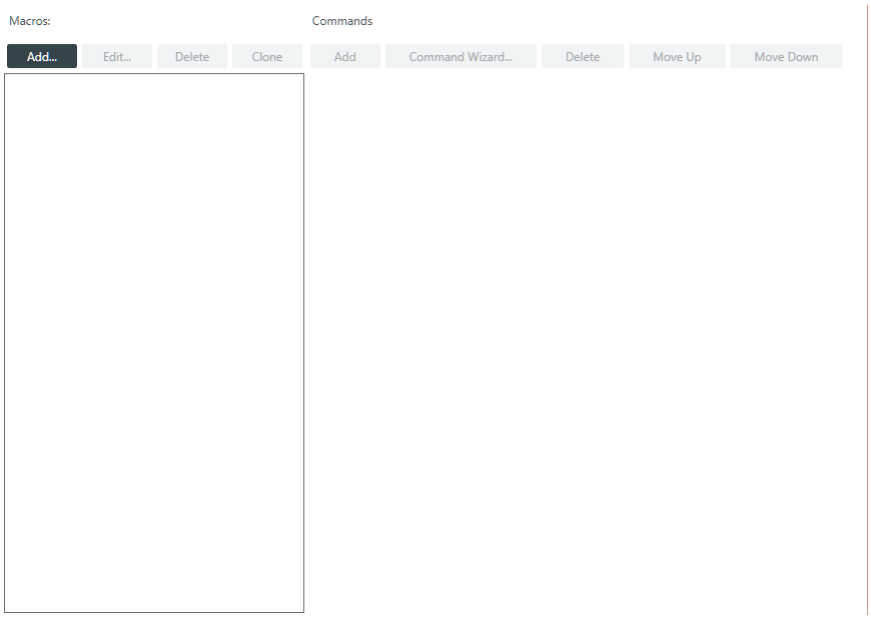
Note:

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. Under **Room (Space)**, choose **Macros**.

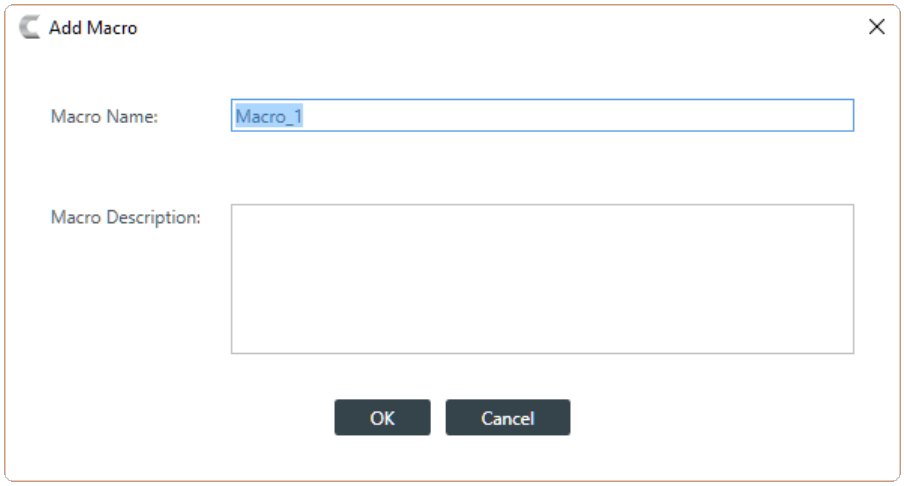
   The Macros screen appears:



Add a New Macro

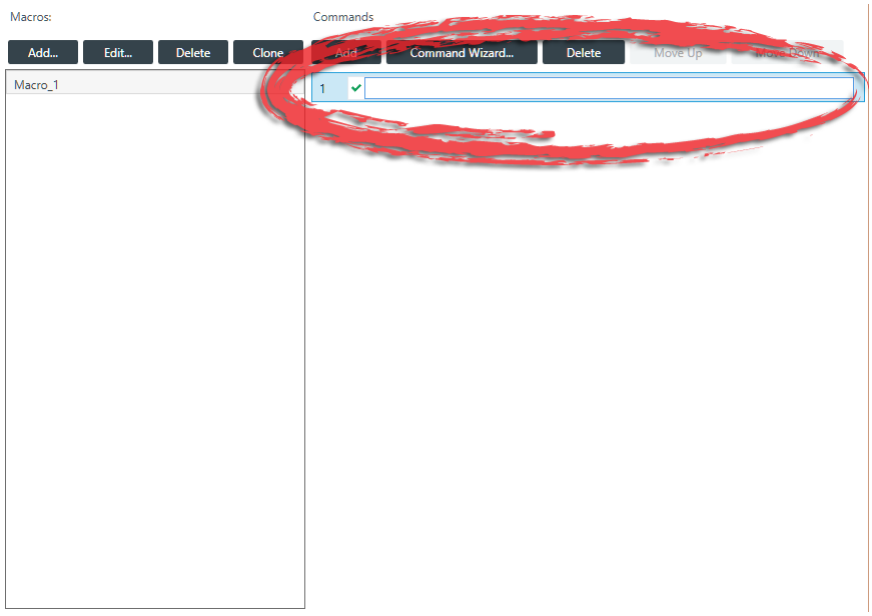
2. To add a new macro, click **Add** in the **Macros** column.

   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, as shown in the following example:



6. Click in the empty command field, the area shown circled above, to begin editing the macro.

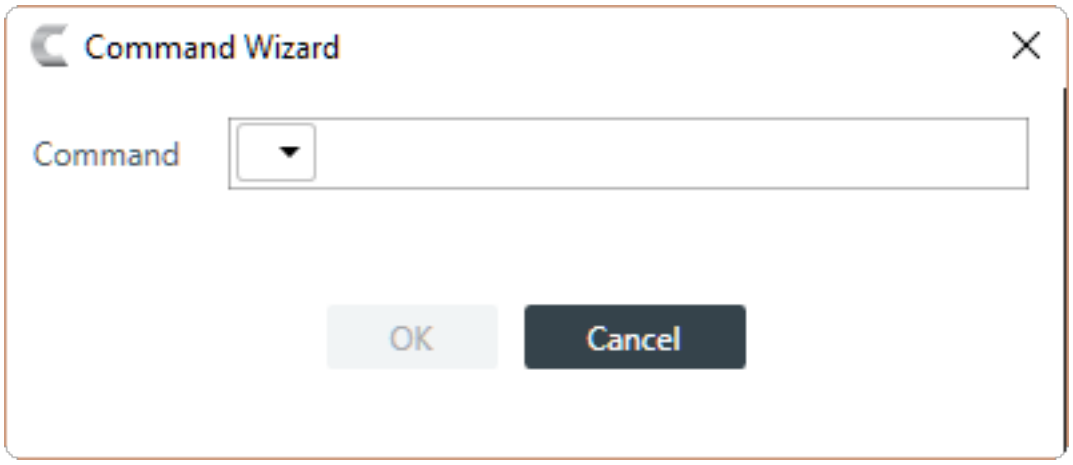
Create a Command

7. Click **Command Wizard** to use a tool that helps you create macro commands.

   Note:

   If you are familiar with the macro language, you can also type commands directly into the field.

   The Command Wizard appears:



8. Choose a command from the drop-down list in the **Command** field.

   The available commands are described in the following table:

Command	Description
`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:

Command	Description
	The Command Wizard lets 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.
`ramp`	Use to ramp audio up or down by setting a target and a ramp rate.

9. 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.

10. Continue to choose options from the drop-down menus until no more options appear.
11. Click **OK**.

    The completed command appears in the Command column.

Add a Command

12. To add a new command to the macro, click **Add** in the **Commands** column.

    A new blank command field is added.

Delete a Command

13. 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

14. To change the order of the commands, select a command click **Move Up** or **Move Down**.

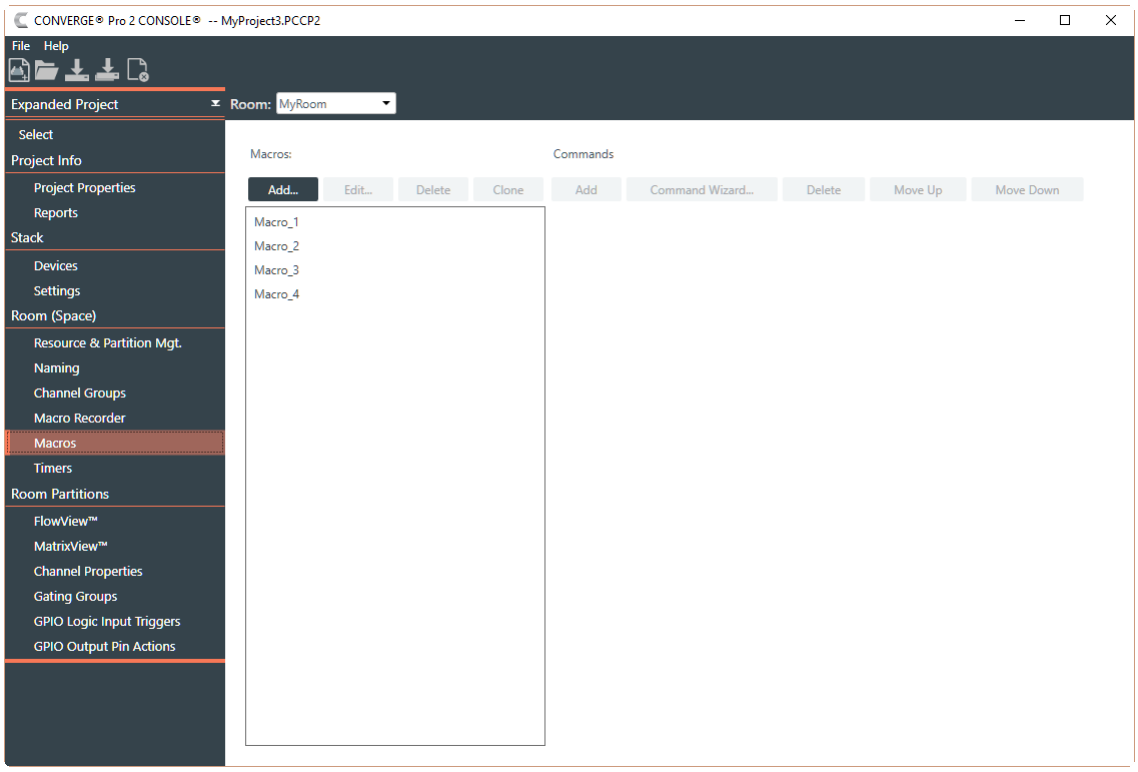
Cloning a Macro

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:

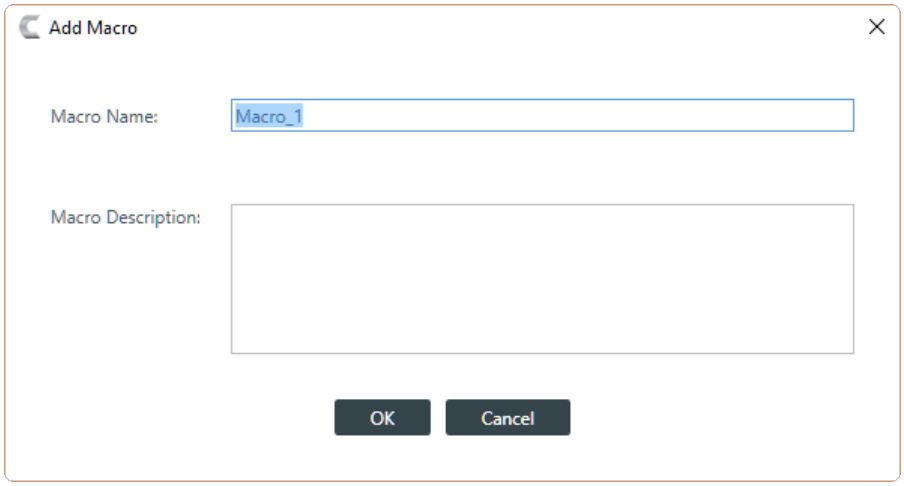
1. Under **Room (Space)**, choose **Macros**.

   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.

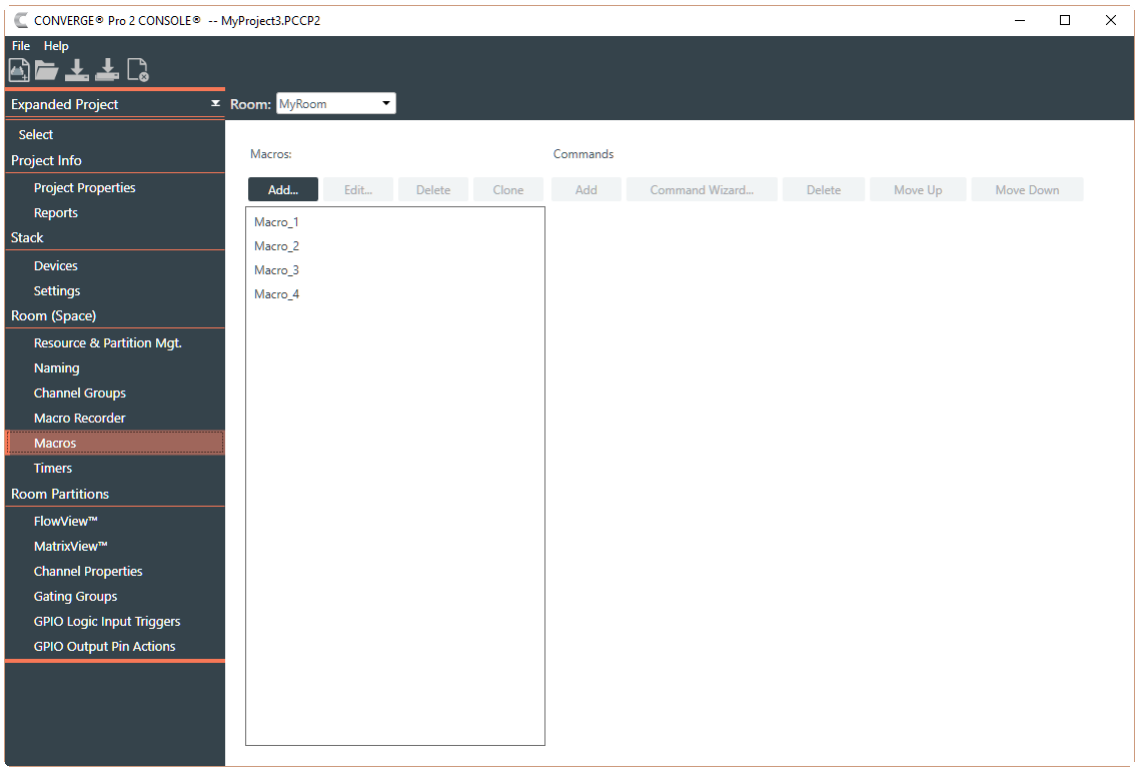
Deleting Macros

You can delete a macro you have already created.

To delete a macro:

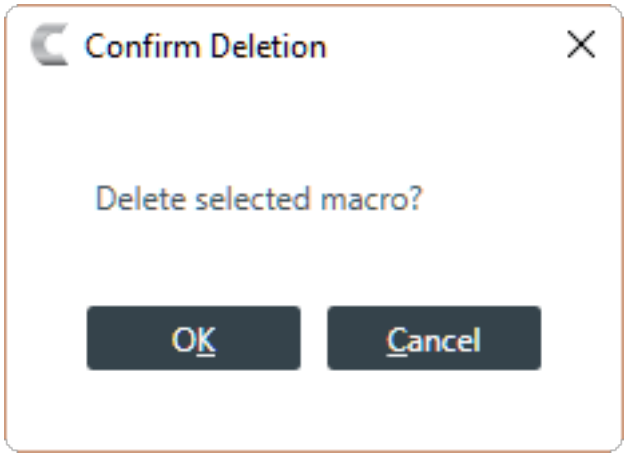
1. Under **Room (Space)**, choose **Macros**.

   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.

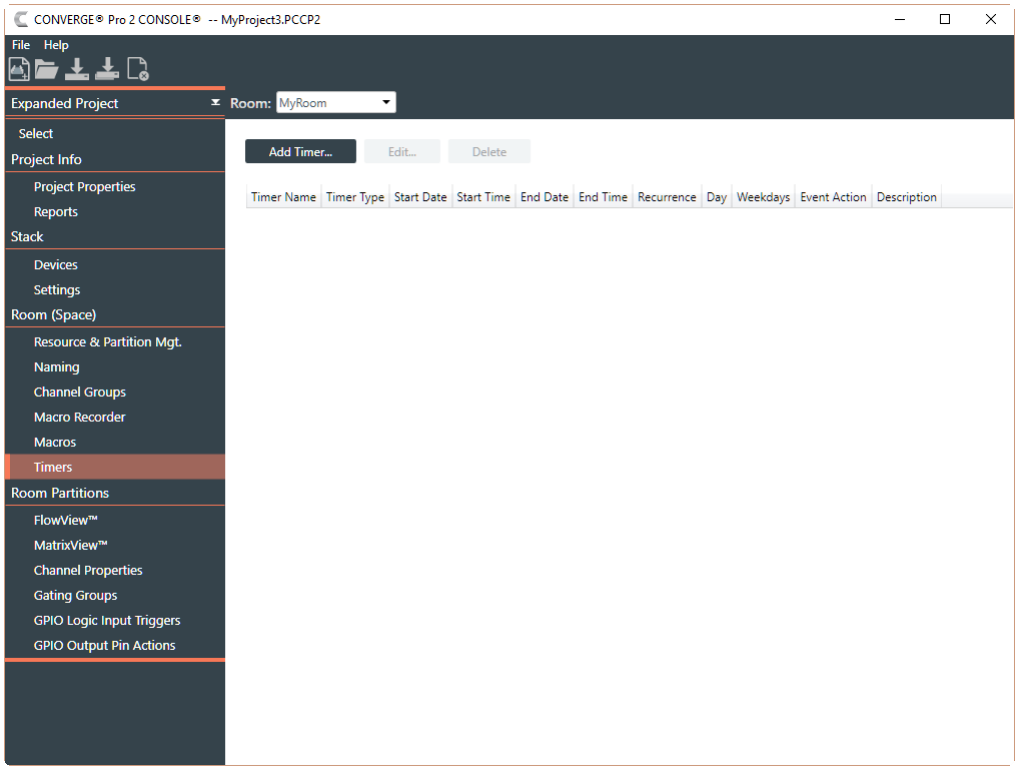
Adding and Modifying Timers

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 *Running a Timer* for more information.

To add or modify a timer:

1. Under Room (Space), choose Timers.

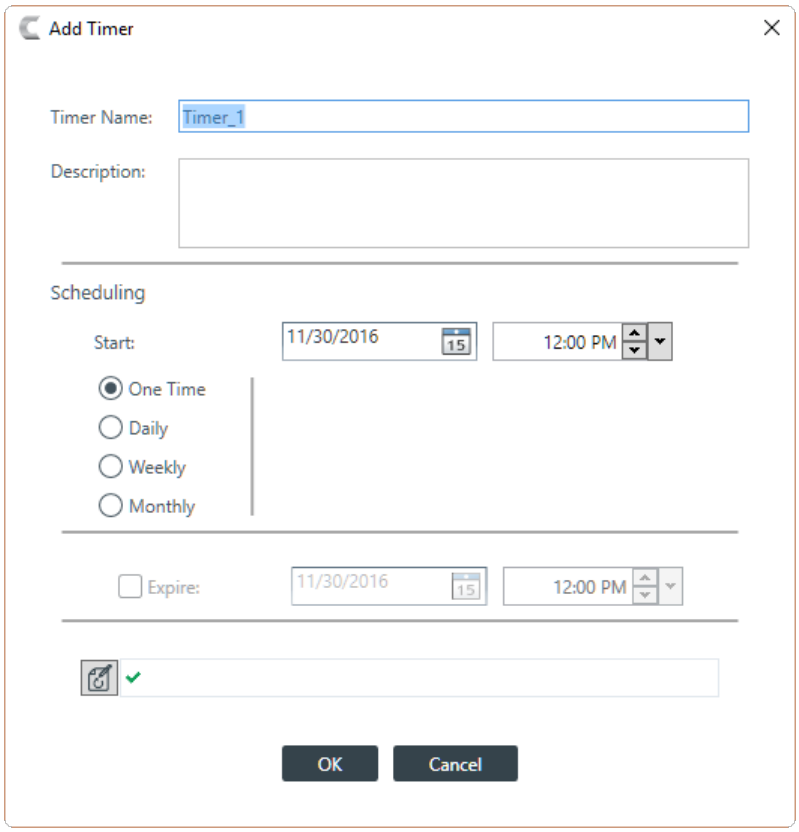
   The Timers screen appears:



Add a Timer

2. To add a new timer, click Add Timer.

   The Add Timer dialog box appears:

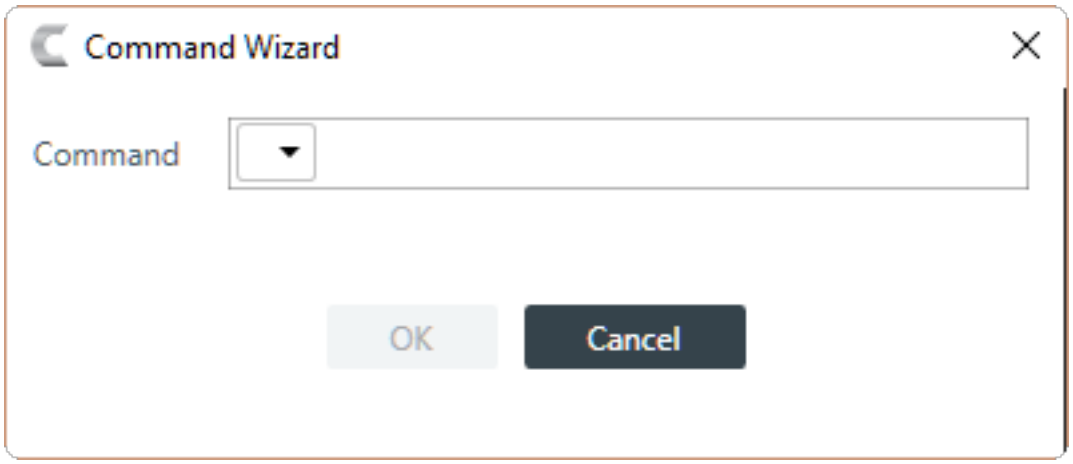


3. Type a name in the Timer Name field.
4. (Optional) Type a description in the Description field.
5. Specify when the timer should run in the Scheduling section of the dialog box. The available options are described in the table below.

Option	Description
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. Click  to specify the command to run.

   The Timer Command Wizard appears:



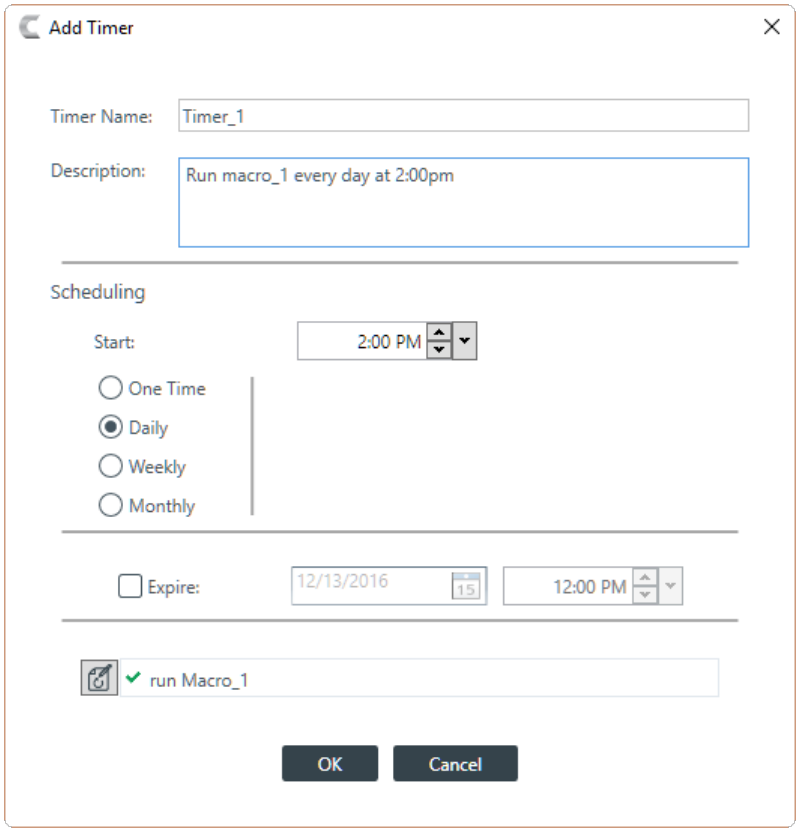
7. Choose a command from the drop-down list in the Command field.

   The available options are run, after which you can choose a macro to run, or reset, to reset the stack at the specified time.
8. Click OK.

Edit a Timer

9. 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:

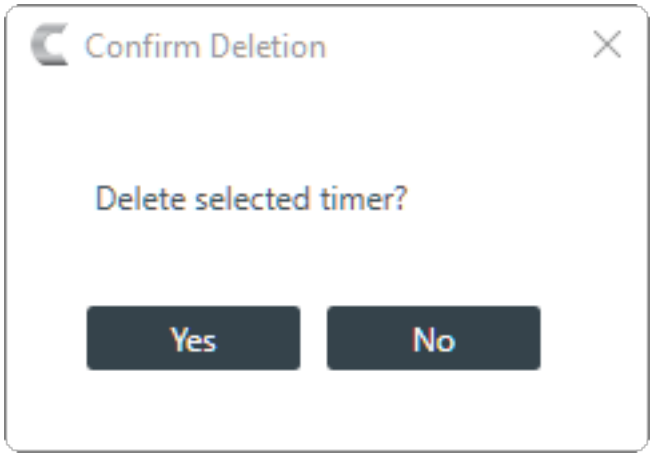


10. Make changes to the timer settings, as desired. See the Add a Timer section above for details.
11. Click OK.

Delete a Timer

12. To delete a timer, from the Timers screen, select a timer and then click Delete.

The Confirm Deletion dialog box appears:



13. Click Yes to delete the timer.

The timer is deleted and removed from the list.

Chapter 6

Room Partitions

Topics:

This chapter contains information about changing the Room Partitions settings.

- *Adding or Modifying Presets*

Connecting Assets Using FlowView™

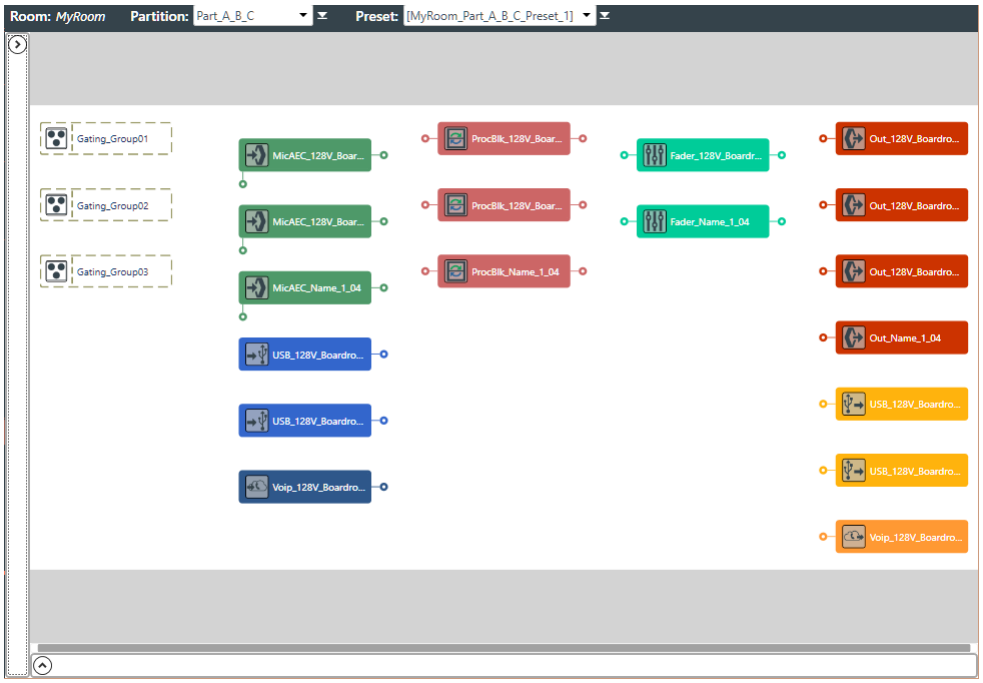
You can use the CONVERGE Pro 2 CONSOLE FlowView to make connections between audio assets. FlowView is designed to let you visualize the connections between assets as a flow from input channels, through mixer channels, such as processing blocks, through to output channels.

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.

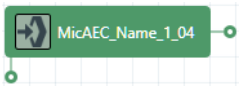
To make connections between assets using FlowView:

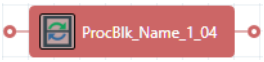
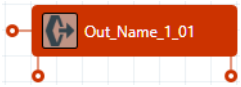
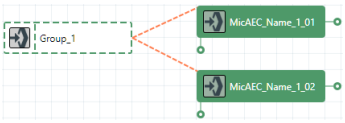
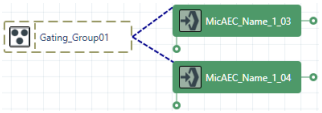
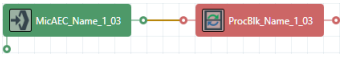
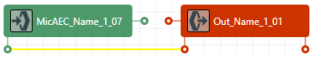
1. Under **Room Partitions**, choose **FlowView™**.

   The FlowView screen appears:



   FlowView shows the assets you have added to the project, and the relationships between them. The following table how assets and asset relationships are represented in FlowView and the available controls:

Symbol	Meaning
	This icon represents an **input channel**. It is labeled with its name, and it has two possible connectors. The connector on the right can be used to create a route to mixer channels or output channels. The connector at the bottom can be used to make reference channel assignments. **Note:** The reference channel connector appears only if you have added one or more reference channels. See *Adding Assets to a Partition* for more information.

Symbol	Meaning
	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.
	This icon represents an **output channel**. It is labeled with its name, and it has three possible connectors. The connector on the left is used to make a route from an input channel or a mixer channel. The connector at the lower right can be used to make a standard reference channel route. The connector at the lower right can be used to make a custom reference channel route. **Note:** The reference channel connectors appear only if you have added the relevant reference channel type (standard or custom).
	An icon with a green dashed border represents a **channel group**. The orange dashed lines show which channels are part of the group.
	An icon with a black dashed border represents a **gating group**. The blue dashed lines show which mic channels are part of the group.
	A solid brown line between two channel icon connectors represents a **channel route**. This means that audio is routed from the channel on the left to the channel on the right.
	A yellow solid line between the reference connectors on an input channel and an output channel represents an AEC **reference assignment**.
	Click this to show the channel properties block(s) for any selected channel(s).
	Click this to show the options for modifying the FlowView, such as the mini-map, filtering what is shown, and changing the view magnification.

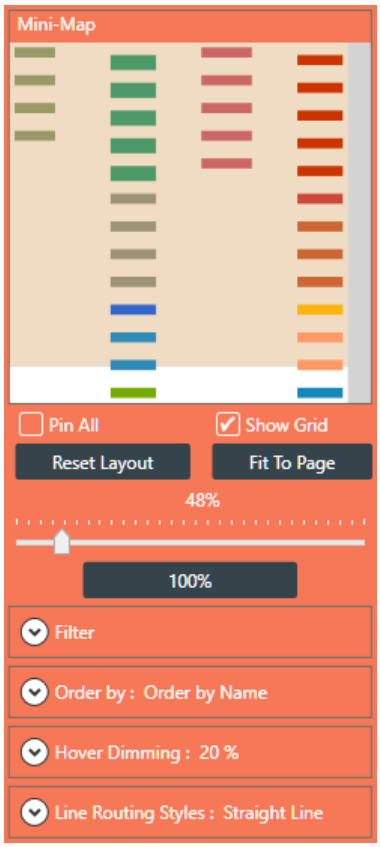
2. Choose a partition from the **Partition** drop-down list.

   Note:

   The channels available in FlowView are limited to those you have added to the selected partition.Changes you make in FlowView apply only to the selected partition.

3. (Optional) Choose a preset from the **Preset** drop-down list.
4. To change view option, click  .

   The view options appear:



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

Option	Description
Mini-Map	When the magnification level causes only some of the FlowView icons to appear, the Mini-Map shows the entire map, with the displayed portion highlighted. You can drag the highlighted portion to choose which part of the map to display.
Pin All	Check to prevent changes from being made unless you uncheck this box.
Show Grid	Check to show grid lines.
Reset Layout	Resets the layout to the default arrangement.
Fit To Page	Changes the magnification so that the entire map fits in the FlowView window.
Magnification Slider	Drag to change the magnification level.
100%	Changes the magnfication level to 100%.
Filter	Lets you choose which resources to show in FlowView.
Order by	Lets you choose how to sort the displayed resources. **Note:** You can change the default sort order using the CONSOLE Options. See *Changing CONSOLE Options* for more information.
Hover Dimming	When you hover the mouse pointer, all resources other than the one you're hovering over are dimmed by the specified percentage. If "Selected Objects/ Routes" is unchecked then selected objects and routes never become dim.

Option	Description
Line Routing Styles	Lets you choose whether to use straight route lines or lines that are jointed to avoid crossing other resource icons.

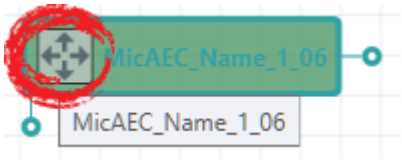
Note:

You can change the default sort order using the CONSOLE Options. See *Changing CONSOLE Options* for more information.

Move Channel Icons

6. 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:

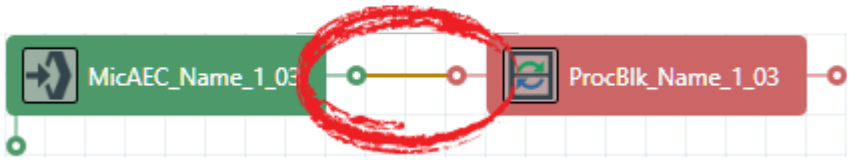


7. Drag the channel icon to where you want it to appear within FlowView.
8. (Optional) To switch to 100% magnification, click the 100% button to the right of the magnification slider.
9. To return to Fit to Page mode, so you can see all assets, click the Fit To Page button to the left of the magnification slider.

Add a Channel Route

10. 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 brown 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.

11. 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.

12. 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.

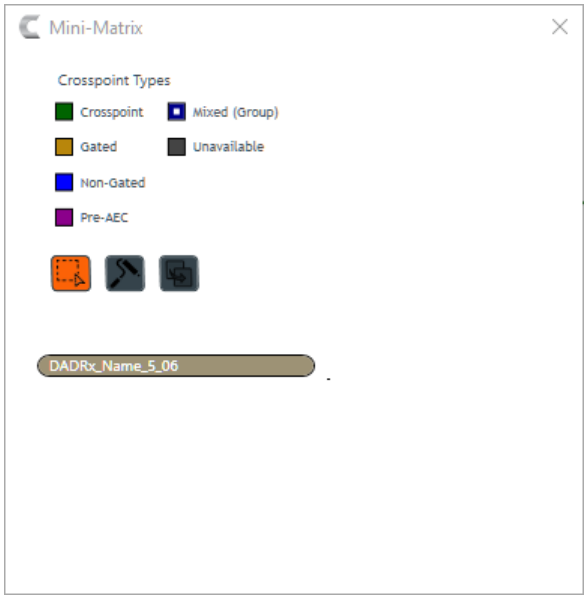
    Channel routes are created for each member of the group or groups.

Use a Mini-Matrix

13. 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:



14. Add, remove, or modify crosspoints.

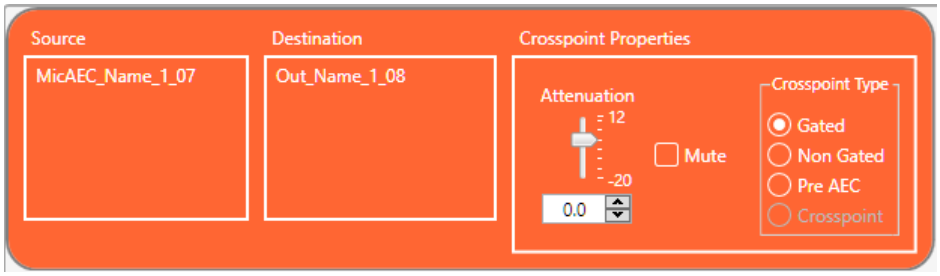
Note:

For more information about using a matrix view to make crosspoint connections between assets, see *Connecting Assets Using MatrixView™*.

Change Crosspoint Properties

15. 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.

16. 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

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

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

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

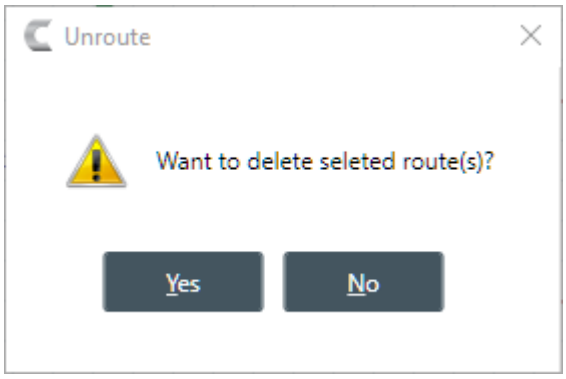
Note: Which types are available depends on the source and destination channels.

Crosspoint Type	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 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

19. To remove a channel route, hover the mouse pointer over an existing route until the pointer changes to a pencil icon.
20. Click the route to select it.
21. Press the Delete key OR right-click the route and choose **Route** > **Unroute** from the context menu.

    The Unroute dialog box appears:



22. Click Yes to remove the route.

Add a Reference Route

23. To add a reference route to a microphone, grab the reference connector (the connector at the lower left of the channel icon) and drag it to the reference connector on an output channel icon. To create a standard reference route, drag to the reference connector on the lower right of the output channel icon; to create a custom reference route, drag to the reference connector on the lower left of the output channel icon.

Note:

If either of the channel icons you want to connect don't have reference connectors, it's because you haven't added references on the Resource & Partition Mgt. screen. See *Adding Assets to a Partition* for more information.

Note:

For more information about references, see *About References*.

Add Channels to a Channel or Gating Group

24. 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.

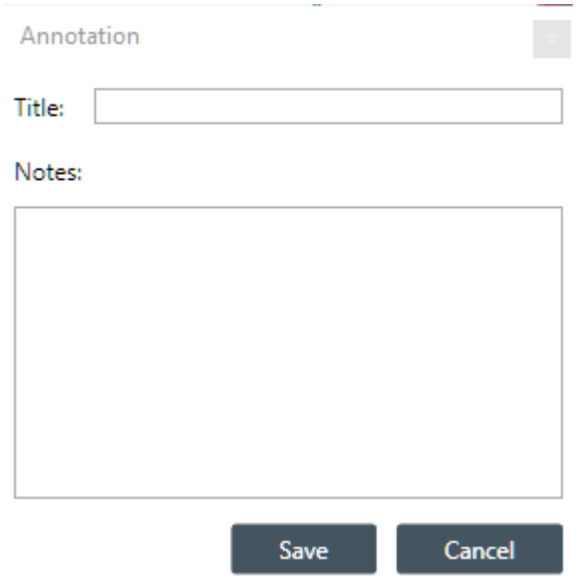
25. Drag the selected channel(s) onto a gating group icon (you must grab the channel icon(s) anywhere other than by the image at the right of the icon). The mouse pointer changes to a target to show that you are adding the channels to the group.

Dashed blue lines appear between the gating group icon and each channel you have added.

Add an Annotation

26. You can add annotations to any channel, channel group, or gating group icon. To add an annotation, right-click an icon and from the context menu that appears, choose **Annotation** > **Add.** You can also add an annotation to any spot in FlowView by right-clicking outside any icons and then choosing Add Annotation from the context menu.

The Annotation dialog box appears:



27. Type an annotation title in the **Title** field and the annotation in the **Notes** field.

28. Click **Save**.

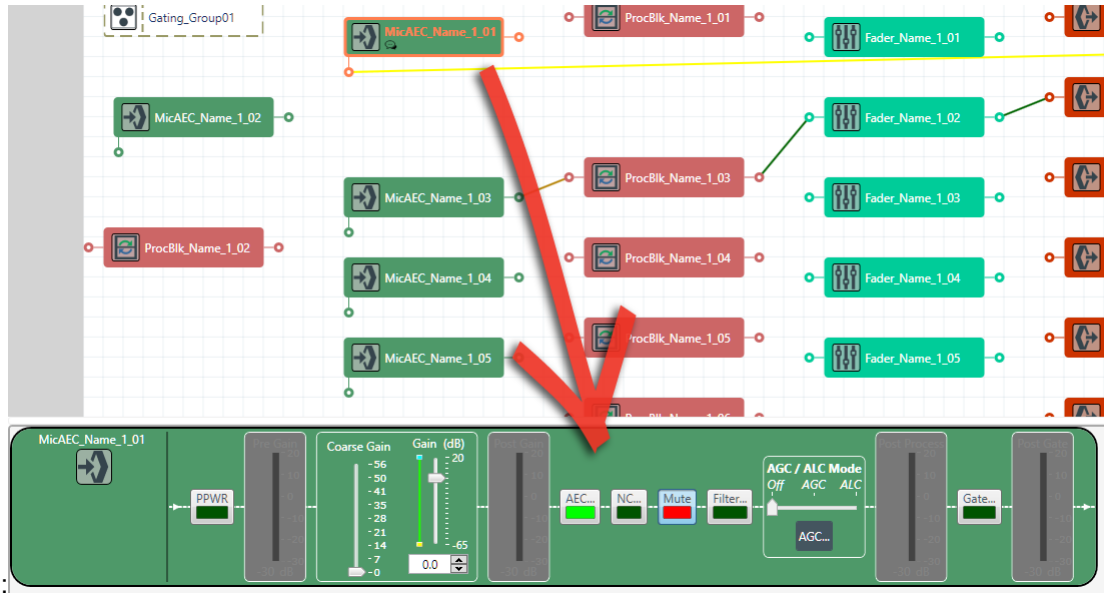
The annotation box is placed beside the icon you selected or at the spot you chose on the FlowView screen. An annotation marker (it appears as a small bubble) is added to the icon just below the name or else in the spot you chose on the FlowView screen.

29. Click **Save** again to close the Annotation box.

View/Change Properties

30. 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.

Connecting Assets Using MatrixView™

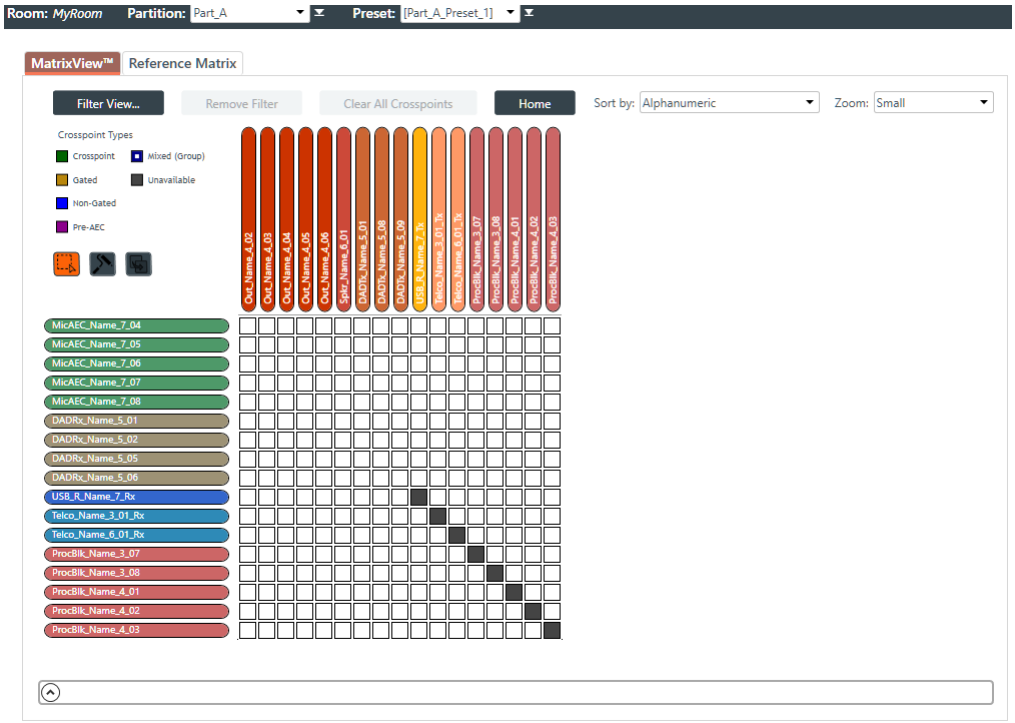
You can use CONVERGE Pro 2 CONSOLE MatrixView to make connections between audio assets. MatrixView is designed to let you visualize connections between assets as a matrix, with output channels in columns and input channels in rows, and the connections between them shown as crosspoints that can be selected 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 assets using MatrixView:

1. Under **Room Partitions**, 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. Choose a partition from the **Partition** drop-down list.

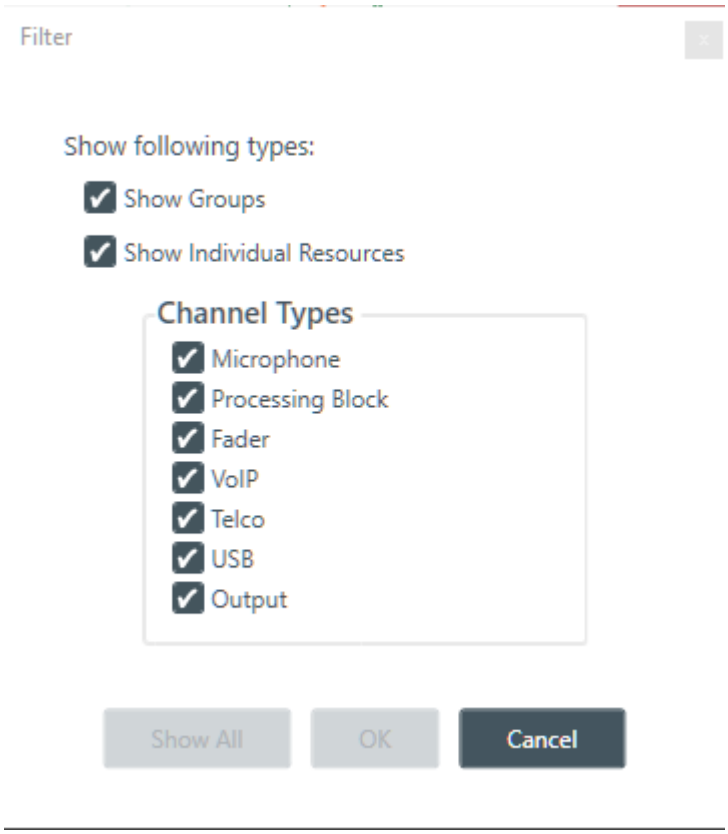
> **Note:**
>
> The channels available in MatrixView are limited to those you have added to the selected partition. Changes you make in MatrixView apply only to the selected partition.

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:

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.

Note:

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	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.
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

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 Mode 	Dragging the mouse pointer across multiple crosspoints select the crosspoints and then opens the Set Multiple Crosspoints dialog box, which lets you change the crosspoint type, attenuation, and mute state for the selected crosspoints.
Roll Mode 	Dragging the mouse pointer across multiple crosspoints changes each selected crosspoint to the next possible crosspoint type.  **Note:** 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 Mode 	Dragging the mouse pointer across multiple crosspoints copies the crosspoint state from the first crosspoint touched to all other crosspoints you drag across.  **Note:**

Mode (Icon)	Description
	If the state being copied isn't possible in a crosspoint you drag across, then no change is made.

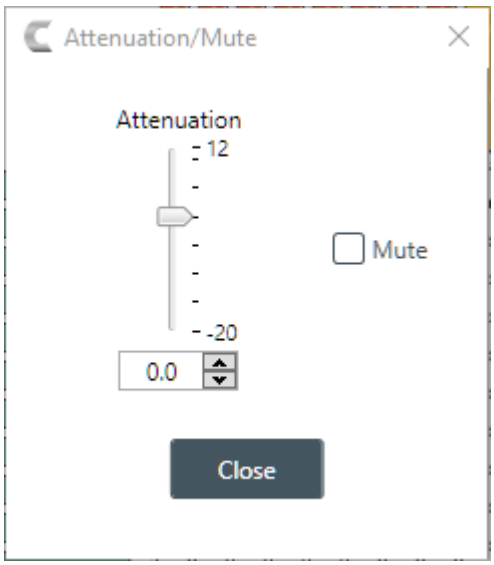
Note:

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.

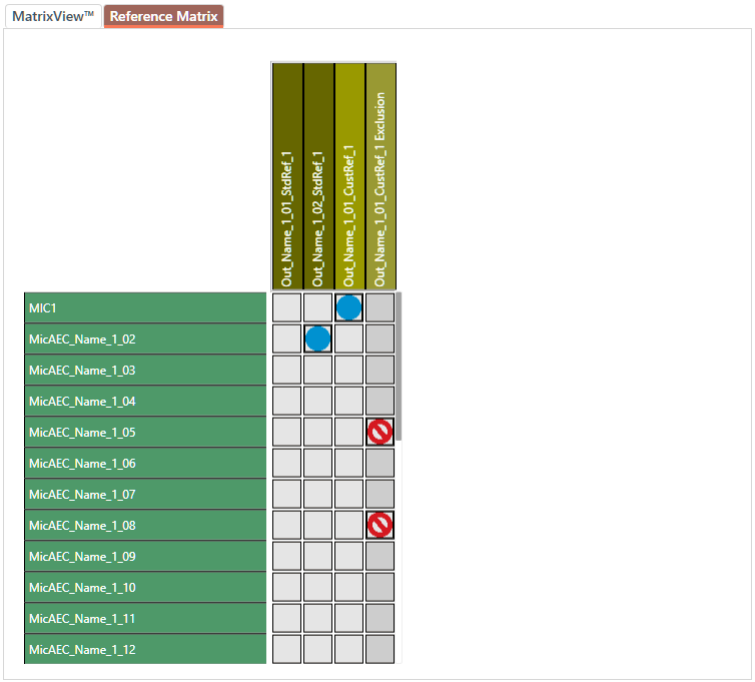
Make Reference Connections

16. To create reference connections, click the Reference Matrix tab at the top of the MatrixView screen.

Note:

Acoustic Echo Cancellation (AEC) uses one or more reference sources to perform AEC based on the acoustic characteristics and dynamics of a specific room. You can also use custom references, which let you select which inputs require echo cancellation. You can use the Reference Matrix to set up both standard and custom references. For more information about references, see *About References*.

The Reference Matrix screen appears:



Note:

The references that appear here depend on whether you have added standard or custom reference assets to the room. See *Adding Assets to a Partition* for more information.

17. For standard references, click a crosspoint to make a connection.

A blue dot appears to indicate a reference connection.

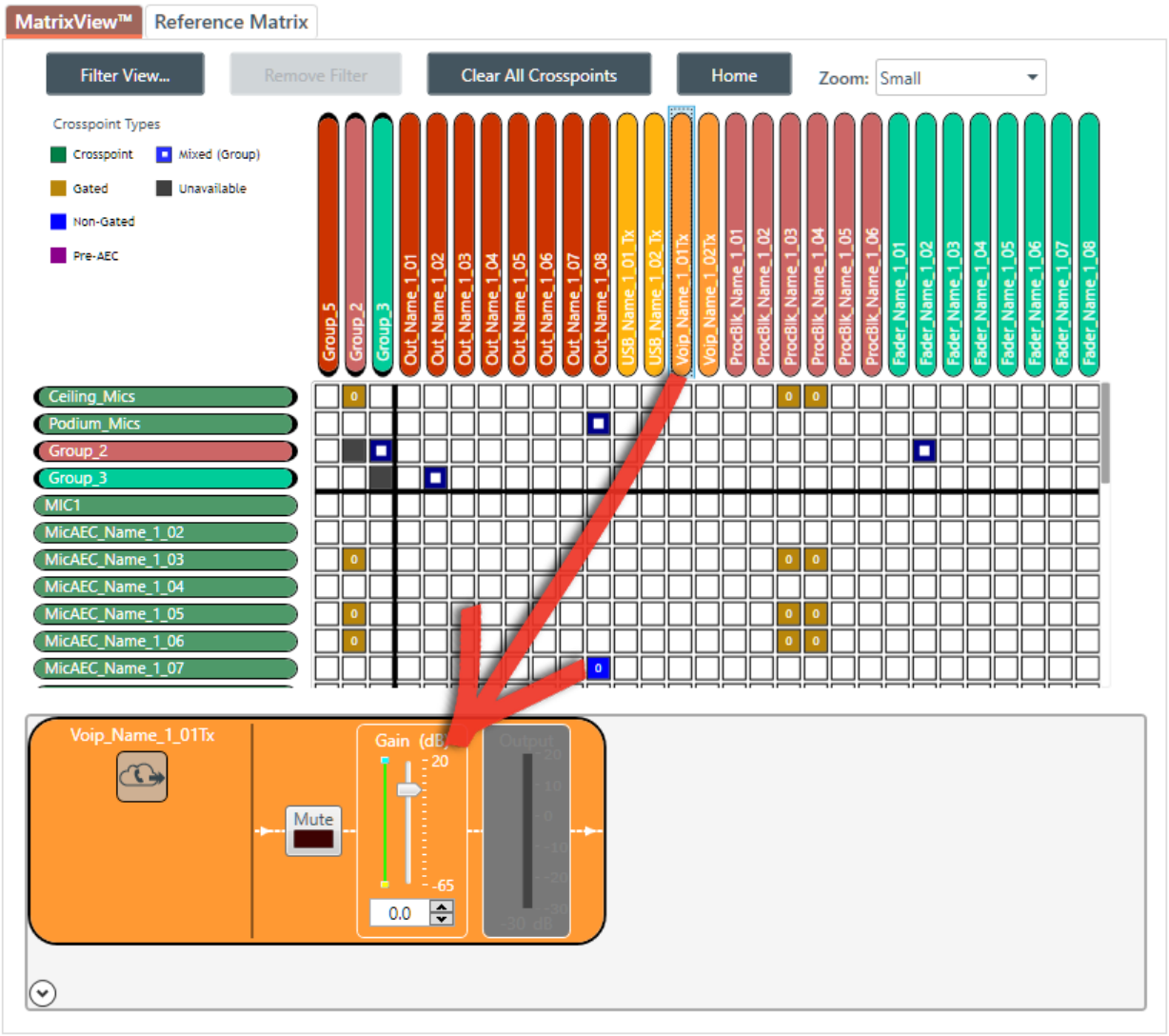
18. For custom references, click a crosspoint to exclude an input from being used as a reference.

A crossed red circle (the “not” symbol) appears to indicate a reference exclusion.

View/Change Properties

19. To view or change the properties for a channel, channel group, or gating group from 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.

Using MatrixView Modes

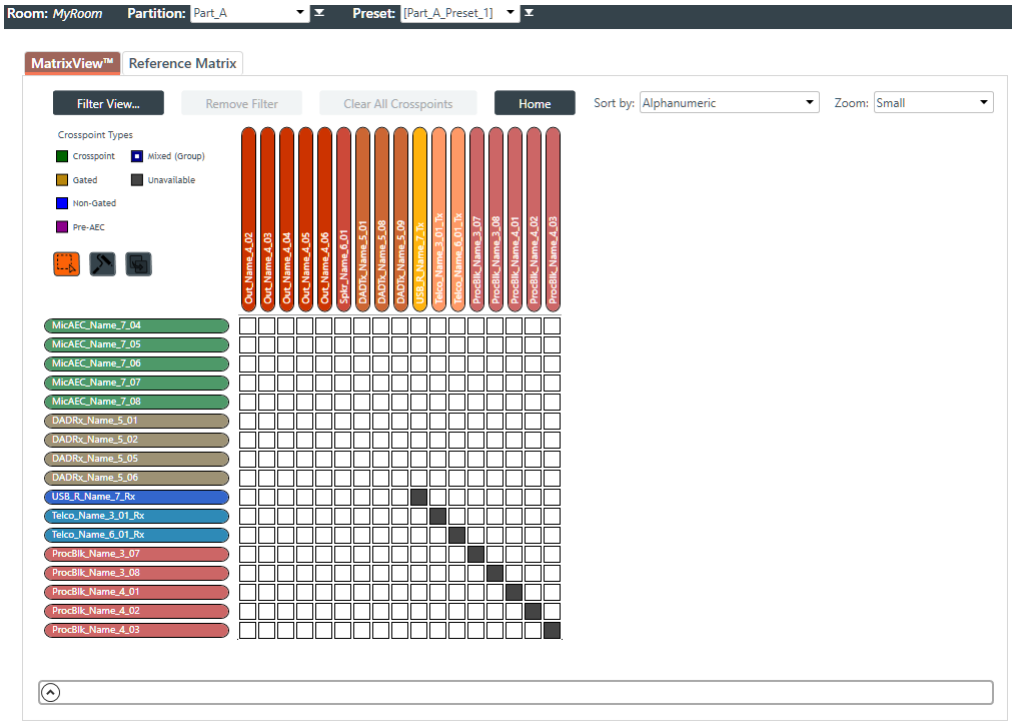
MatrixView has three modes you can use to change multiple crosspoints:

- 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:



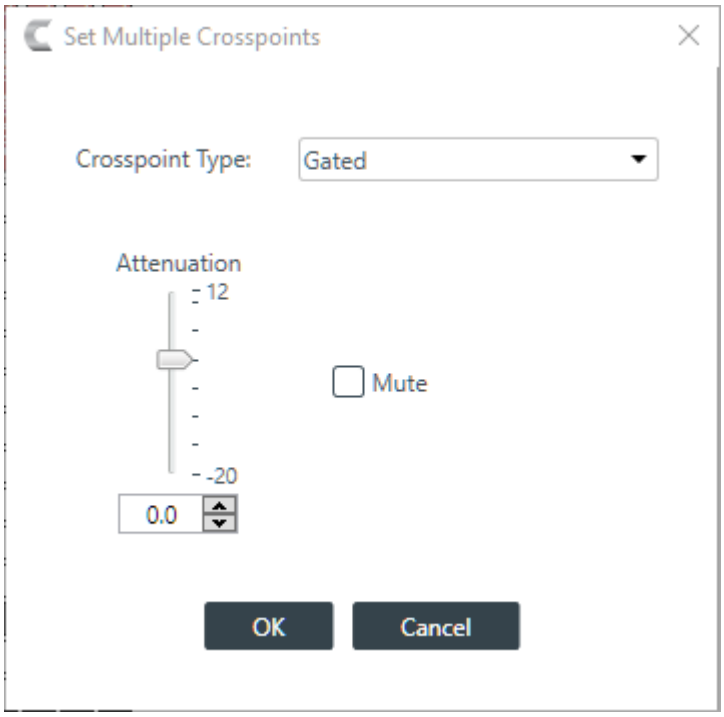
The mode buttons appear just below the crosspoint types.

Select Mode

2. If it's not already selected, click  to choose Select Mode.
3. Drag the mouse across multiple crosspoints you want to change.

> **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.

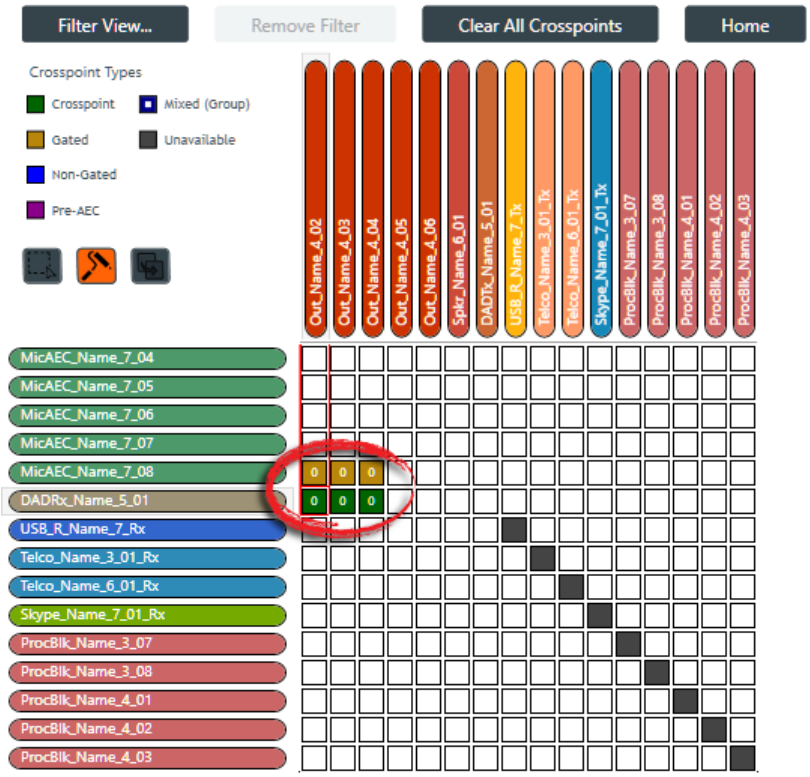
   Selected crosspoints will appear with a red 0 inside, to show that they are muted.
6. You can change the Attenuation of each of the selected crosspoints in any of the following ways:
   - Drag the slider
   - Type a value in the text box
   - Click the incrementer and decrementer arrows beside the text box to set the value
7. Click OK.

Roll Mode

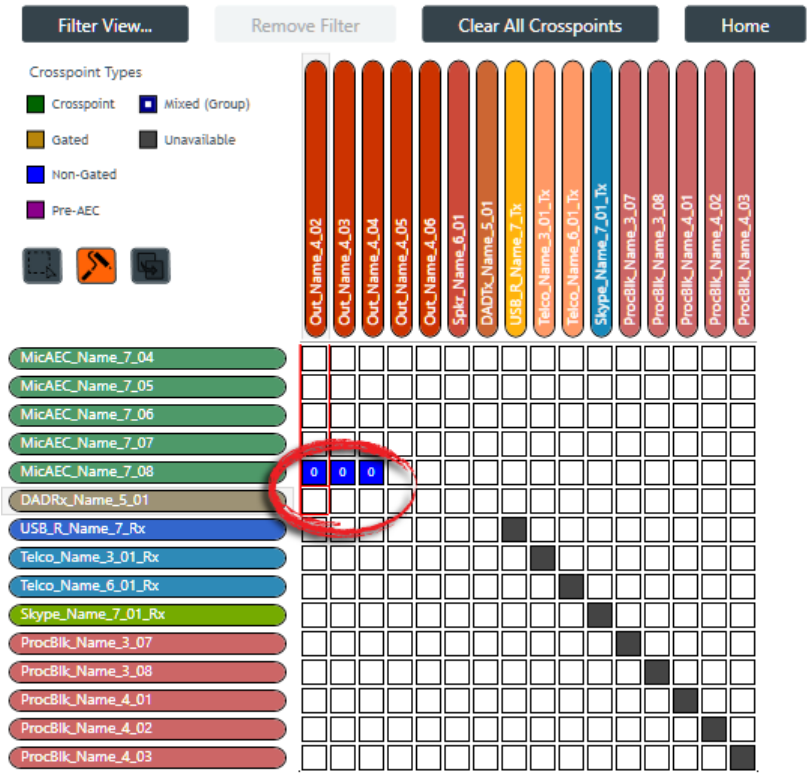
8. To use Roll Mode, click  .
9. Drag the mouse across any crosspoints you want to change.

   For each crosspoint you touch, the next possible type is chosen. For example, see the images below to see 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

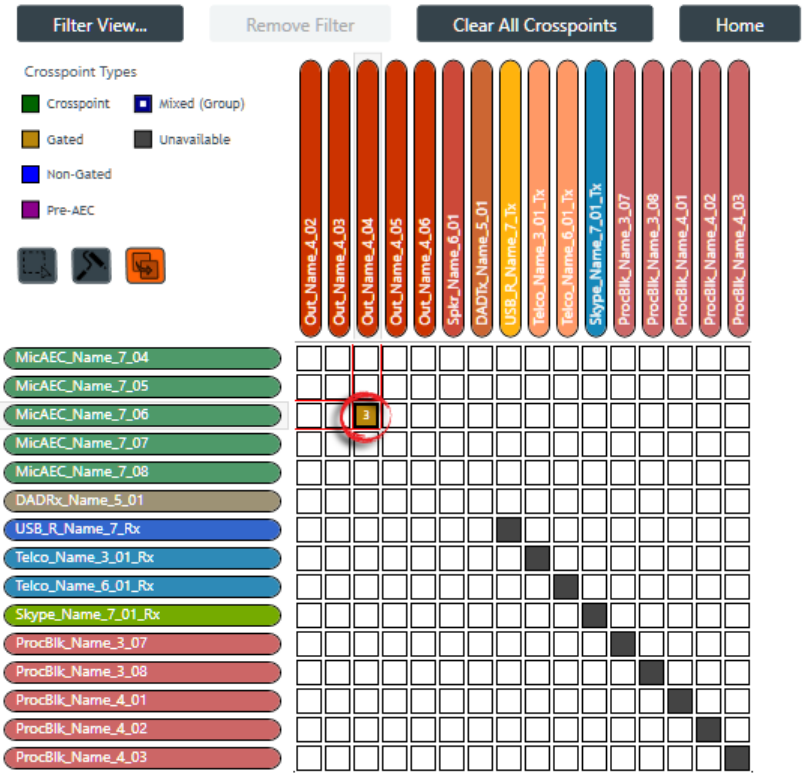
shown in the Crosspoint Types list in the upper left). Dante channels, however, cannot be gated; they can be either on or off. So for those crosspoints, touching them using Roll Mode turned them from on to off.

Copy Mode

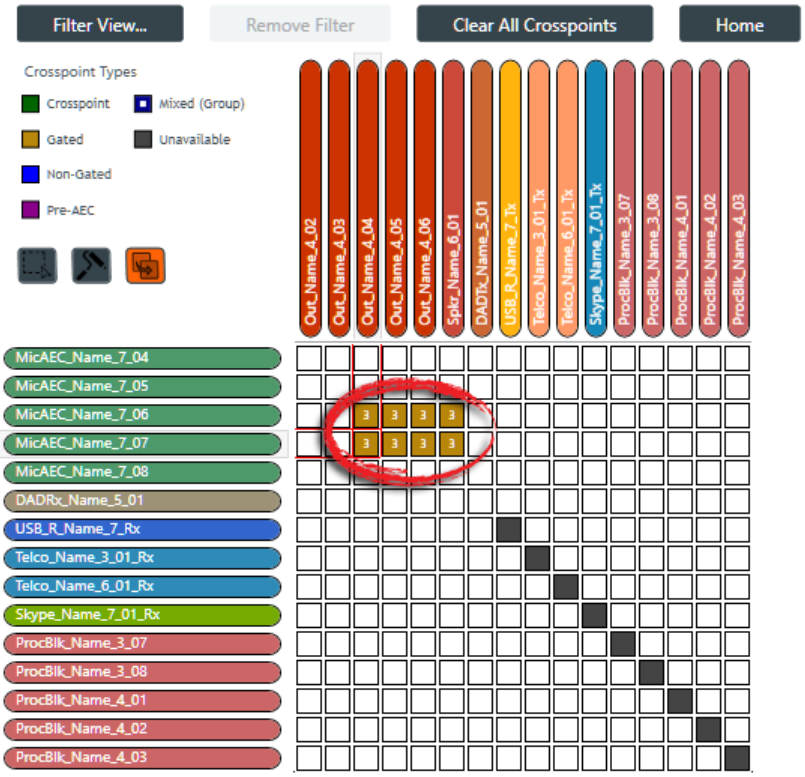
10. To use Copy Mode, click  .
11. Start dragging the mouse pointer on a crosspoint you want to duplicate, and drag it across any crossspoint you want to have exactly the same settings.

    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 toucched, 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.

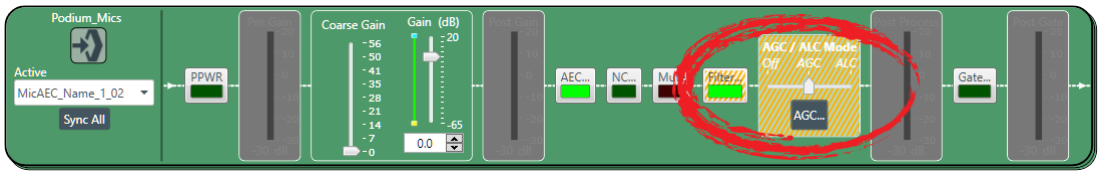
Changing Channel Properties - Mic/Line Input AEC or Mic/Line Input AEC (Group)

You can use channel properties to modify a Mic/Line Input AEC or Mic/Line Input AEC (Group) channel.

Note:

Individual and group channels are the same with the following exceptions:

- Group properties show an Active drop-down list to let you choose which member of the group to display and modify.
- Making changes to the properties changes the settings for every member of the group.
- Any channel properties where some members of the group are configured differently from other members of the group are shown highlighted in yellow:



You can make any of the following changes:

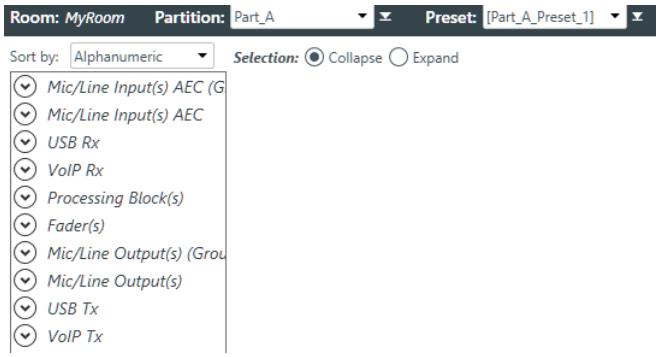
Feature	Description
Active (Group only)	Lets you choose which member of the group to show or modify.

Feature	Description
Sync All (Group only)	Lets 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	Lets 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.
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:

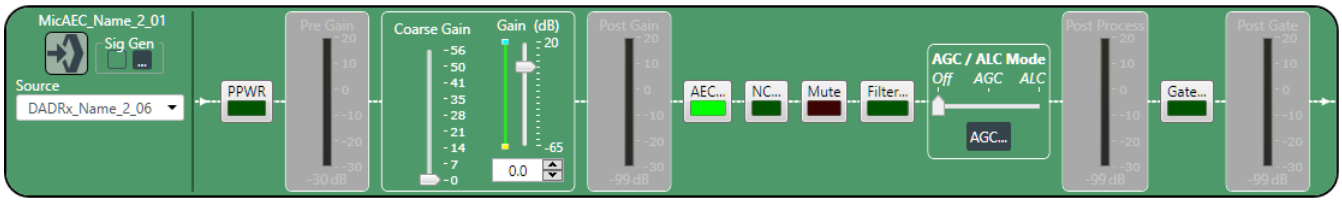
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:



> **Note:**
>
> The meters that appear before and after the gain controls and the Gate button are designed to let you see the effect of changing gain and gating values. They are active only when the application is in Live Mode, however. In Offline Mode, they appear grayed out, as shown above.

Digital Input

6. If you have added any Dante or DIALOG 20 Mic channels from the same device to the current partition, you can use any of these channels as a digital input by selecting the corresponding channel from the Source drop-down menu.

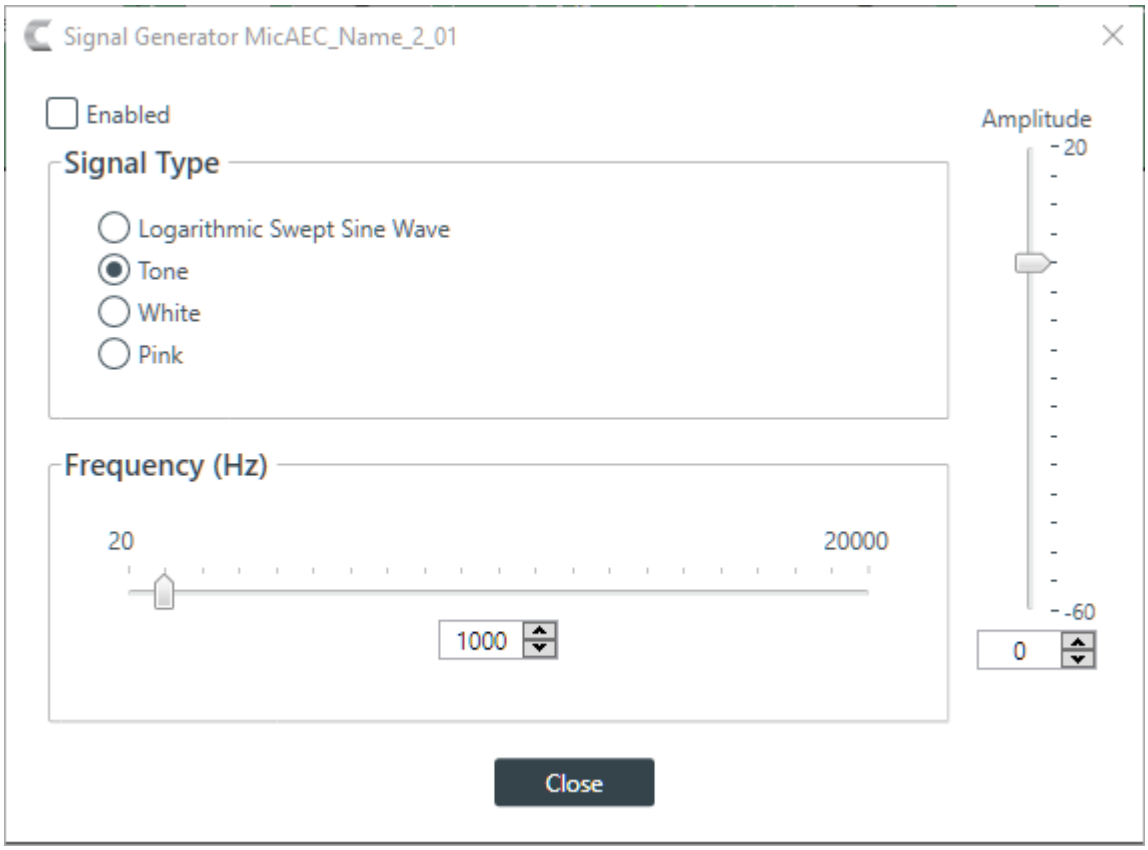
> **Note:**
>
> Once you have associated a Mic/Line Input channel with a digital channel, you should perform all routing using the Mic/Line Input channel, rather than the digital channel.

> **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.

Signal Generator

7. Click ... 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:

Option	Description
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.

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:

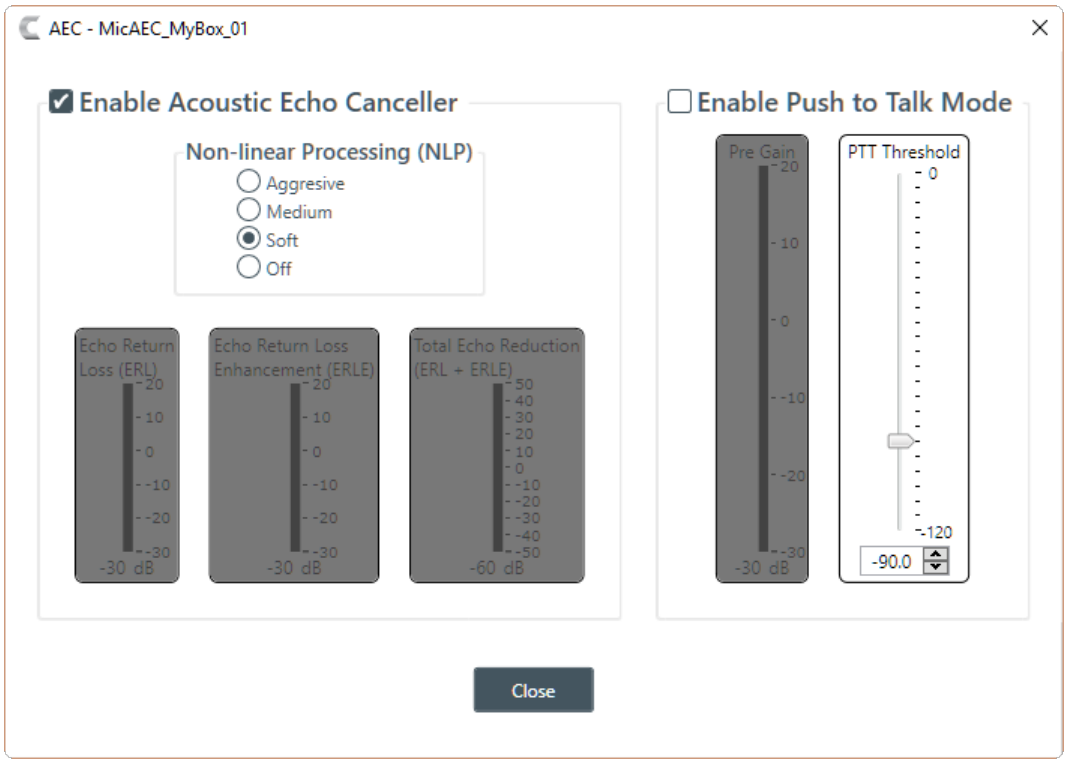
- Drag the slider

- 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 switchedoff, 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.

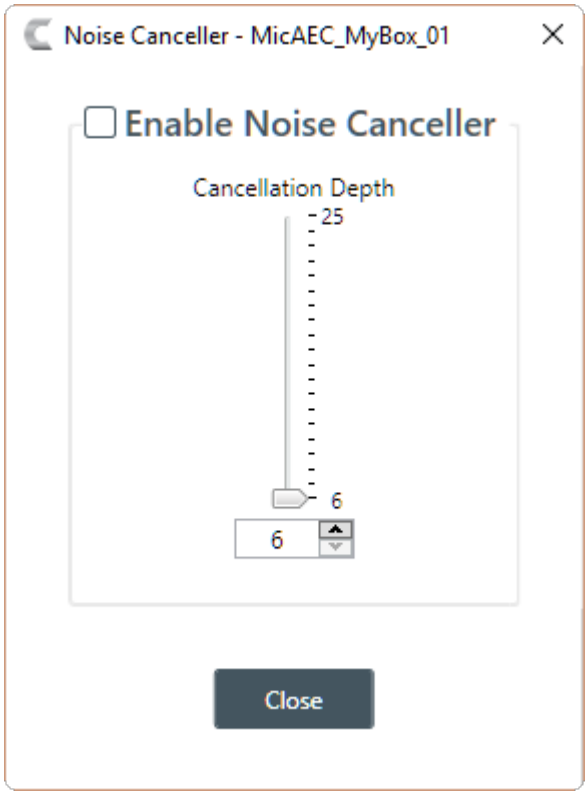
Option	Description
	Note: This meter functions only if the application is in Live Mode.
Echo Return Loss Enhancement (ERLE) Meter	Shows the loss through the echo cancellation and non-linear processing chain—the difference of the two levels. This is an average meter that updates when a receive-only signal is present. **Note:** This meter functions only if the application is in Live 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 Live 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**

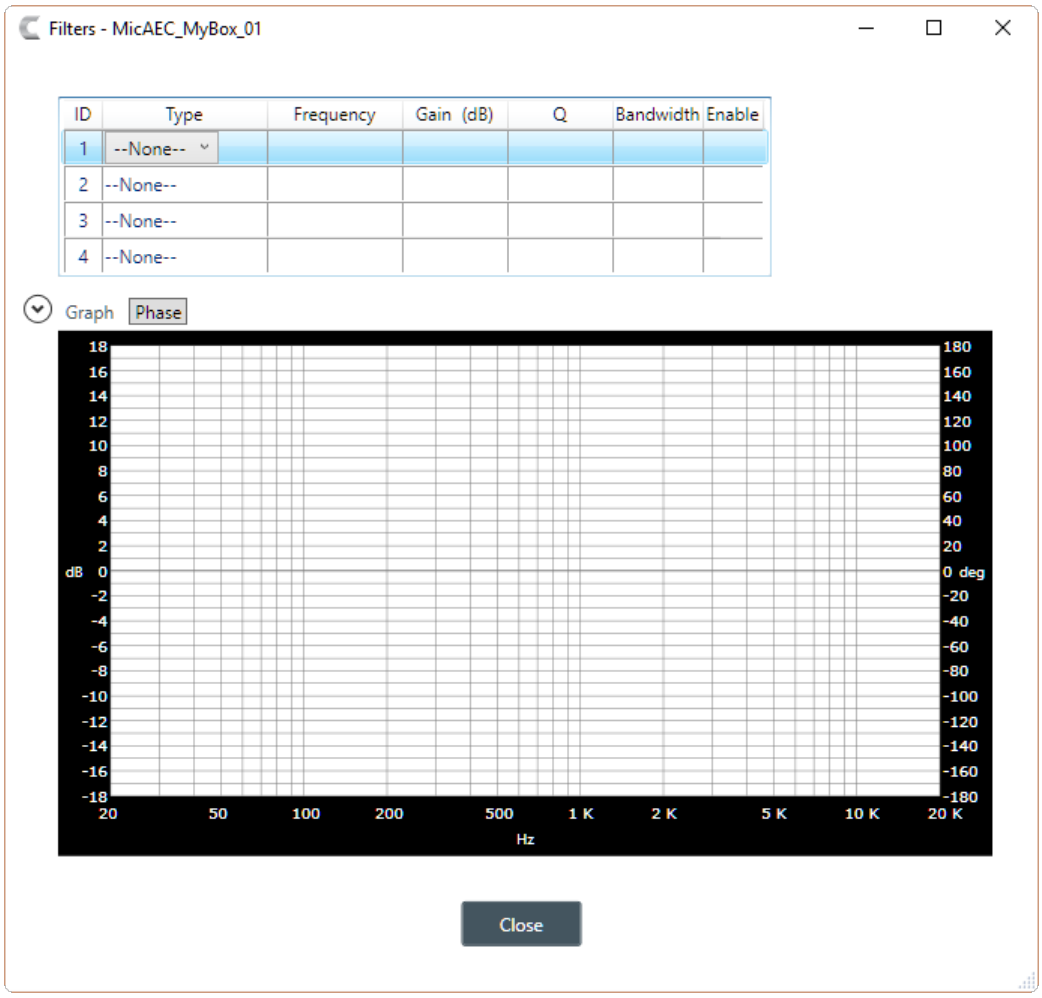
Mute

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.

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.

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 -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.

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

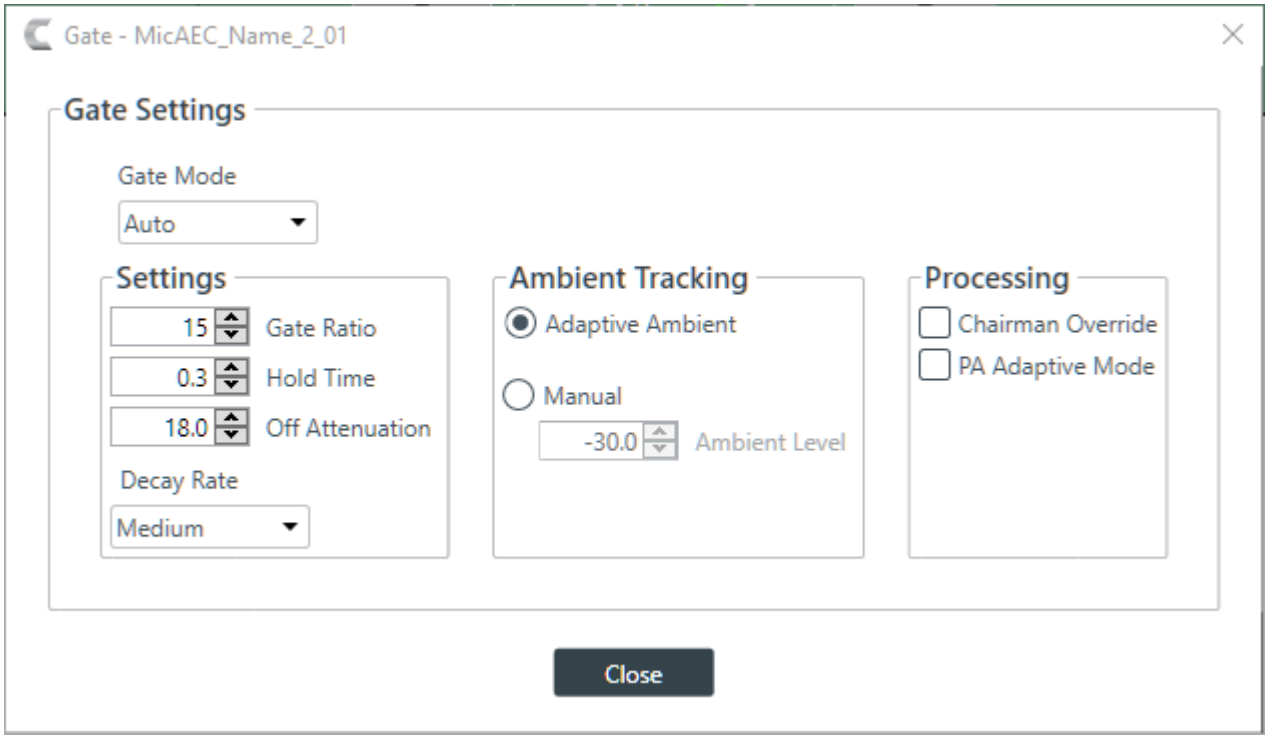
Option	Description
Maximum Gain	The dB value that should never be exceeded.
Target Level (RMS)	Target Level sets the dB level for AGC to maintain. Target level is set using the Root Mean Square (RMS) method to determine the average magnitude of the audio signal over time.
Response Time	The amount of 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**.

Gate

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

The Gate Settings dialog box appears:



33. 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.

34. (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.
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.

Option	Description
Manual Ambient Tracking (Auto Only)	The input will use the fixed ambient level you specify inthe 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.

35. Click **Close**.

Changing Channel Properties - Beamforming Mic

You can use channel properties to modify a Beamforming Mic channel.

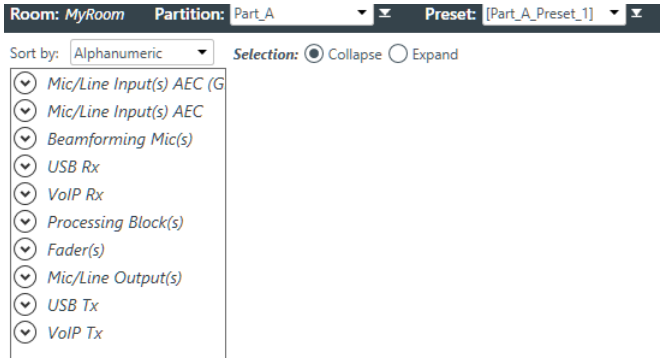
You can make any of the following changes:

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:

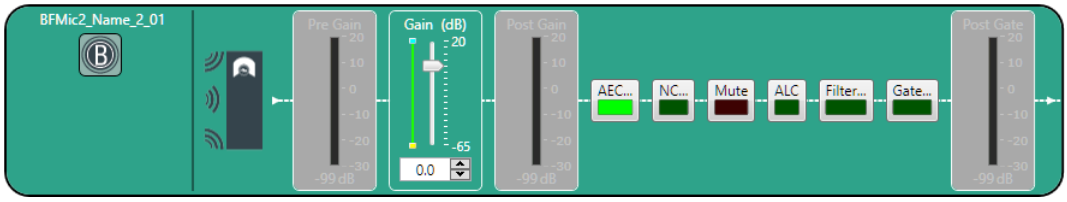
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

The Channel Properties screen appears:



2. Choose a partition from the **Partition** drop-down list.
3. (Optional) Choose a preset from the **Preset** drop-down list.
4. Click **Beamforming Mic(s)** to open the channel list.
5. Select the Beamforming Mic channel you want to change.

   The Beamforming Mic Channel Properties block appears:



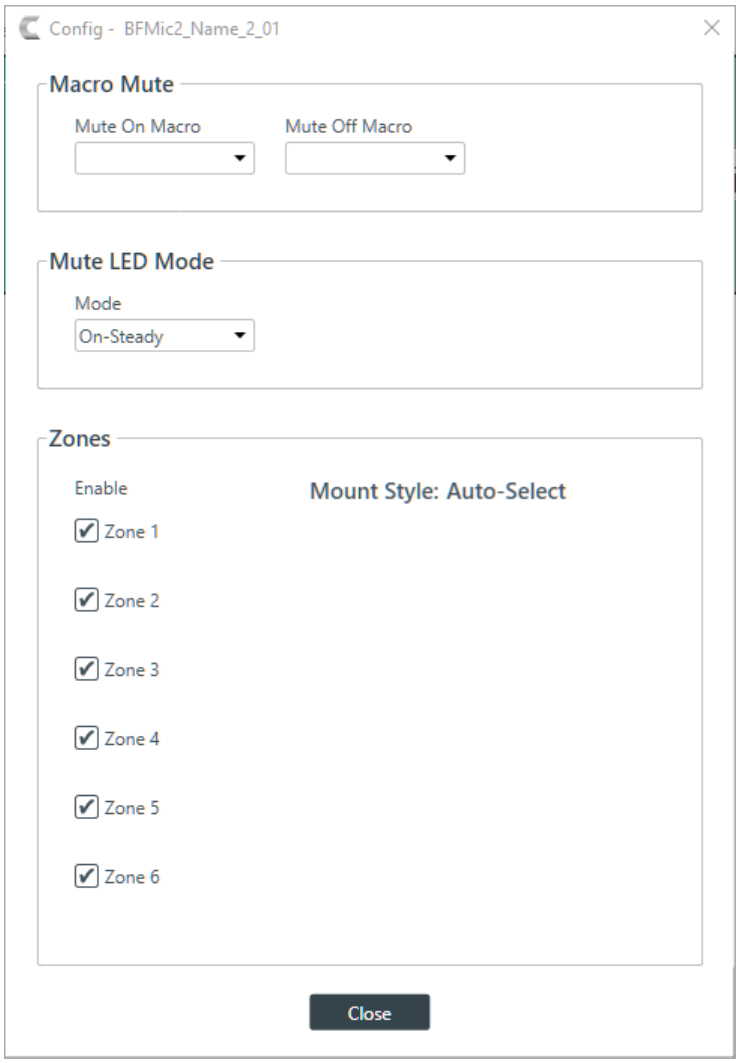
Note:

The meters that appear before and after the gain controls and the Gate button are designed to let you see the effect of changing gain and gating values. They are active only when the application is in Live Mode, however. In Offline Mode, they appear grayed out, as shown above.

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:

Option	Description
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

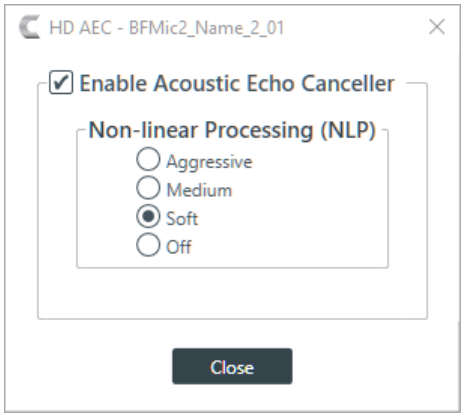
8. You can change the fine gain in any of the following ways:
   - Drag the slider
   - Type a value in the text box

- 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).

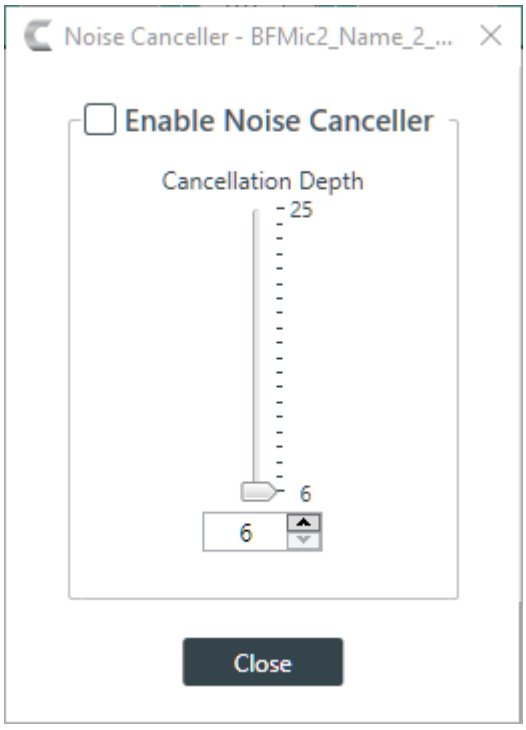
Option	Description
Enable Acoustic Echo Canceller	Check this box to turn on the AEC feature.
Non-linear Processing (NLP)	NLP increases the power of echo cancellation for difficult acoustical environments. You can choose whether to use NLP and how aggressive the NLP should be. **Note:** Use NLP with care.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

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).

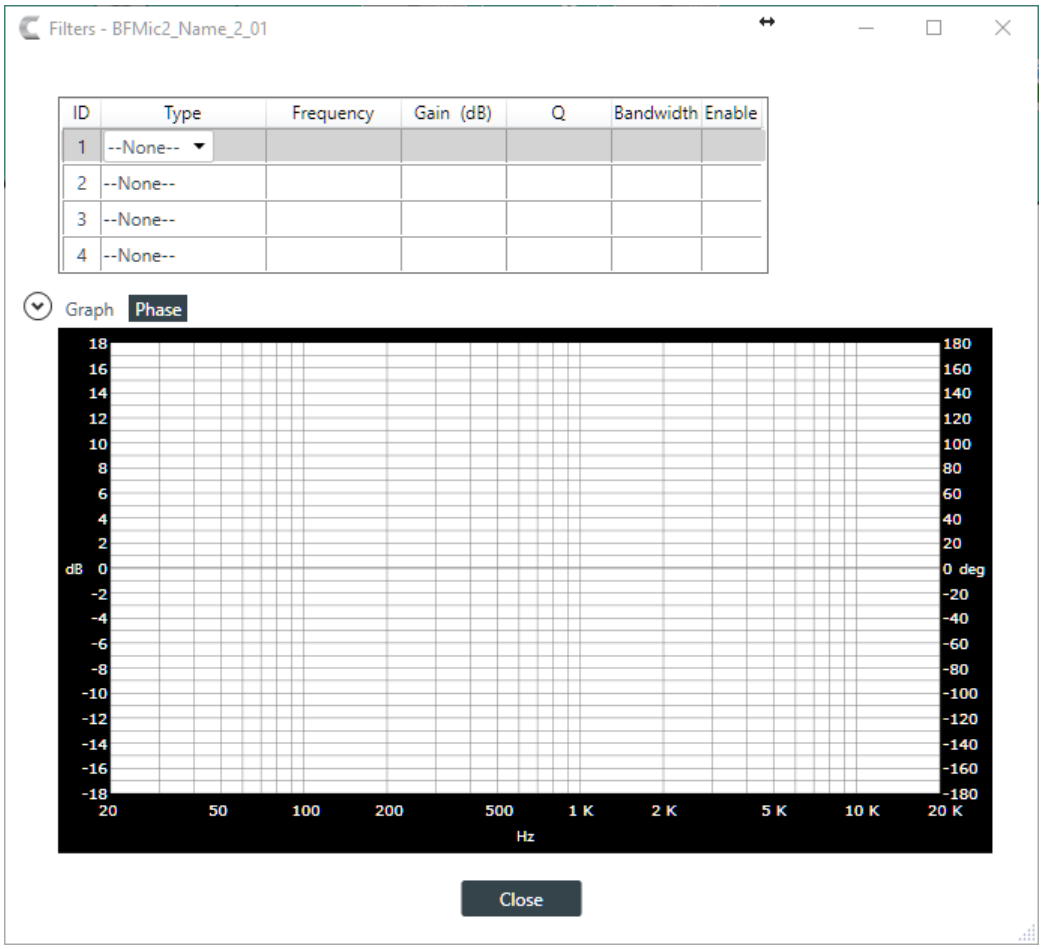
ALC

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. 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.

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.

Option	Description
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.

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

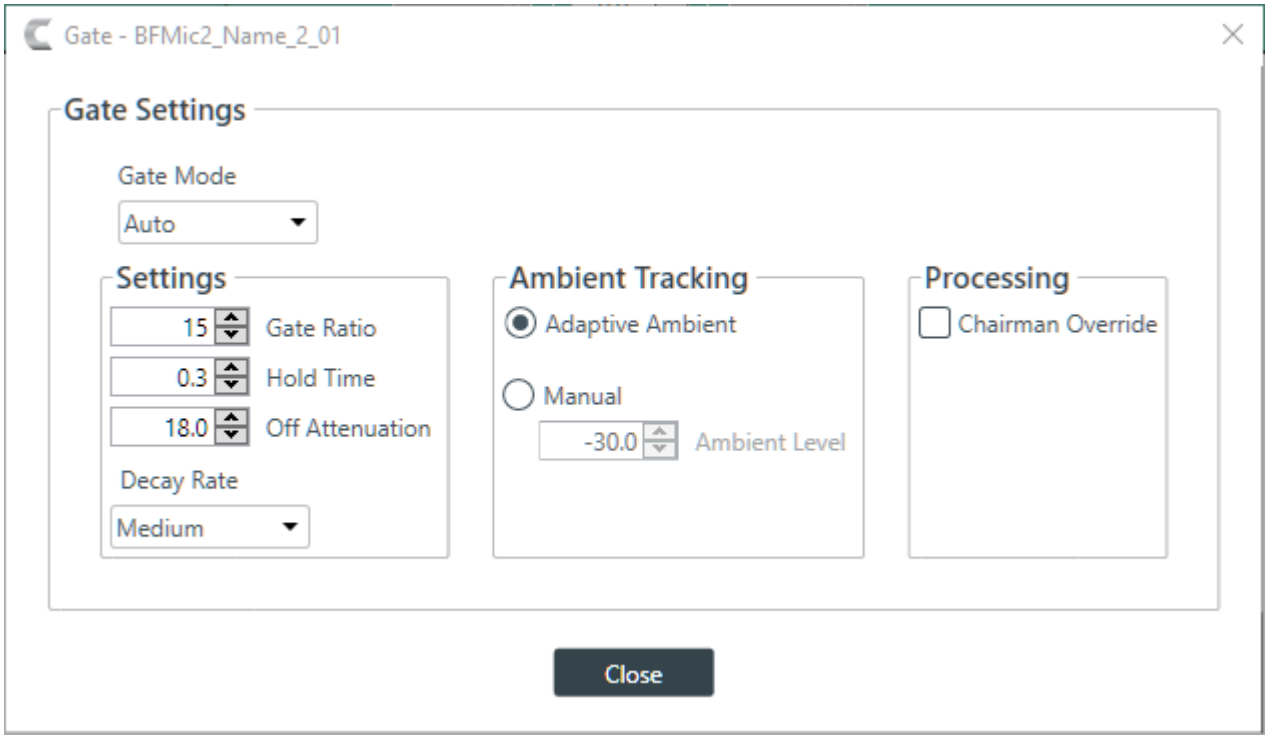
22. Repeat the process for each filter you want to add.

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.
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 inthe 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**.

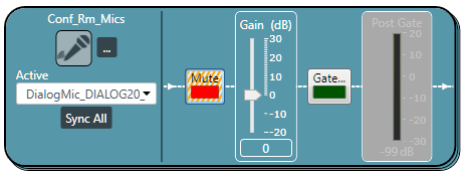
Changing Channel Properties - DIALOG Microphone or DIALOG Microphones (Group)

You can use channel properties to modify a Mic/Line Input AEC or Mic/Line Input AEC (Group) channel.

Note:

Individual and group channels are the same with the following exceptions:

- Group properties show an Active drop-down list to let you choose which member of the group to display and modify.
- Making changes to the properties changes the settings for every member of the group.
- Any channel properties where some members of the group are configured differently from other members of the group are shown highlighted in yellow:



You can make any of the following changes:

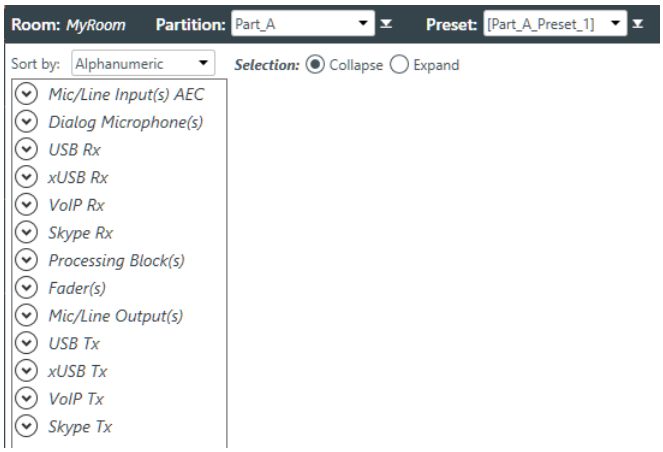
Feature	Description
DIALOG 20 Device Properties	Lets you change the DIALOG 20 device properties.
Active (Group only)	Lets you choose which member of the group to show or modify.

Feature	Description
Sync All (Group only)	Lets 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:

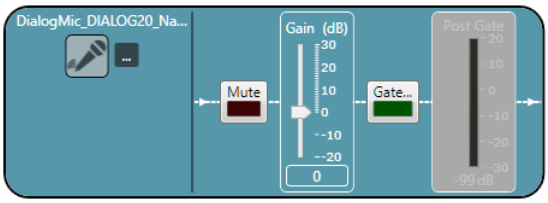
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:

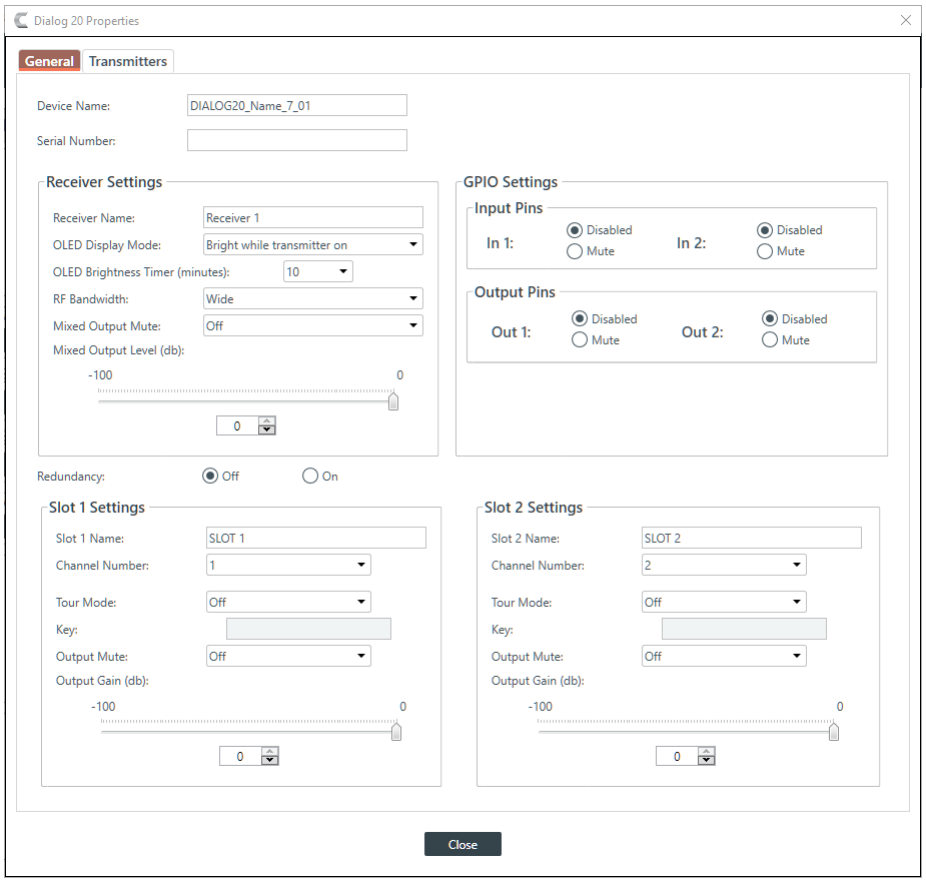


> **Note:**
>
> The meter that appears after the gain controls and the Gate button is designed to let you see the effect of changing gain and gating values. It is active only when the application is in Live Mode, however. In Offline Mode, it appears grayed out, as shown above.

Device Properties

6. Click  to change the device properties.

   The DIALOG 20 Properties dialog box appears:



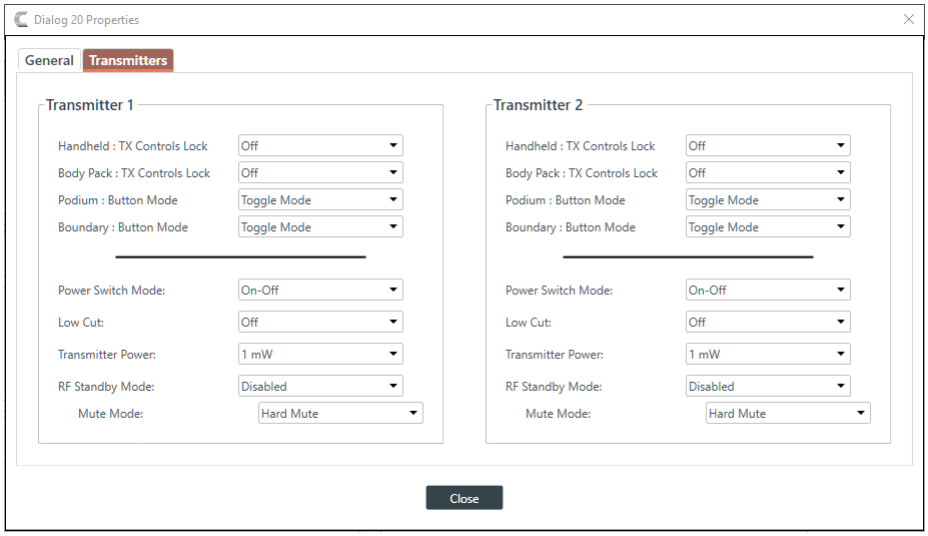
7. (Optional) Change any of the settings (described in the table below).

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.
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.

Option	Description
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.

8. Select the **Transmitters** tab.

   The Transmitters settings appear:



9. (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.

Option	Description
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.

10. Click **Close** to close the Dialog 20 Properties dialog box.

Mute

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

Gain

12. 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 - USB Rx and xUSB Rx

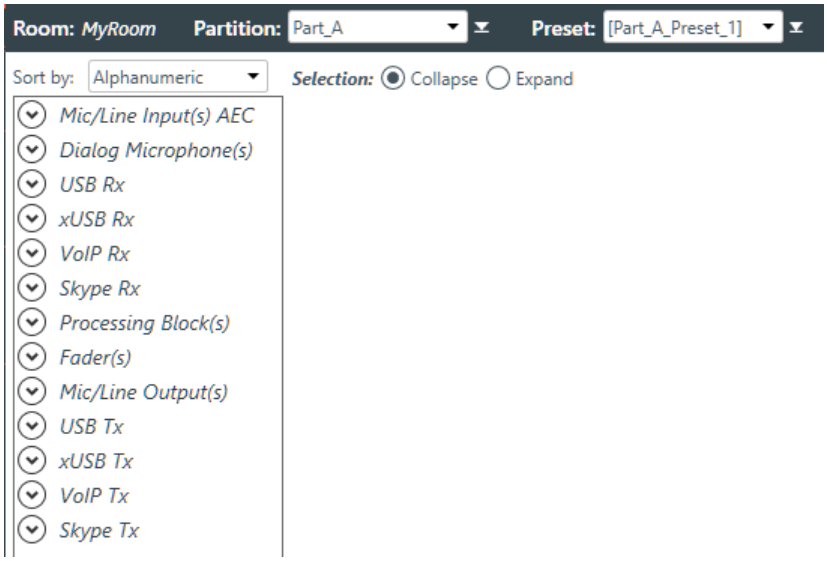
You can use channel properties to modify a USB Receive channel (the xUSB Rx channel, which is for USB channels on CP2 USB Expander unites, functions exactly the same as the USB channels on the CP2 device). You can make any of the following changes:

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 Receive channel:

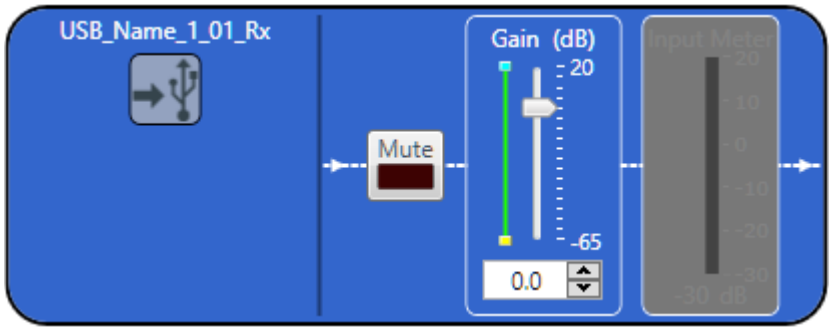
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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 Receive Channel Properties block appears:



Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

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 Receive

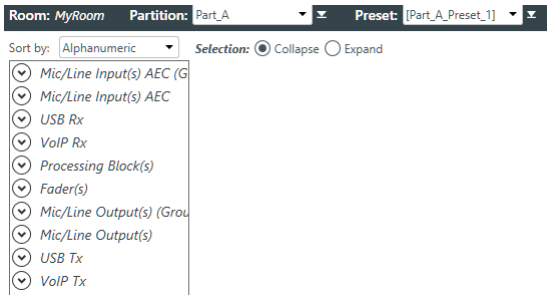
You can use channel properties to modify a VoIP Receive channel. You can make any of the following changes:

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:

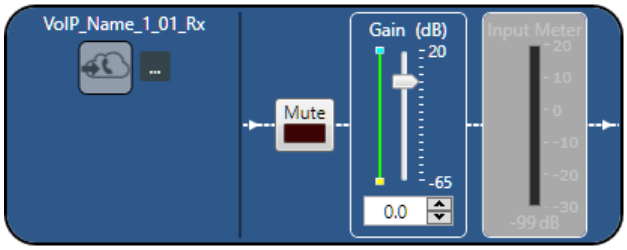
1. Under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:



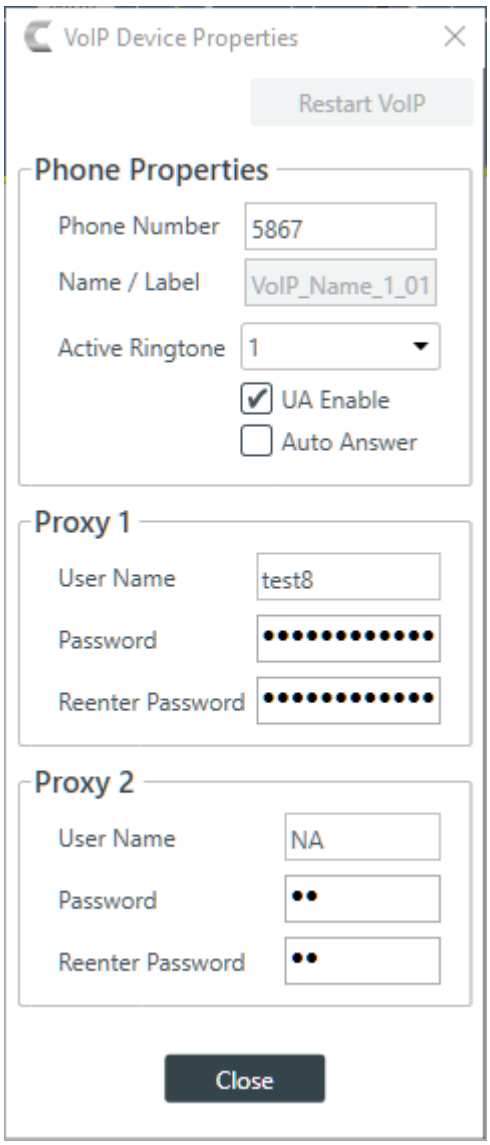
Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

VoIP Device Properties

6. Click ... to change the VoIP device properties for this channel.

   The VoIP Device Properties dialog box appears:



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

Option	Description
Restart VoIP (live modes only)	Click to restart the connection to a SIP server. **Note:** This button appears only if you're connected to a device and are using one of the live modes (see *Live Mode vs. Project Mode* for more information). The

Option	Description
	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.
UA Enable	Enable the SIP User Agent (UA).
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 - Skype Receive

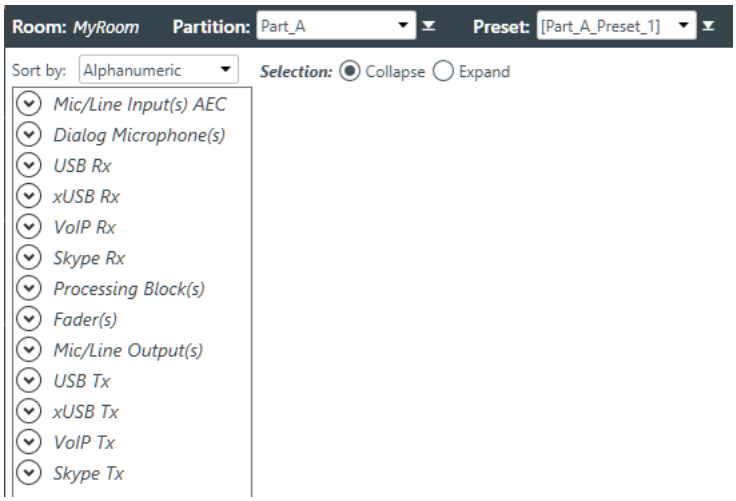
You can use channel properties to modify a Skype Receive channel. You can make any of the following changes:

Feature	Description
Skype Device Properties	Skype 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 Skype Receive channel:

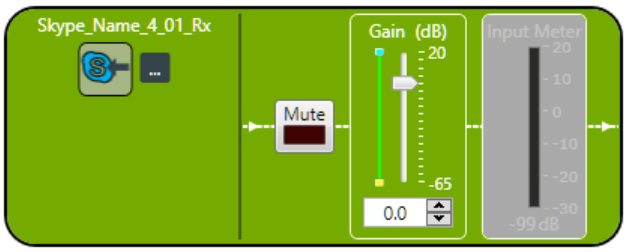
1. Under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. Choose a partition from the **Partition** drop-down list.
3. (Optional) Choose a preset from the **Preset** drop-down list.
4. Click **Skype Rx** to open the channel list.
5. Select the channel you want to change.

   The Skype Receive Channel Properties block appears:



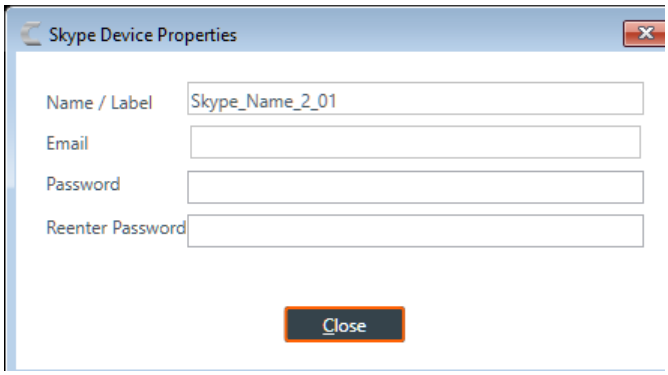
Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

VoIP Device Properties

6. Click ... to change the Skype device properties for this channel.

   The Skype Device Properties dialog box appears:



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

Option	Description
Name/Label	The channel name/label for this phone (user agent).
Email	The email address you're using to log in to the Skype for Business server.
Password	The password you're using to log in to the Skype for Business server.
Reenter Password	Repeat the password above, to make sure you have made any errors.

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 - Telco Rx

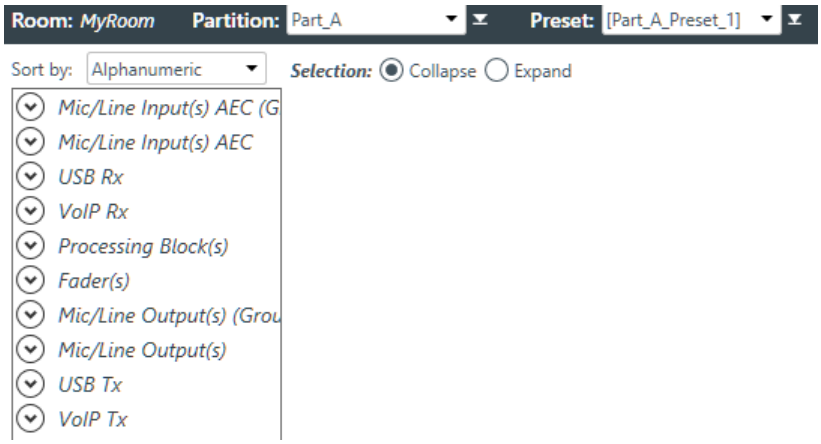
You can use channel properties to modify a Telco Rx (analog phone line receive) channel. You can make any of the following changes:

Feature	Description
Receive Boost	Lets 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)	Lets 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:

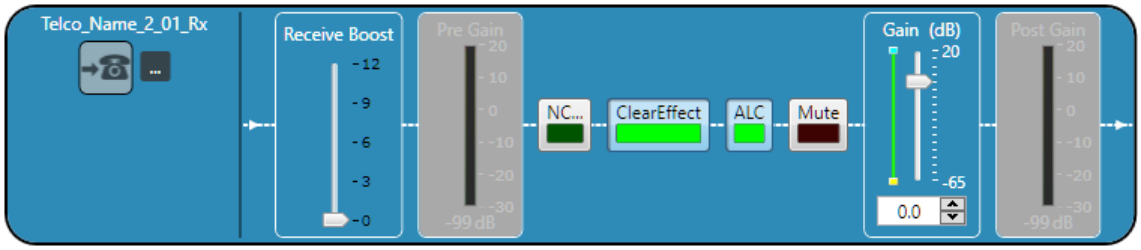
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:



Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

Telco Properties

6. To change the telco properties, click ...

   The Telco Device Properties dialog box appears:

7. 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

Option	Description
	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.

8. Click **Close**.

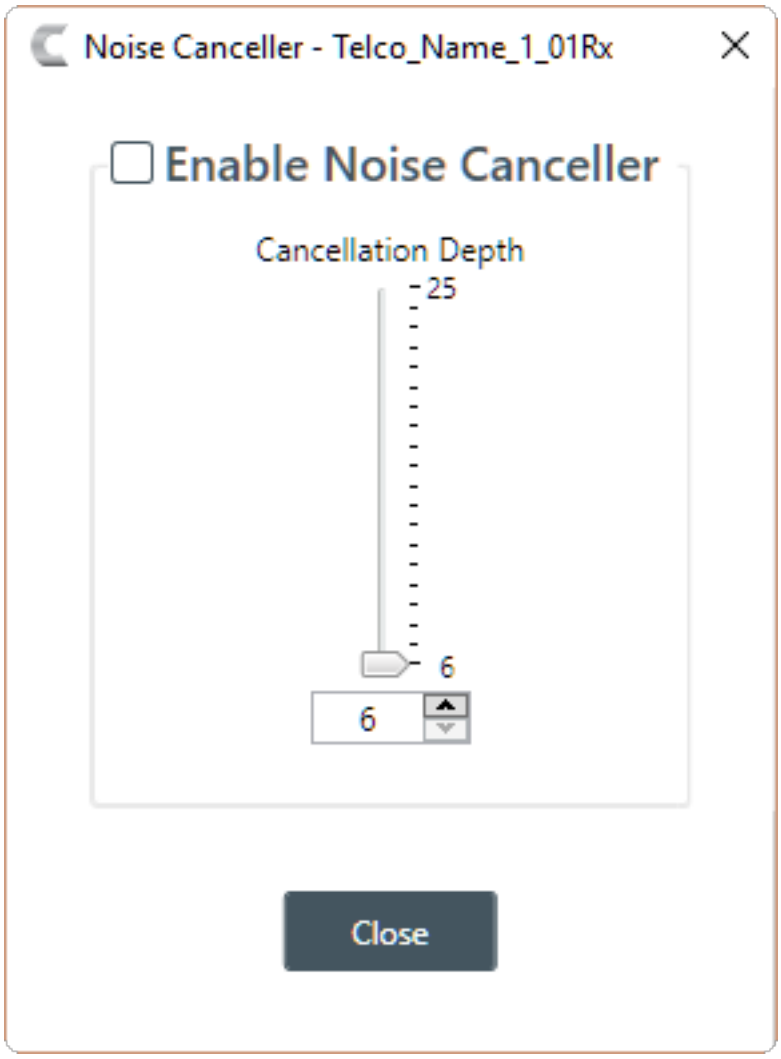
Receive Boost

9. To change the Receive Boost gain, drag the slider.

Noise Canceller (NC)

10. To enable and configure the Noise Canceller, click the **NC** button.

    The Noise Canceller dialog box appears:



11. Check the Enable Noise Canceller check box to turn this feature on.

12. 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

13. Click **Close**.

ClearEffect

14. 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)

15. To enable or disable ALC, click the **ALC** button.

If the feature is turned on the button changes to light green.

Mute

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

Gain

17. 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

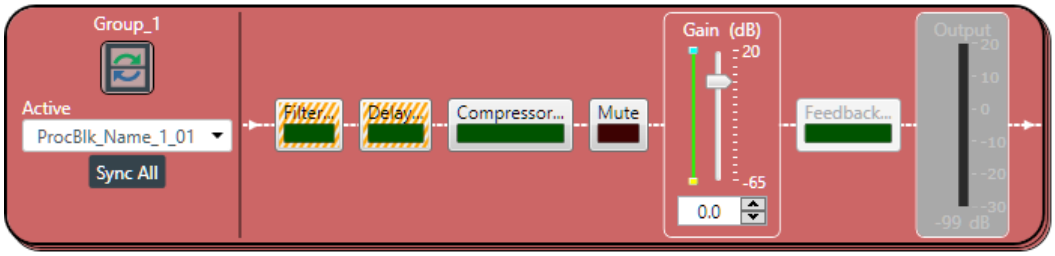
Changing Channel Properties - Processing Block and Processing Block (Group)

You can use channel properties to modify a Processing Block channel or Processing Block (Group). 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.

Note:

Individual and group channels are the same with the following exceptions:

- Group properties show an Active drop-down list to let you choose which member of the group to display and modify.
- Making changes to the properties changes the settings for every member of the group.
- Any channel properties where some members of the group are configured differently from other members of the group are shown highlighted in yellow:



You can make any of the following changes:

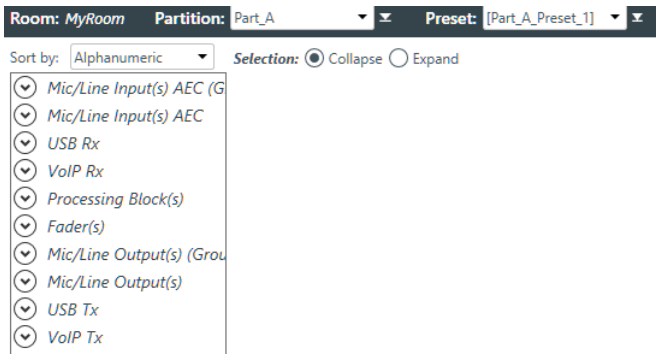
Feature	Description
Active (Group only)	Lets you choose which member of the group to show or modify.
Sync All (Group only)	Lets you synchronize all the members of the group to match the settings of the active member.
Filter	Filters enable you to shape the audio signals from mic inputs channels for improved 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, and Parametric Equalizer (PEQ).
Delay	Delay lets 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 lets 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.

Feature	Description
Feedback	Feedback Eliminator lets you configure a processing channel to discover and eliminate feedback. **Note:** Setting up feedback cancellation requires that you be in one of the live modes: Admin (Update), Room, or Control Panel. See *About Interface Modes* for more information.

To change the properties for a Processing Block channel:

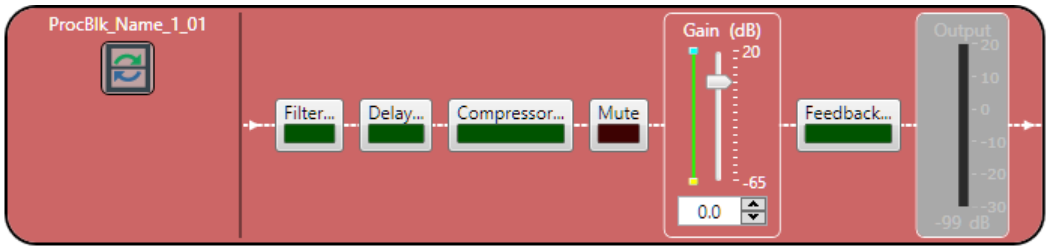
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:



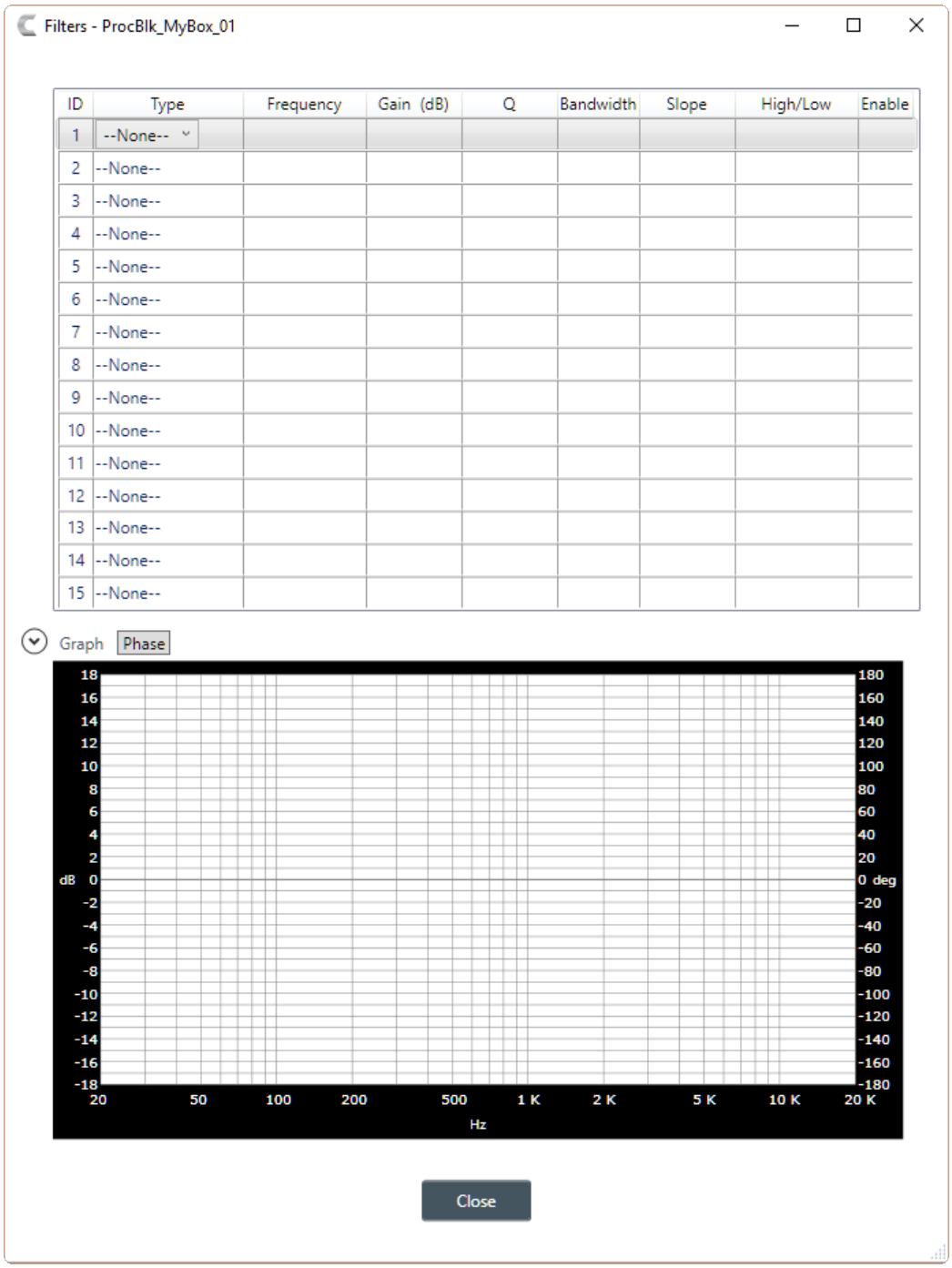
Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

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.
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.

Filter Type	Description
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 aninherent 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.

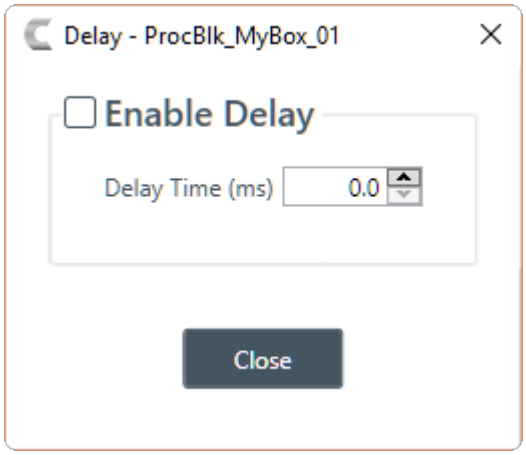
Option	Description
Bandwidth (Notch and PEQ only)	The difference between the upper and lower points of a filter's audio passband. Bandwidth is the inverse of Q, and the two parameters are linked. Hence changing the bandwidth value also changes the Q value. The range is 0.05 to 5.00 octaves.
Slope (Bessel, 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.

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:

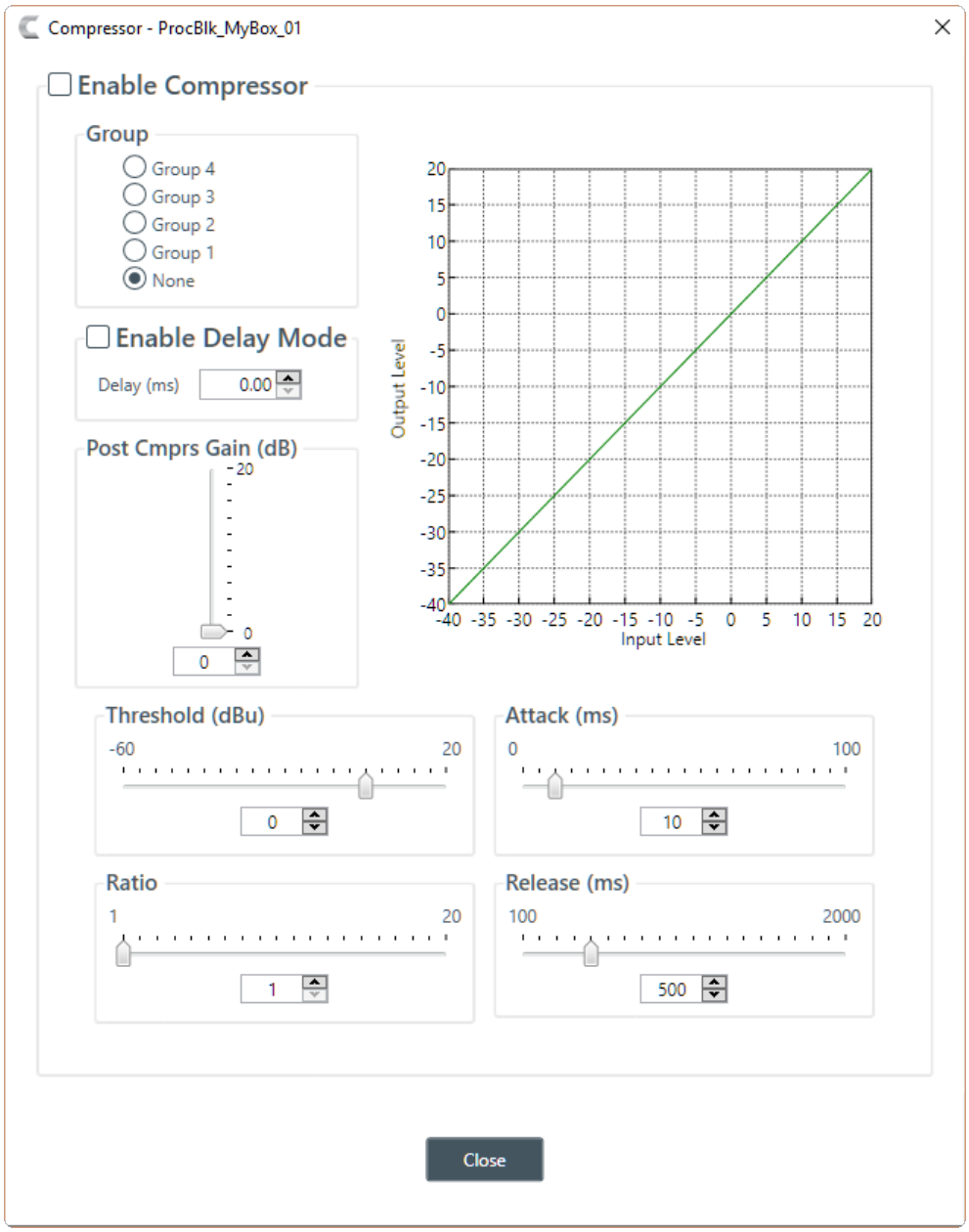


13. Check the **Enable Delay** check box to turn on the delay.
14. Specify the amount of the delay (in ms) by typing a value in the **Delay Time** field or using the incrementer and decrementer buttons next to the field to set a value.
15. Click **Close**.

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.
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.
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.

Option	Description
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 defaultis 0dBu.
Attack	Sets the time increment used to reduce the signal from input level to the prescribed output level when the thresholdis 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 is1:1 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. Therange 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

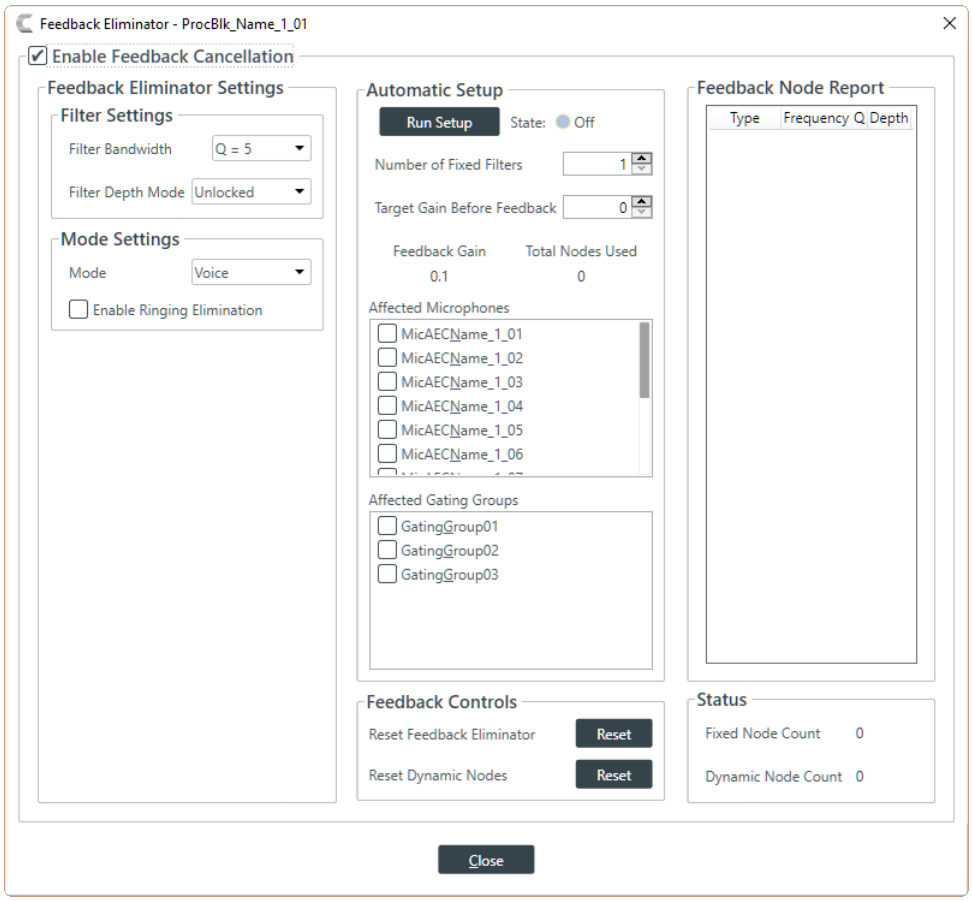
20. You can change the gain in any of the following ways:

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

Feedback Eliminator

21. To enable or disable Feedback Eliminator, click the **Feedback** button.

The Feedback Eliminator dialog box appears:



Note:

To set up Feedback Eliminator, you must be one of the Live modes. See *Choosing Interface Modes* for more information about switching modes.

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 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.
Enable Ringing Elimination	Allows the feedback eliminator to suppress ringing.

Option	Description
	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:

Not all of the options appear if you are in one of the Project modes.

23. Click **Close**.

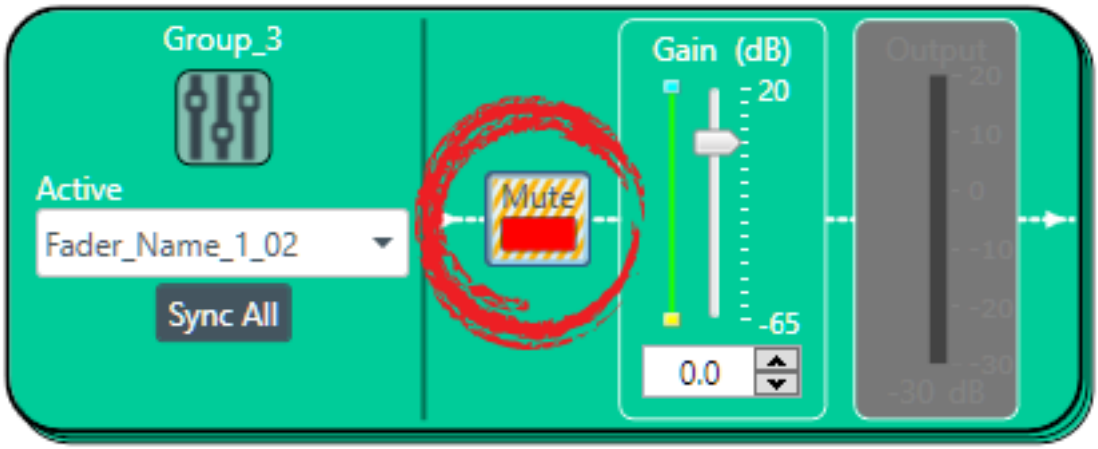
Changing Channel Properties - Fader or Fader (Group)

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 controlvolume settings within a site. There are eight fader channels per device.

Note:

Individual and group channels are the same with the following exceptions:

- Group properties show an Active drop-down list to let you choose which member of the group to display and modify.
- Making changes to the properties changes the settings for every member of the group.
- Any channel properties where some members of the group are configured differently from other members of the group are shown highlighted in yellow:



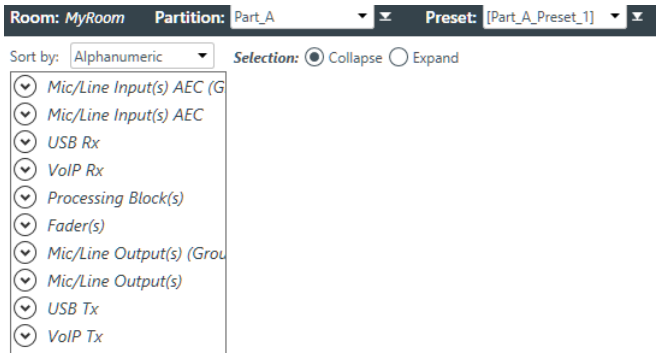
You can make any of the following changes:

Feature	Description
Active (Group only)	Lets you choose which member of the group to show or modify.
Sync All (Group only)	Lets 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:

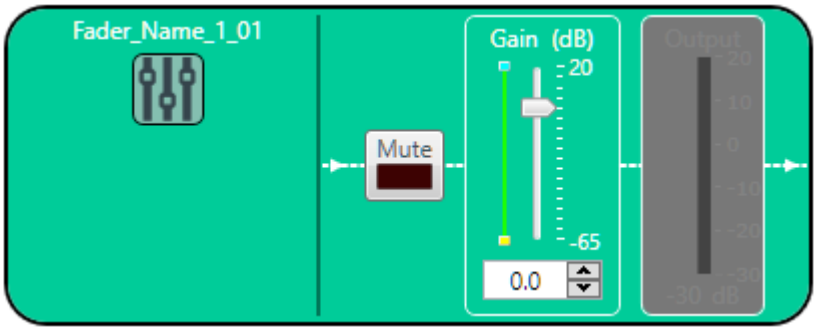
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:



Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

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

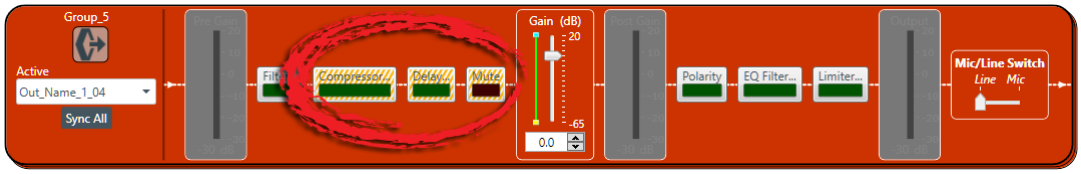
Changing Channel Properties - Mic/Line Output or Mic/Line Output (Group)

You can use channel properties to modify a Mic/Line Output or Mic/Line Output (Group) channel.There are eight output channels per device.

Note:

Individual and group channels are the same with the following exceptions:

- Group properties show an Active drop-down list to let you choose which member of the group to display and modify.
- Making changes to the properties changes the settings for every member of the group.
- Any channel properties where some members of the group are configured differently from other members of the group are shown highlighted in yellow:



You can make any of the following changes:

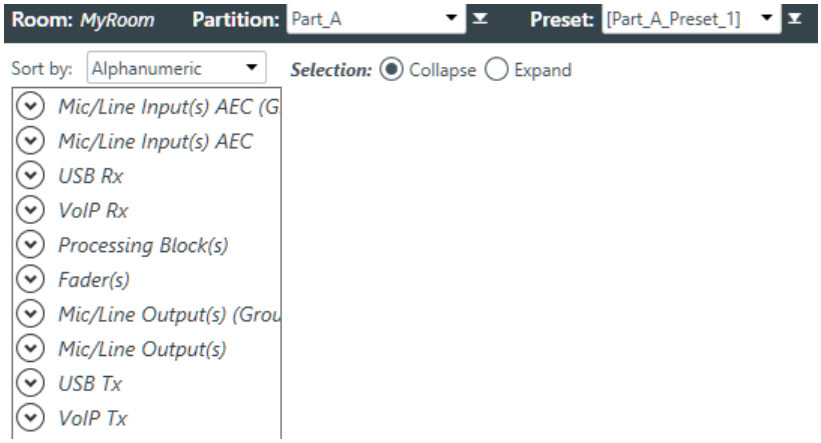
Feature	Description
Active (Group only)	Lets you choose which member of the group to show or modify.
Sync All (Group only)	Lets you synchronize all the members of the group to match the settings of the active member.

Feature	Description
Delivery (Dante only)	Lets 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 lets you change the gain transfer characteristics of the signal path and control the dynamics of a signal.
Delay	Delay lets 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 speakerenclosures 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	Lets you switch between line level output and mic level output.

To change the properties for a Mic/Line Output channel:

1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

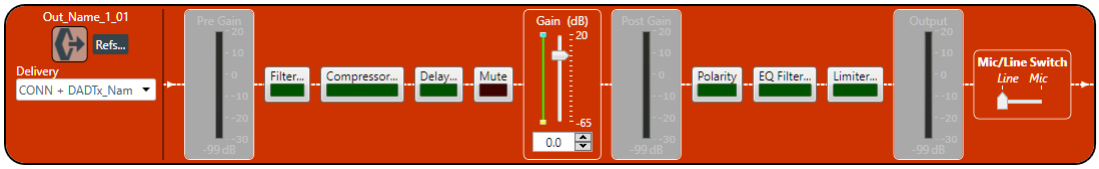
   The Channel Properties screen appears:



2. 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:



> **Note:**
>
> The meters are designed to show the effect of changing the output properties. However, these meters function only when the application is in Live Mode.

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.

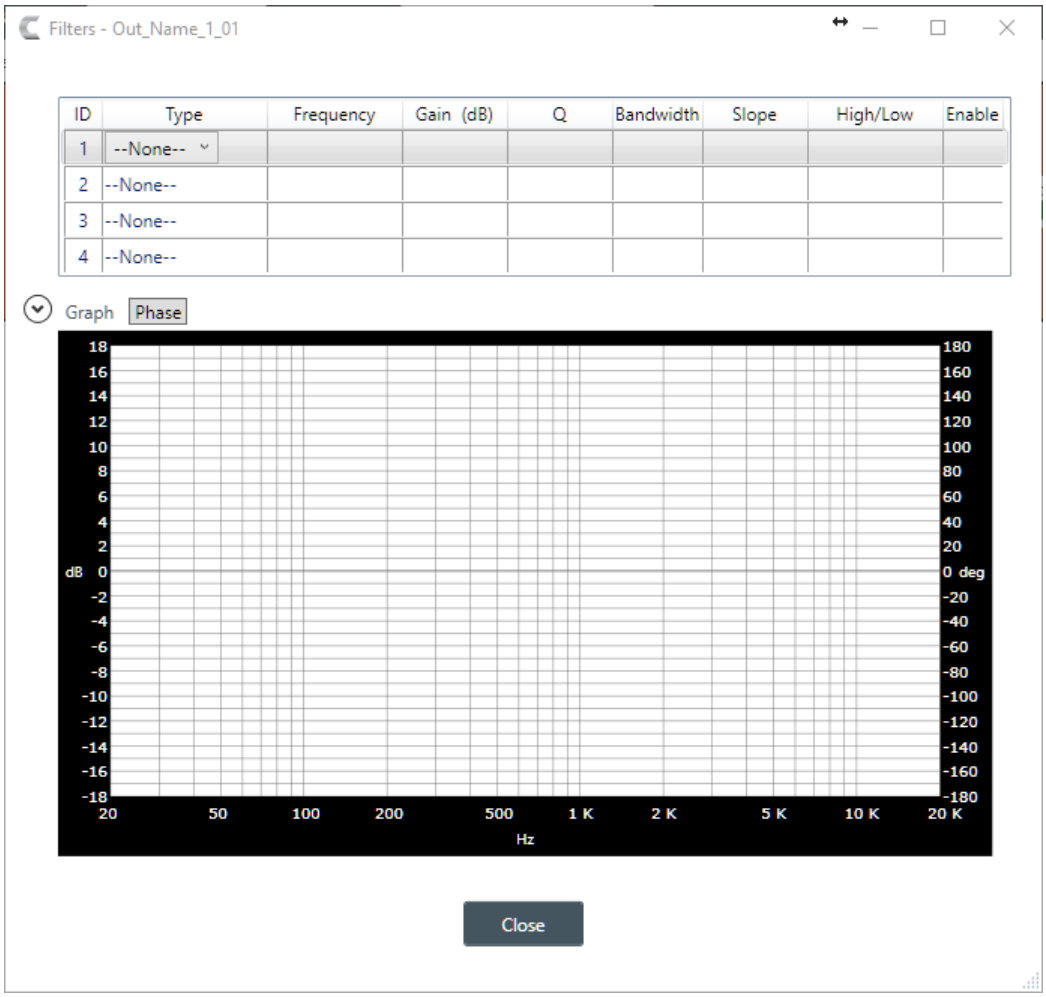
References

7. To view any references (standard or custom) associated with this channel, click **Refs**.

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 aninherent 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

Filter Type	Description
	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.
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.

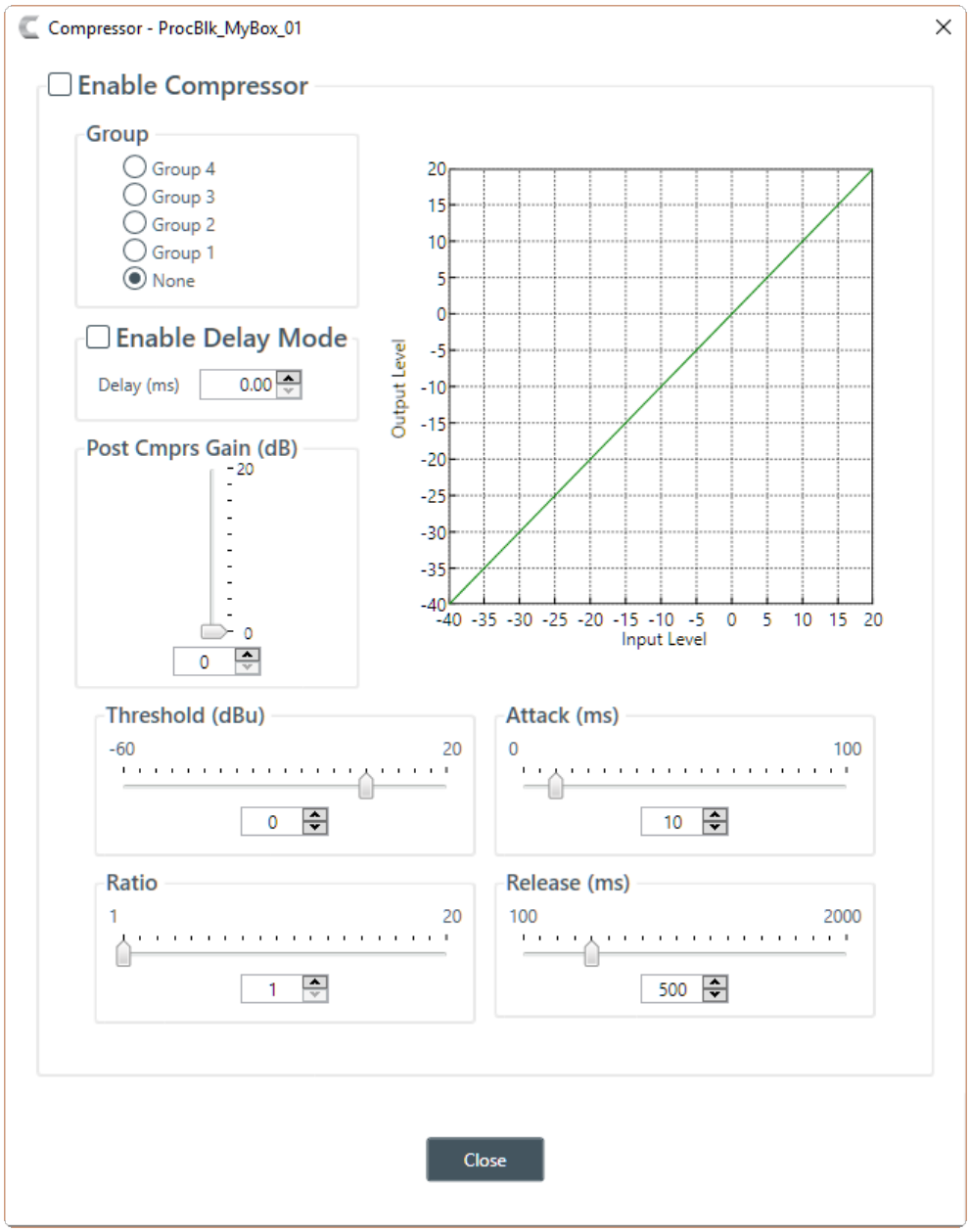
12. Repeat the process for each filter you want to add.

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

Option	Description
	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 defaultis 0dBu.
Attack	Sets the time increment used to reduce the signal from input level to the prescribed output level when the thresholdis 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 is1:1 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. Therange is 100ms to 2 seconds, in 5ms increments. The default is 500ms.

Note:

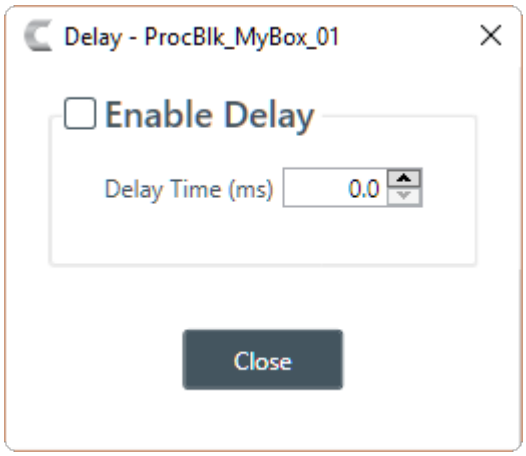
The graph reflects the input/output decibel levels with the gain, ratio, and threshold settings you select.

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

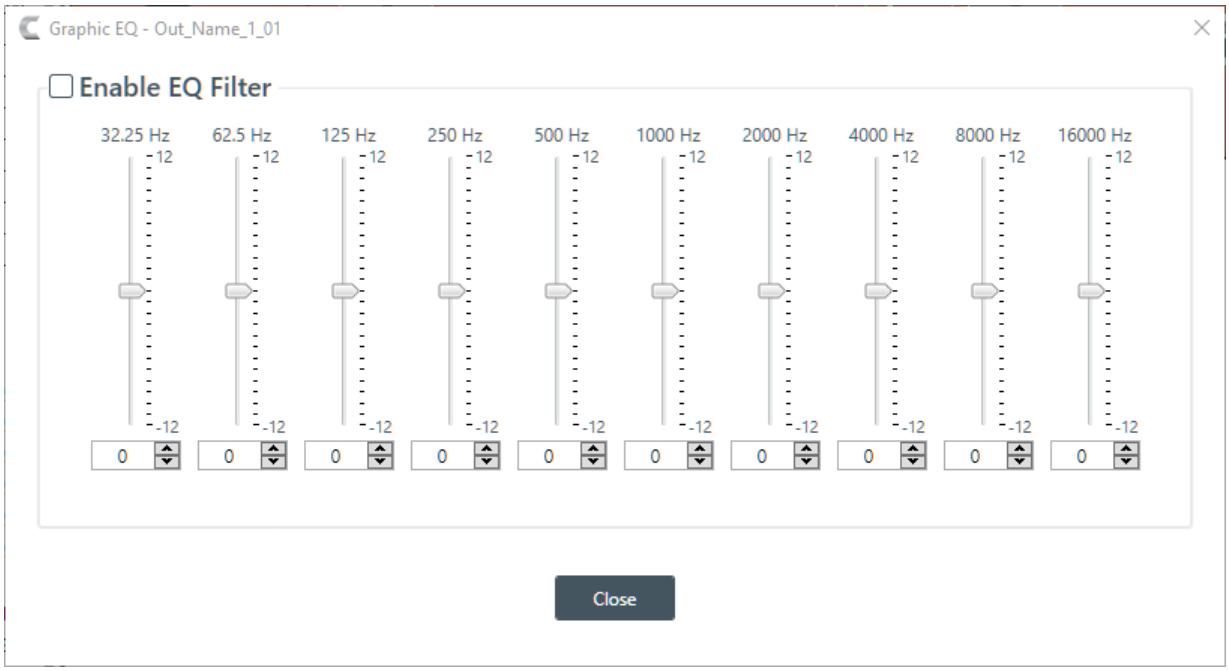
23. To reverse the polarity of the output channel, click the **Polarity** button.

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:

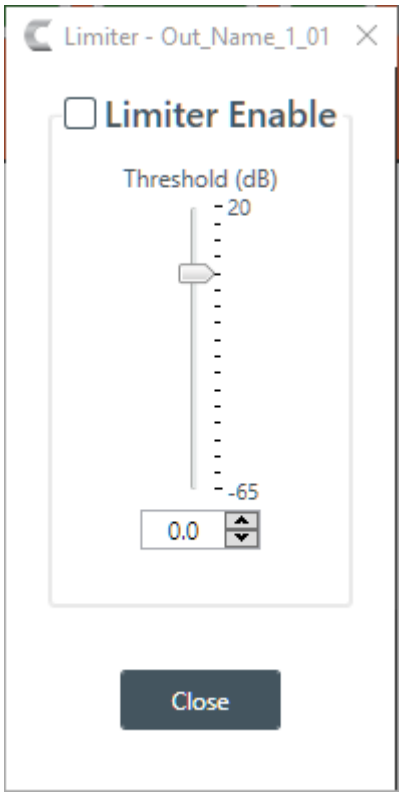
- Drag the slider
- Type a value in the text box
- Click the incrementer and decrementer arrows beside the text box to set the value

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 - USB Transmit

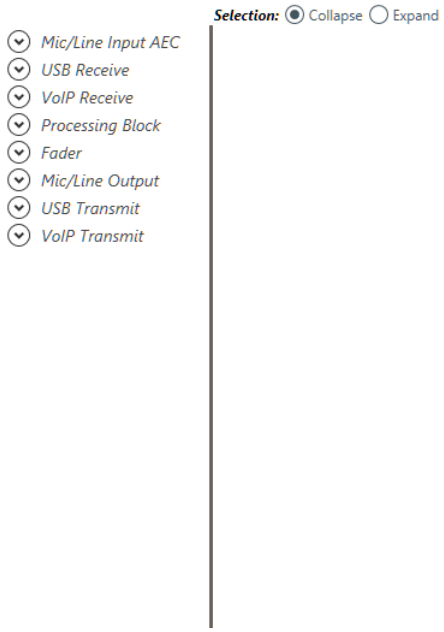
You can use channel properties to modify a USB Transmit channel. You can make any of the following changes:

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:

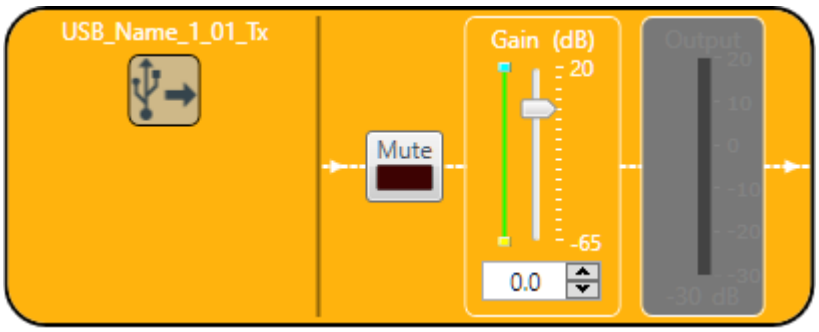
1. Under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. Choose a partition from the **Partition** drop-down list.
3. Click **USB Transmit** to open the channel list.
4. Select the channel you want to change.

   The USB Transmit Channel Properties block appears:



Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

Mute

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

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

Changing Channel Properties - VoIP Transmit

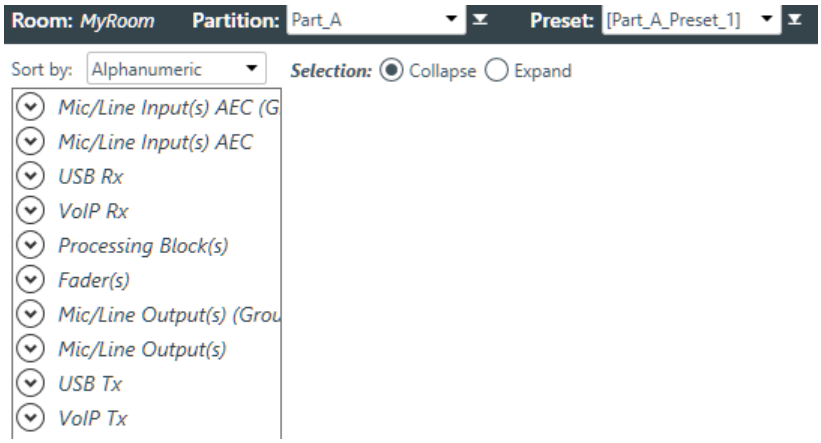
You can use channel properties to modify a VoIP Transmit channel. You can make any of the following changes:

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 Transmit channel:

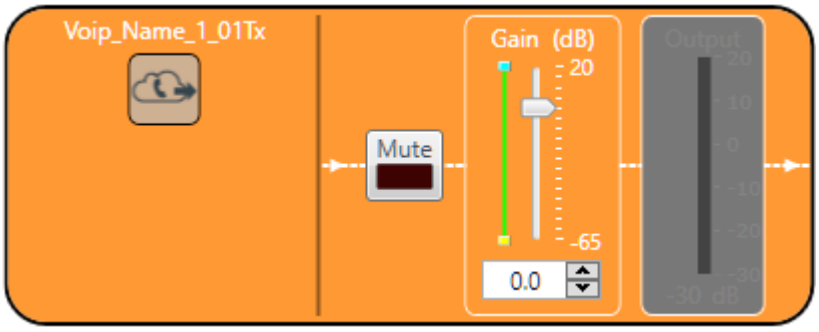
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:



Note:

The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

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 - Skype Transmit

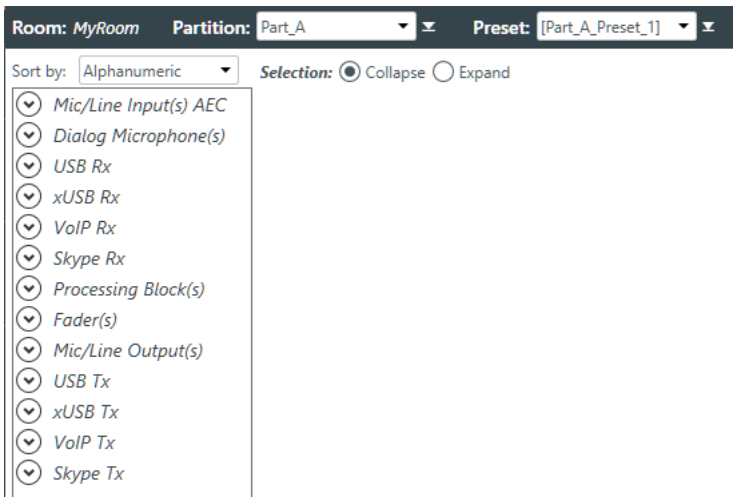
You can use channel properties to modify a Skype Transmit channel. You can make any of the following changes:

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 Skype Transmit channel:

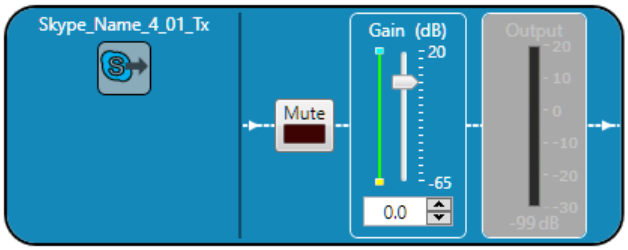
1. Under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. Choose a partition from the **Partition** drop-down list.
3. (Optional) Choose a preset from the **Preset** drop-down list.
4. Click **Skype Tx** to open the channel list.
5. Select the channel you want to change.

   The Skype Transmit Channel Properties block appears:



> **Note:**
>
> The meter to the right of the gain slider is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

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

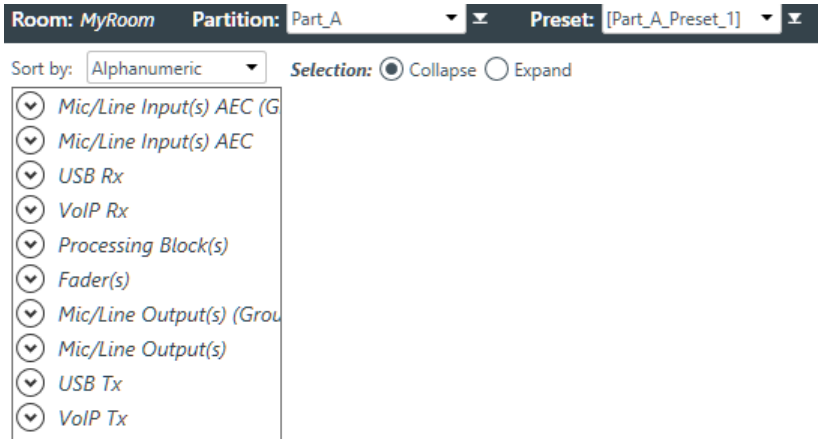
You can use channel properties to modify a Telco Tx (analog phone line transmit) channel. You can make any of the following changes:

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:

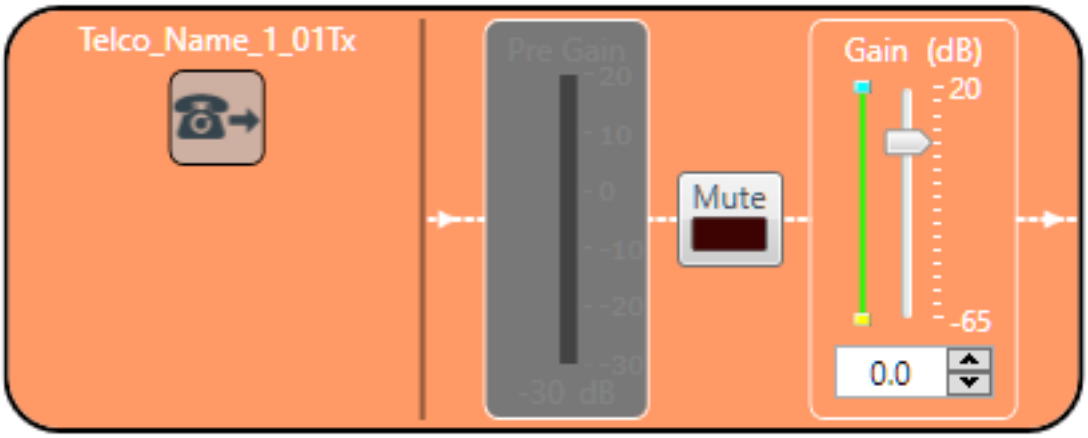
1. In the Navigation panel, under **Room Partitions**, choose **Channel Properties**.

   The Channel Properties screen appears:



2. 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:



Note:

The Pre-Gain meter to the left of the mute button is designed to show the effect of changing the gain. However, this meter functions only when the application is in Live Mode.

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

Setting GPIO Logic Input Triggers

You can specify macros you want to run based in input from GPIO pins.

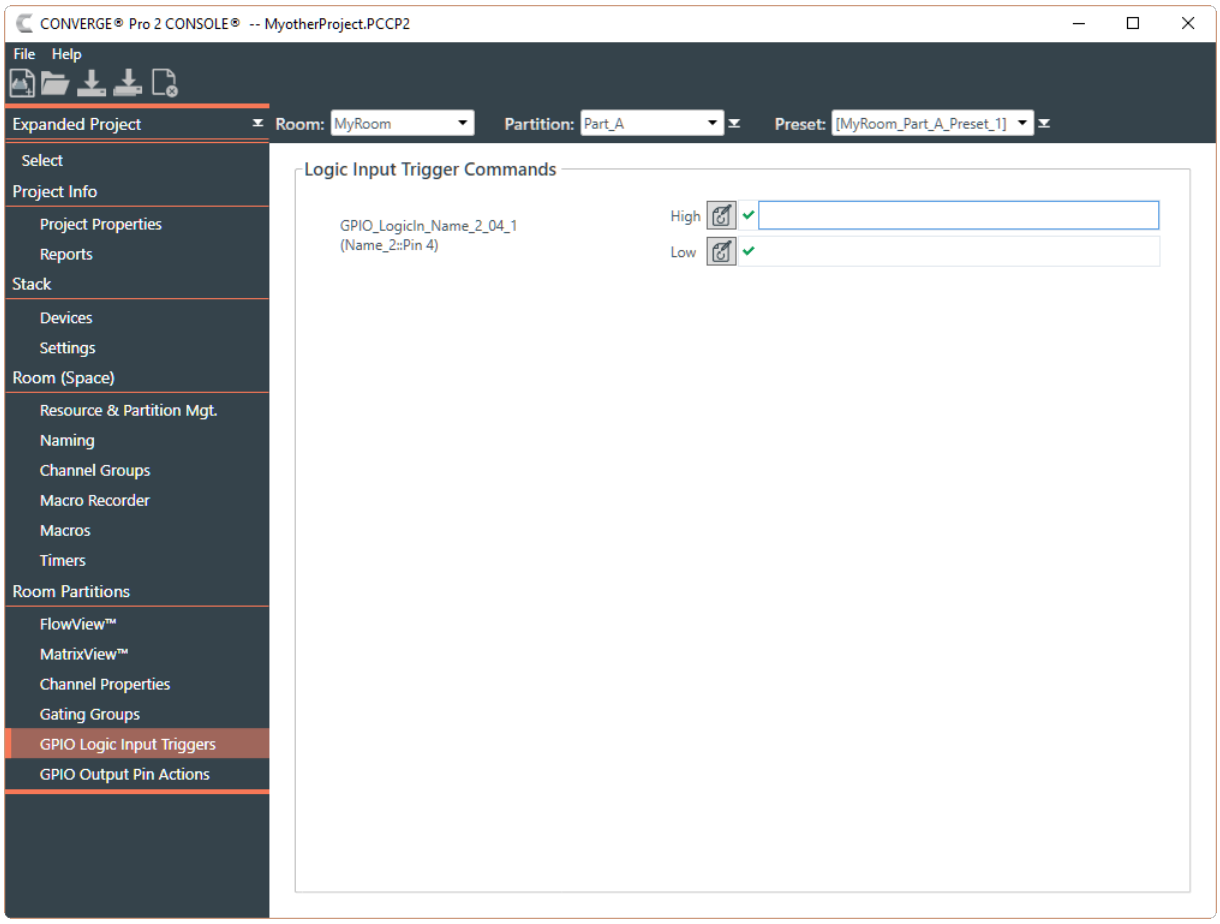
Being able to set GPIO logic input triggers depends on the following prerequisites:

1. You must have defined the GPIO pin types in the device settings, and at least one of the pins must have been set as Logic Input type. See *Changing Device Settings - GPIO* for more information.
2. You must have added GPIO pins to the currently selected room. See *Adding Assets to a Partition* for more information.

To set GPIO logic input triggers:

1. Under **Room Partitions**, choose **GPIO Logic Input Triggers**.

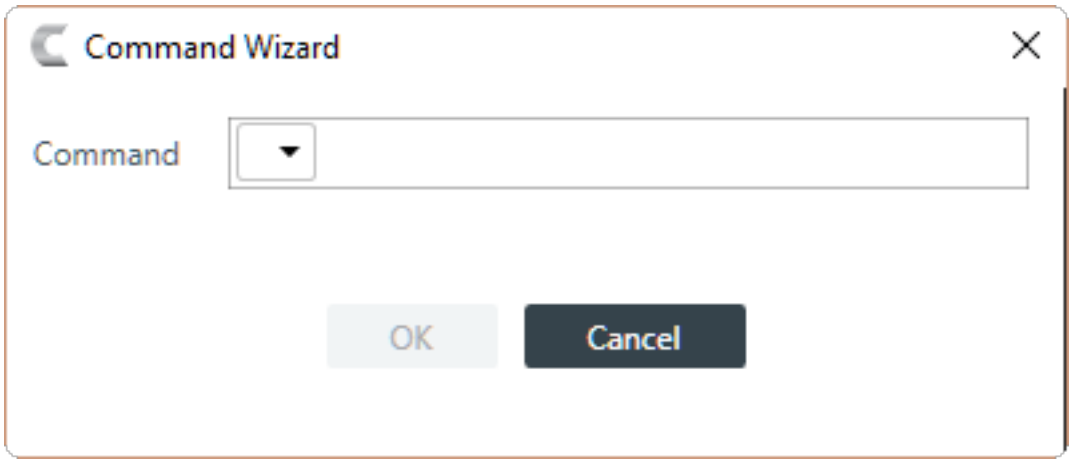
   The Logic Input Trigger Command screen appears:



All pins set as Logic Input type appear here, with command fields for both their high and low states.

2. Choose a partition from the **Partition** drop-down list.
3. To define an action for a particular pin and state, click  next to the state for that pin.

   The Command Wizard appears:



4. Choose **run** from the drop-down list in the **Command** field.

   A new drop-down list appears to let you choose a macro to run.
5. From the second drop-down list in the **Command** field, choose a macro to run.

6. Click **OK**.
7. Repeat the procedure for all pins and states you want to define.

Setting GPIO Logic Output Pin Actions

You can specify conditions that cause the state of GPIO output pins to change. If the specified state occurs, then the pin state is changed accordingly.

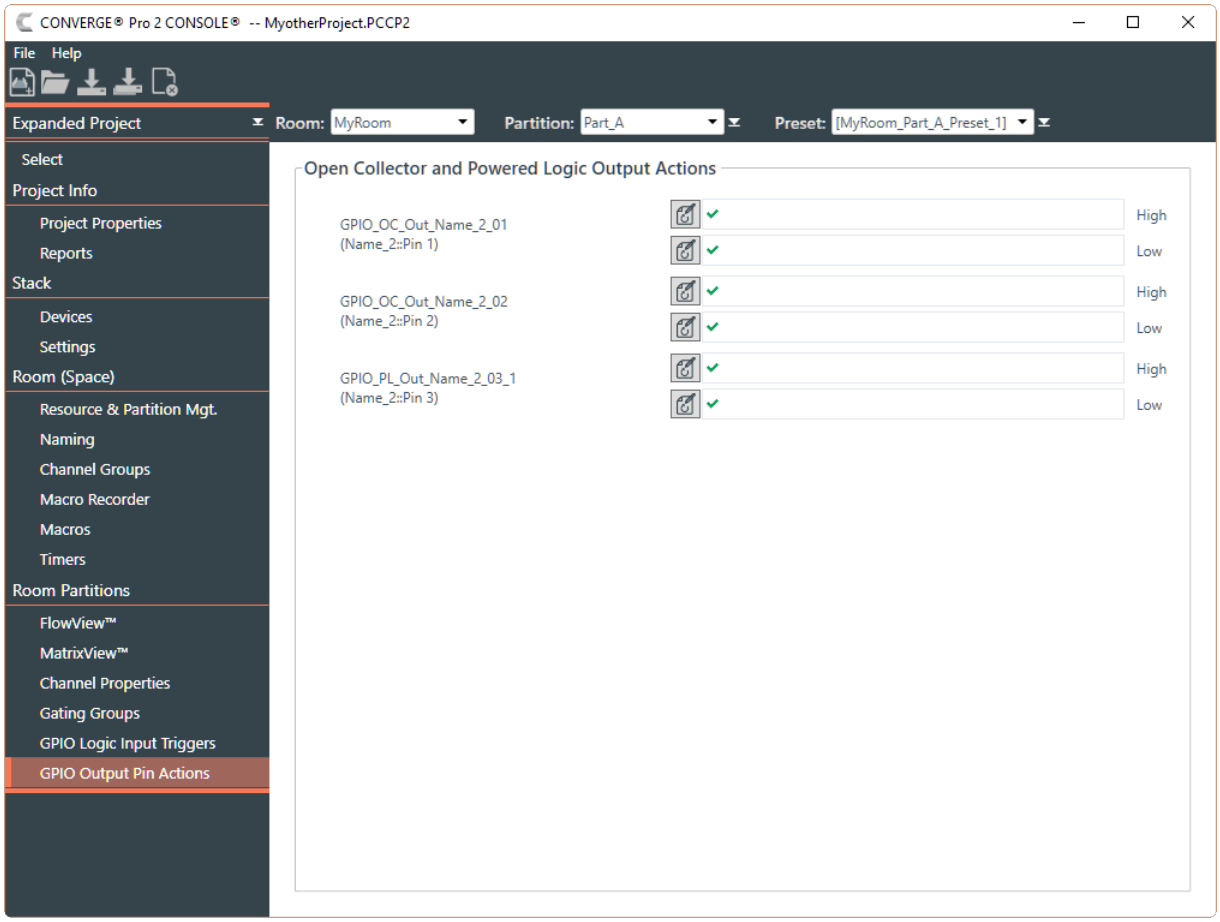
Being able to set GPIO logic output pin actions depends on the following prerequisites:

1. You must have defined the GPIO pin types in the device settings, and at least one of the pins must have been set as Logic Output type. See *Changing Device Settings - GPIO* for more information.
2. You must have added GPIO pins to the currently selected room. See *Adding Assets to a Partition* for more information.

To define GPIO logic output pin actions:

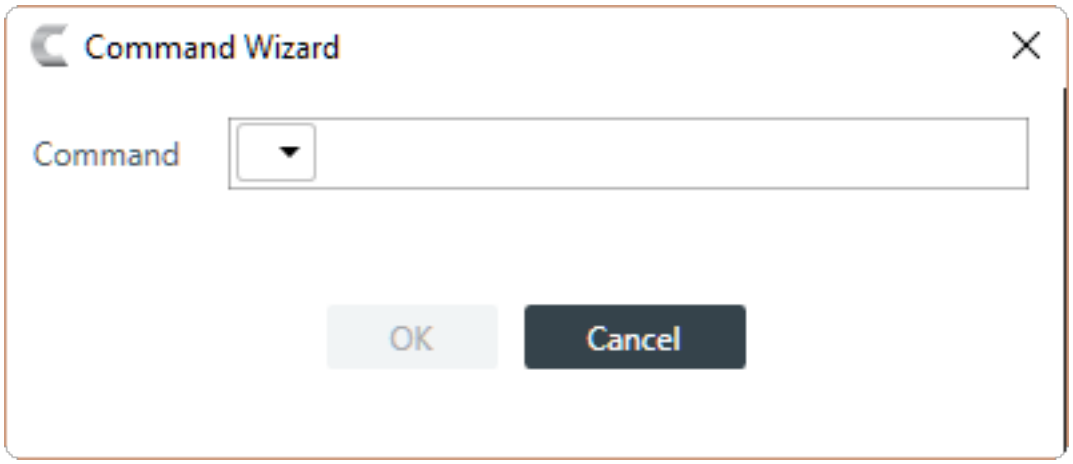
1. Under Room Partitions, choose GPIO Output Pin Actions.

   The Open Collector and Powered Logic Output Actions screen appears:



   All pins set as Open Collector Output or Powered Logic Output types appear here, with command fields for both their high and low states.
2. Choose a partition from the **Partition** drop-down menu.
3. To define an action for a particular pin and state, click  next to the state for that pin.

   The Command Wizard appears:



4. Choose set from the drop-down list in the Command field.

   A new drop-down list appears to let you choose a channel or group.
5. Choose a channel or group from the second drop-down list.
6. Choose a setting from the third drop-down list.

   Depending on the setting you've chosen, additional drop-down lists and controls may appear to let you set the channel properties.
7. Set any additional channel properties as desired.
8. Click OK.
9. Repeat the procedure for all pins and states you want to define.

Adding or Modifying Presets

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

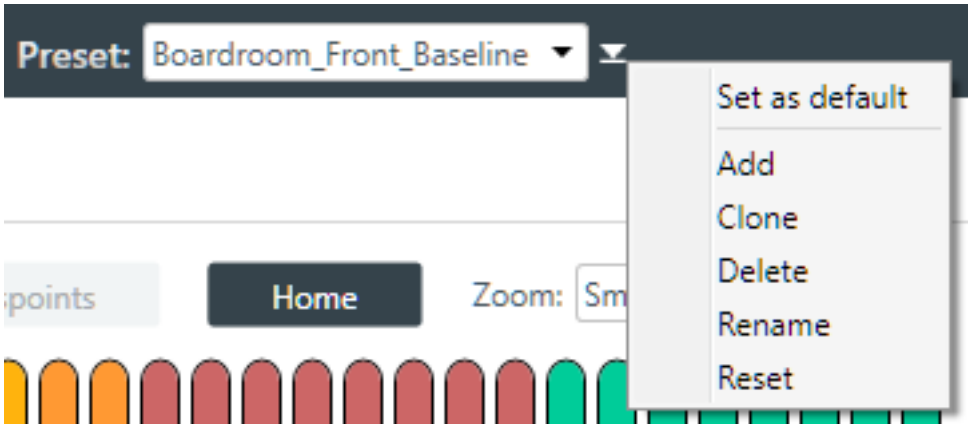
To add or modify a preset:

1. Under **Room Partitions**, choose **FlowView**, **MatrixView**, or **Channel Properties**.
2. Make any changes you want to include in the preset.

Add a Preset

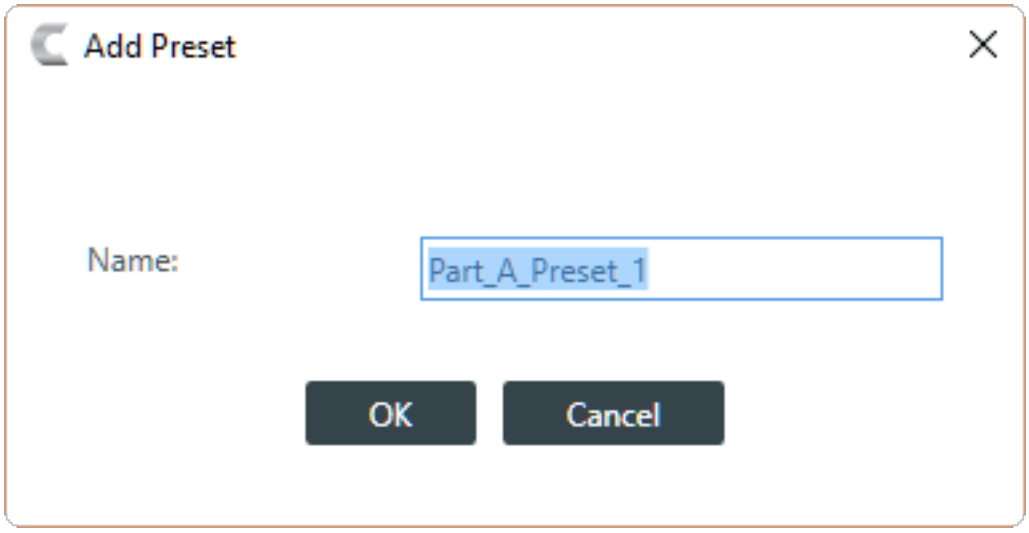
3. To add a preset, open the **Preset** menu by clicking  to the right of the **Preset** drop-down list.

   The Preset menu appears:



4. From the **Preset** menu, choose **Add**.

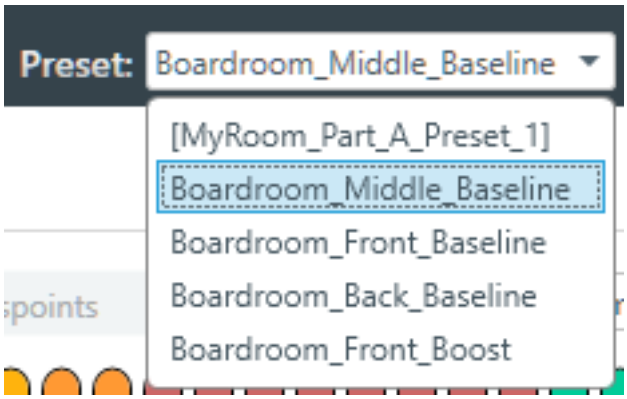
The Add Preset dialog box appears:



5. Type a name for the preset in the **Name** field.
6. Click **OK**.

Clone a Preset

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



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, select the preset you want to delete from the **Preset** drop-down list.
10. From the **Preset** menu, choose **Delete**.

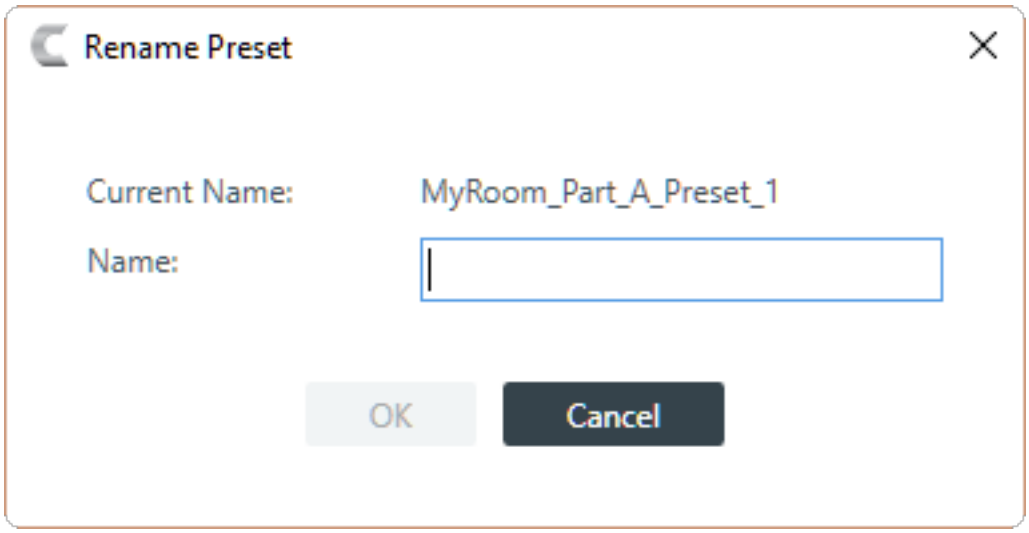
    The preset is deleted.

> **Note:**
>
> No confirmation is required to delete presets.

Rename a Preset

11. To rename a preset, select the preset you want to rename from the **Preset** drop-down list.
12. From the **Preset** menu, choose **Rename**.

    The Rename Preset dialog box appears:

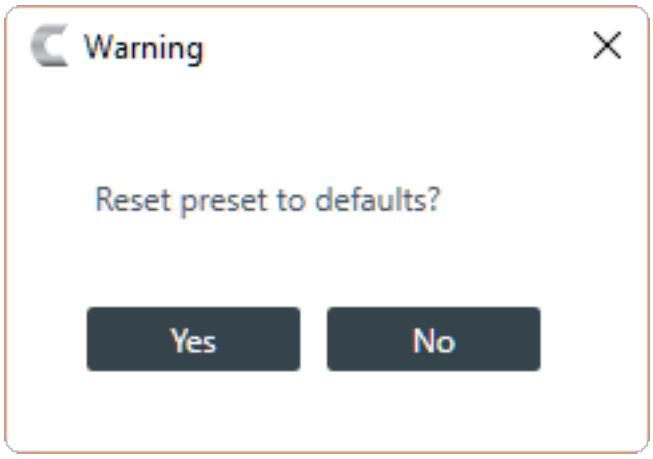


13. Type a new name in the **Name** field.
14. Click **OK**.

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 7

Gating Groups

Topics:

This chapter contains information about changing the Gating Groups settings.

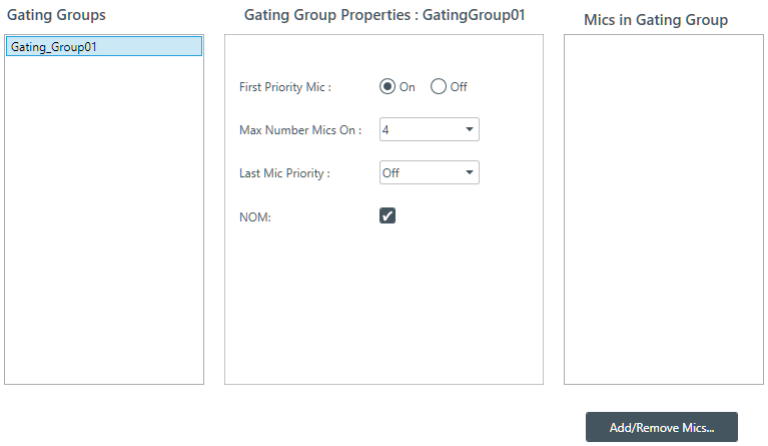
Adding Mics to a Gating Group

You can add mics to or remove mics from a gating group.

To add mics to or remove mics from a gating group:

1. Under Room Partitions, choose Gating Group.

   The Gating Groups screen appears:



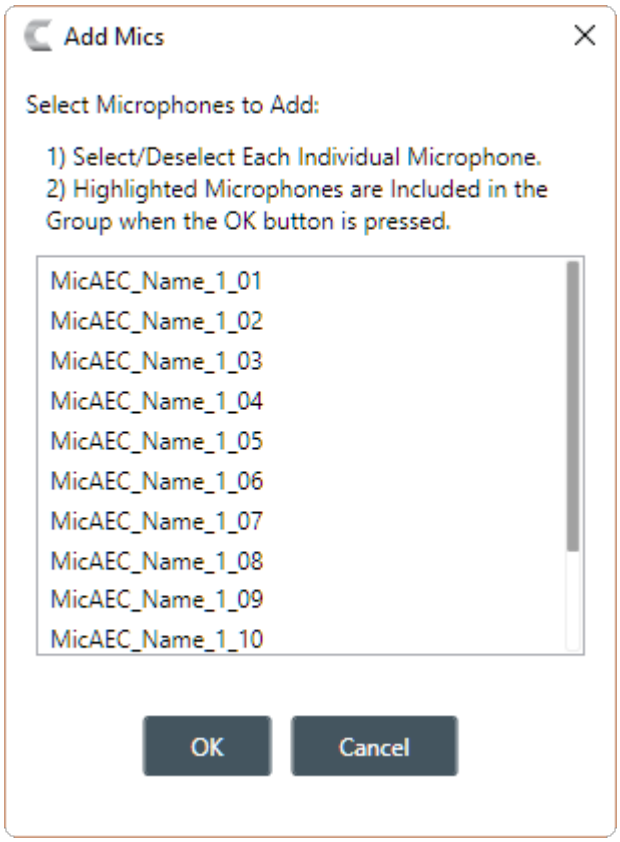
2. Select a gating group from the Gating Groups list.

   Note:

   If there aren't any gating groups in the list, it's because you didn't add any gating groups on the Resource & Partition Mgt. screen. See *Adding Assets to a Room* for more information.

3. Under Mics in Gating Group, click Add/Remove Mics.

   The Add Mics dialog box appears:



4. Select which mics you want to be in the gating group you chose (you can click any mic to toggle its status on or off).
5. Click OK.

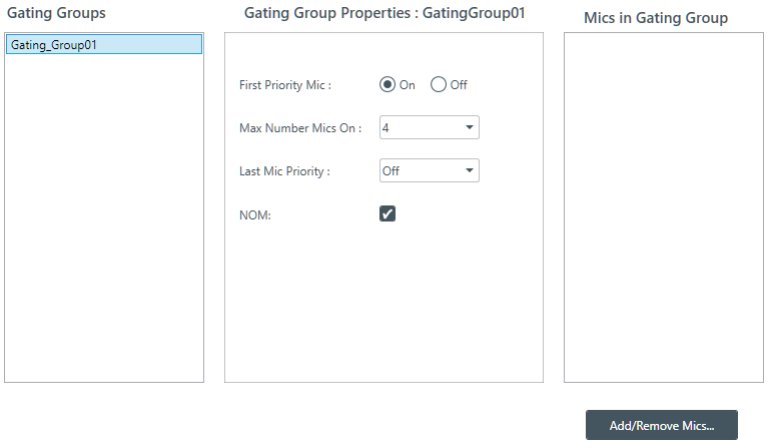
Changing Gating Group Properties

You can change the properties of a gating group.

To change the properties of a gating group:

1. Under **Room Partitions**, choose **Gating Groups**.

   The Gating Groups screen appears:



2. Choose a partition from the **Partition** drop-down list.

3. Select a gating group from the **Gating Groups** list.
4. (Optional) You can add or remove mics from this gating group. See *Adding Mics to a Gating Group* for more information.
5. (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 fromgating 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 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.

Chapter 8

Stack - Live

Topics:

This chapter contains information about changing the stack settings.

Note:

The options described in this chapter are accessible only when the CONVERGE Pro 2 CONSOLE application is in Live mode. See *Live Mode vs. Project Mode* for more information.

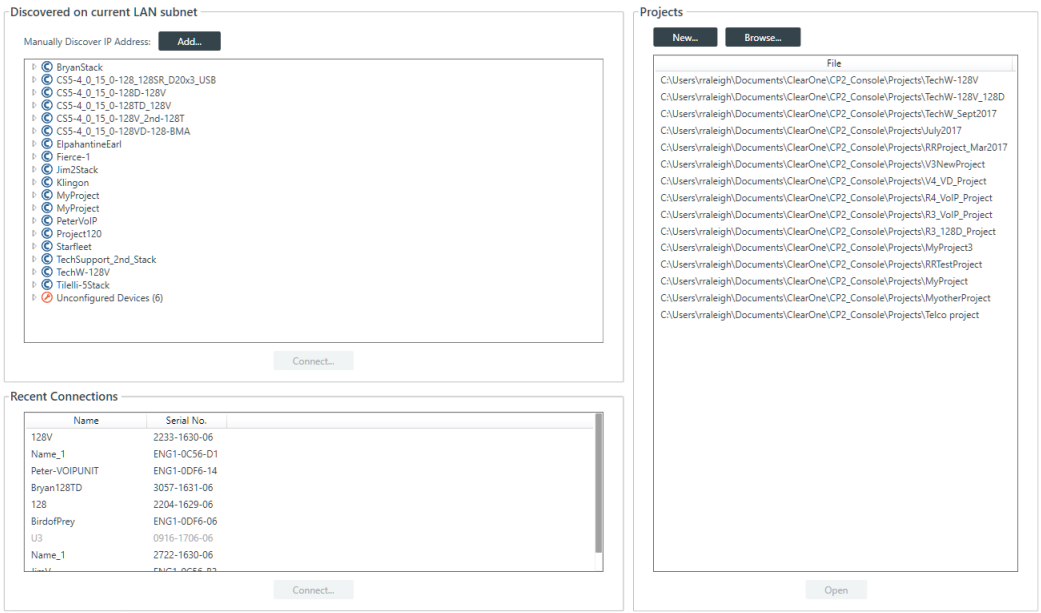
Connecting to a Device or Stack

You can connect to a CONVERGE Pro 2 device or stack. Doing so lets you work in Live mode. See *Live Mode vs. Project Mode* for more information.

To connect to a device or stack:

1. In the Navigation Panel, click **Select**.

   The Select 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:

   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 Add Device Manually below for more information.

   Note:

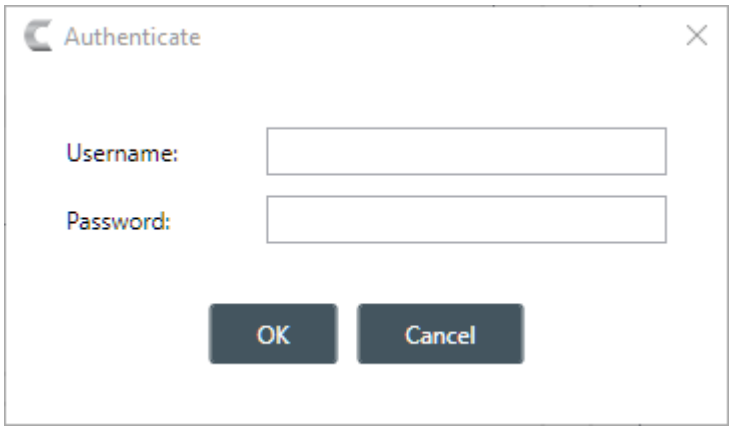
   If you see the following message beneath Discovered on current LAN subnet: "Please contact your system adminirator to have ClearOne Locator service started" then you need to start, or restart, the ClearOne Locator Service. See *Start the ClearOne Locator Service* for more information.

2. Choose a device to connect.

   If the device you want to connect to doesn't appear, and you want to add a device manually, skip to the Add Device Manually section below.

3. Click **Connect**.

   The Authenticate dialog box appears:



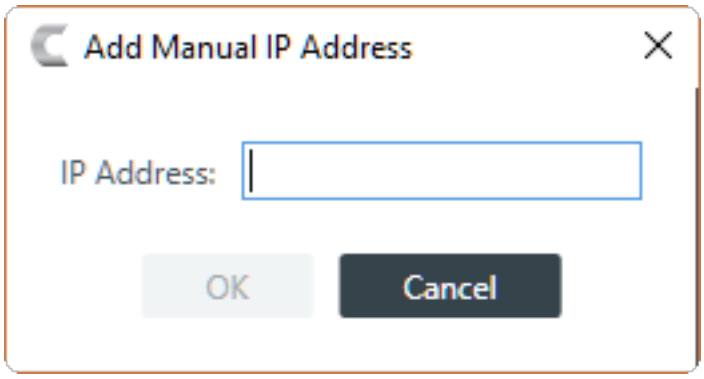
4. Type the username and password for the device, and then click **OK**.

   You are connected to the device or stack.

Add Device Manually

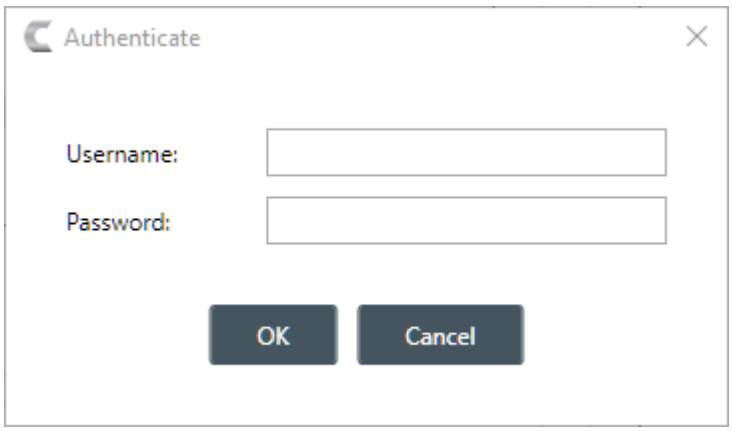
5. If the device you want to connect to isn't listed, you can also specify the address manually by clicking **Add**.

   The **Add Manual IP Address** dialog box appears:



6. Type an IP address, then click **OK**.

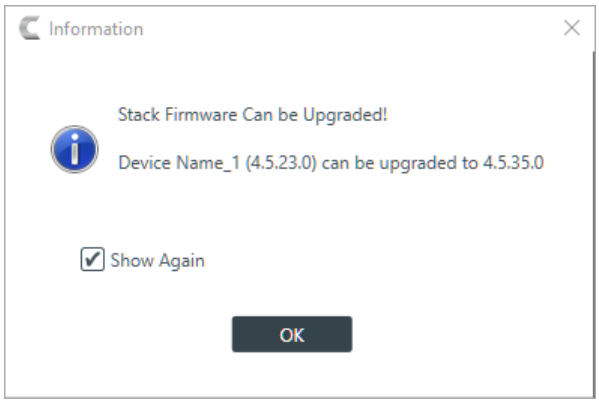
   The Authenticate dialog box appears:



7. Type the username and password for the device, and then click **OK**.

   You are connected to the device or stack.

8. If the CONSOLE software detects that a newer version of the firmware is available, the following warning appears:



9. If you don't want this warning to appear in the future, uncheck the **Show Again** check box.
10. Click **OK**.

Start the ClearOne Locator Service

The ClearOne Locator Service allows the CONSOLE application to discover CONVERGE Pro 2 devices on the same subnet. If necessary, you can start, or restart, the ClearOne Locator Service.

To start the ClearOne Locator Service:

1. Press + R to open the Windows Run dialog box.
2. In the Run dialog box, type `services.msc`, then click **OK**.
3. The Services dialog box appears.
4. Locate the service named **ClearOne Locator Service**.
5. Right-click ClearOne Locator Service and choose either **Start** (if it's available) or **Restart** (if Start is unavailable).

Viewing Equipment Information

You can view the following details about the devices in a stack:

- Device Name
- Firmware
- Product Type
- Serial Number
- Which device in a stack you are connected to

You can also:

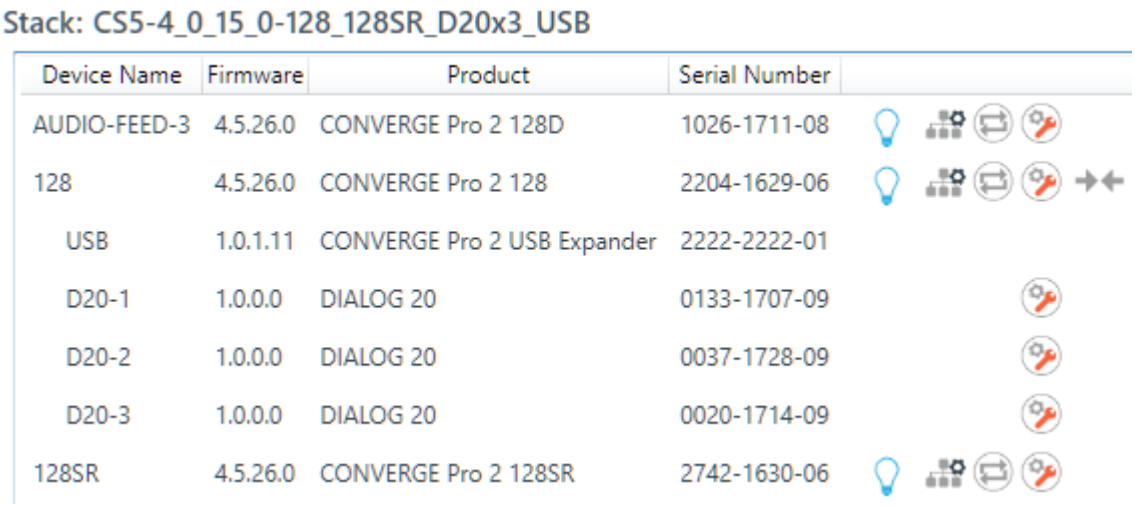
- Locate a device
- See a device's network information
- Reset a device
- Change device settings

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*.
2. In the Navigation Panel, under Stack, 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

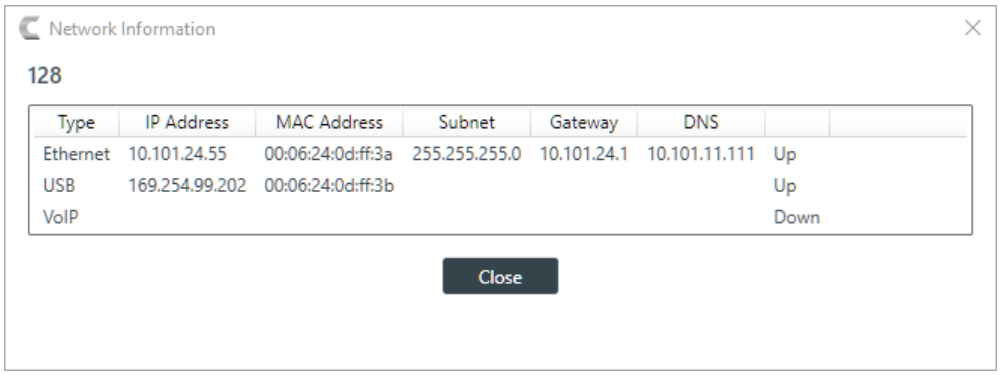
3. To locate a particular device by causing its Locate LED light to blink, click next to that device.

   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:



5. Click **Close** to close the Network Information dialog box.

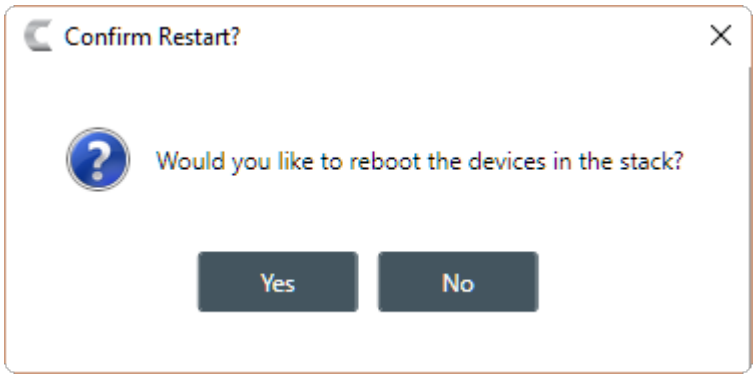
Change Device Settings

6. To change the device settings for a device, click next to that device.

   The Device Settings dialog box for that device appears. See *Changing Device Settings - General*, *Changing Device Settings - GPIO*, *Changing Device Settings - VoIP Stack*, *Changing Device Settings - VoIP Phones*, *Changing Device Settings - Skype for Business Stack*, or *Changing Device Settings - Skype for Business Phones* for more information.

7. To restart all the devices in a stack, click next to a device.

   The Confirm Restart dialog box appears:



8. To restart 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* for more information.

Retrieving Log Files

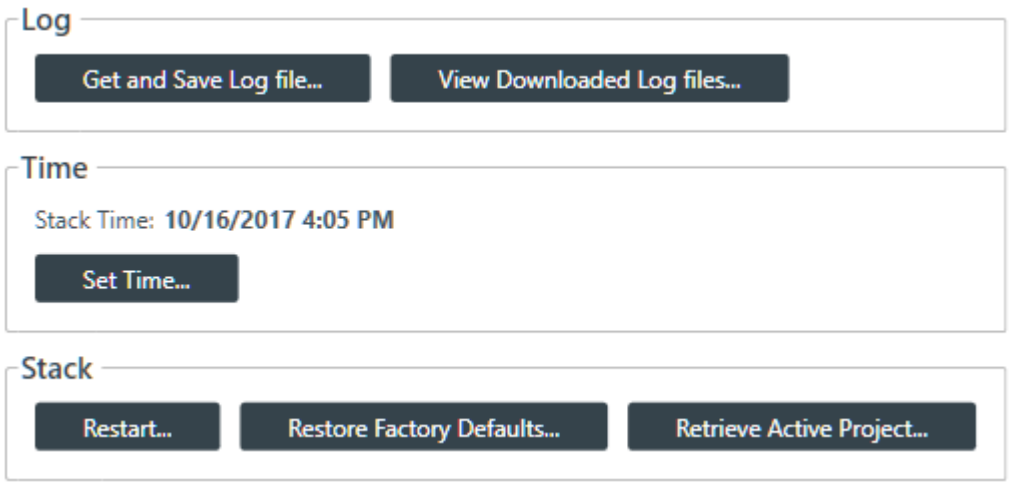
You can retrieve the log files from a stack and save them to your computer. You can use the in-application Log Viewer tool to view the device logs (see *Using the Log Viewer* for more information).

To get and save the log files:

1. If you have not already done so, connect to a stack.

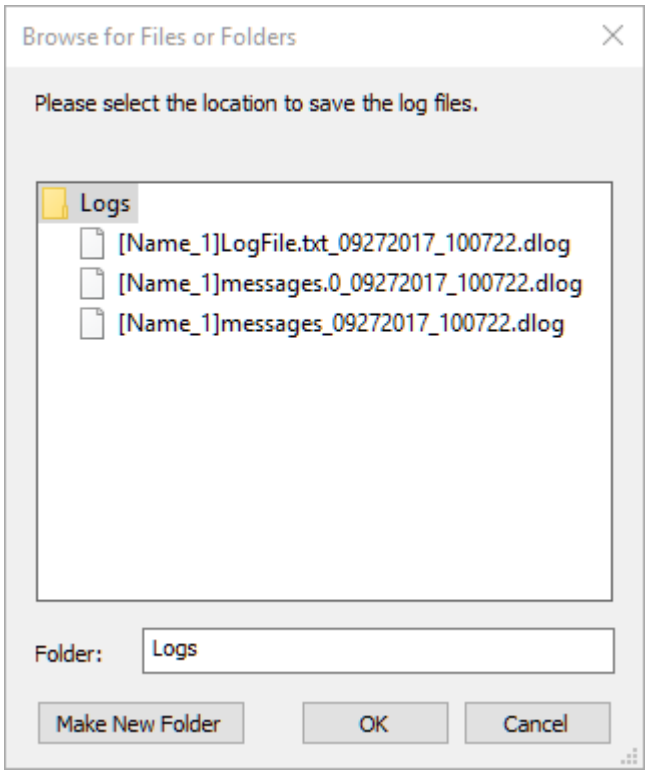
   For more information about connecting to a stack, see *Connecting to a Device or Stack*.
2. Under **Stack**, select **Admin**.

   The Admin screen appears:



3. Under **Log** in the **Admin** screen, click **Get and Save Log file**.

   The Browse for Files and Folders dialog box appears:



4. Using the Browse dialog box, 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 Make 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 **View Downloaded Log files** button.

   For more information about viewing log files, see *Using the Log Viewer*.

Setting the Stack Time

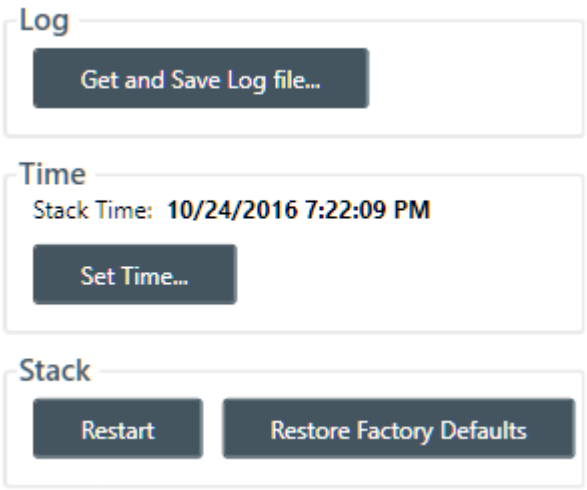
You can set the time for a stack.

To set the time for a stack:

1. If you have not already done so, connect to a stack.

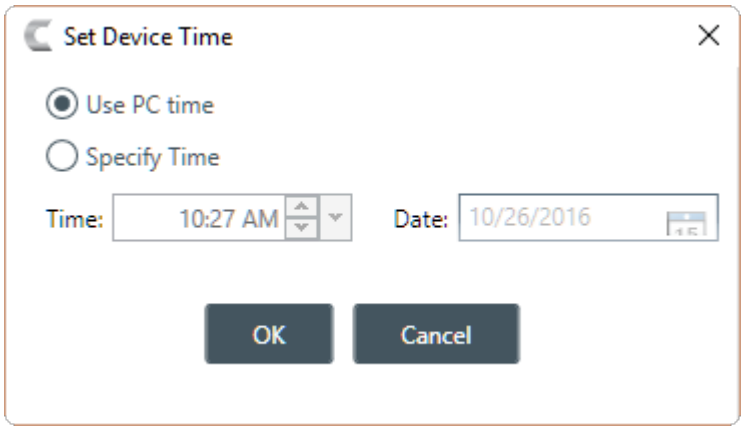
   For more information about connecting to a stack, see *Connecting to a Device*.
2. Under **Stack**, select **Admin**.

   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

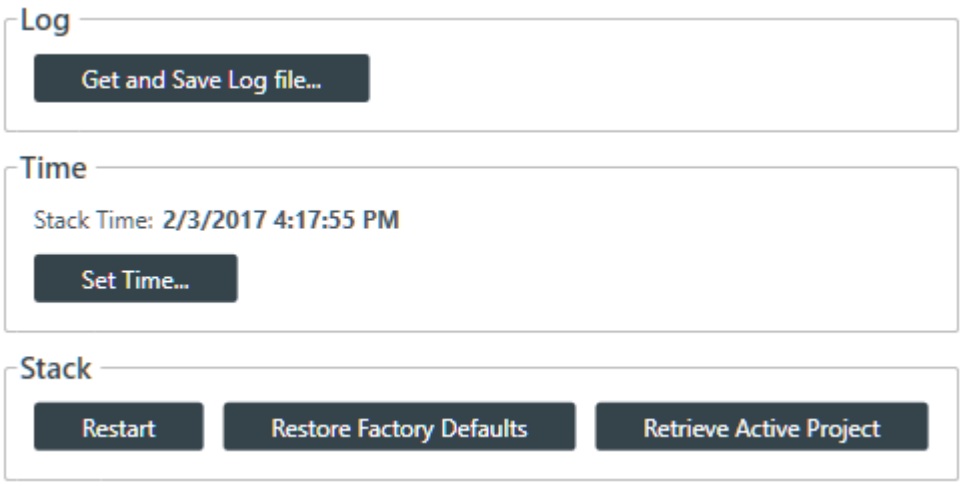
You can restart all the devices in a stack.

To restart a stack:

1. If you have not already done so, connect to a stack.

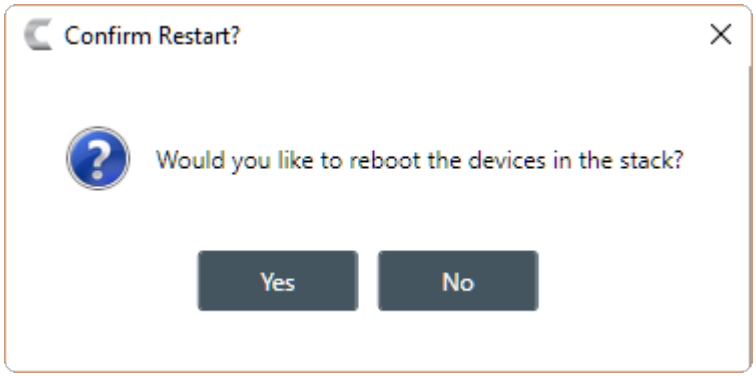
   For more information about connecting to a stack, see *Connecting to a Device*.
2. Under **Stack**, select **Admin**.

   The Admin screen appears:



3. Under **Stack** in the Admin screen, click **Restart**.

   The Confirm Restart dialog box appears:



4. To restart 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* for more information.

   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* for more information.

Restoring a Stack to Factory Defaults

You can restore all the devices in a stack to factory defaults.

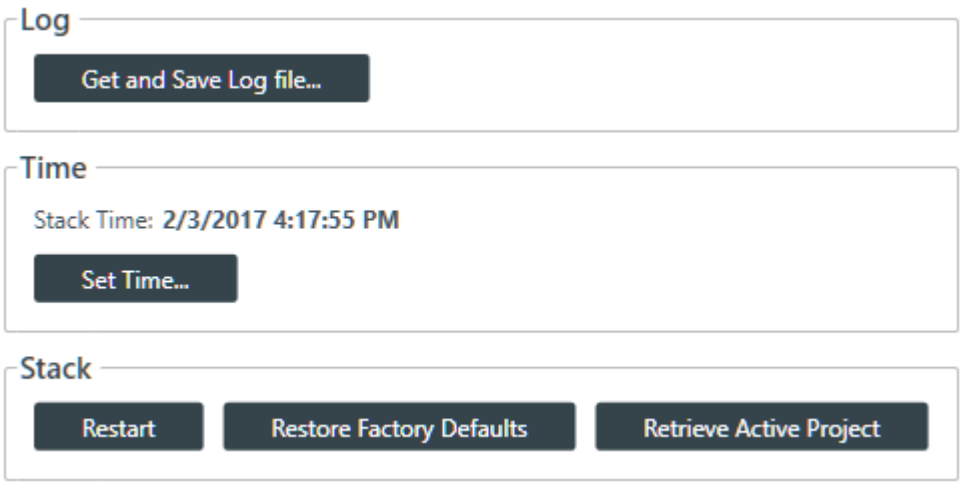
To restore all the devices in a stack to factory defaults:

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*.

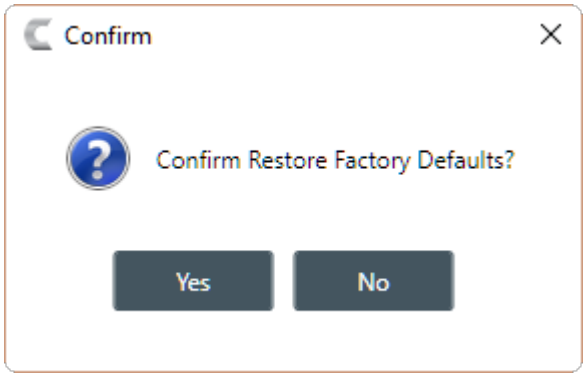
2. Under **Stack**, select **Admin**.

   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 device removes all settings you have configured for the device.

   You are disconnected from the stack, and all devices in the stack are restored to their factory defaults.

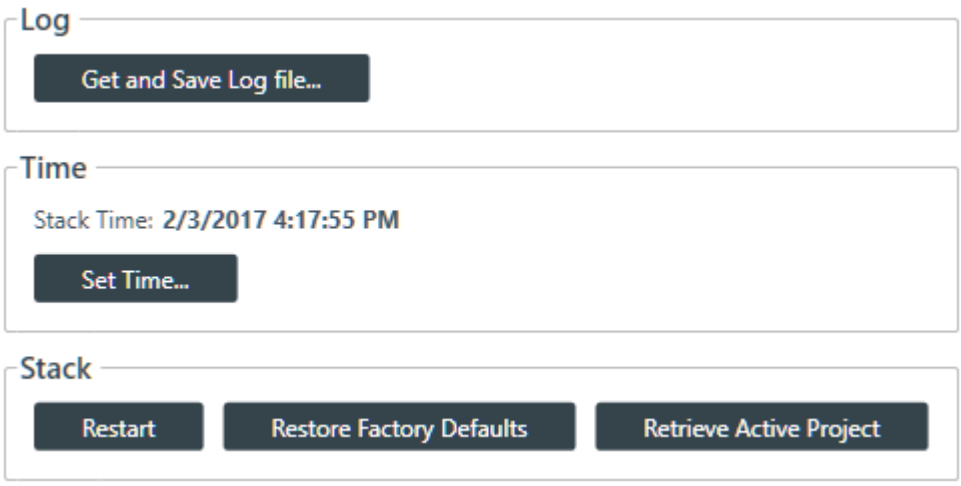
Retrieving Active Project

You can retrieve the project information from the stack and save it to your computer.

To retrieve the active project:

1. If you have not already done so, connect to a device or stack.
2. Under **Stack**, choose **Admin**.

   The Admin screen appears:



3. Click **Retrieve Active 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**.

Downloading Updates

You can check for available updates, such as firmware, documentation updates, and software installation files, and download them to your computer.

Note:

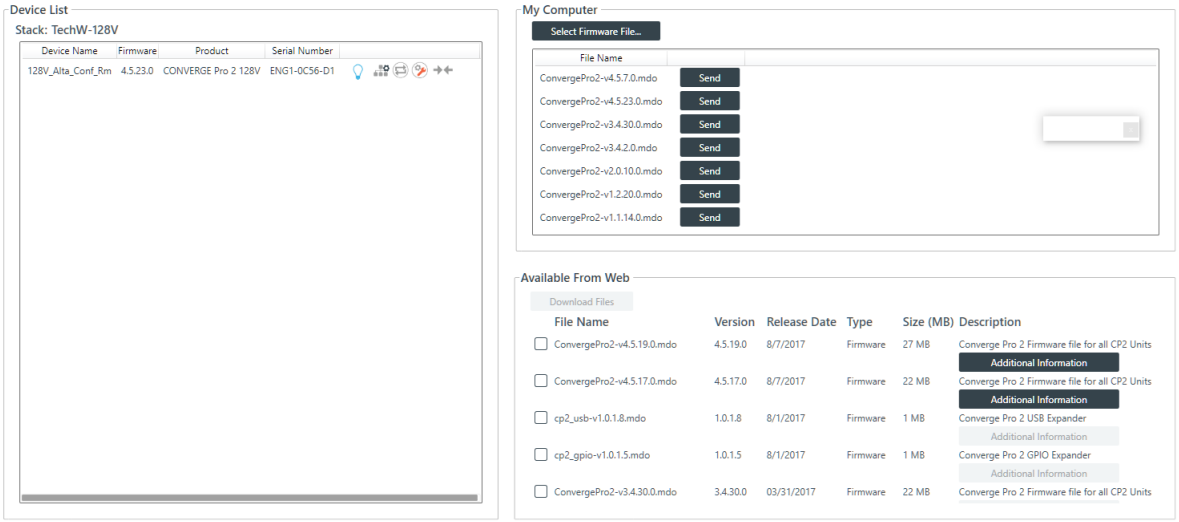
Your computer must be connected to the Internet to use this feature.

To check for and download updates:

1. If you have not already done so, connect to a stack.

   For more information about connecting to a stack, see *Connecting to a Device or Stack*.
2. In the Navigation Panel, under **Stack**, select **Firmware**.

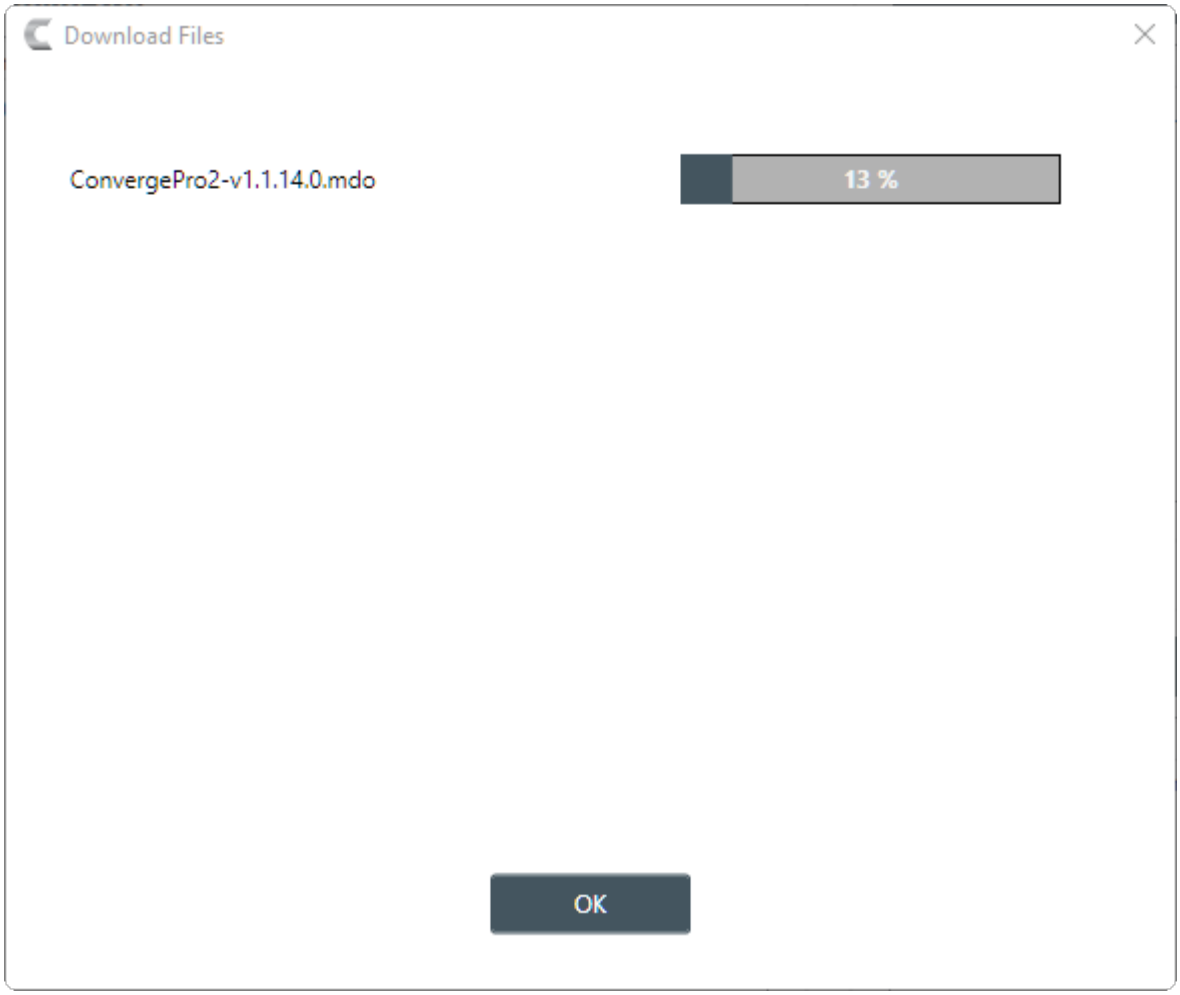
   The Firmware screen appears:



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 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: <current_windows_user_folder>\Documents\ClearOne\CP2_Console\Updates.

Updating the CP2 Device Firmware

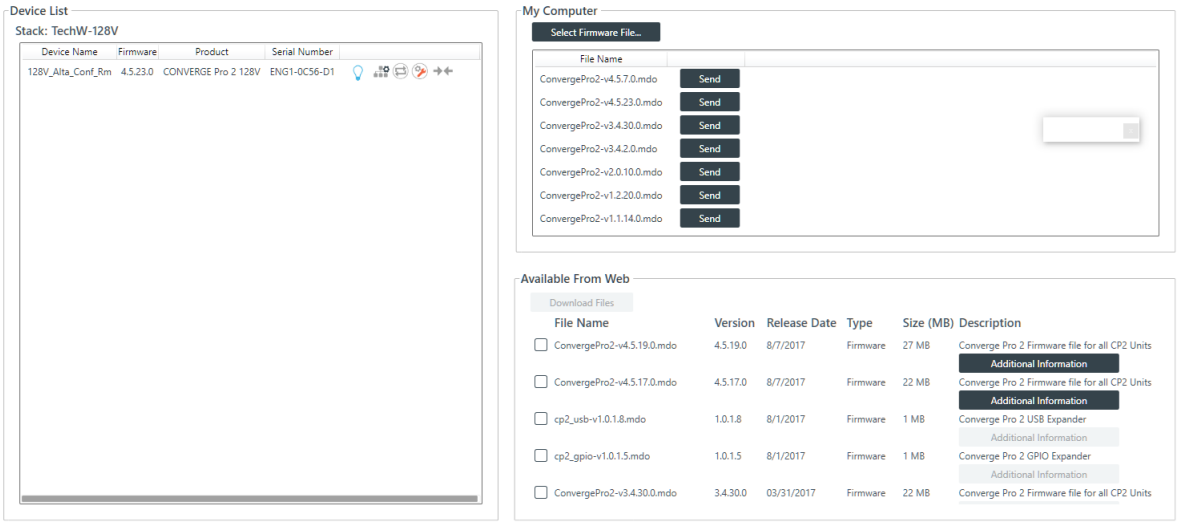
Periodically, ClearOne releases firmware updates to improve device performance. You can download firmware updates from within the CONSOLE (see *Downloading Updates*) and then you can update the device firmware.

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*.
2. In the Navigation Panel, under **Stack**, select **Firmware**.

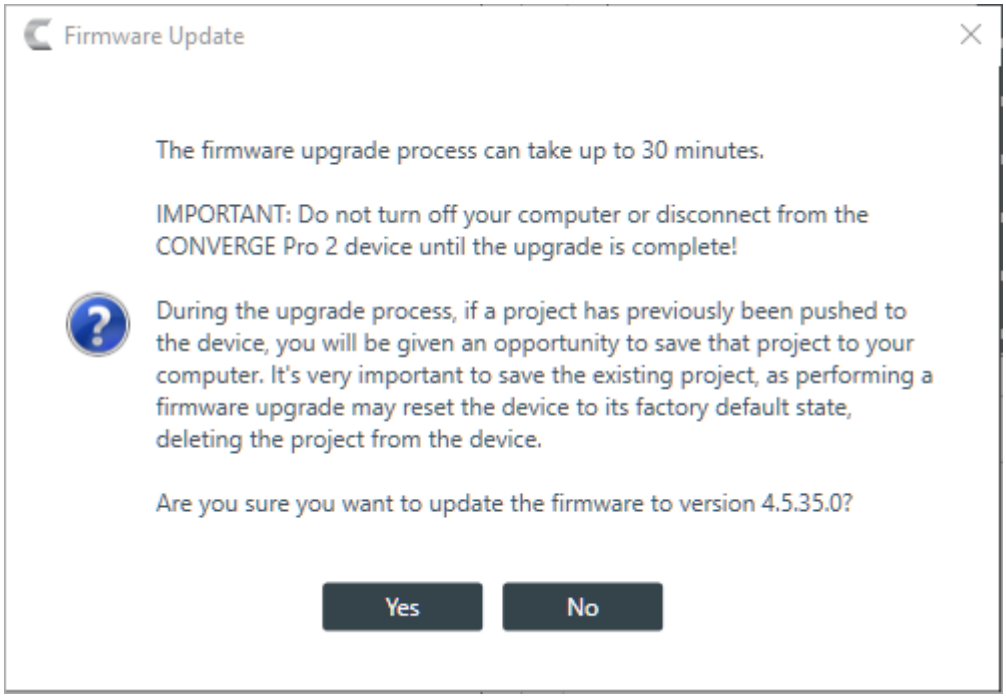
   The Firmware screen appears:



   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**.

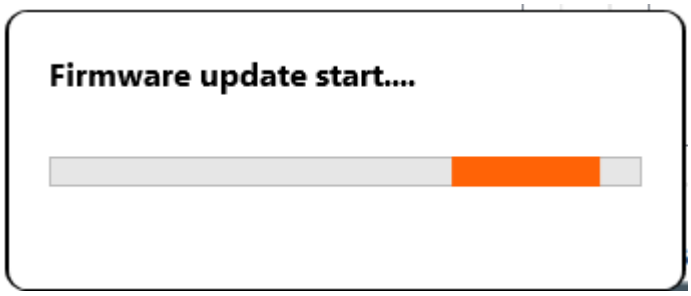
   The selected firmware now appears in the My Computer list.
5. Click the **Send** button next to the firmware file you want to send to the device.

   The Firmware Update dialog box appears:

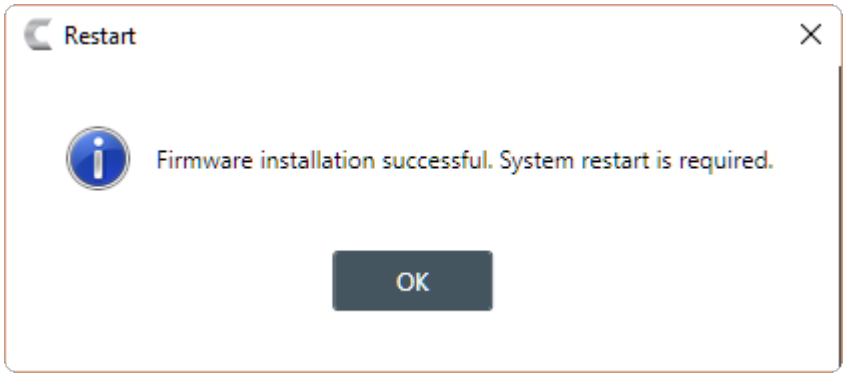


6. Click **Yes** to update the firmware using the file you selected.

The Firmware Update dialog box appears:



One the update is complete, the Restart dialog box appears:



7. Click **OK**.

   The device restarts and you are disconnected.

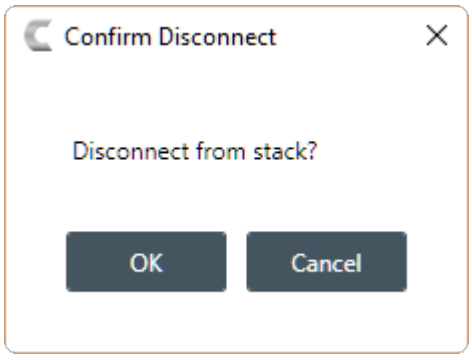
Disconnecting from a Stack

You can disconnect from a stack to which you are connected.

To disconnect from a stack:

1. Click on the toolbar.

   The Confirm Disconnect dialog box appears:



2. Click **OK** to disconnect from the stack.

Chapter 9

Project - Live

Topics:

This chapter contains information about seeing project file status and pushing project files to a device.

Note:

The options described in this chapter are accessible only when the CONVERGE Pro 2 CONSOLE application is in Live mode. See *Live Mode vs. Project Mode* for more information.

Viewing Active Project Information

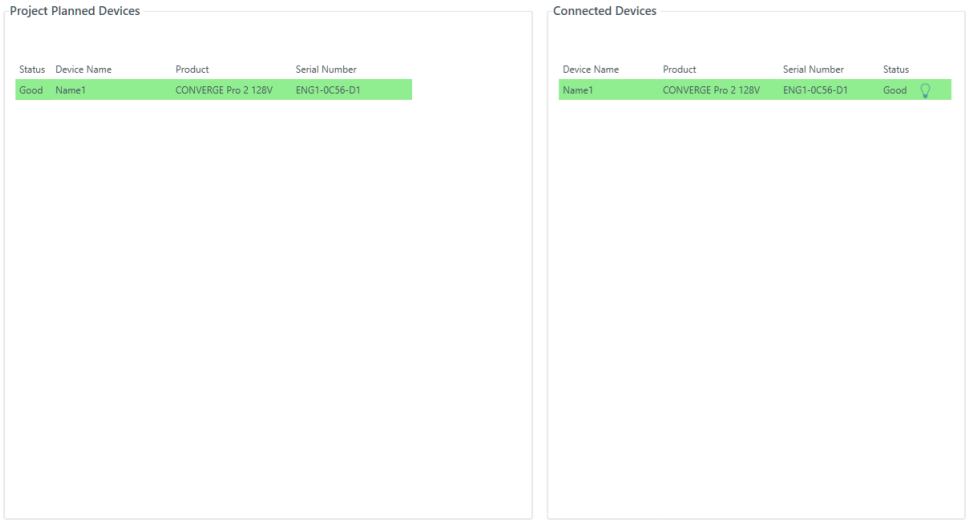
You can view details about the active project.

To view active project information:

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*.
2. Under Project, select Active.

   The Active Project screen appears:



   On this screen, you can view the details about the active project and the device with which it is associated.

Loading a Project File to a Device or Stack

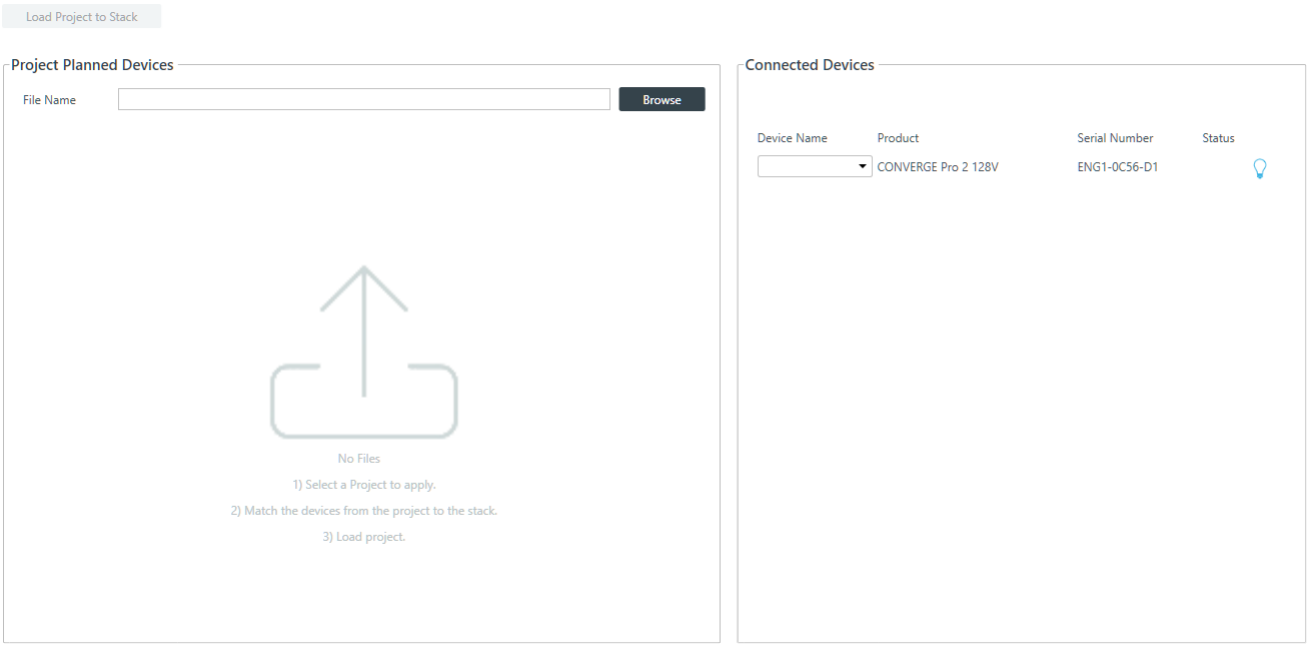
Before a CONVERGE Pro 2 device can function, it must have a project file loaded. Once you have configured project settings, you can load a project file to the device or stack.

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*.
2. In the Navigation Panel, under **Project**, select **Load**.

   The Project Load screen appears:

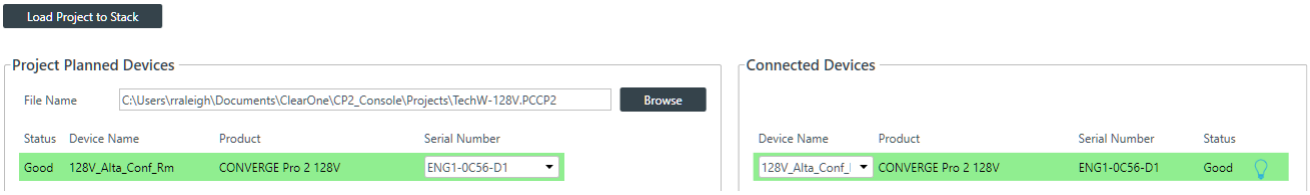


3. To choose a project file, click **Browse**.

   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.

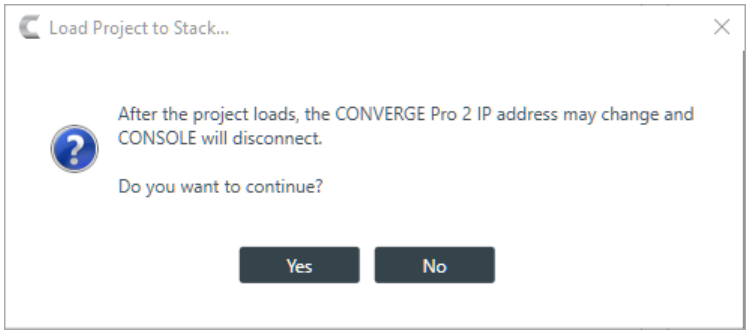
   Note:

   The device name is set using the device settings. See *Changing Device Settings - General* 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:



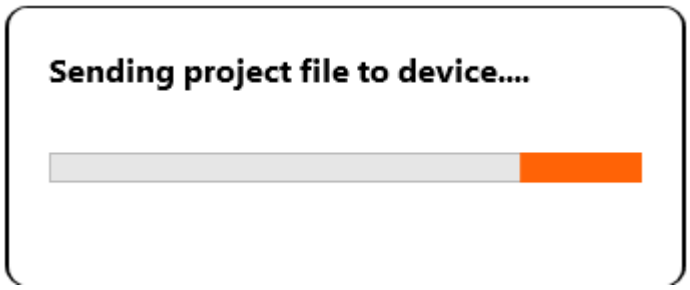
7. Click **Load Project to Stack**.

   If the project includes an IP address change, the following warning appears:



8. Click **Yes** to continue.

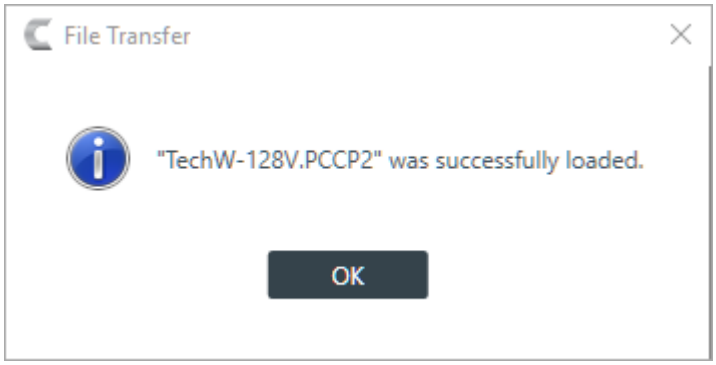
The Sending Project File status dialog box appears:



Note:

Loading a file to a device or stack takes several minutes per device, so larger stacks can take substantially longer to load.

If the file is loaded successfully, a dialog box appears to notify you of the successful transfer:



9. Click **OK**.

Loading Project Changes to a Device

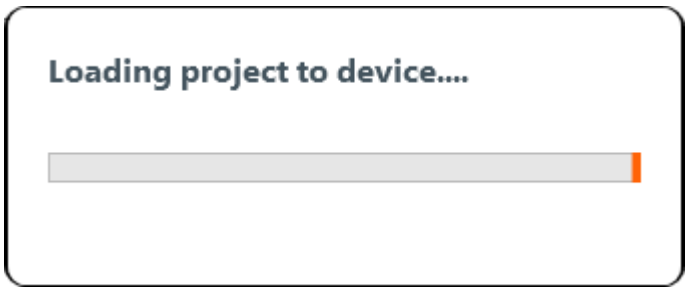
When you are in Project mode, you can load any changes you have made while in Project mode to a connected device.

To load project changes to a device:

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*.
2. Switch to one of the Project modes (see *Choosing Interface Modes* for more information).
3. Make any changes you'd like in Project mode.
4. Click in the Toolbar to load any project changes you've made to the connected device.

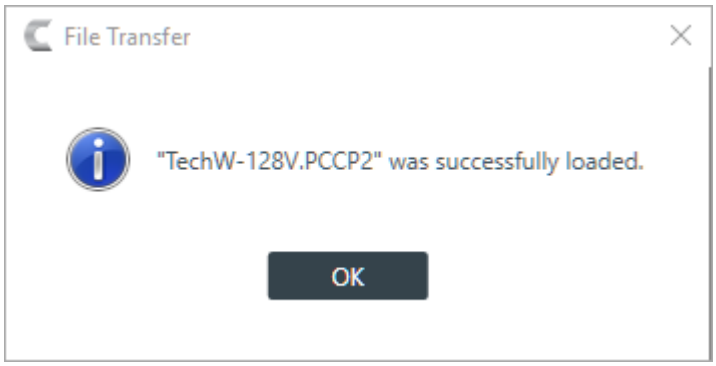
   The Loading project file to device status box appears:



Note:

Loading a file to the device could take several minutes.

If the file is loaded successfully, a dialog box appears to notify you of the successful transfer:



5. Click **OK**.

Syncing Device Settings to the CONSOLE

When you are in Live mode, you can make changes to attached devices. However, those changes are not reflected in the project settings in the CONSOLE application. To synchronize the Project mode project settings so that they are the same as the Live mode project settings, use Sync to Project.

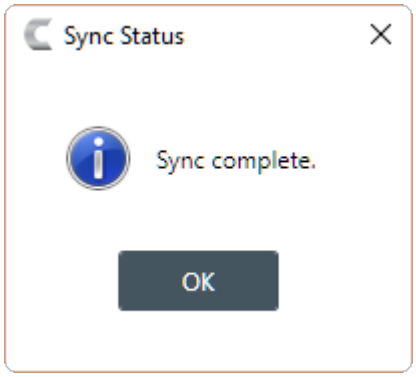
For more information about the relationship between Live mode, Project mode, and saved project settings, see About Projects.

To sync Live mode project settings to Project mode project settings:

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*.
2. If you have not already done so, switch to any of the Live modes (Administrator, Dashboards, or Expanded Live; see Choosing Interface Modes for more information).
3. Make any changes you want to device settings while in Live mode.
4. Click on the Toolbar to synchronize the settings from the device to the Project mode project settings.

   When the settings have been synchronized, the Sync Status dialog box appears:



5. Click **OK**.

Turning on Safety Mute

To protect against damage to audio assets, you can turn on Safety Mute to mute all connected channels.

To turn on Safety Mute:

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.

Saving a Project

When you are in Project mode, 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. If you are in one of the Project modes (Project, Adv. Project, or Expanded Project), click (Save) on the toolbar to save any changes under the existing name and location.

   Note:

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

2. If you are in one of the Project modes (Project, Adv. Project, or Expanded Project), click (Save As) on the toolbar to save any changes under a different name and/or location.

Chapter 10

Room Control - Live

Topics:

This chapter contains information about performing control actions, such as running macros and timers, executing GPIO pin actions and triggers, and executing presets.

Note:

The options described in this chapter are accessible only when the CONVERGE Pro 2 CONSOLE application is in Live mode. See *Live Mode vs. Project Mode* for more information.

Running a Macro

You can run macros from the CONSOLE when it's in one of the live modes. For more information about macros, see *About Macros*. For more information about creating macros, see *Adding Macros* and *Recording Macros*. For more information about interface modes, see *About Interface Modes*.

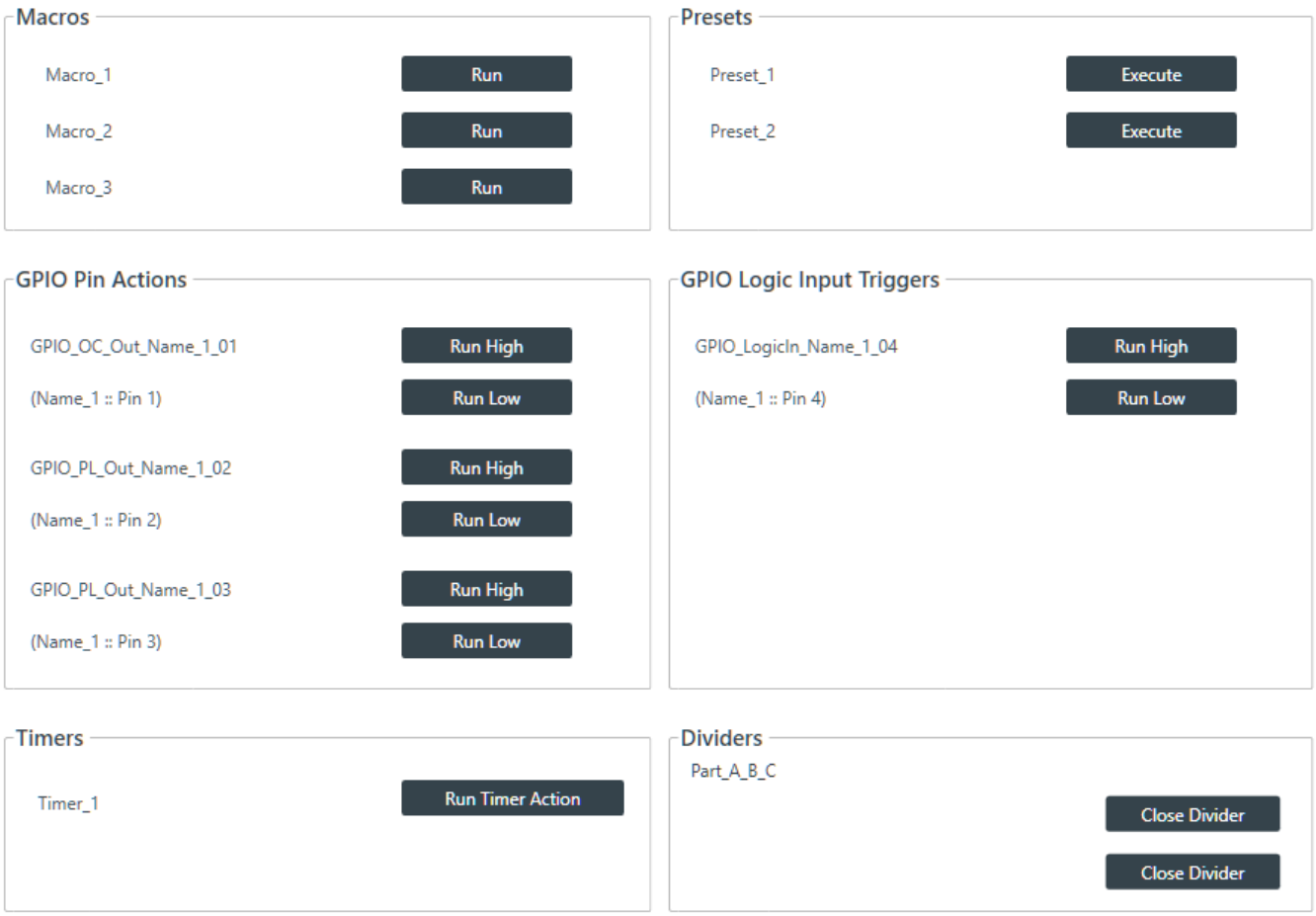
To run a macro:

1. Connect to a device.

   See *Connecting to a Device or Stack* for more information.
2. Be sure you're in Control Panel mode.

   See *Choosing Interface Modes* for more information.
3. From the Navigation Panel, under **Room Partitions**, choose **Control**.

   The Control screen appears:



   All available macros appear in the Macros section of the screen.
4. Click **Run** next to the macro you want to run.

Executing GPIO Pin Actions and Logic Input Triggers

You can run execute GPIO pin actions and logic input triggers from the CONSOLE when it's in one of the live modes. For more information about defining GPIO input triggers and output pin actions, see *Setting GPIO Logic Input Triggers* and *Setting GPIO Logic Output Pin Actions*. For more information about interface modes, see *About Interface Modes*.

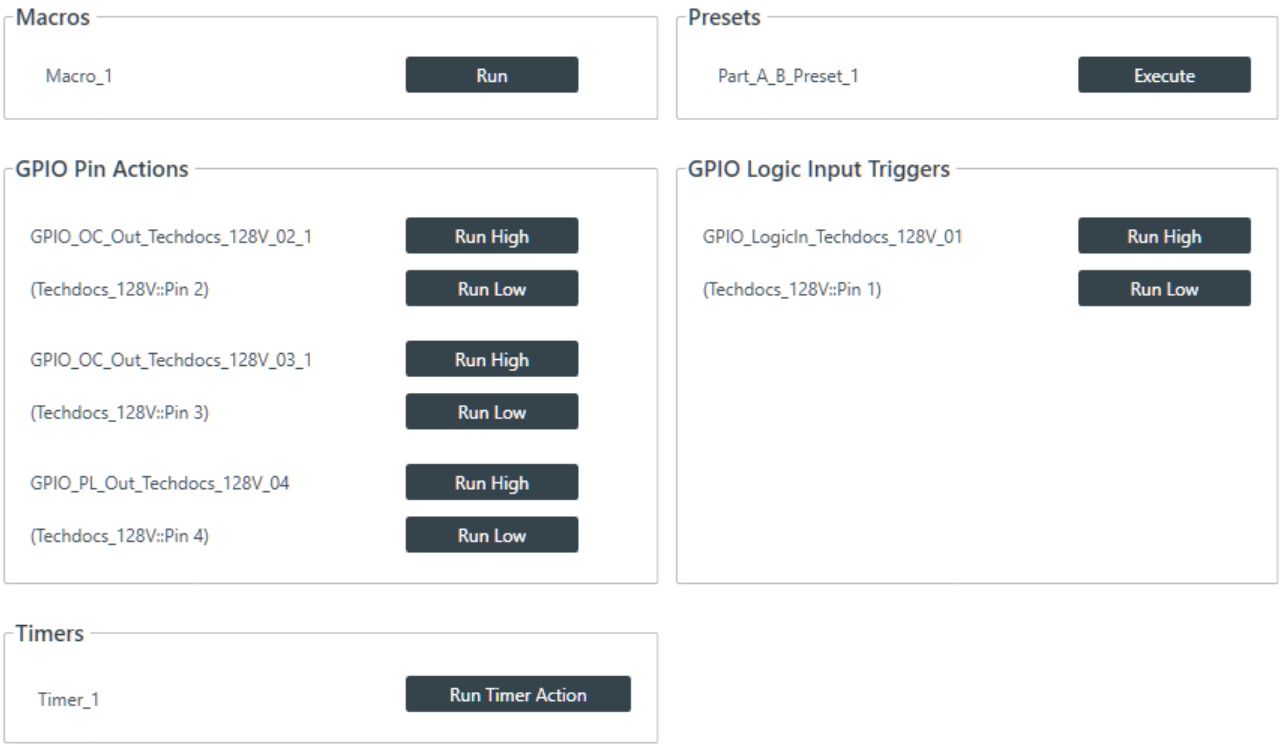
To execute GPIO pin actions and logic input triggers:

1. Connect to a device.

   See *Connecting to a Device* for more information.
2. Be sure you're in Control Panel mode.

   See *Choosing Interface Modes* for more information.
3. From the Navigation Panel, under **Room Partitions**, choose **Control**.

   The Control screen appears:



   All available GPIO pin actions appear in the GPIO Pin Actions section of the screen and logic input triggers appear in the GPIO Logic Input Triggers section of the screen.
4. Click **Run Hight** or **Run Low** next to the action or trigger you want to run.

Running a Timer

You can run timers from the CONSOLE when it's in one of the live modes. For more information about timers, see *About Timers*. For more information about creating timers, see *Adding and Modifying Timers*. For more information about interface modes, see *About Interface Modes*.

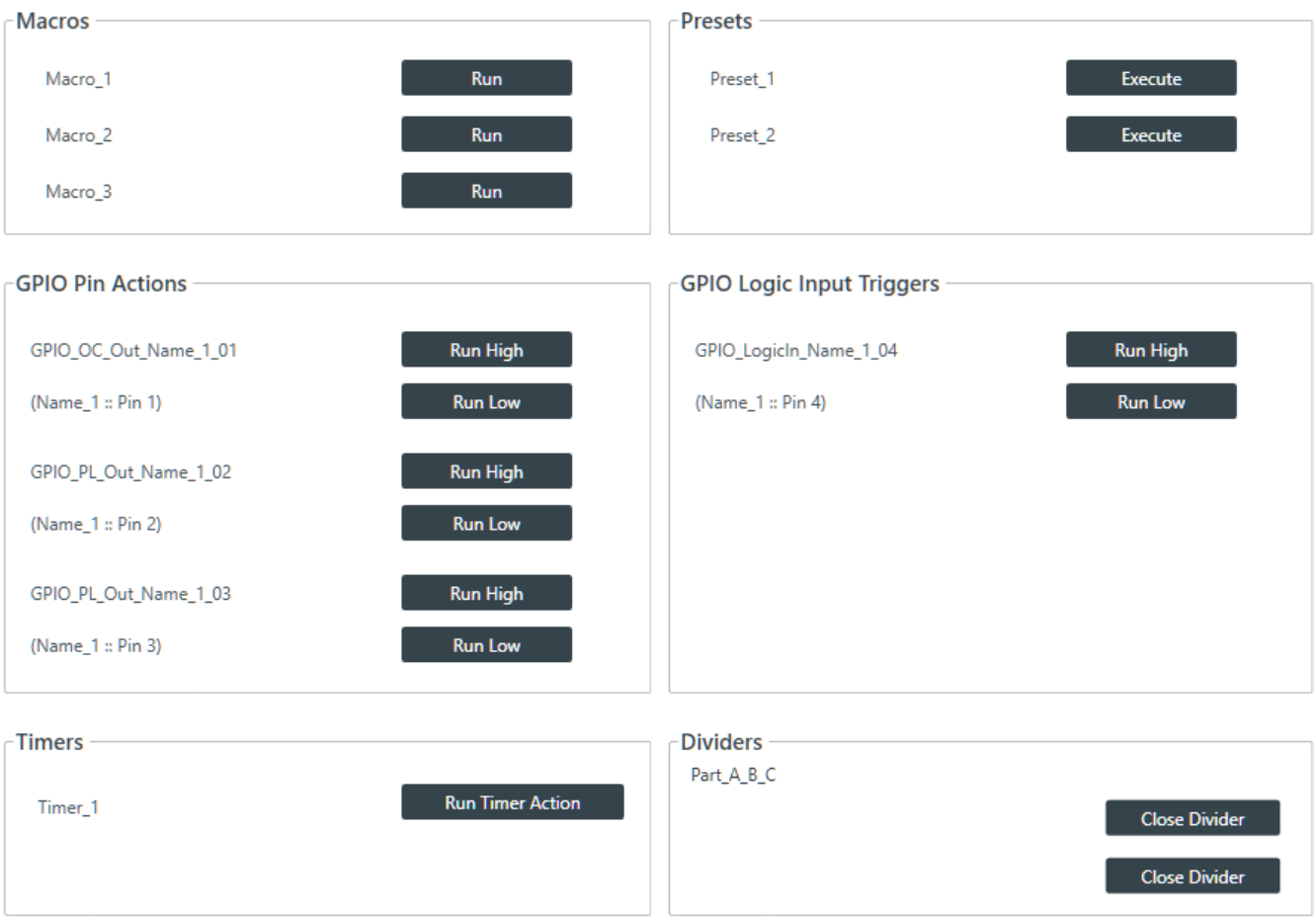
To run a timer:

1. Connect to a device.

   See *Connecting to a Device or Stack* for more information.
2. Be sure you're in Control Panel mode.

   See *Choosing Interface Modes* for more information.
3. From the Navigation Panel, under **Room Partitions**, choose **Control**.

   The Control screen appears:



All available timers appear in the Timers section of the screen.

4. Click **Run Timer Action** next to the timer you want to run.

Executing a Preset

You can execute presets from the CONSOLE when it's in one of the live modes. For more information about presets, see *About Presets*. For more information about creating presets, see *Adding or Modifying Presets*. For more information about interface modes, see *About Interface Modes*.

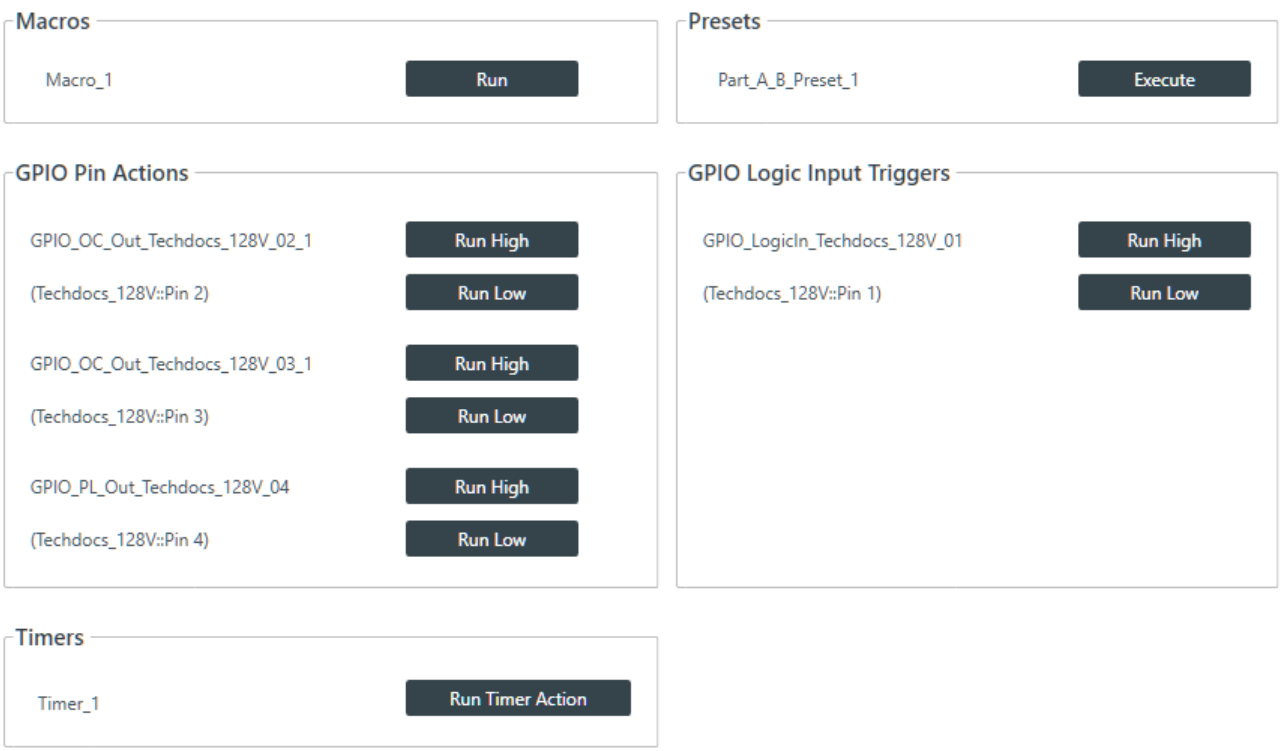
To execute a preset:

1. Connect to a device.

   See *Connecting to a Device* for more information.
2. Be sure you're in Control Panel mode.

   See *Choosing Interface Modes* for more information.
3. From the Navigation Panel, under **Room Partitions**, choose **Control**.

   The Control screen appears:



All available presets appear in the Presets section of the screen.

4. Click **Execute** next to the preset you want to execute.

Closing a Divider

If you have created multiple partitions for a room, you can manually choose which partitions are active by closing the relevant dividers. If you are using GPIO logic input pins to control divider states, you can use these commands to override the GPIO-set divider states.

Note:

For more information about dividers and partitions, see *About Room Partitions*. For more information about using GPIO pins to set divider states, see the Change GPIO Settings section of *Adding Assets to a Partition*.

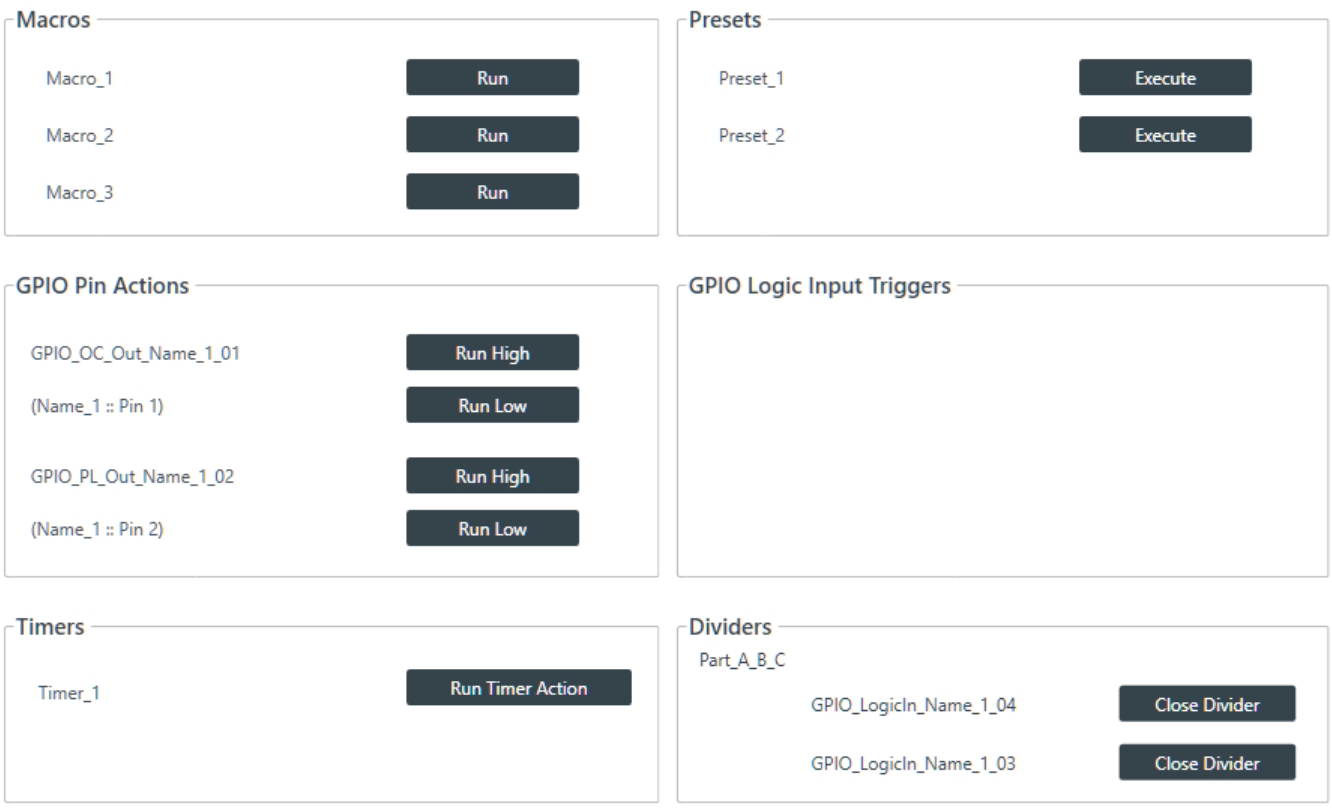
To run a macro:

1. Connect to a device.

   See *Connecting to a Device or Stack* for more information.
2. Be sure you're in Control Panel mode.

   See *Choosing Interface Modes* for more information.
3. From the Navigation Panel, under **Room Partitions**, choose **Control**.

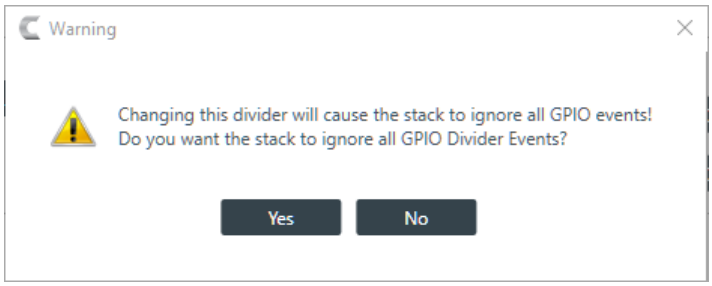
   The Control screen appears:



All available dividers appear in the Dividers section of the screen. In the example above, there are three partitions, which means that there are two dividers. If you have associated GPIO logic input pins with divider states, the name of the GPIO channel appears next to the divider button (see the Change GPIO Settings section in *Adding Assets to a Partition* for more information).

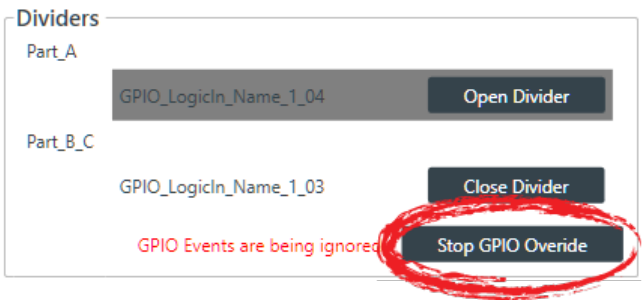
4. Click **Close Divider** next to the divider you want to close.

   Closed dividers appear in a gray box. If GPIO pins have been associated with divider states, you will receive the following warning message:



5. Click **Yes** to manually close the divider and temporarily turn of GPIO event detection.

   A new button appears that lets you turn of GPIO override:



6. Click **Stop GPIO Override** to open the divider and resume detection of GPIO events.

Chapter 11

Glossary

Topics:

Definitions of terms used in this manual.

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

The Beamforming Microphone Array 2 uses multiple microphone elements to steer its pickup pattern towards participants in the room and reject unwanted noise and reflections.

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.
- **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.
- **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.

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.

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.

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 will gate on according to the input level, assigned gating parameters, and gating group.
- Manual On. The microphone will gate 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 lets 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.

PEQ (Parametric Equalizer)

Definition here.

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. Projectfiles 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.

White Noise

Acoustical noise with equal energy throughout a given frequency range.

Contact Information

Headquarters

5225 Wiley Post Way

Suite 500

Salt Lake City UT 84116

US & Canada

Tel: 801.975.7200

Toll Free: 800.945.7730

Fax: 801.303.5711

International

Tel: +1.801.975.7200

Email: global@clearone.com

Sales

Toll Free: 800.283.5936

Tel: 801.975.7200

Email: sales@clearone.com

TechSupport

Tel: 801.974.3760

Email:
tech.support@clearone.com