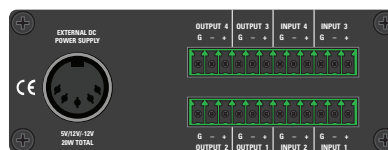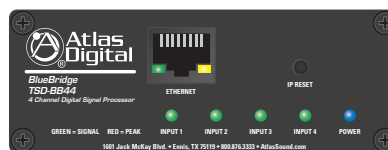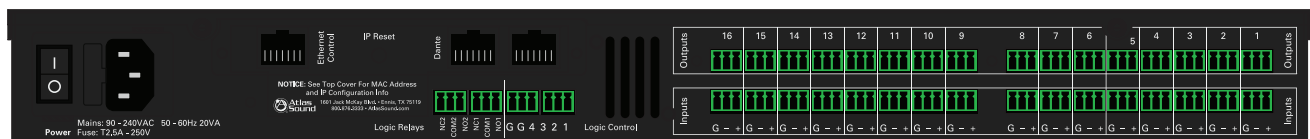# Atlas Digital

BlueBridge
Project Reference Guide

This is the Project Reference Guide for designing a project with BlueBridge software. BlueBridge projects or designs can be used for a variety of applications whether the design contains a few signal processing components for simple speaker processing applications or a collection of auto-mixers, matrix mixers, routers, and signal processing components for a sophisticated conference room or sound reinforcement application. BlueBridge hardware and software make it easy to design custom solutions for almost any audio application.

This reference guide explains the process for designing a project with BlueBridge software. The process includes the creation of system documents, the signal processing and distribution, and control to operate the system.

Load BlueBridge Designer software onto a compatible PC computer.

It is recommended to review the BlueBridge Quick Start Guide before launching the BlueBridge Design software.
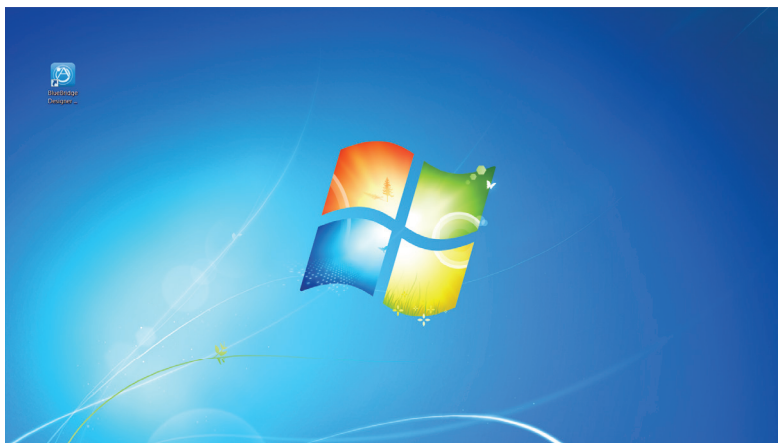

Identify the BlueBridge Designer icon on the desktop and launch the program.

When the BlueBridge Designer Startup screen appears, click on "New Design Project."

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FAX (800) 765-3435
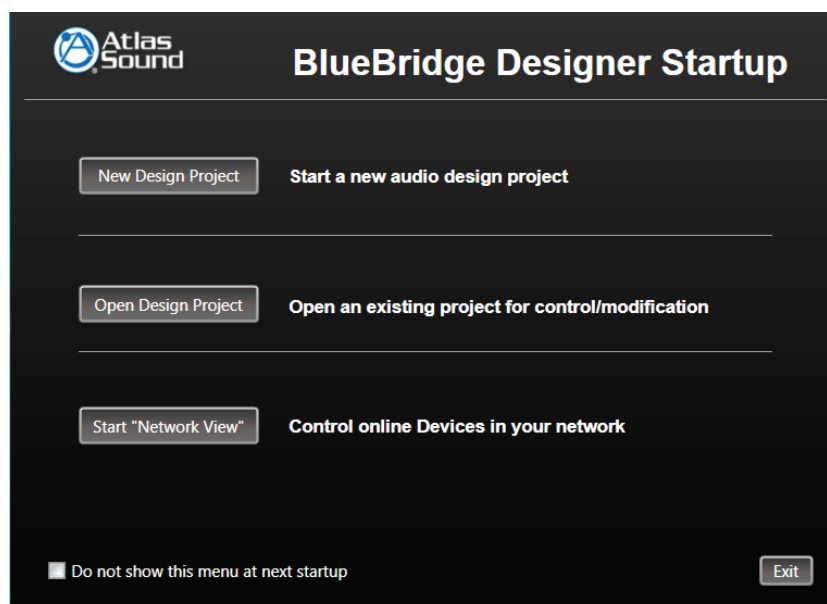
When New Design Project is selected a BlueBridge Designer Blueprint page will open to begin the new audio system design. The first step in our process is to create the system layout and diagram to be used for system documentation. Later in the guide we will learn how the layout can be used with the BluePrint feature as valuable tool for submittals or a guide for the installation team.
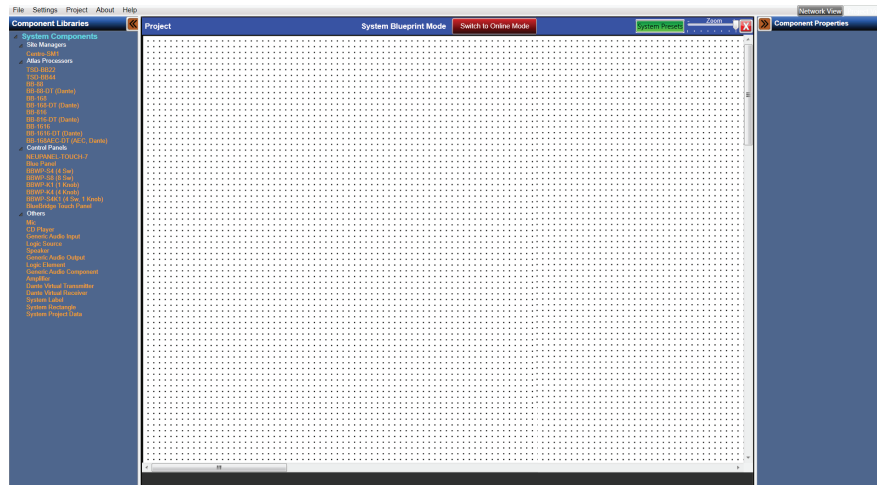
Located in the upper right corner of the window is the Network View button. When a computer is connected to the network, clicking on Project View will display all BlueBridge Hardware devices on the network and display their status.
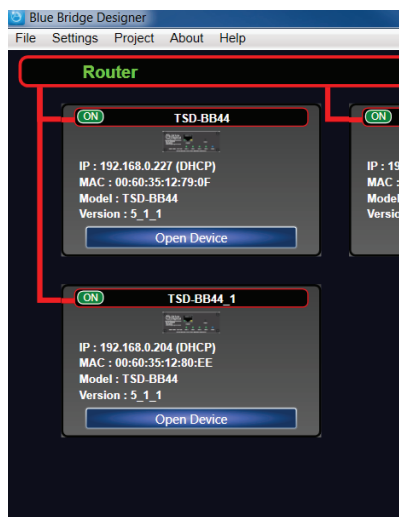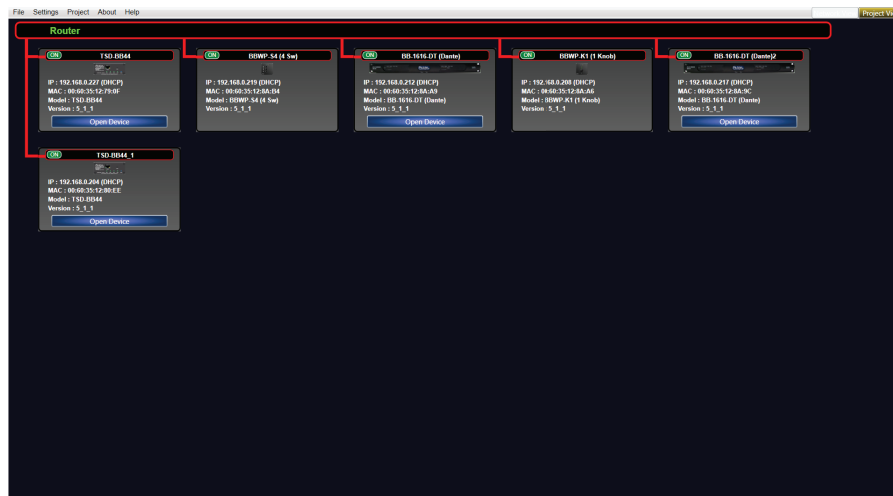
In this view all BlueBridge hardware residing on the network is shown. Information is displayed about each unit including IP address, MAC address, Model Number and Firmware version. The device box will also display the hardware status in the upper left corner with a green "ON" or a red "OFF" indicator to show if the units are on or off the network.

Network View Device settings can be changed. (See the Networking Reference Guide)

Located in the upper right corner of the window is the Project View button. Use this to toggle between the Project Design and the Network View.

We begin the design process in the Project View mode.

On the left side of the window is the Component Library pane. This is where all of the hardware blocks and design elements are found that can be included in a design to create a project.

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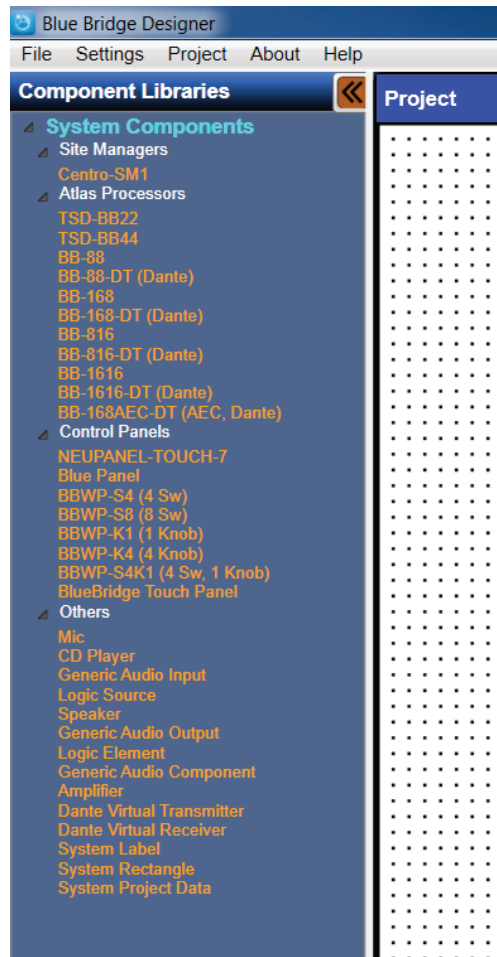
On the Right side of the window is the Component Properties Pane. This is where many functions in design customization are done and where resource usage are displayed as the project is built.
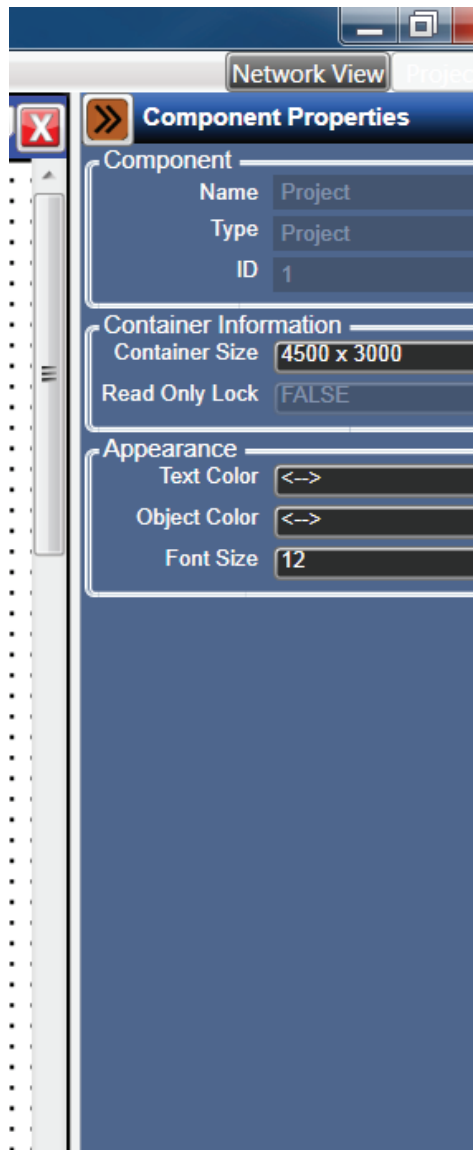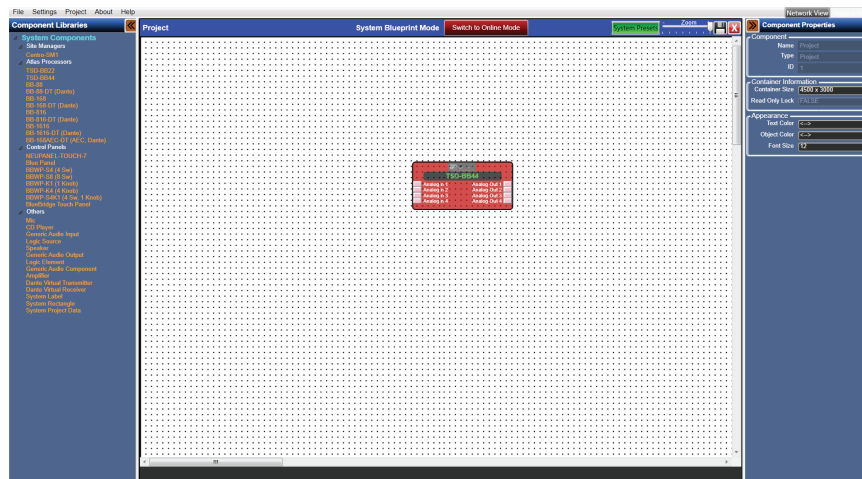

To start a BlueBridge Design Project place a DSP hardware block into the design grid.   Before starting a project and selecting the DSP hardware block it is important to understand the needs of the application, especially the input and output requirements.

With an understanding of the system requirements go to the Component Libraries and Select the Atlas Processor to be used for the Project. Left click+hold the DSP block needed for the design, drag and release onto the design grid.

It is a good idea to have an understanding of the audio system design needed for the project prior to starting.

In this example a TSD-BB44 is selected. (The TSD-BB44 is a four analog input and four analog output DSP device).

After a DSP hardware block has been placed on the design grid a project can be started. In our sample system a single DSP hardware block is used, but when required, a BlueBridge Design can include multiple DSP hardware and Control devices, including the Dante' Digital Audio Transport.

See the Dante' Reference Guide for more information.

The project for this example is a room combining application with two meeting rooms, a background music source and four microphone inputs per room. Two rooms can be combined for larger meetings with all inputs sent to both rooms. The Equipment Kit List will include:

1.   Atlas TSD-BB44 DSP (Qty-1)
2.   Atlas TSD-MIX41 Mixer (Qty-2)
3.   Atlas PA40G amplification (Qty-2)
4.   Atlas FAP42T ceiling speakers (Qty-8)

Control Devices will not be part of this Reference Guide. (See the Reference Guides for BluePanel and Wall Controls.

BlueBridge Designer has a unique feature that allows the designer to create a "one line" functional diagram called a BluePrint. The BluePrint, a graphical representation of the system, can be used for documentation, submittals, or used by an installation technician as a guide on the job site. The BluePrint page can include wire type, equipment names, locations, and include installation specific notes.

To begin the design, drag into the design grid a Generic Audio Component from the component Library to represent the TSD-MIX41.

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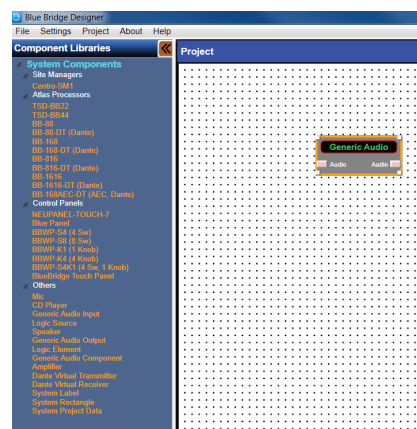
After dragging the Generic Audio Component Block into the grid, the block can be configured to match the inputs and outputs of the TSD-MIX41. Select the block, it will become highlighted in yellow and notice the component properties pane on the right will become active.
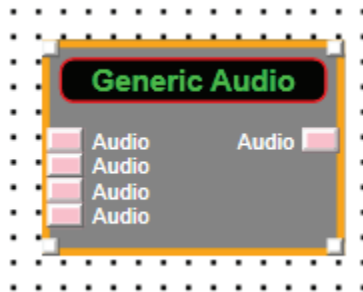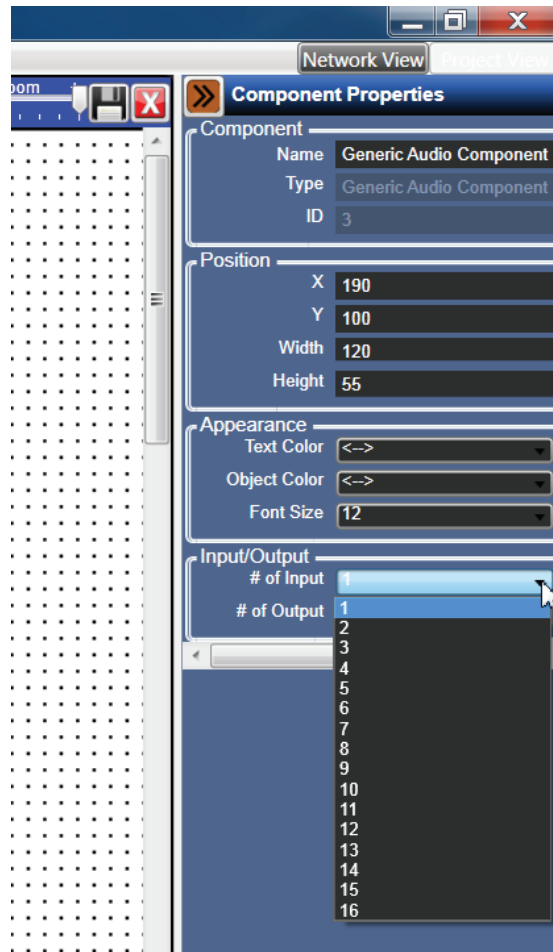

When the component properties pane is active changing the name of the component to TSD-MIX41 by typing the name into the Name field and set the number of inputs to four and outputs to one by using the drop down box.
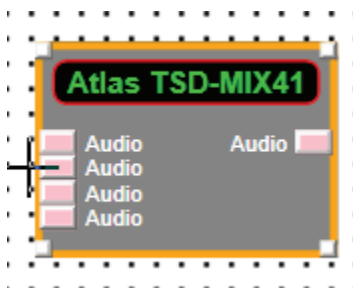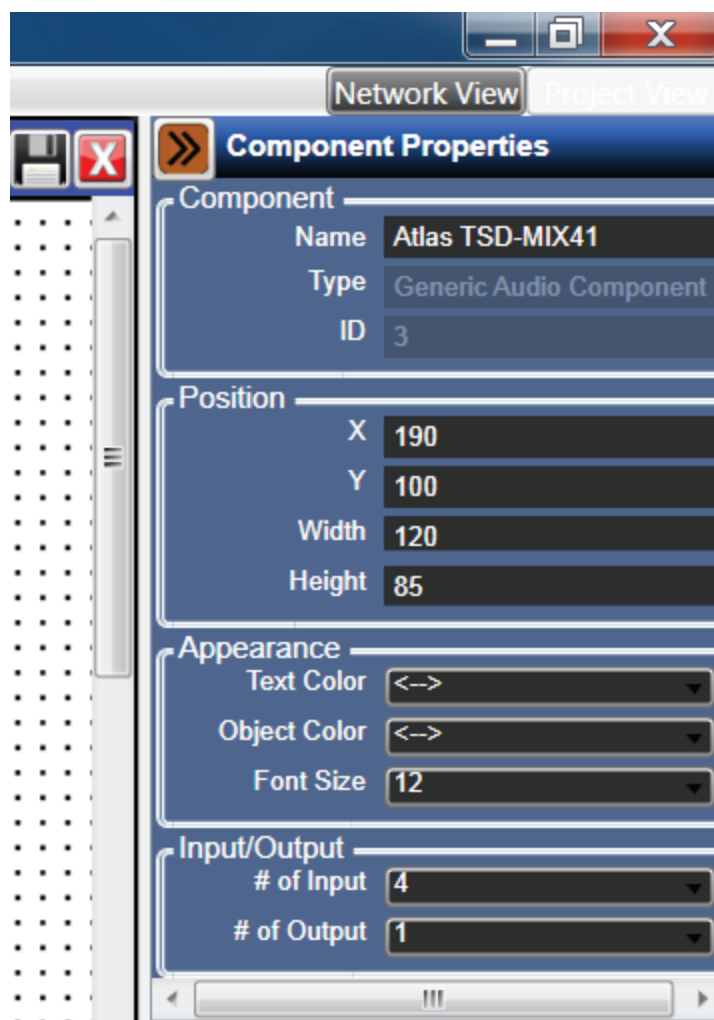
To add detail and define the input devices we can drag and drop a microphone onto the grid, highlight the block and change the name to indicate the type of microphone. The name field is adequate to permit extended names like Wired Lectern Microphone.

Drag and drop a microphone block onto the grid and rename it "Mic-1" or "Wireless Mic-1" and then using the standard commands to copy and paste add another block. When copy and paste the block it will automatically update the name to "Mic-2" or "Wireless Mic-2." Create four mic blocks for this sample system.

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Connect the Mic blocks to the TSD-MIX41 block by clicking+holding on a mic output and releasing on the input of the mixer. Fig. 12 shows the output of the Mic 1 block connected to the first input of the TSD-MIX41.
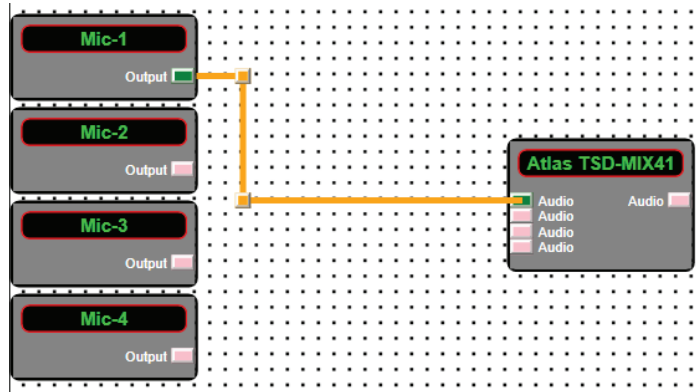
Repeat to complete the wiring for the 4 Mic blocks.
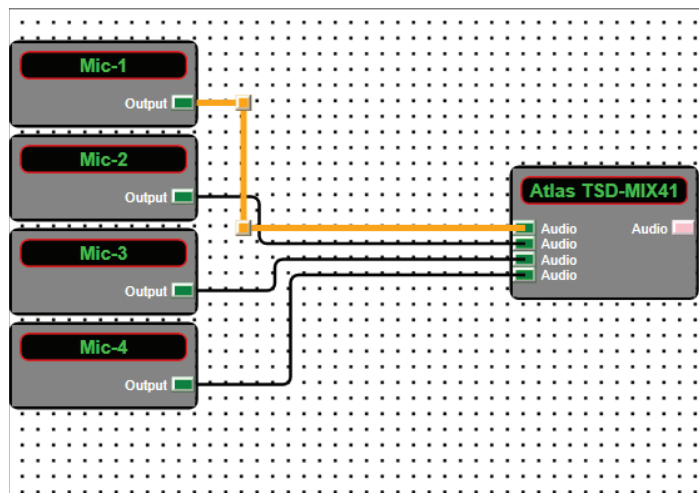
The auto wire function is quick and easy. Sometimes wire adjustment is necessary. This is done by selecting the wire. Select the wire by clicking on it and dragging a corner to the desired location. The cursor keys can also be used to move the wire after it has been selected.
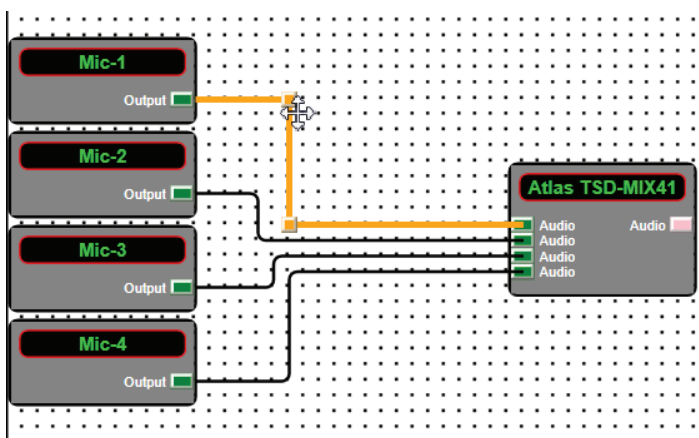

When finished there will be four Mic blocks wired to the TSD-MIX41. The entire group of blocks can be copied to add another TSD-MIX41 and required microphones.

Use the cursor to select the four microphones and mixer block. Copy and Paste the group of blocks using standard copy and paste commands.
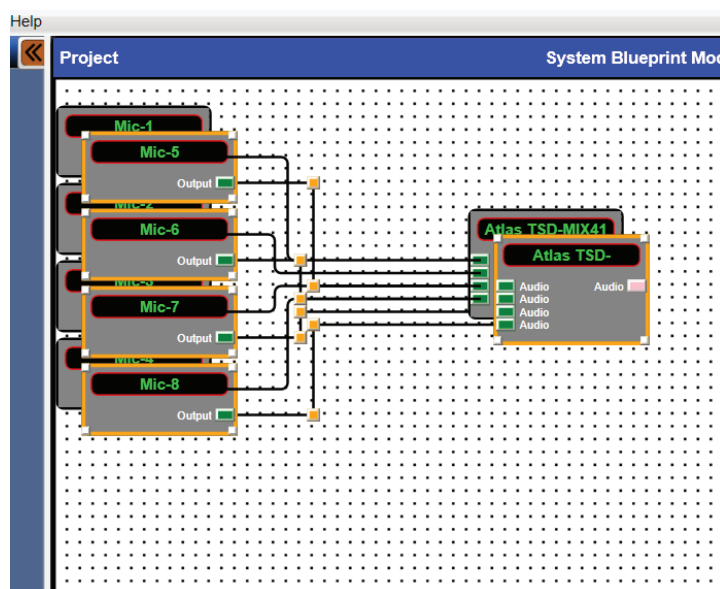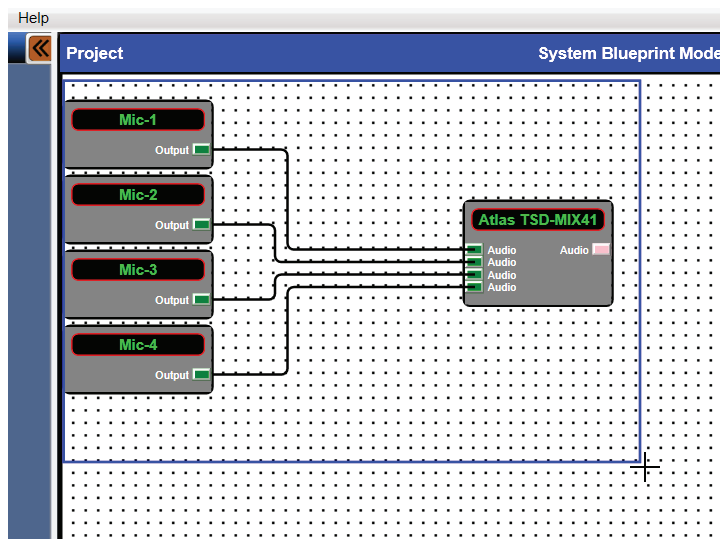
Now all eight microphones and both mixers with the correct numbering. Align the blocks to keep the grid organized and for a printing feature called BluePrint we discuss later.
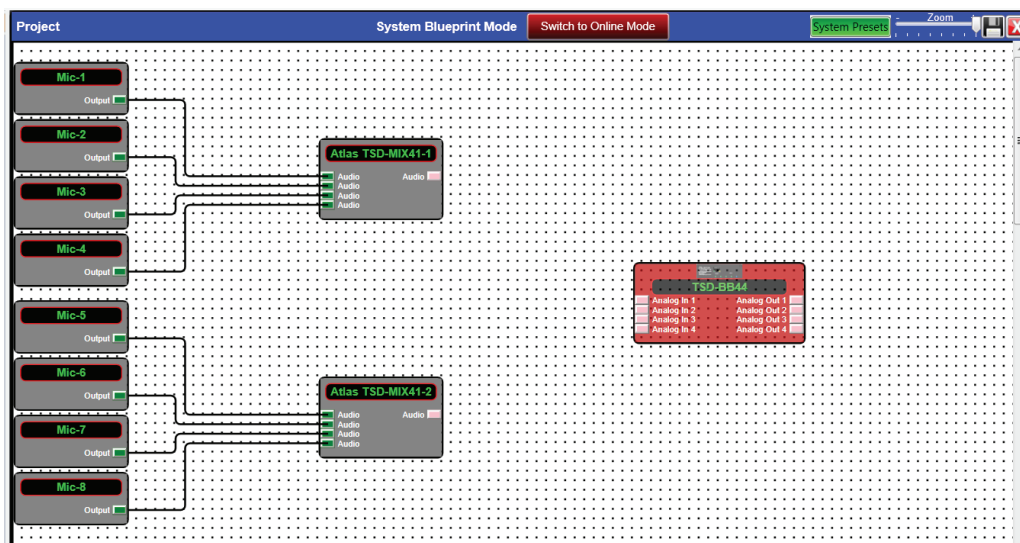
Add a Generic Audio Output, re-name the block to Background Music, change the number of outputs to two, and the last block of the front end of the audio system design have be created.
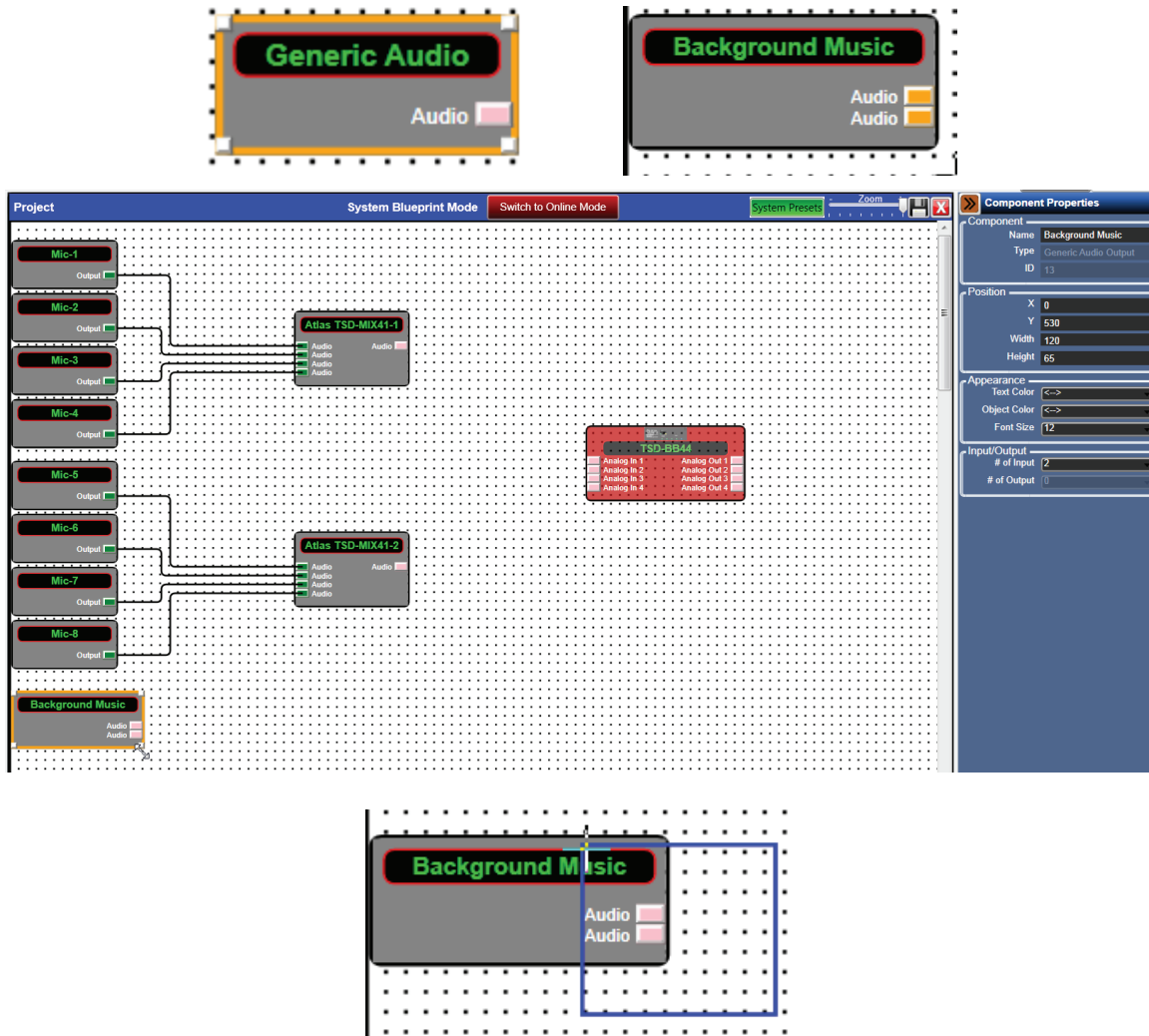

TIP – Multi-wire short cut: select both audio outputs click+hold on the Background Music Audio end-point and drag to the TDS-BB44 inputs 3 and 4 end-point nodes. This can be done with any quantity of wires with close endpoints.

Connecting the wires from the Background Music completes for the front end of our audio design. After making the connections, the wires can be adjusted for naming and labeling.
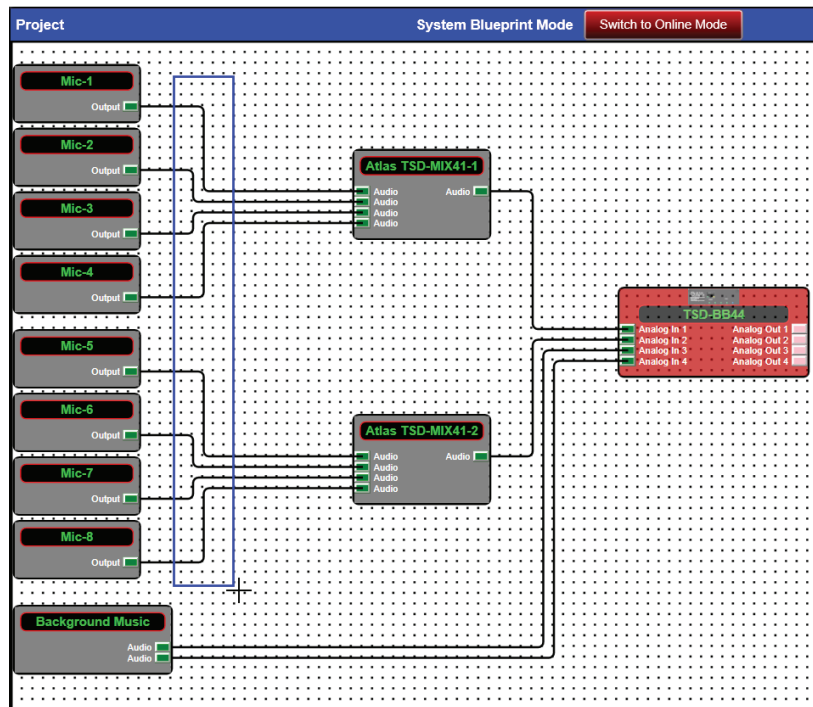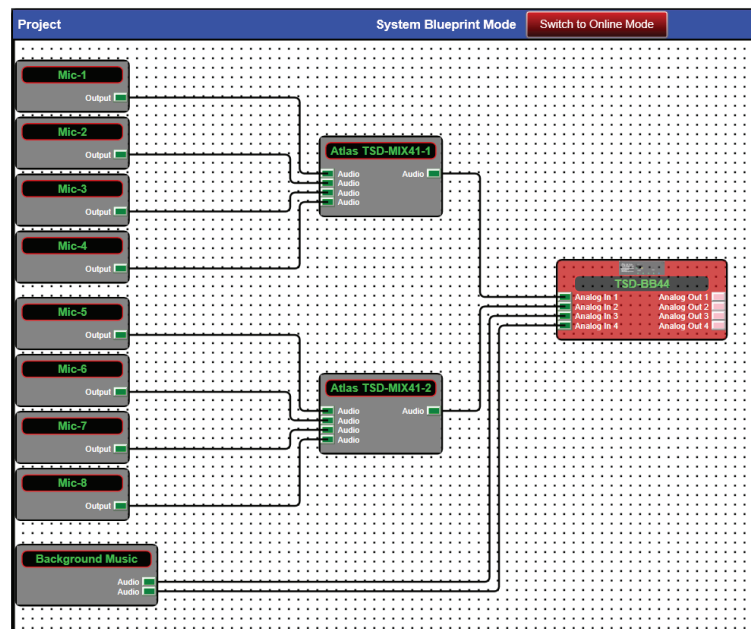
When multiple wires need to be moved, select like points in the wiring scheme, adjust the wires by using the cursor keys or grabbing a wire corner with the mouse and moving the wires to the desired location.
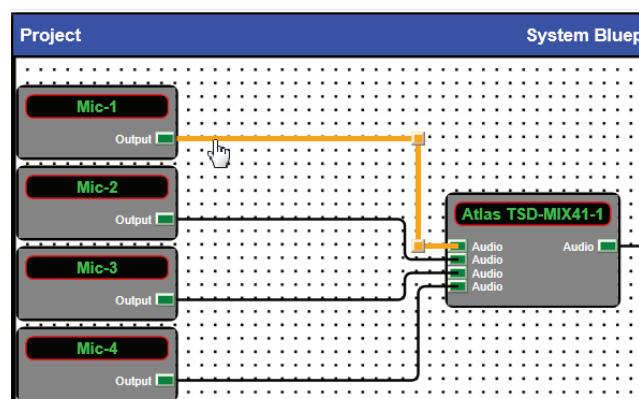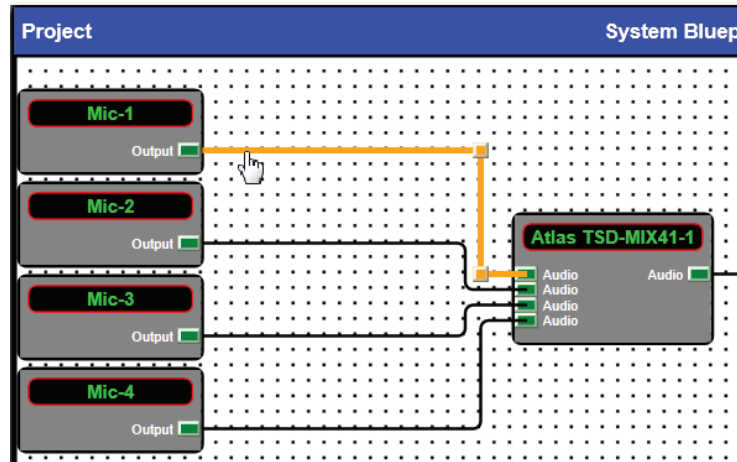
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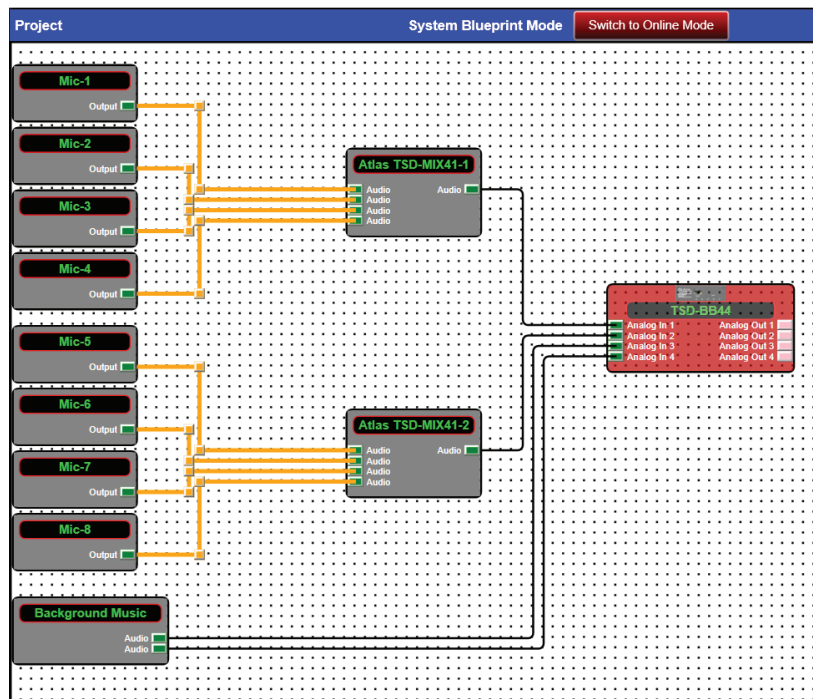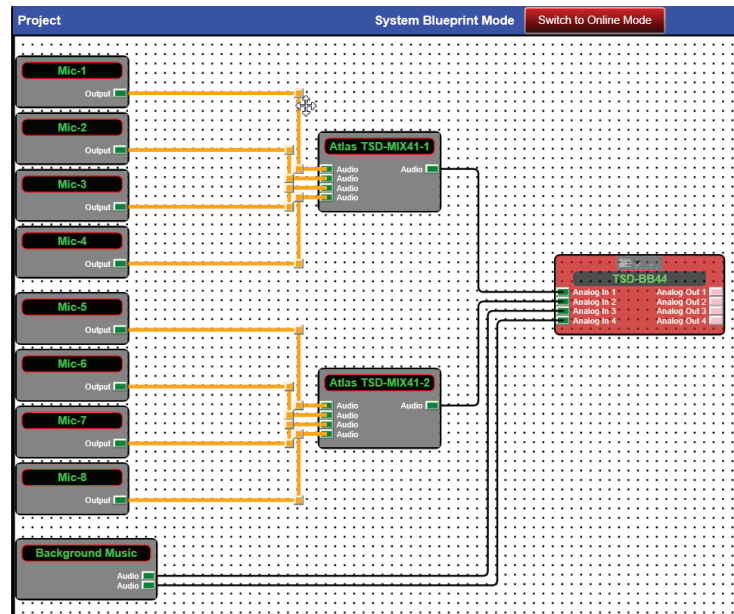
To have adequate space for labeling we adjust the wires as shown in.

Now that the wires are adjusted, the naming and labeling is easy.

The wire in our project is WestPenn 291 and the label that will be applied to the cable on the job site is (1101). First, select the wire by clicking on it to highlight.   Then, in the Component Properties Mic-1 is entered in the Propagate Label box. By entering text in the Propagate Label box this will put "Mic-1" at the source and the destination endpoint. In the Cable Information Box "WestPenn 291 (1101)" is entered.

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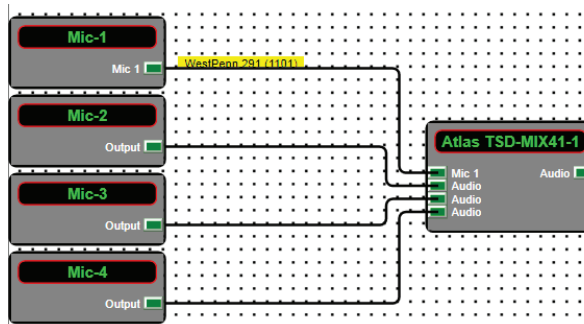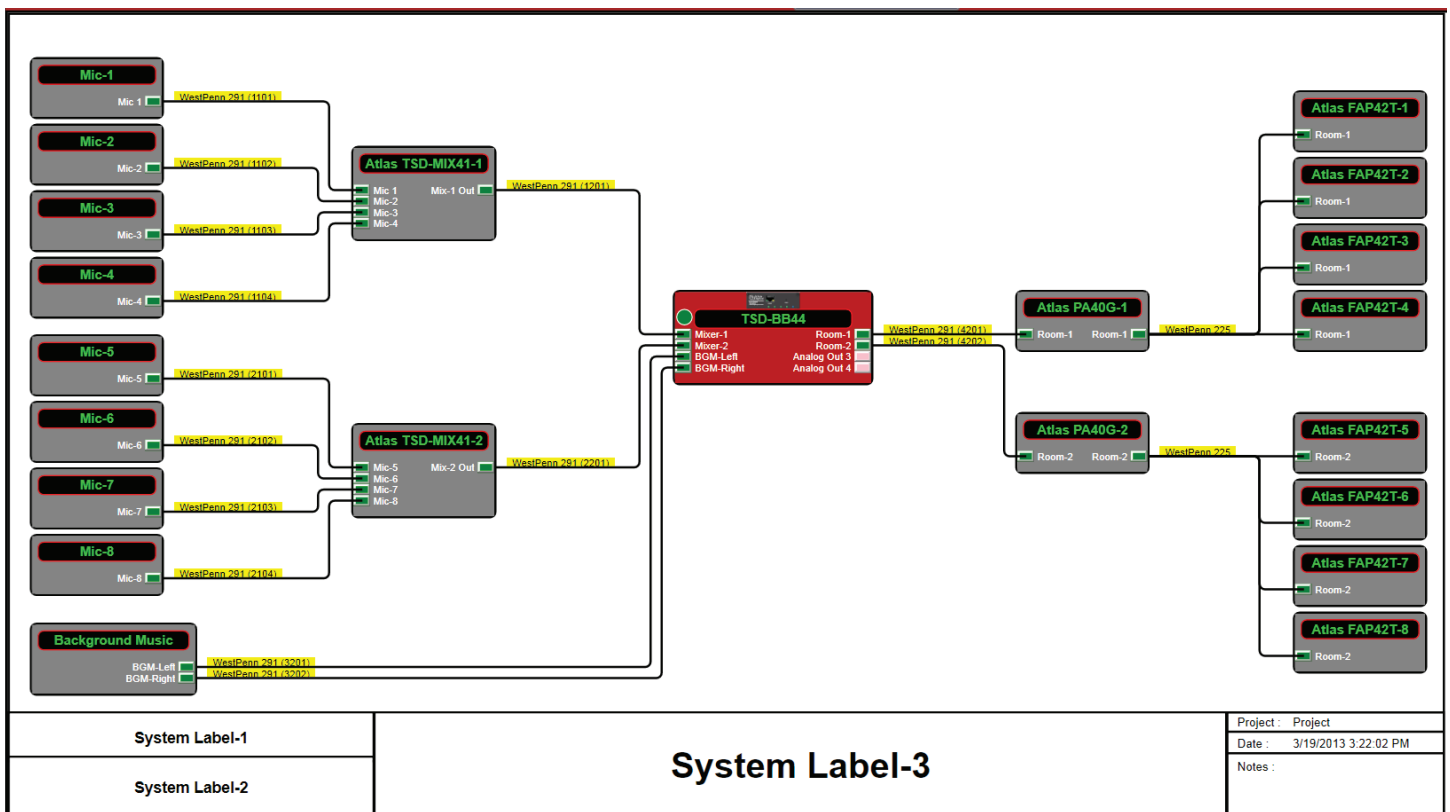
The labeling process is repeated to complete the sections.
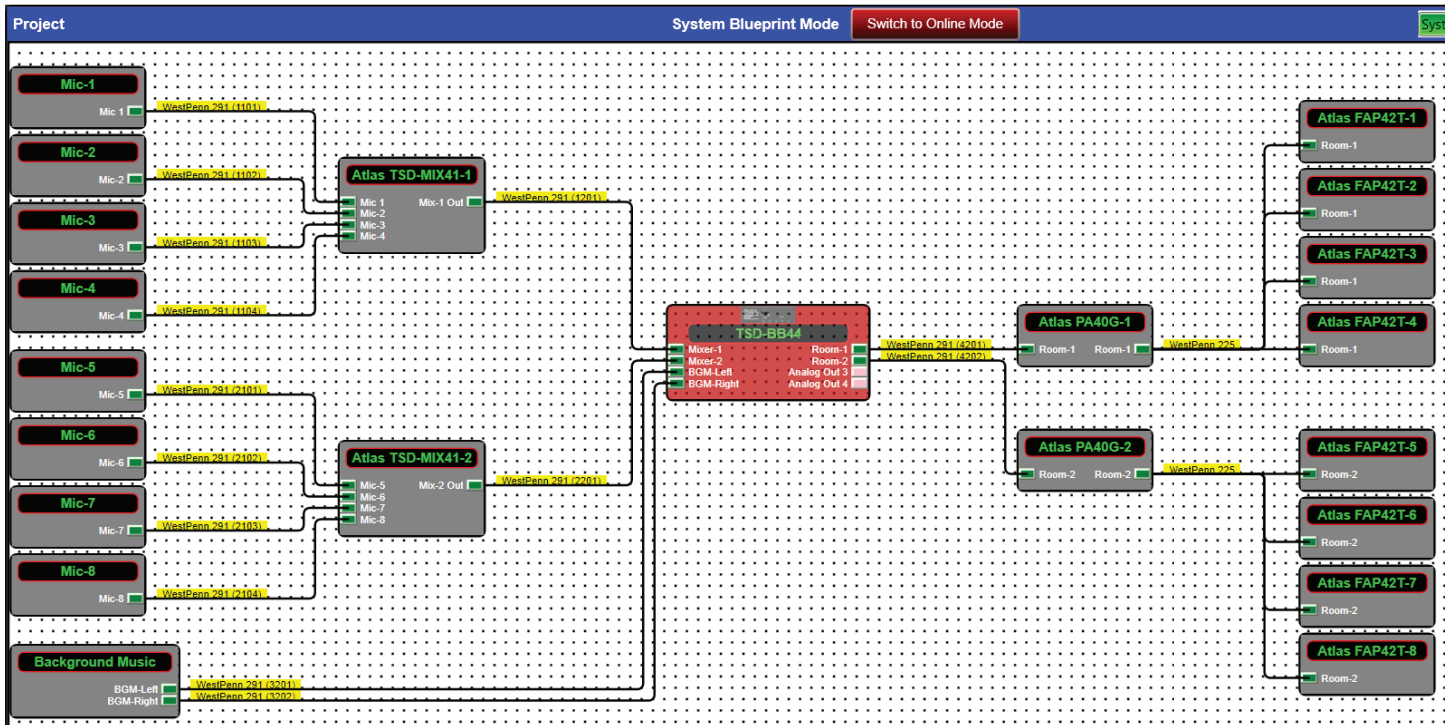
Here is how a design project should look with the wires connected between components and labels assigned to both wires and endpoints.

Project Design Elements located in the Component Libraries are used to create the System Labels, System Rectangle, and System Project Data Blocks for the finished look of the BluePrint.

After we have created a layout of our system, we can take advantage of a unique BlueBridge feature that allows the creation of a "one line" functional diagram called a BluePrint. The BluePrint is a graphical representation of the system that can be used for documentation, submittals, or as a guide for the installation team on the job site. The BluePrint page can include wire type, equipment names, locations, and important installation notes and details.

After completing the process for documentation the configuration of the internal workings of the DSP can be completed.
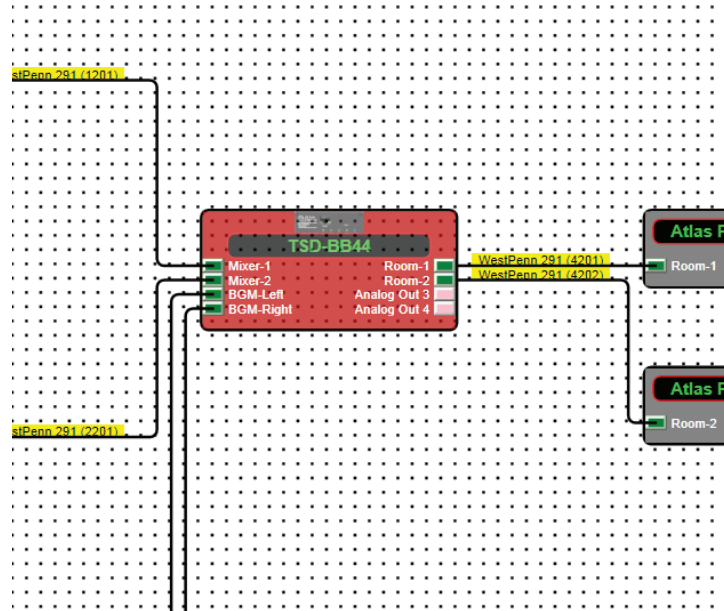

Start by opening up the DSP Block. Double click on the DSP Block and a new window will open with the input and output blocks of the DSP contained in it as shown.
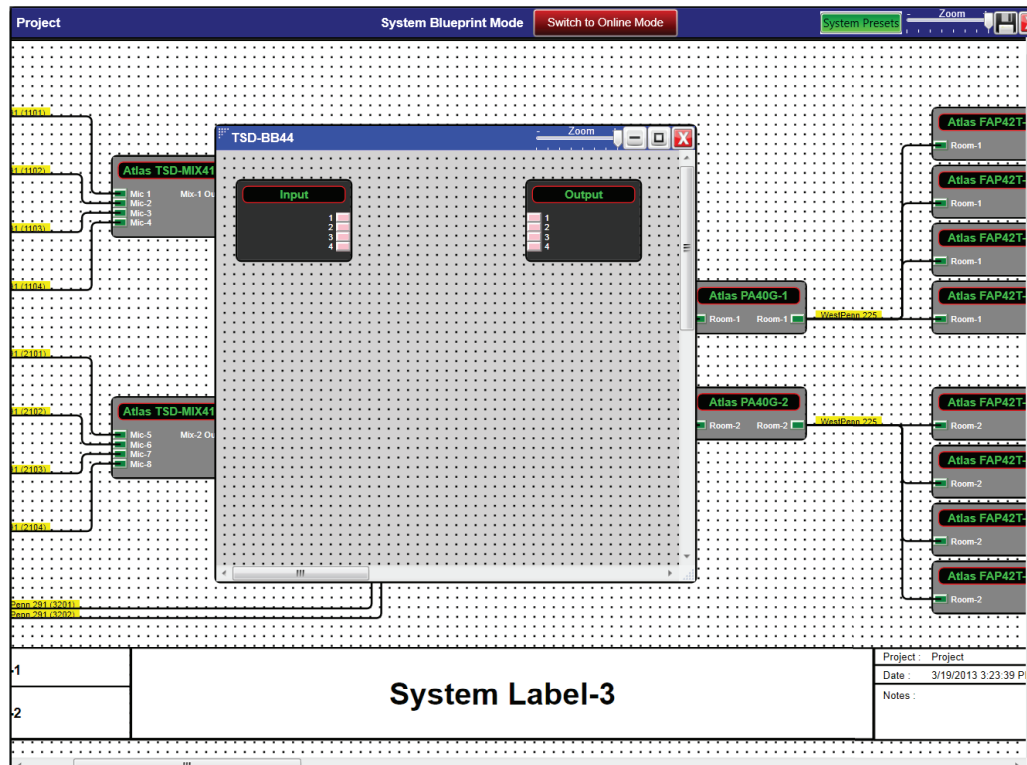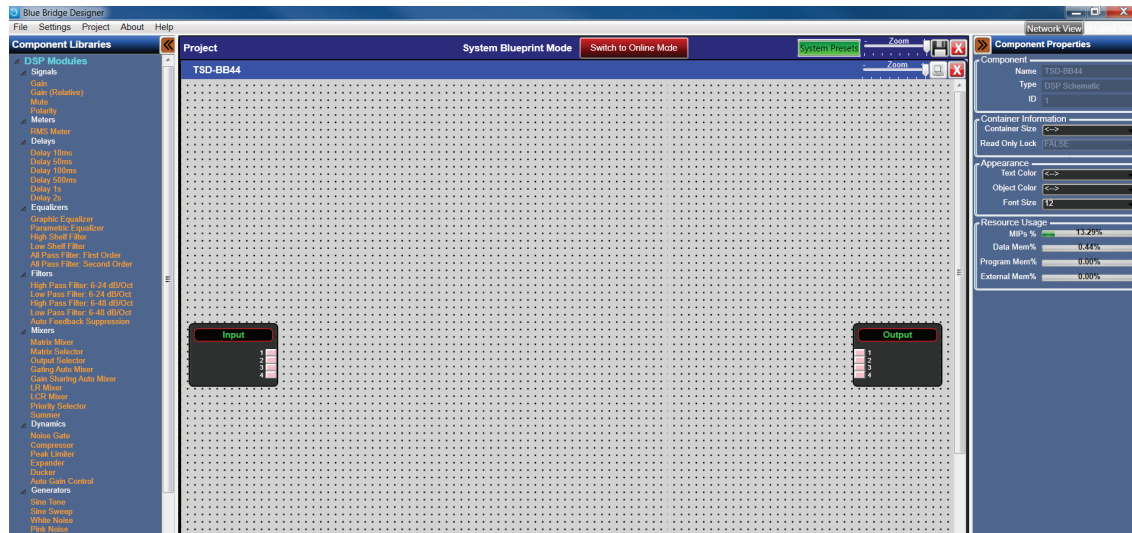
It is best to maximize the window to provide space on the grid.

When the DSP window is opened, the Component Library displays the different categories of DSP and all of the different Processing Modules that can be utilized in the design.
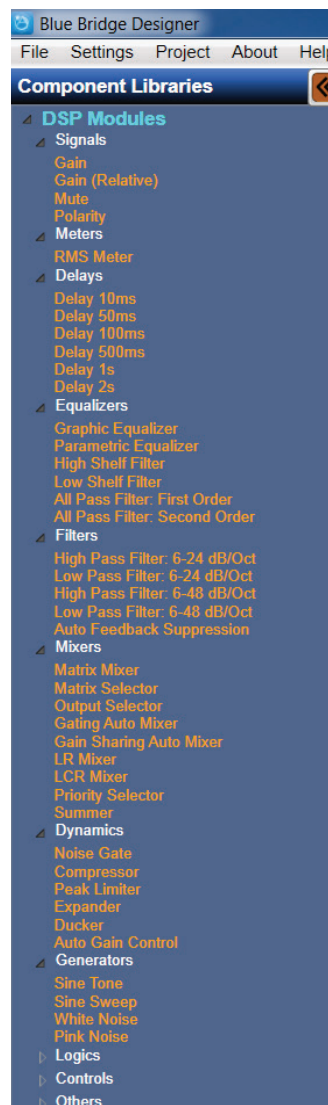
The techniques used to configure the DSP in a BlueBridge design are similar to those used doing the layout on the BluePrint screen. For example, drag and drop a matrix mixer from the Components Library onto the grid just like a Generic Audio component.

To configure the system for a room combining application, drag a Matrix Mixer from the Components Library onto the grid. Adjust the number of inputs to four and outputs to two in the properties pane on the right.
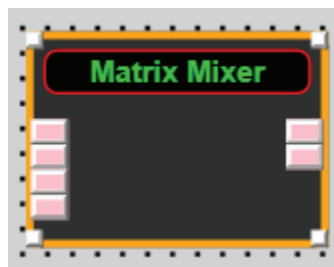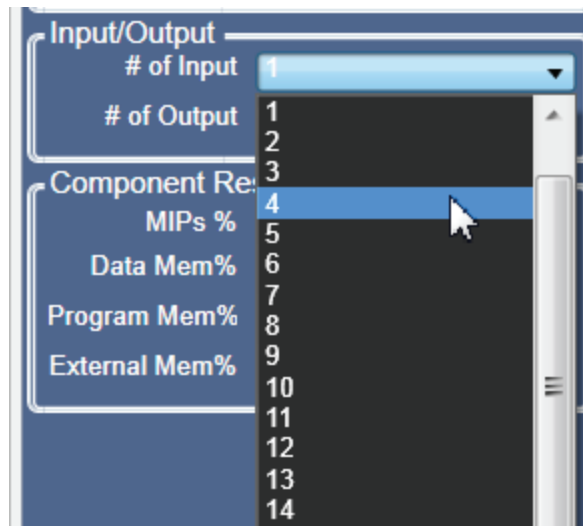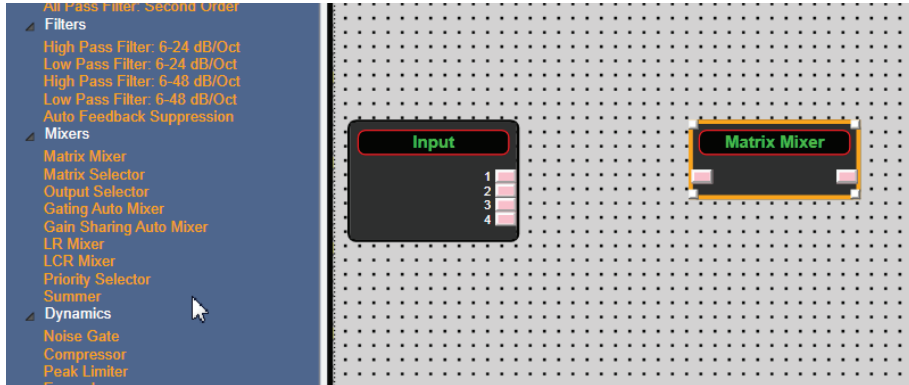
To create the rest of the system we add a compressor to each input channel, a parametric EQ and Peak Limiter to each output, and wire the components to complete the basic DSP design.
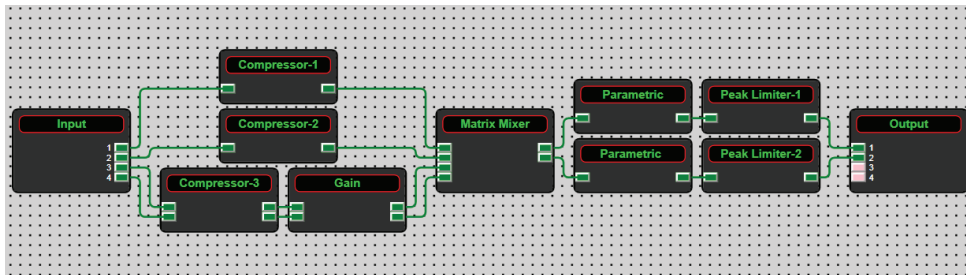
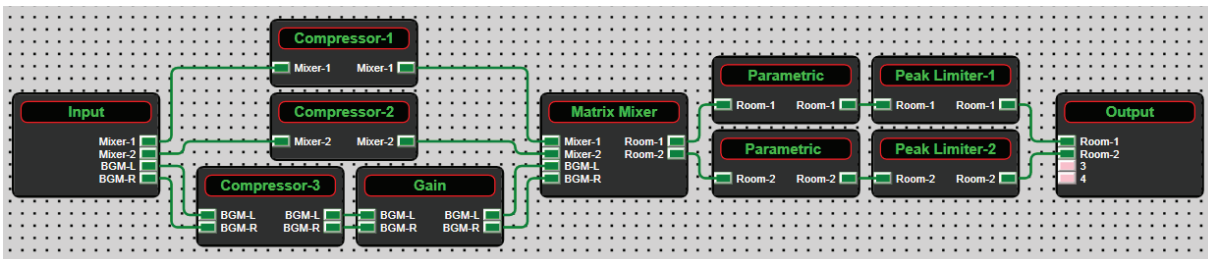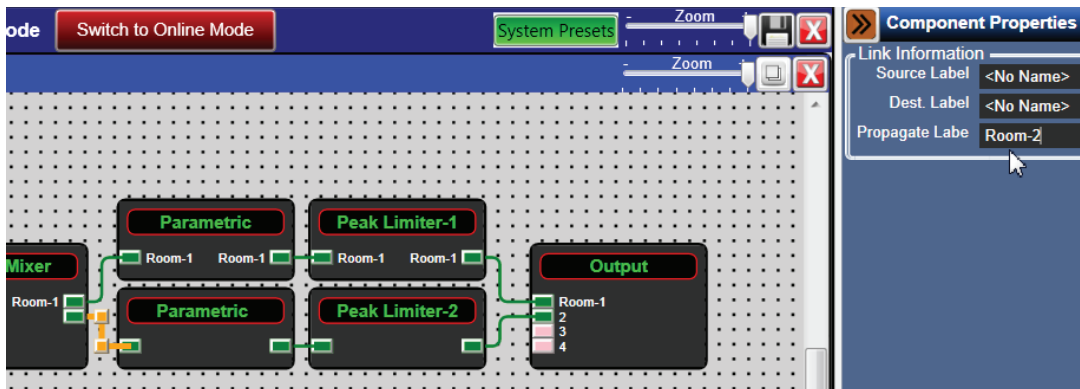
Use Label Propagation to quickly complete the labeling process. When a wire is selected at the beginning of a string the label can be typed into the component properties, under "Propagate Label" and it appears in all the processing modules down the string.

Once the labeling process is complete the DSP is ready to go live or "Online Mode".

Note: labeling is not required to go online, but it keeps the design organized and easier to understand without notes or extra documentation. When opening a processing object to make parameter changes, the names appear inside the module.

A prompt will ask to save the project before going on line. Clicking on the disk icon in the upper right corner of the window or the save command can be selected from the file menu.
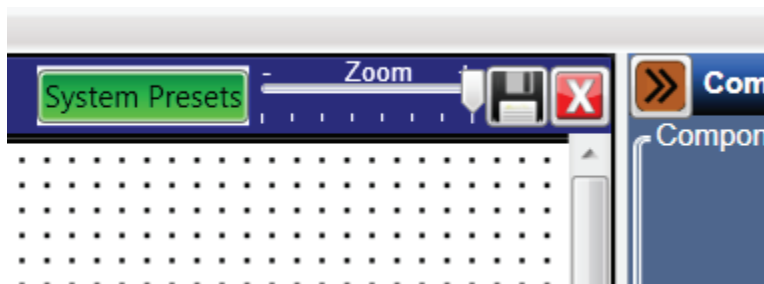
Taking the design file and transferring it to the DSP platform requires associating the DSP block in the design file with the same DSP hardware on the network. This process is called "Mapping", and requires a TSD-BB44 connected to the network ready to accept the design file.

The steps are as follows.

First, right click on the DSP block (TSD-BB44).
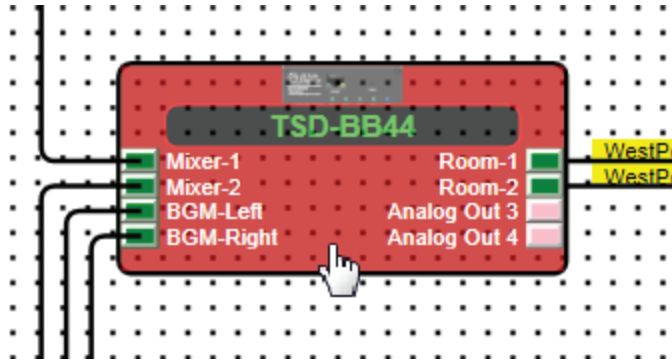
Second, select Map Physical Device and a drop down box will appear to show the different TSD-BB44's on the network.
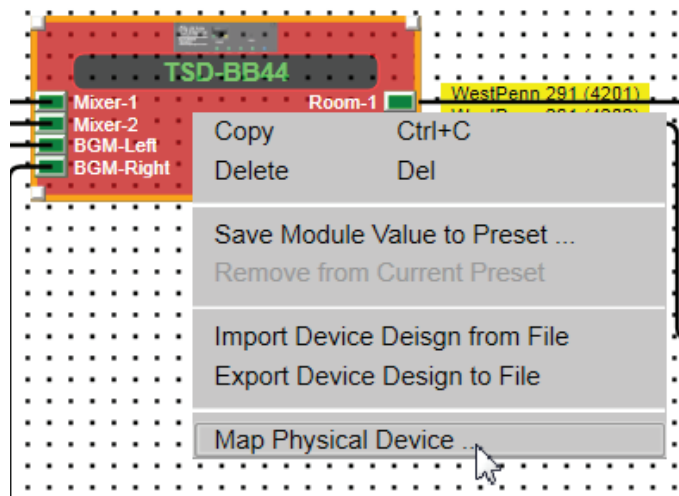
When we begin to Map the TSD-BB44, two appear on the network. The MAC Address will show in the drop down box to help select the correct device.

If the correct DSP is not known, Go to the Network View and find the correct DSP.
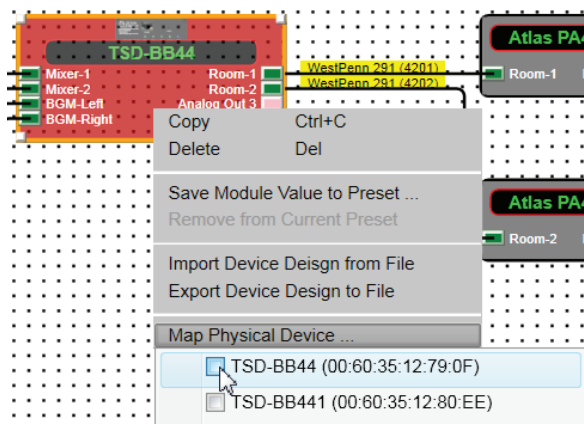
This Network View shows there are two TSD-BB44's on the Network.
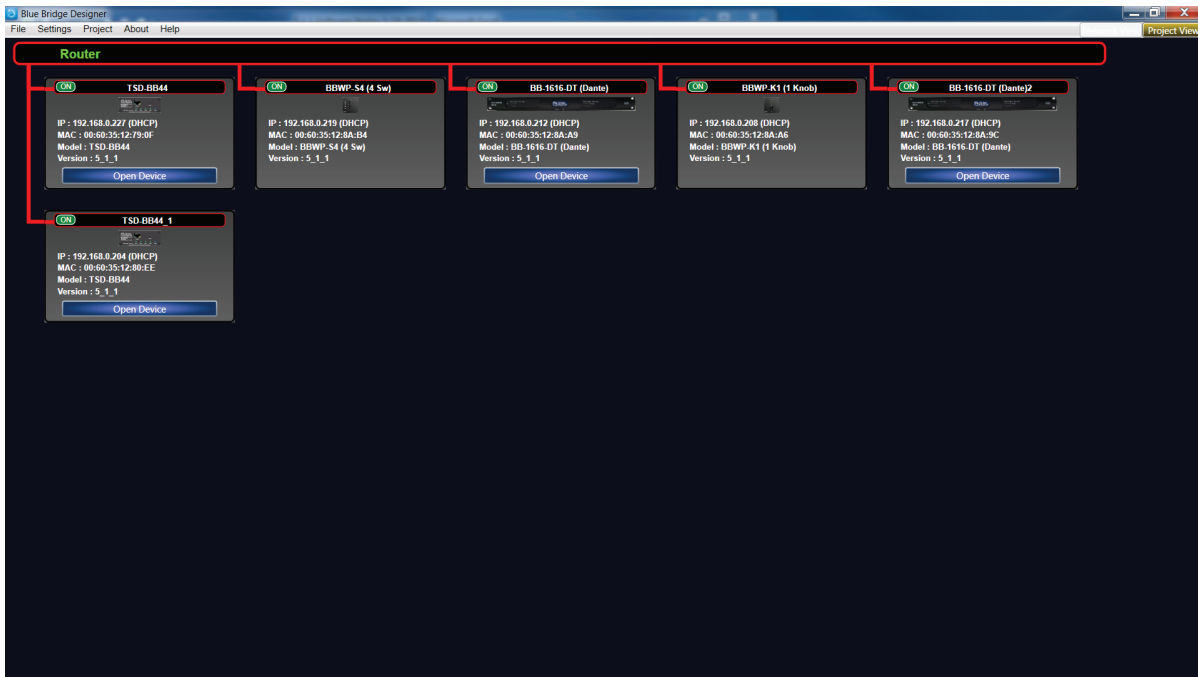
To confirm which DSP device is the correct unit, the lights can be flashed by right clicking the unit in Network View and selecting "Flash Front Panel"

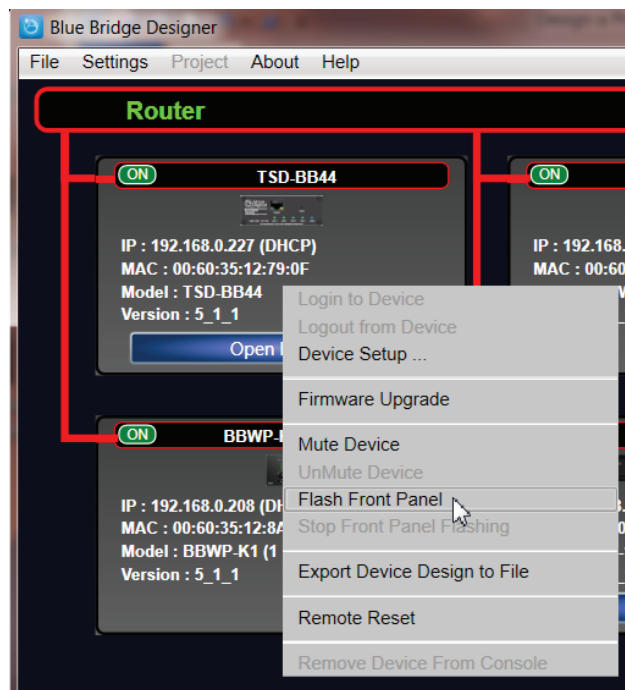It is very important to make sure the Name on the DSP Block in the design file matches exactly the DSP unit in the Network View. Otherwise the design file cannot be downloaded to the BlueBridge device.

The name can be changed either in the design file to match the DSP device on the Network "OR" the name of the device on the network can be changed by right clicking the unit and selecting Device Setup.
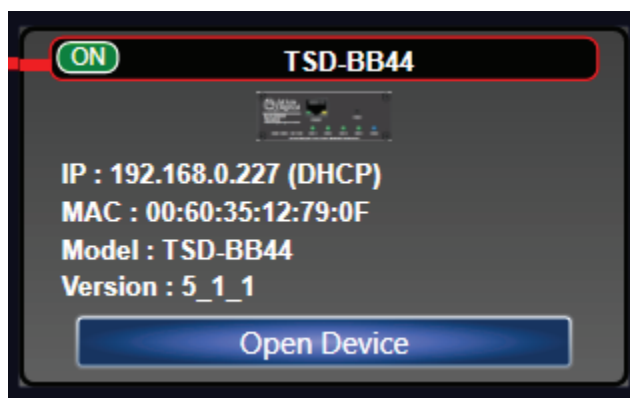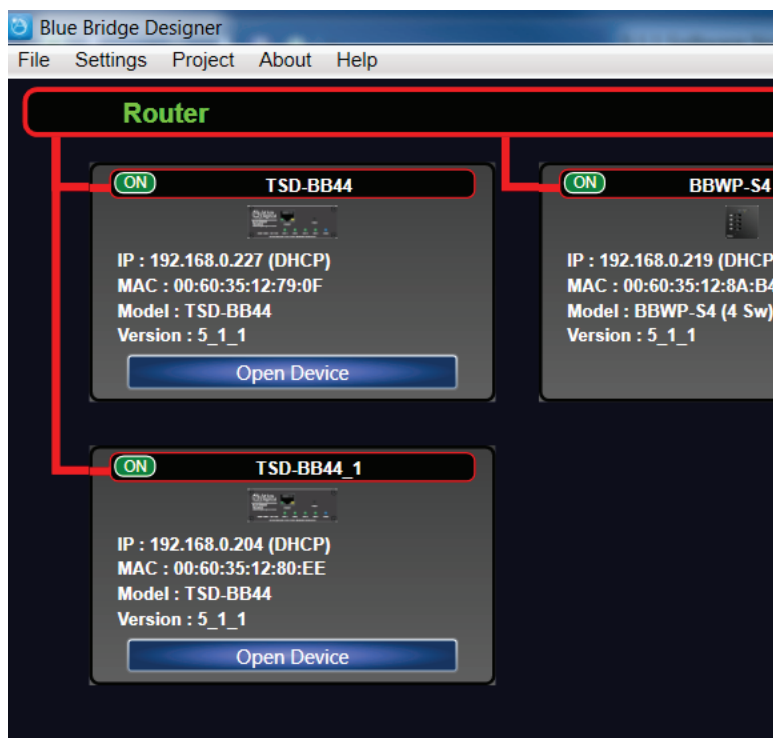
Once the correct DSP unit is determined select the correct box under the Map Physical Device menu in the Project View. When Mapped the DSP block in the Project View will become opaque.
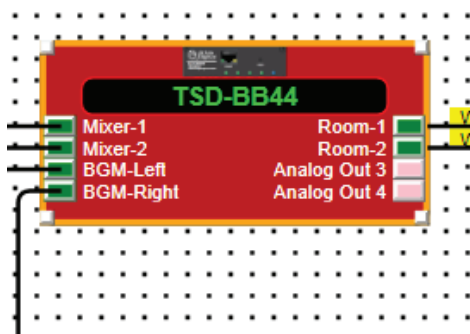
The DSP is Mapped and ready to go Online.

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Left click the Switch to Online Mode on the menu bar.
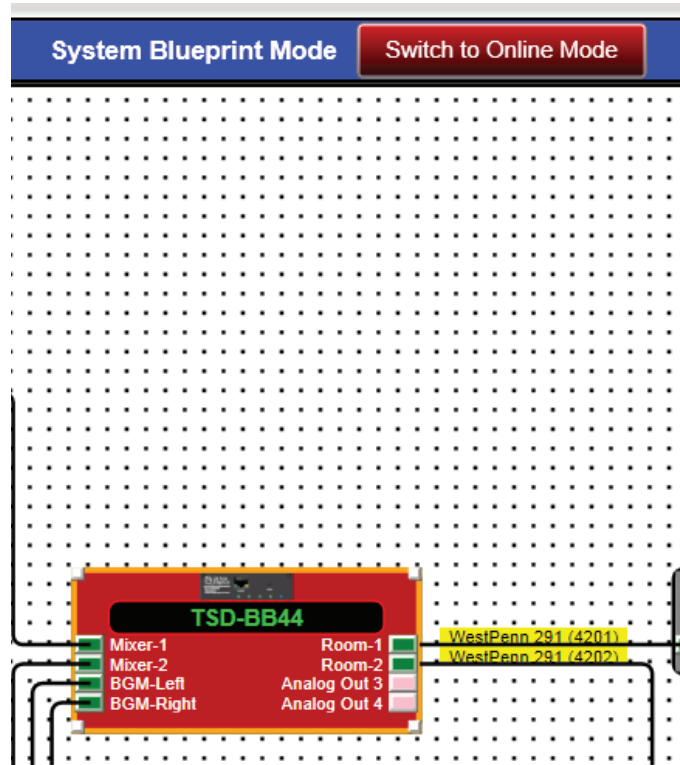
Several information boxes will be dispalyed.
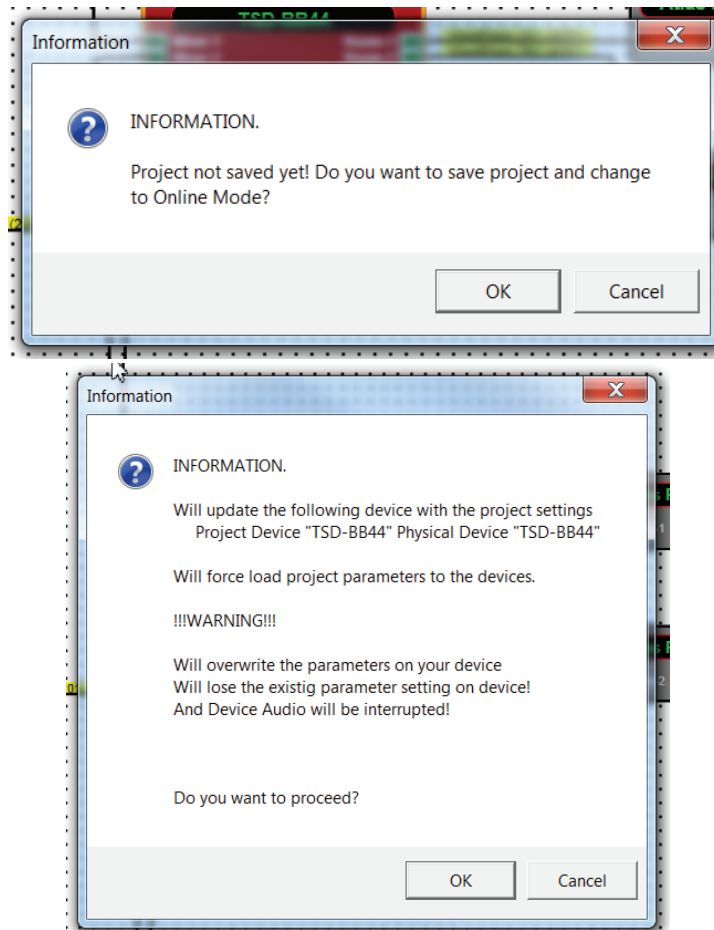
The progress of the DSP block will be displayed.
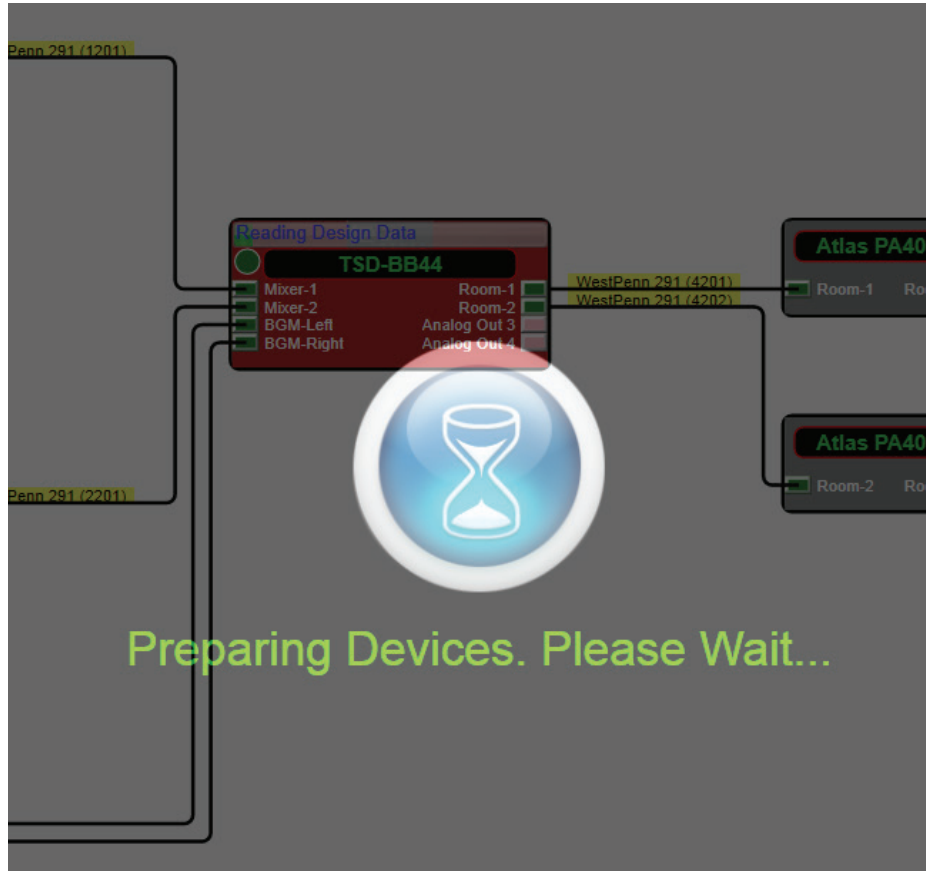
With BlueBridge Designer, in Online Mode, the design grid goes away and the system can be controlled from BlueBridge Designer. Close the Component Libraries and Properties to provide more space to make parameter adjustments.

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To change the parameters of the processing modules, double left click the DSP Block to open the DSP window. The Design grid is gone representing that the unit is online and live changes can be performed.

To make parameter adjustments, double left click on any processing block to open it and make the desired changes.
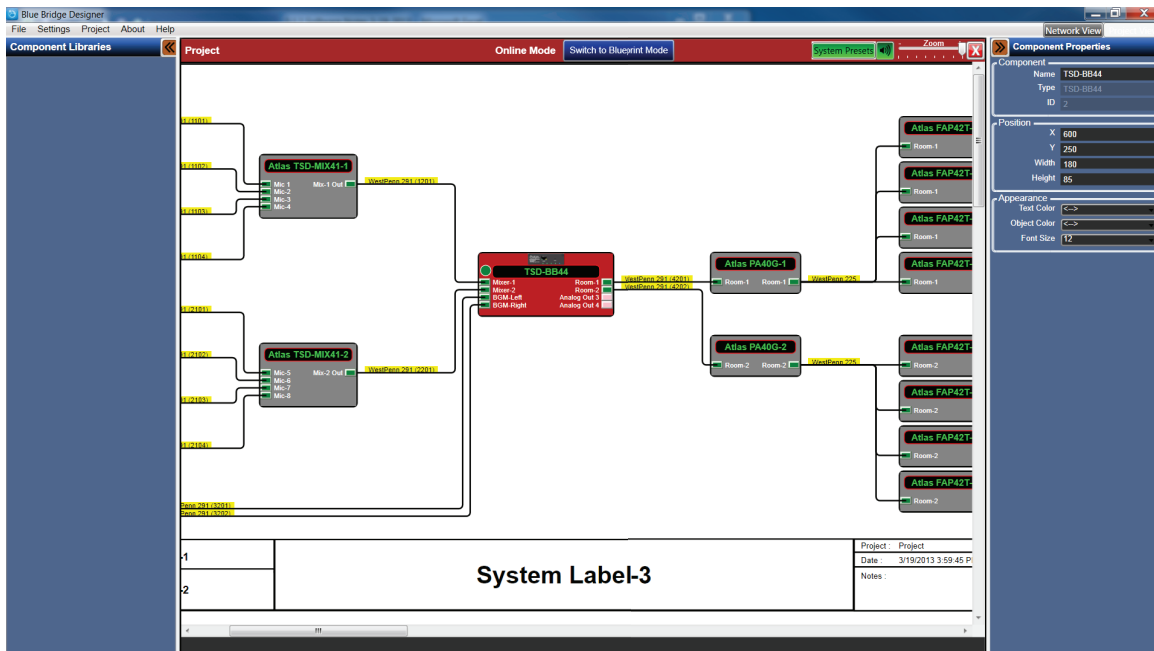
The following examples are processing objects in the design file created for this reference guide.
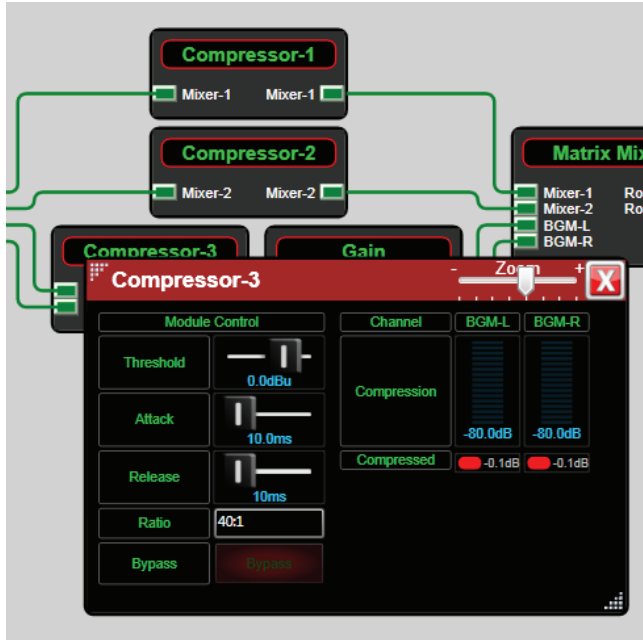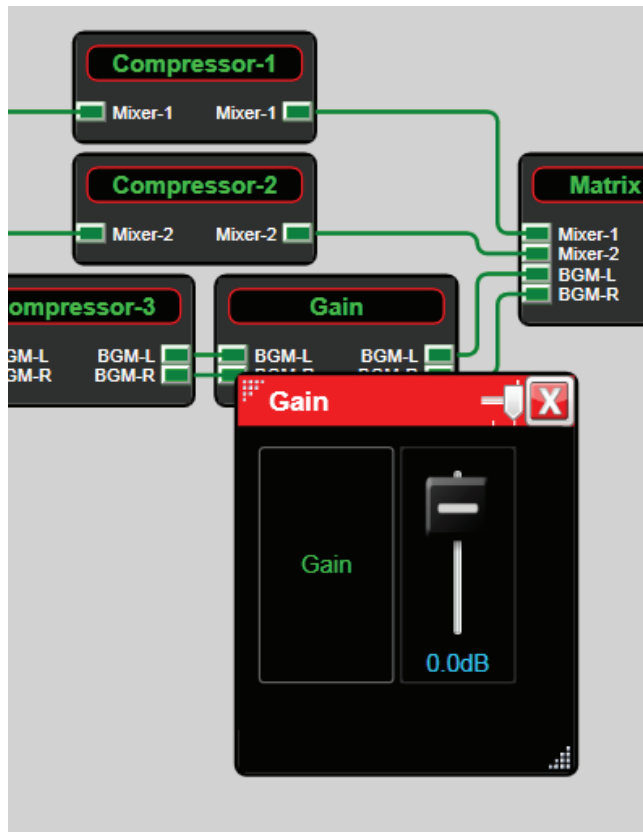
Notice how the labeling, BGM-L and BGM-R, entered during the design process appears over the meters of the compressor. This demonstrates the benefits of the labeling capabilities of BlueBridge and how it can make the operation of the system easier.

Matrix Mixer

Mixer-1 Room-1
Mixer-2 Room-2
BGM-L
BGM-R

Room-1 Room-1
Parametric
Room-2 Room-2

Room-1 Room-1
Peak Limiter-2
Room-2 Room-2

Matrix Mixer   Zoom

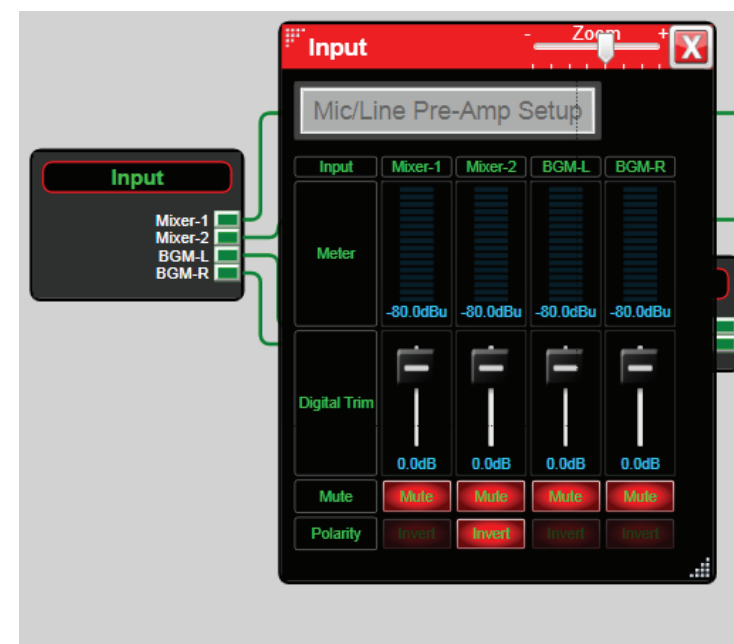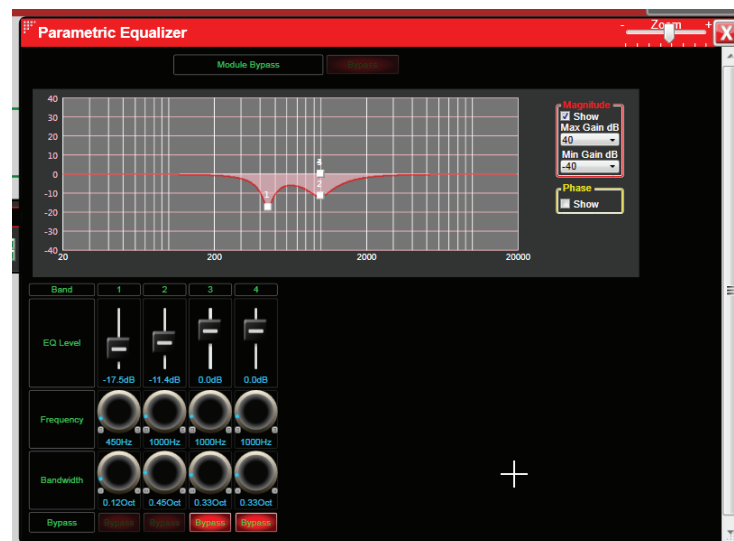|	Master	Mixer-1	Mixer-2	BGM-L	BGM-R
Room-1	0.0dB	0.0dB	0.0dB	0.0dB	0.0dB
	Mute	Connect	Connect	Connect	Connect
Room-2	0.0dB	0.0dB	0.0dB	0.0dB	0.0dB
	Mute	Connect	Connect	Connect	Connect

Parametric Equalizer   Zoom

Module Bypass   Bypass

Magnitude
☑ Show
Max Gain dB
40
Min Gain dB
-40

Phase
☐ Show

Band	1	2	3	4
EQ Level	-17.5dB	-11.4dB	0.0dB	0.0dB
Frequency	450Hz	1000Hz	1000Hz	1000Hz
Bandwidth	0.12Oct	0.45Oct	0.33Oct	0.33Oct
Bypass	Bypass	Bypass	Bypass	Bypass

Input   Zoom

Input
Mixer-1
Mixer-2
BGM-L
BGM-R

Mic/Line Pre-Amp Setup

|	Input	Mixer-1	Mixer-2	BGM-L	BGM-R
Meter		-80.0dBu	-80.0dBu	-80.0dBu	-80.0dBu
Digital Trim		0.0dB	0.0dB	0.0dB	0.0dB
Mute		Mute	Mute	Mute	Mute
Polarity		Invert	Invert	Invert	Invert

Opening the Input Block allows adjustment to the inputs before and after the A/D converter. When first opening the Input Block the Digital Trim and meters come up with Mute and Phase Reverse.   At the top of this window there is a button that navigates to the Analog Preamp control.
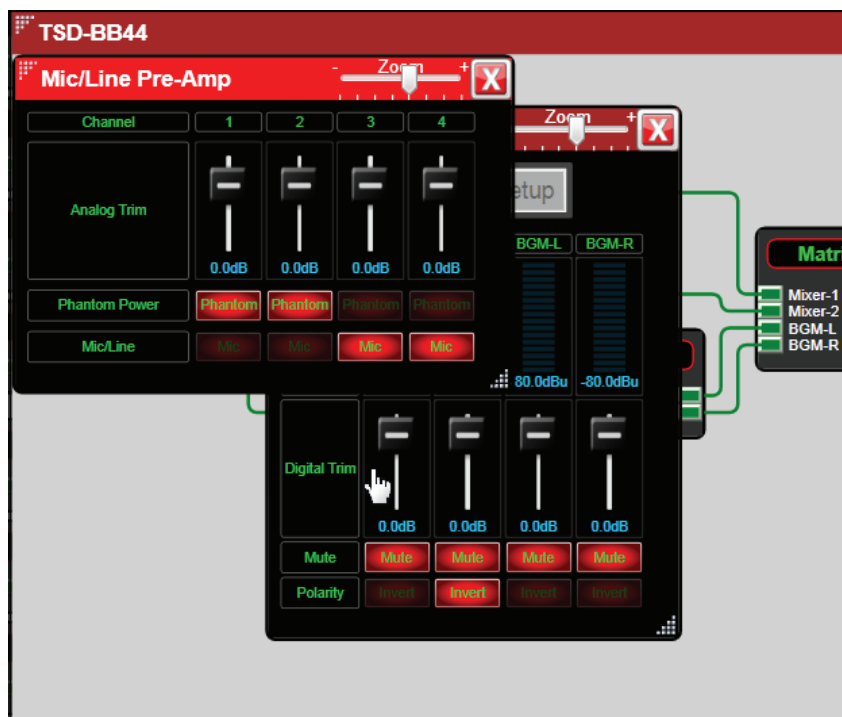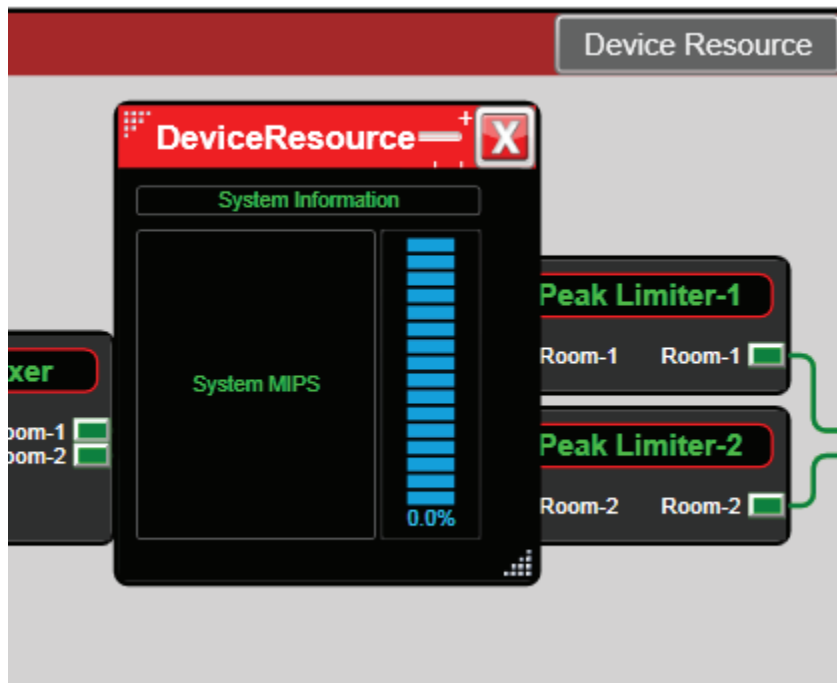

The Analog Preamp window has fine adjustment analog trim, Phantom Power, and Mic/Line selection.

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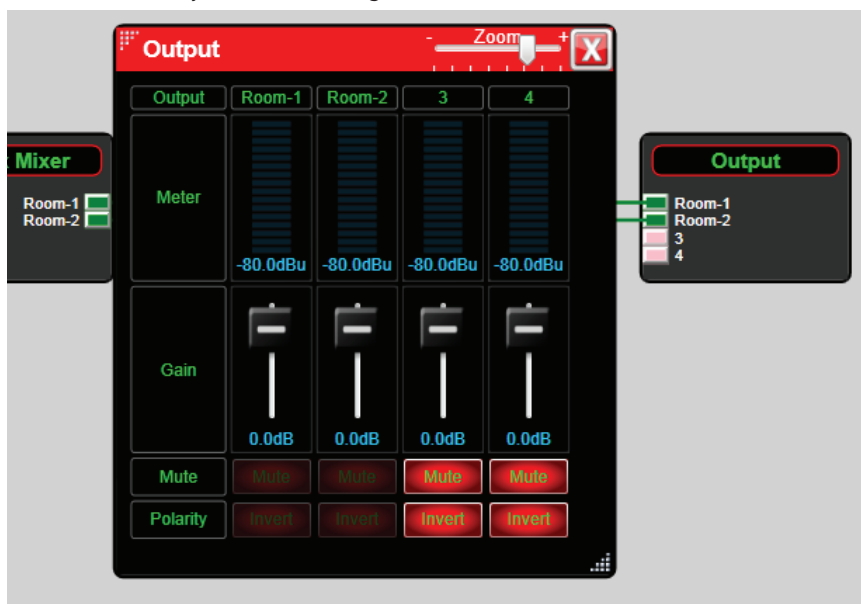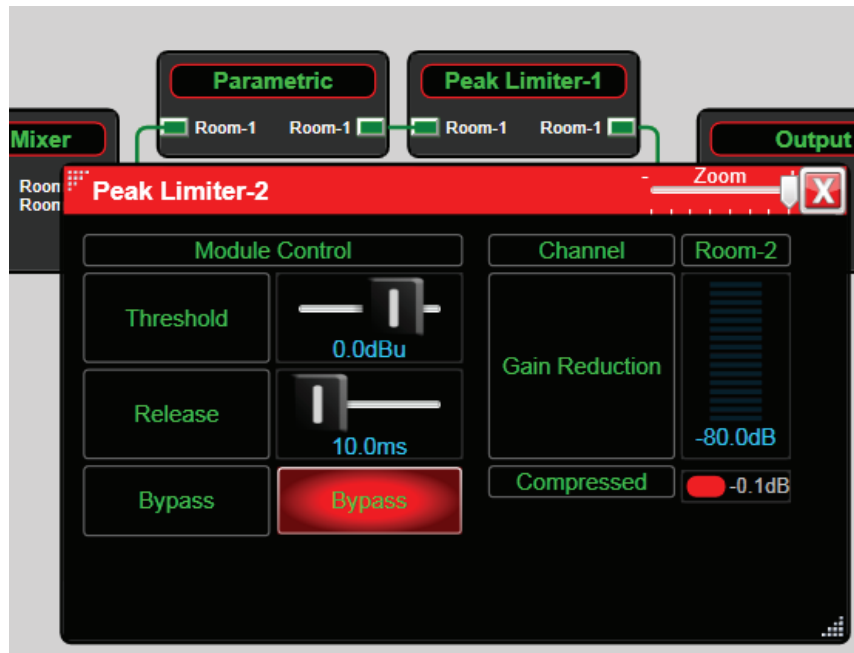
Device Resources can be viewed by selecting the "Device Resource" button at the top of the DSP Block window.

The Audio parameter can also be adjusted from the Network View by selecting "Open Device" on the individual Hardware Block

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