Chapter 2: The ControlSpace Designer Software Interface

This chapter serves as an introduction to the ControlSpace Designer software user interface. You will be introduced to the main windows in the software, along with some important features.

To begin, launch ControlSpace Designer software by choosing **Start** > **All Programs** > **Bose** > **ControlSpace Designer.**

ControlSpace Designer software windows

The ControlSpace Designer software interface is shown in Figure 2.1:

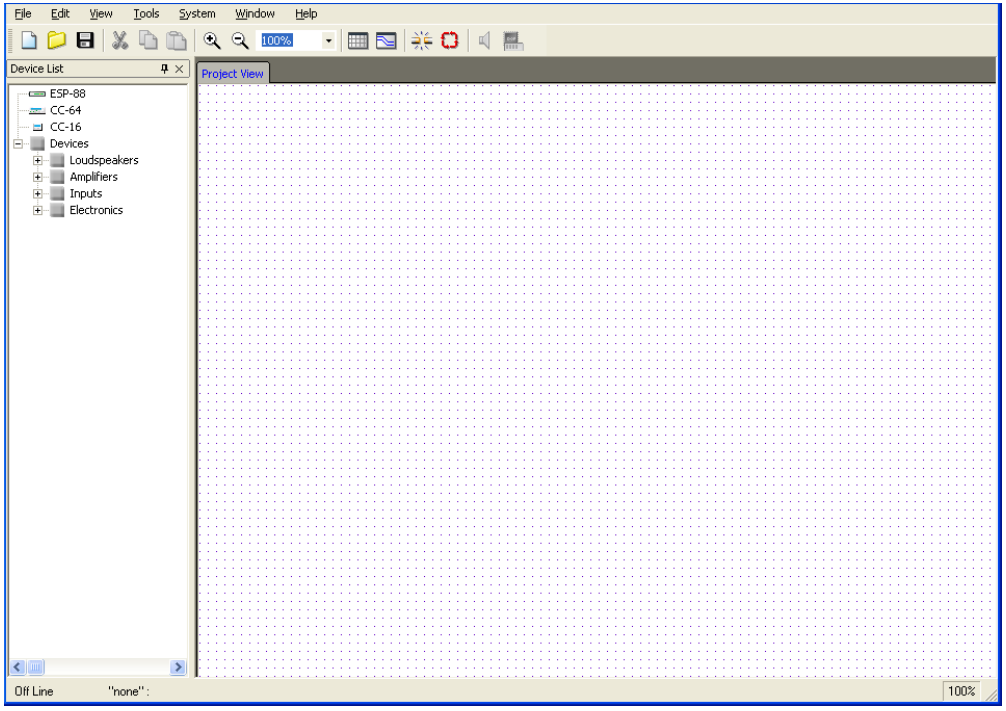

Figure 2.1 - ControlSpace Designer software window

Project View

The main window to the right is called **Project View**, and the smaller window to the left is the **Device List.**

- **Project View** is a workspace where you will build and connect the components of your sound system.
- The **Device List** contains the individual sound system components, organized by type.

Create your system design by dragging and dropping individual components from the **Device List** into the **Project View**. For example, to connect a CD player to an input card in your ESP-88, follow these steps:

1. Drag an ESP-88 icon from the **Device List** into the **Project View**.

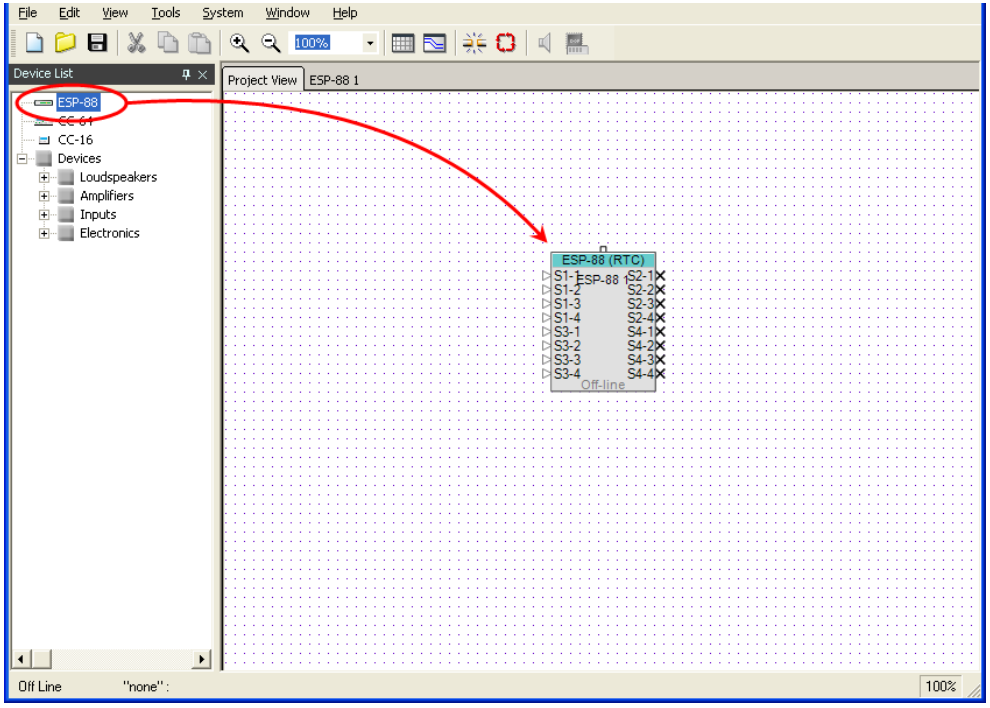

*Figure 2.2 - Drag an ESP-88 from the **Device List** into the **Project View***

2. Open the **Electronics** tree in the **Device List** by clicking on the "+" next to **Electronics**.

3. Drag a **CD** player into the **Project View**.

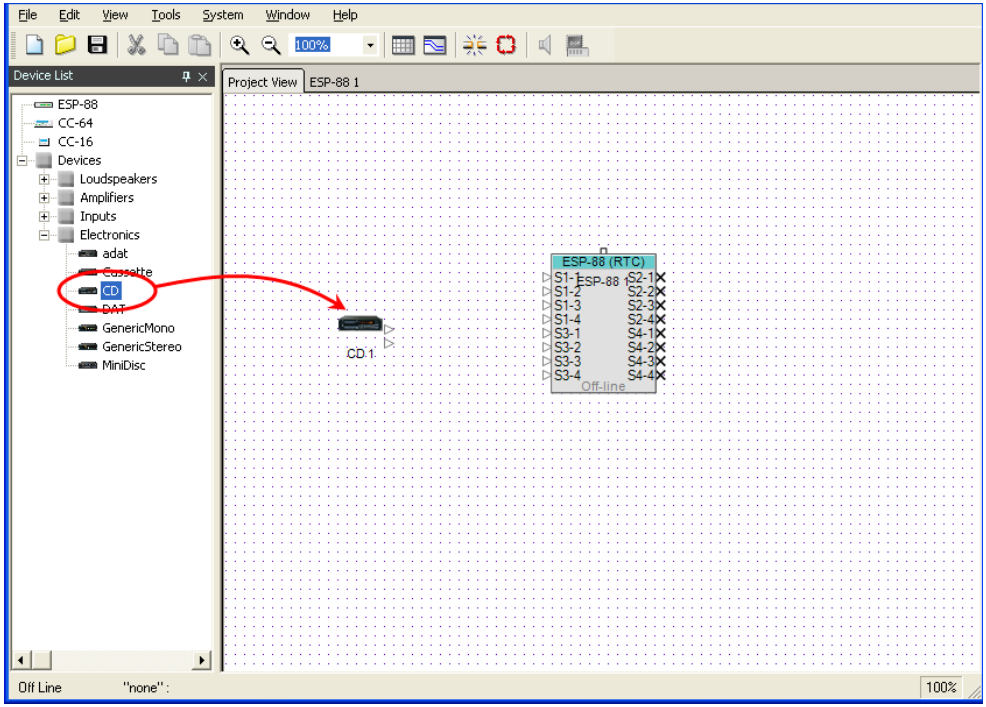

*Figure 2.3 - Drag a **CD** player into the **Project View***

4. Next, you will wire these two components together. To place a wire, first hold the mouse cursor near the triangle output connection point on the CD player icon until it turns into a hand-pointer:

Figure 2.4 - Hold the cursor over the output connection

5. Click and drag a wire from the top CD player output, to the top input of the ESP-88:

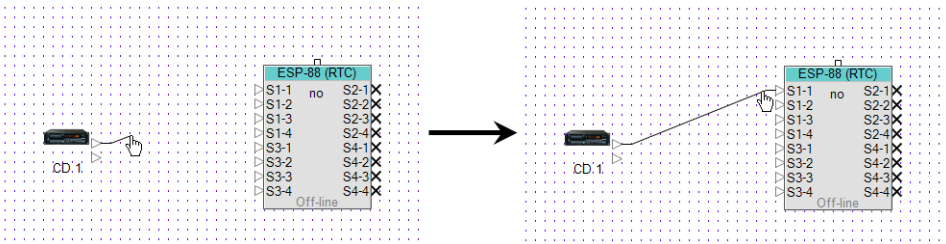

Figure 2.5 - Click and drag a wire from output to input.

ESP-88 window

Each time an ESP-88 is added in **Project View**, a new **ESP** tab is created for that device. Click on the **ESP-88** tab next to the **Project View** tab to switch to the **ESP-88** window.

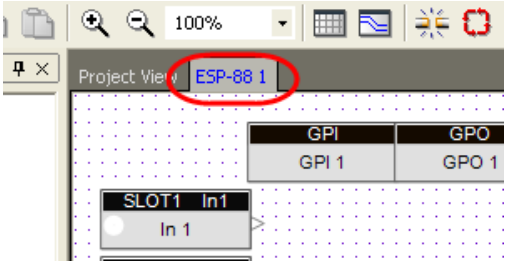

*Figure 2.6 - **ESP-88** window*

Note: **You can also double-click on the ESP-88 in Project View to switch to the ESP-88 window.**

The **ESP-88** window is where you configure the signal processing for this ESP-88. Notice that the window on the left, which previously showed the **Device List**, has changed to show the Signal Processing Tool Kit **(SP Tool Kit).**

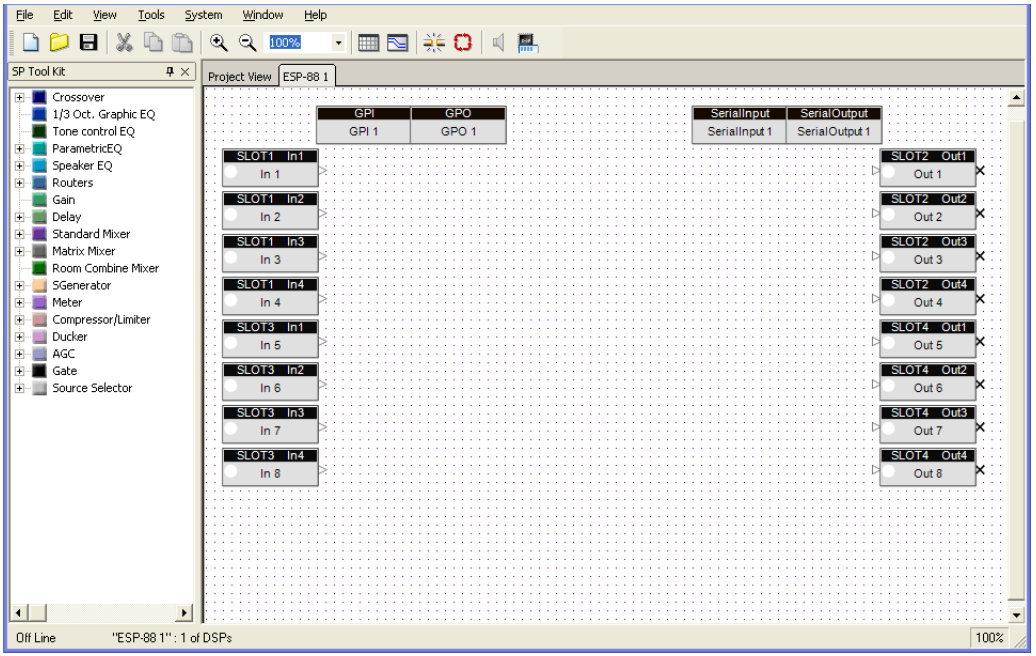

*Figure 2.7 - **ESP-88** window*

The Signal Processing Tool Kit **(SP Tool Kit)** on the left contains all the individual signal processing blocks (SP blocks) that you can use to build the signal processing for your design. Simply drag and drop these blocks into the **ESP-88** window on the right to configure your system.

The **ESP-88** window shows all the physical inputs and outputs to the ESP-88. The ESP-88 in Figure 2.7 has two input cards (in Slot 1 and Slot 3) and two output cards (in Slot 2 and Slot 4) installed. At the top of the window are the **General Purpose Inputs (GPI)**, **General Purpose Outputs (GPO)**, and **Serial** input and **Serial** output control blocks.

Input blocks

Double-click on the **Slot1 In1** icon to open the control panel for this input.

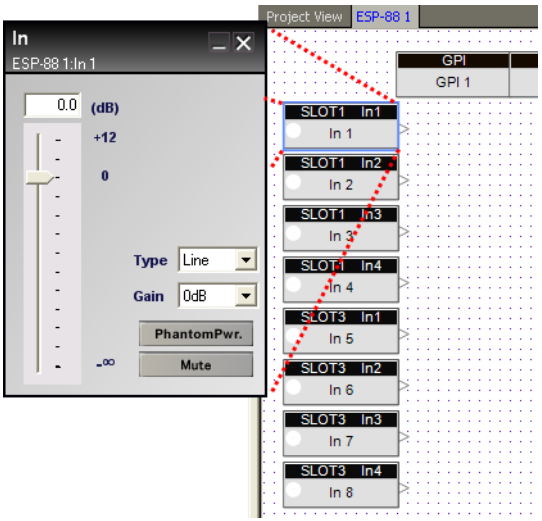

*Figure 2.8 - **Slot1 In1** control panel*

You can use the control panel to adjust the input level, to turn on Phantom Power, or to mute the input.

Signal Processing (SP) Tool Kit

The **SP Tool Kit** contains all available signal processing blocks (SP blocks). Select and drag a signal processing block from the **SP Tool Kit** window to the **ESP-88** window to include it in your design. Wiring between inputs, outputs and signal processing blocks is done in the same manner as in **Project View** (see Figure 2.5). Double-click on any signal processing block to open the control panel. For example, if you wanted to mix four channels of audio to two output channels, your design might look like Figure 2.9 below:

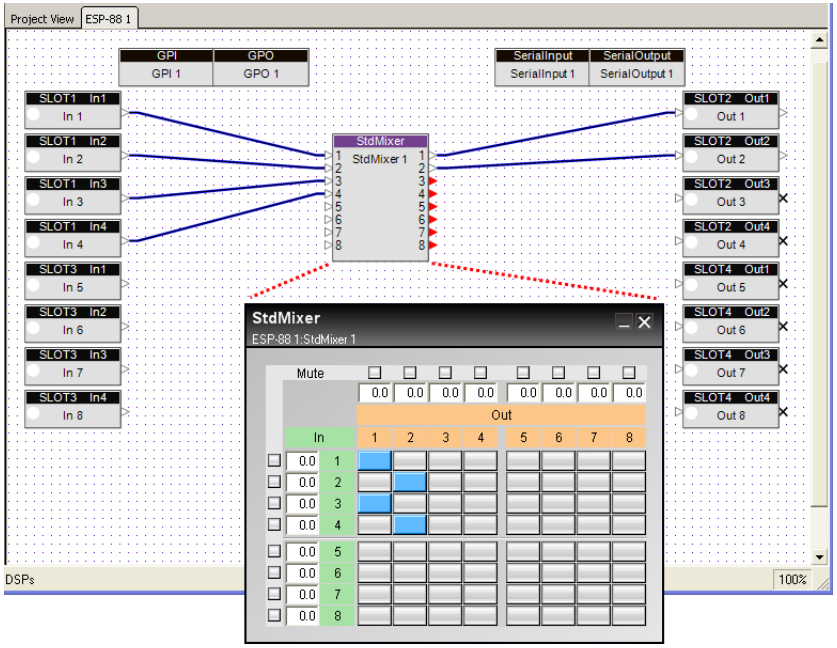

Figure 2.9 - A simple design with the mixer control panel open

Control Library windows

From the **Window** menu, you can open the **Parameter Sets**, **Groups**, **Timers**, and **Presets** windows. These windows can be thought of as a "Control Library" in ControlSpace Designer software. Use the Control Library to store programming that can be assigned to user control devices such as the CC-64 and CC-16. Programming is done through drag and drop. For example, to group together two inputs, go to **Window** > **Groups** to open the **Groups** window, then drag and drop the two input icons onto the **Group 1** tree to create a group:

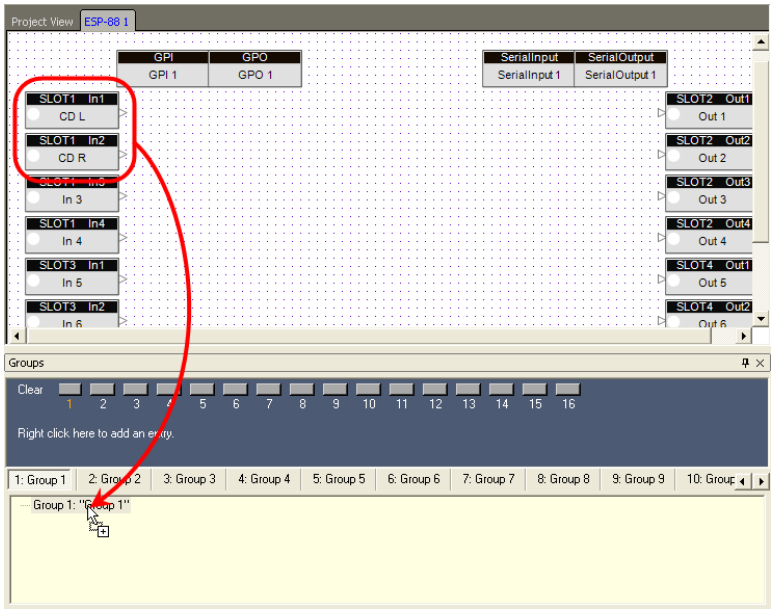

Figure 2.10 - Drag and drop two inputs to create a group

These two inputs will now be linked together. The windows in the Control Library will be covered in more detail in *Chapter 4: Store system programming*.

Smart Simulators

ControlSpace Designer software uses Smart Simulators to simplify programming and testing the controls for your ControlSpace ESP-88 system. Switch to **Project View** by clicking on the **Project View** tab, and drag a CC-64 into the **Project View** window from the **Device List**:

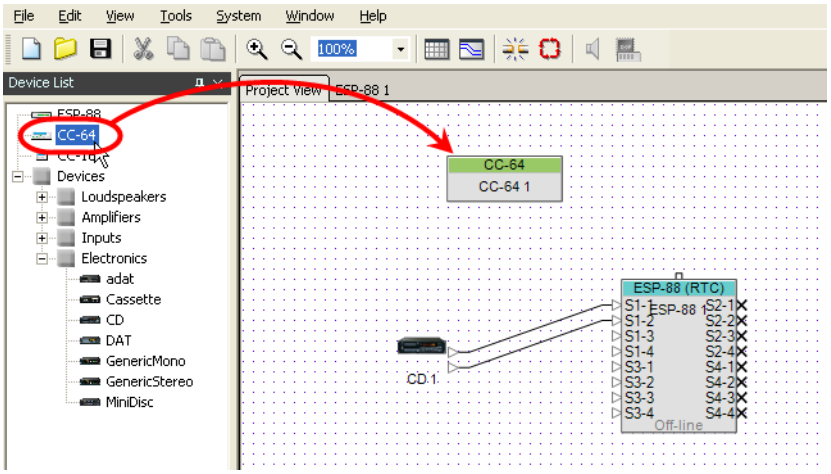

Figure 2.11 - Drag a CC-64 into the Project View

Double-click on the CC-64 to open the CC-64 Smart Simulator:

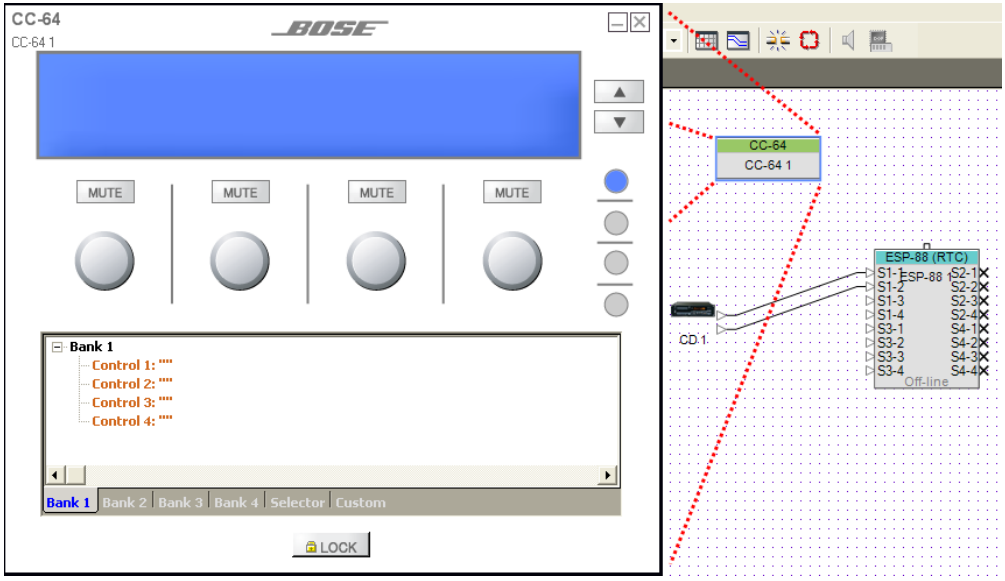

Figure 2.12 - The CC-64 Smart Simulator

The Smart Simulator window displays a graphical representation of the CC-64 in the top half, and a programming tree in the bottom half. Program the user controls by dragging and dropping signal processing blocks, parameter sets, or groups into the programming tree. You can then simulate the operation of the CC-64 using the knobs and buttons in the top half of the display.

ControlSpace workflow

Now that you have been introduces to the basics of the ControlSpace Designer software interface, it will be helpful to know the basic process that you will follow to create a ControlSpace project in ControlSpace Designer software. While each ControlSpace project is different, the following steps represent a typical path from start to finish.

Step 1: Build and connect the components of your system in the Project View

Drag and drop the main components of your system, including any CC-64 and CC-16 controllers, from the **Device List** into **Project View**, and wire them together. This provides a graphical reference to the connections in your system.

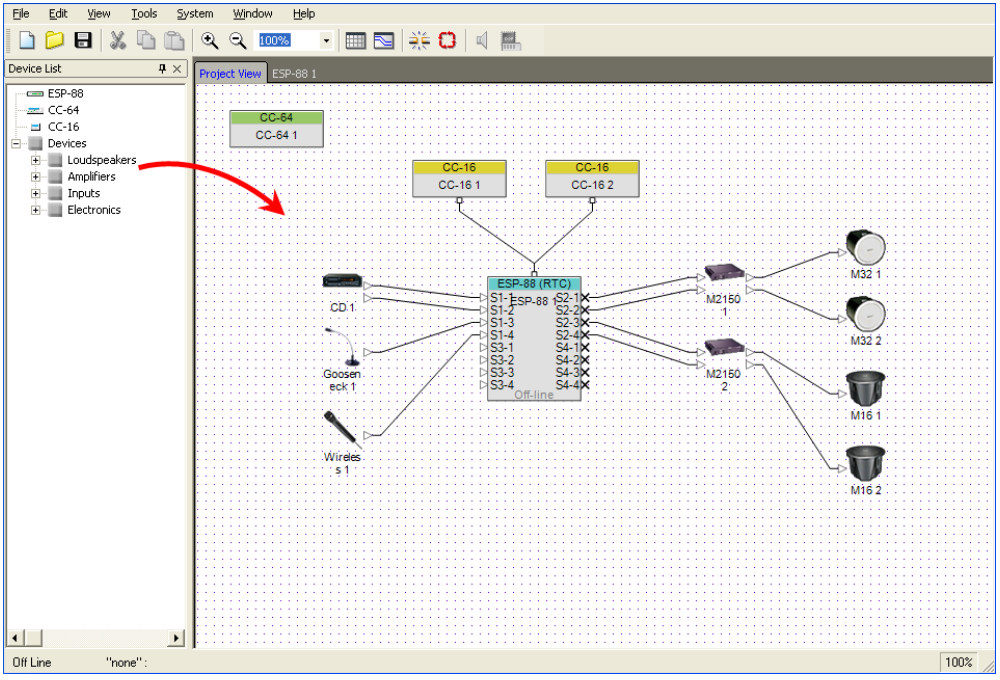

Figure 2.13 - Place and wire the components of the system

Step 2: Configure the signal processing in the ESP-88

Switch to the **ESP-88** window and drag and drop the necessary signal processing for your design, and wire the blocks together to define your signal flow.

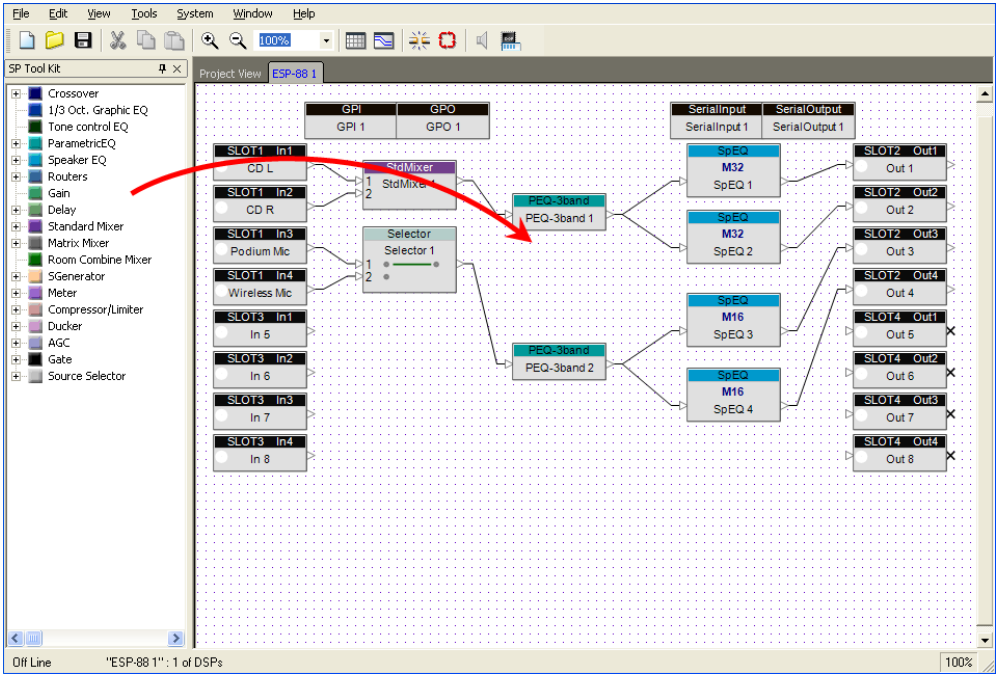

Figure 2.14 - Add signal processing

Step 3: Store the system programming

Create your Control Library, which includes presets, parameter sets, groups and timers needed in your system. Drag and drop signal processing blocks, inputs or outputs into the appropriate Control Library window to store the settings. (To create a preset, press the **Store** button in the **Preset** window.) For example, drag and drop two inputs into a group to create a master control for these two blocks.

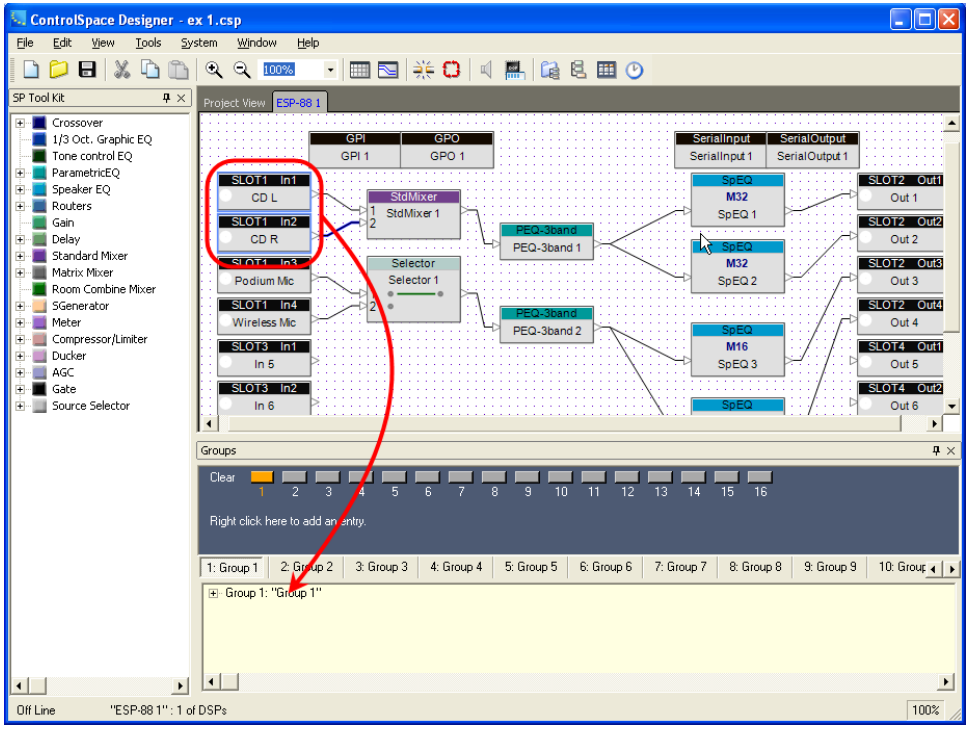

Figure 2.15 - Drag and drop to store programming

Step 4: Program user controls

The Control Library programming that you created in step 3 generally needs to be accessed by end users of the system. For example, the user may need to be able to switch between two parameter sets to select one of the two microphones. To program a CC-64 or CC-16 controller, drag and drop from the Control Library windows into the Smart Simulators.

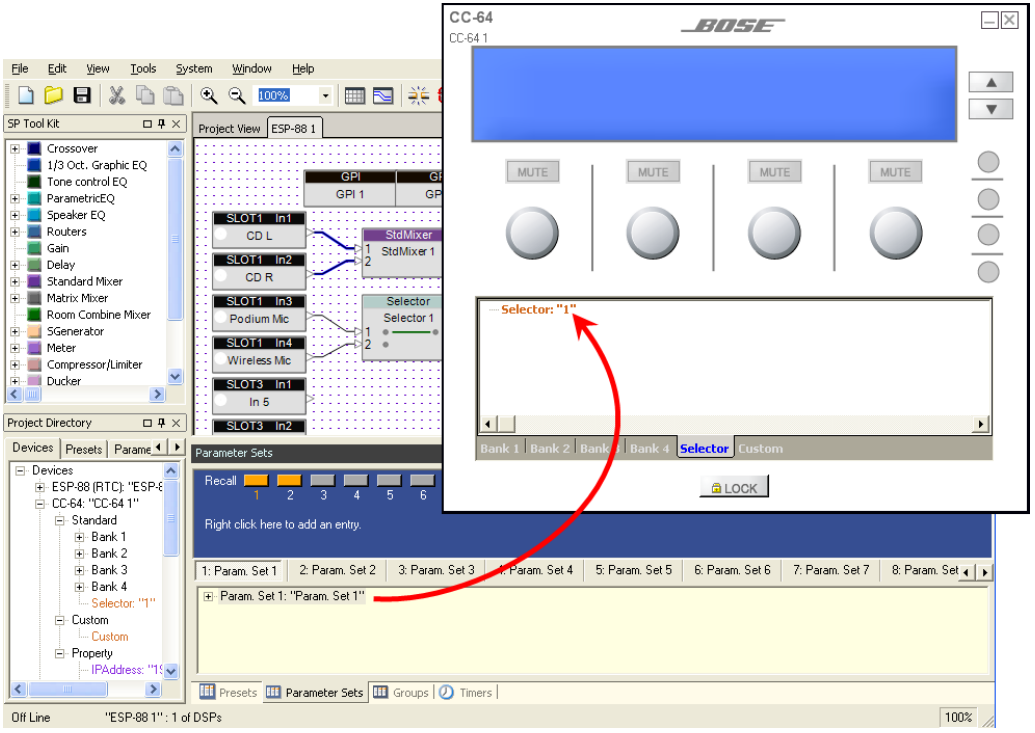

Figure 2.16 - Drag and drop into the Smart Simulator to program user controls, for example, program a CC-64 with a parameter set.

Step 5: Go online

To transfer the system design to the hardware and begin working online, press the **Go Online** button, and upload the configuration. A blue background indicates that you are online. When the system is online, all signal processing settings can be accessed and modified, but changes to the wiring and signal flow are not allowed.

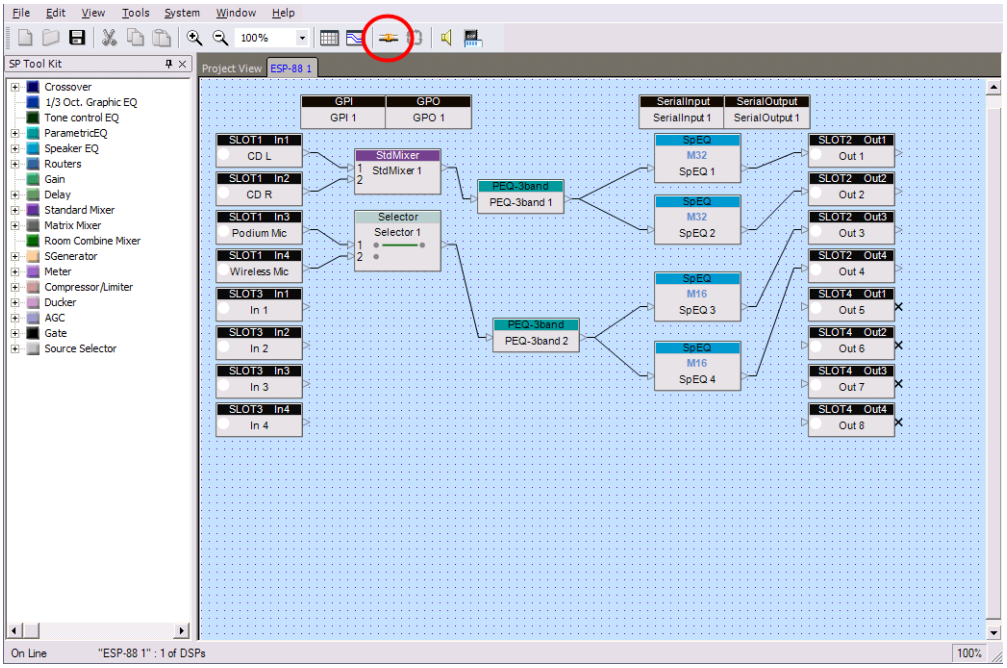

Figure 2.17 - On-line (blue background)

Note: **To go on-line, you must be connected to the hardware via Ethernet, and have your IP address correctly configured for a local network.**

Final Step: Disconnect

Press the **Go off-line** button before disconnecting your computer from the local network to properly deploy the ControlSpace ESP-88 system.

*Figure 2.18 - **Go off-line** button*