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SM-16X16-HD4K Installation Setup Demo with Control4

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CHANGES

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1. Introduction

This manual provides a demo on how to properly set up a test project to use NTI Control4 drivers, using the VEEMUX® SM-16x16-HD4K 4K Video Matrix Switch. This document is for Control4 installers and a basic understanding of Control4 controller and the associated Composer Pro software is required. To program a Control4 controller properly, please download, install and register the Composer Pro software.

Requirements; For this project, you will need the following components to perform setup:

- Control4 Controller (EA-5 is used in this manual.)
- Control4 SR260 Remote Controller
- VEEMUX® SM-16x16-HD4K 4K Video Matrix Switch
- DB9F-RJ45F Serial adapter
- 10-foot CAT5e/6 Ethernet Cable
- Two 1080p HDMI sources
- Two 1080p HDMI displays
- HDMI and Ethernet cables
- Ethernet switch
- WiFi-enabled router
- Android or iOS device with the Control4 App installed and configured correctly.

2. Hardware Installation

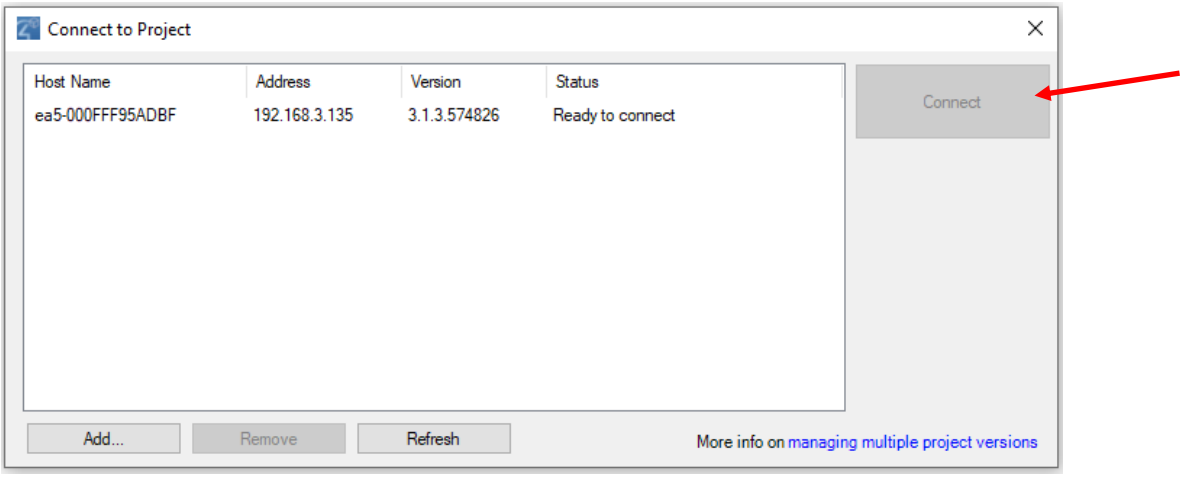
- Install the Zigbee Antenna to the Control4 controller EA-5 (if available).
- Connect the SM-16x16-HD4K's RS232 port to Control4 EA-5 Controller's Serial 1 port using the DB9F-RJ45F Serial adapter and the 10-foot CAT5e/6 cable.
- Turn ON the matrix switch and EA-5.
- For SM-16x16-HD4K, connect two video sources to HDMI IN 1 and HDMI IN 2, respectively.
- Connect an HDMI display (#1) to HDMI OUT 1.
- Connect another HDMI display (#2) to EA-5's HDMI port.
- Connect the Ethernet switch to the router.
- Connect the Controller to an Ethernet switch.
- Connect a PC with Composer Pro installed to the same subnet as the Controller.
- Connect the Router's WAN port to the Ethernet switch

Note: If you are familiar with Composer Pro, you can skip to page 6: Add Drivers. And if you are new to the Control4 system, please continue.

3. Connect to the Controller

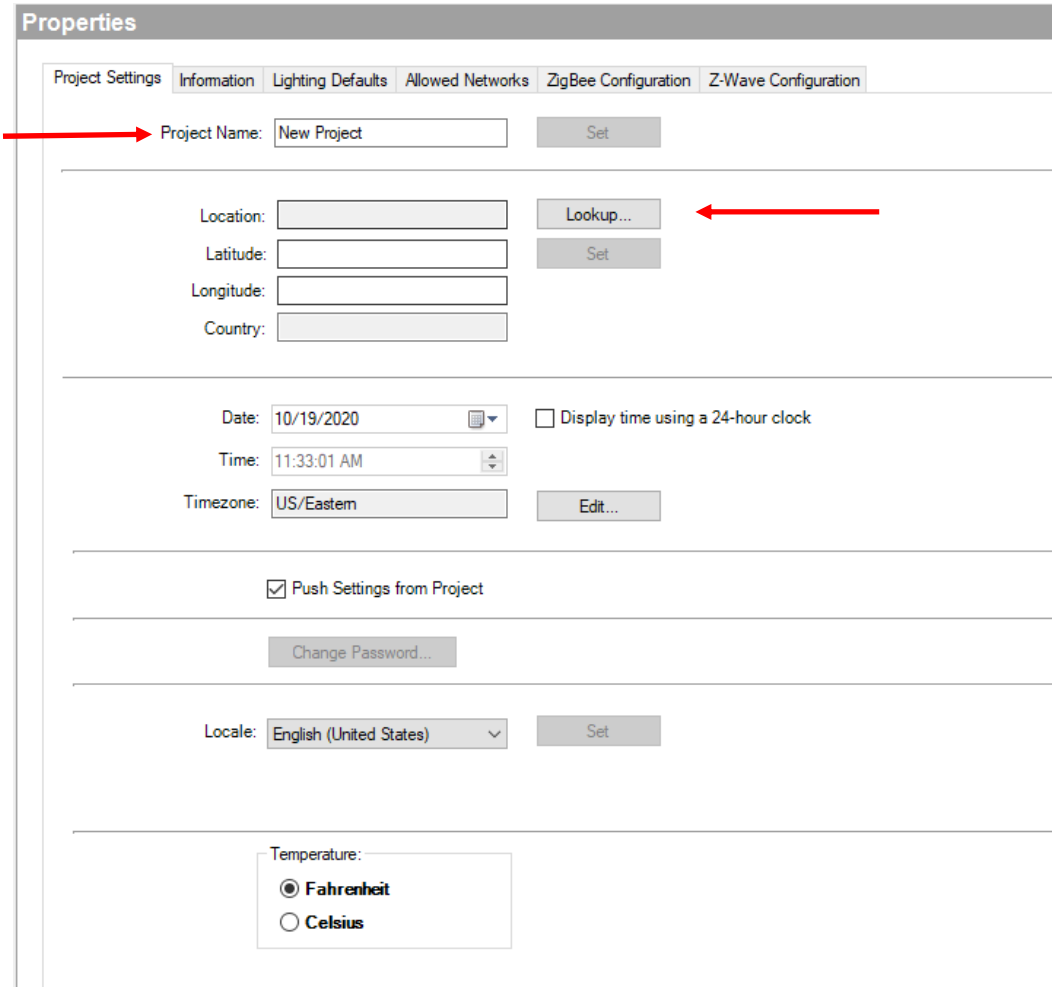
Open Composer Pro. Choose “Local System” in the popup window.

Composer Pro should automatically discover all Control4 Controller Units in the same subnet. Choose the controller to be used and then click “Connect”.

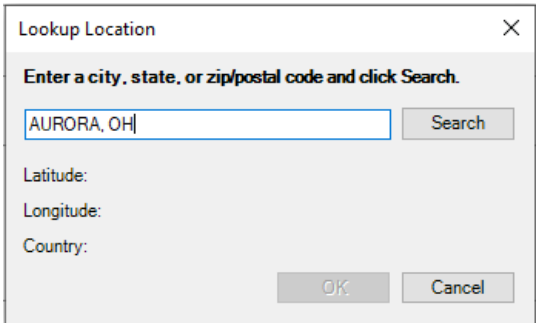


4. Project Setup

After you connect to the controller, you will see the Project Properties window in the middle of the screen. Choose a Project Name that you prefer and click “Set”.



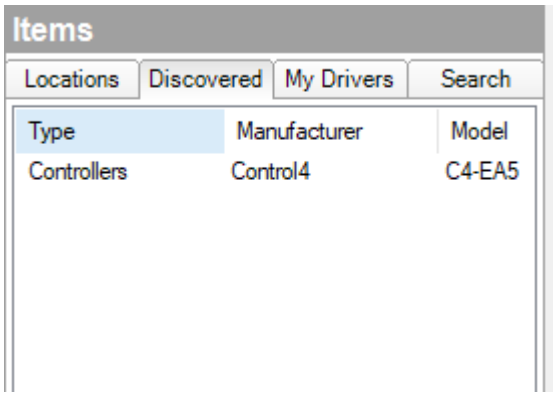
Click the “Lookup…” button (above) for Location. A window will pop up. Enter your city or zip code and click “Search”.



Note: Make sure that you choose your city from the listed search results.

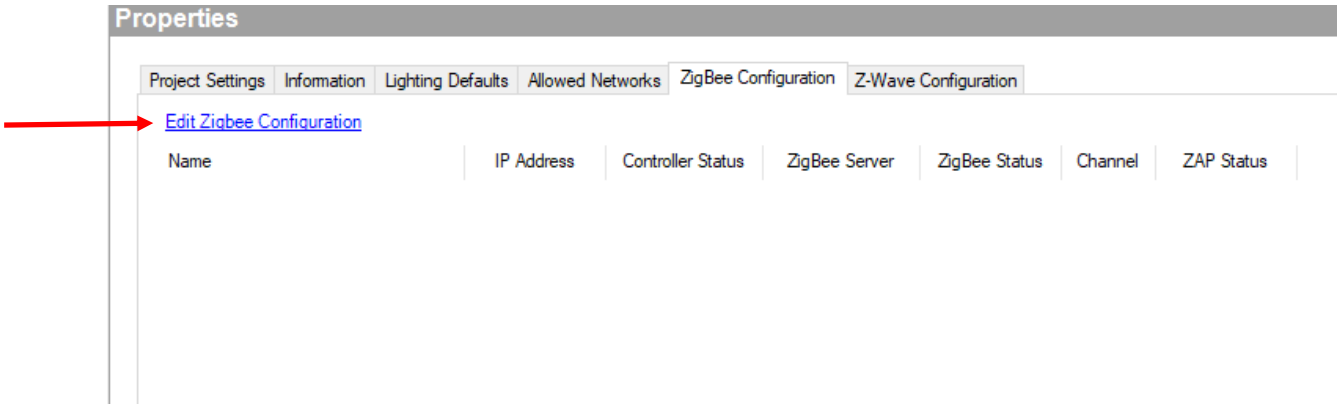
5. Add EA-5 Driver and Set up Zigbee Network

Look at the right side of the screen, you should find “Items”. In the Items page, click “Discovered”. You should see the Controller listed. Double-click it.

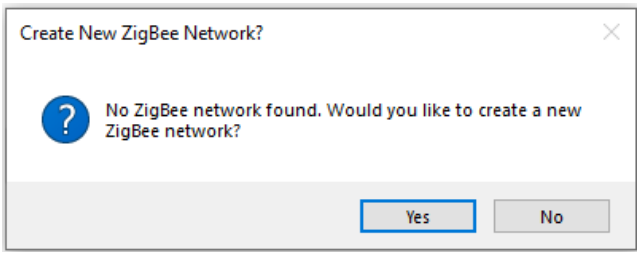


The “Control4” Controller should be added to your “System Design” Tree shown on the left side of the screen. Then, click “New Project” in “System Design”.

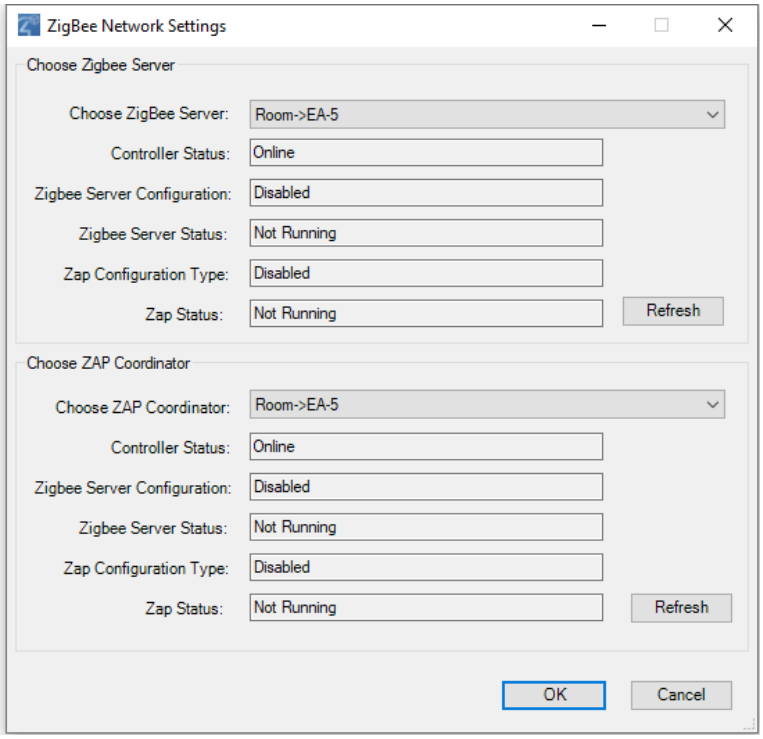
You should see your middle window go back to the first “Properties” page where we set up our project. We will setup Zigbee to work with the SR260 remote controller. In “Properties”, click the “Zigbee Configuration” tab. Find the blue underlined “Edit Zigbee Configuration” link and click it.

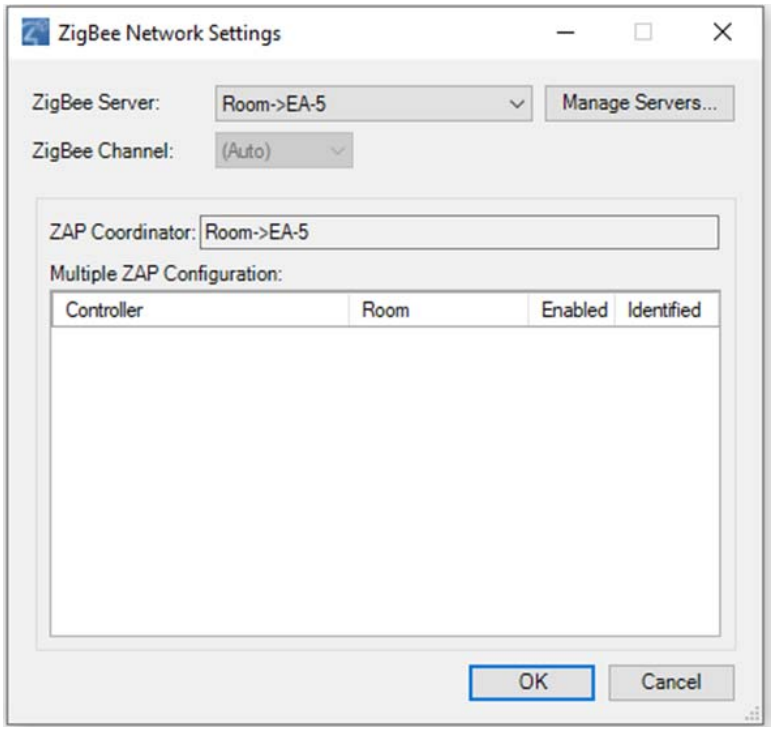


Click “Yes” to create a new Zigbee Network.

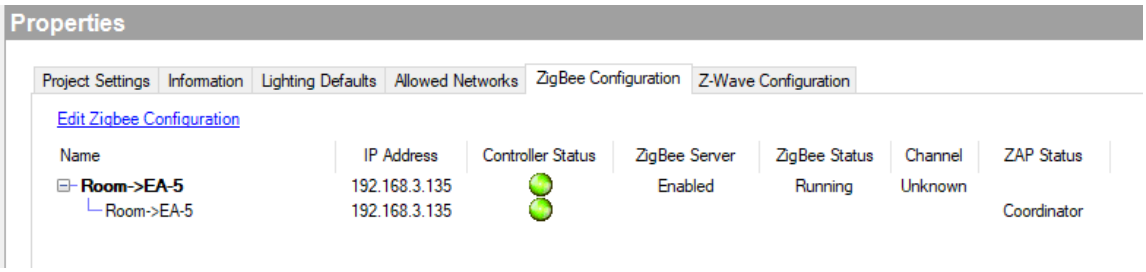


Click “OK” and then “OK” again.





You should see a new Zigbee Network created in the “Zigbee Configuration” The Properties page should be as shown in the image on the next page.



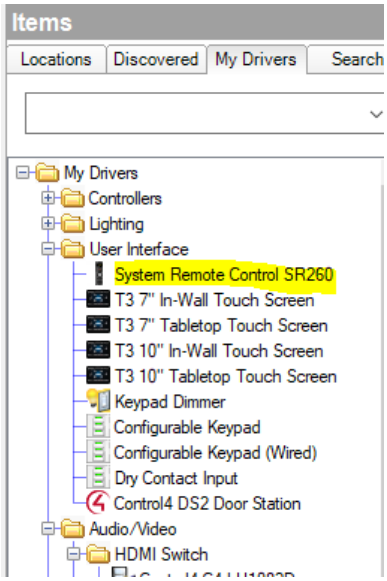
6. Add Drivers

Add Control4 Drivers for the Devices we use in this Project.

- **Control4 EA-5 Controller.** We have already added it in the previous section.
- **Control4 SR-260 Zigbee Remote Controller**. We will use “SR-260”.
- **AV Switch**. We will use “NTI SM-16X16-HD4K”.
- **HDMI Source 1**. We will use “generic DVD Player” driver in this manual. (You don’t have to use a real DVD player for this video source.)
- **HDMI Source 2**.We will use “generic DVD Player” driver again.
- **HDMI Display 1 connected to HDMI OUT 1**. We will use the HDMI1 port of a “LG Television” driver in this manual. (You don’t have to use a real LG television for video output.)
- **HDMI Display 2 connected to EA-5**. We will use the HDMI2 port of the created “LG Television” driver in this manual (Only for simplification. In a real project, you should add another TV driver for this.)

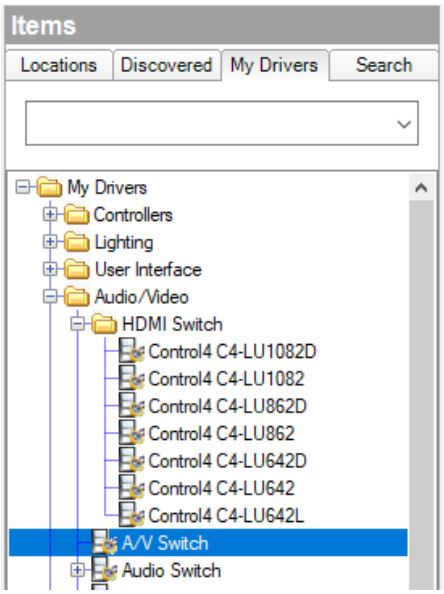
6.1 SR-260 Remote

Go to “Items” -> “My Drivers” -> “User Interface” -> Double-click “System Remote Control SR260”.



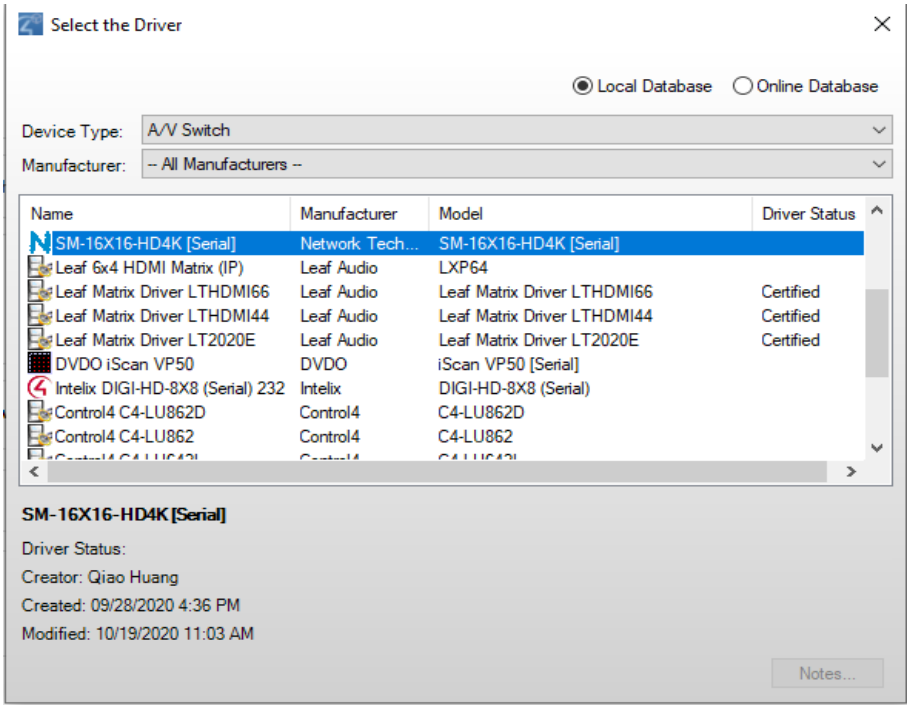
6.2 AV Switch

Go to “Items” -> “My Drivers” -> Double-click “A/V Switch”.



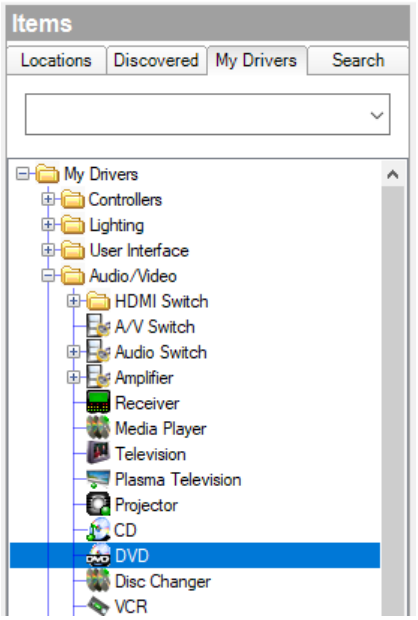
In the pop-up window, double-click “SM-16X16-HD4K [Serial]” in the list.

If the NTI driver is not listed here, we may need to manually download the driver from the NTI website and provide to Composer Pro. In this case download the AV switch driver with **.c4z** extension and add it to the Control4 Driver Folder **C:\Users\<username>\Documents\Control4\Drivers .**

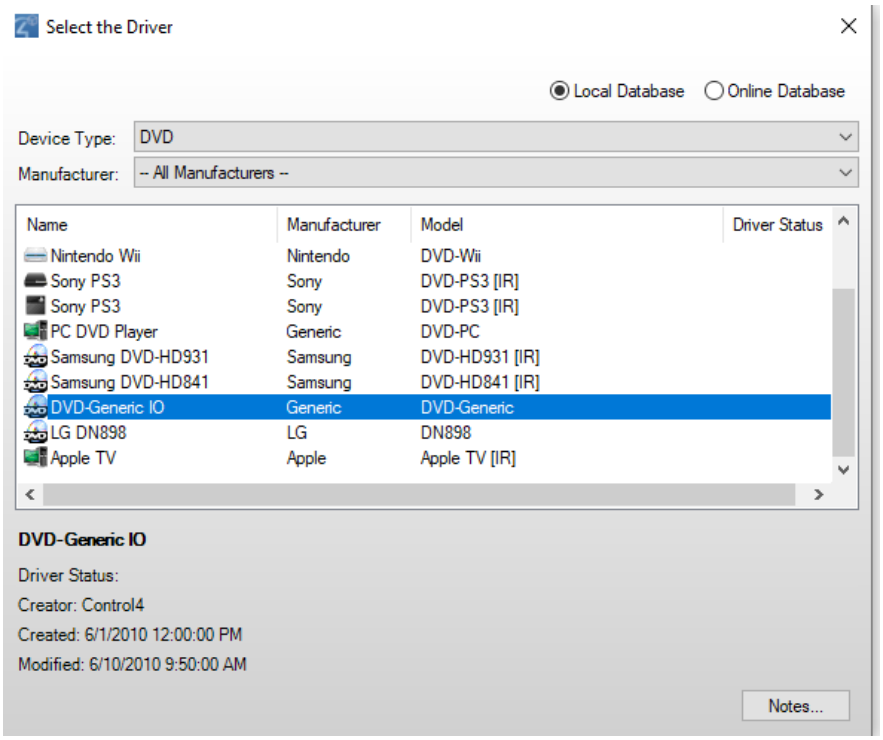


6.3 HDMI Source 1 and 2

Go to “Items” -> “My Drivers” -> Double-click “DVD”.

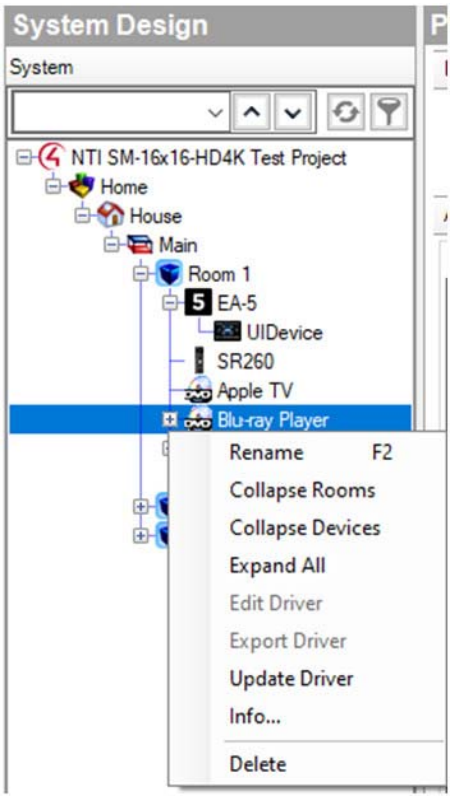


In the pop-up window, double-click “DVD-Generic IO” in the list.



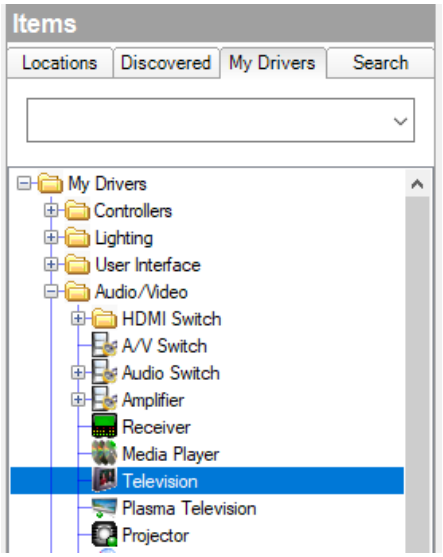
Repeat this step for adding another Video source Driver.

Go to the System Design Page. Right-click the HDMI Source drivers and rename them for easier recognition. In this example project, we will name them as “DVD Player” and “Blu-ray Player”, respectively, even though you don’t have to use DVD and Blu-ray players as video sources.

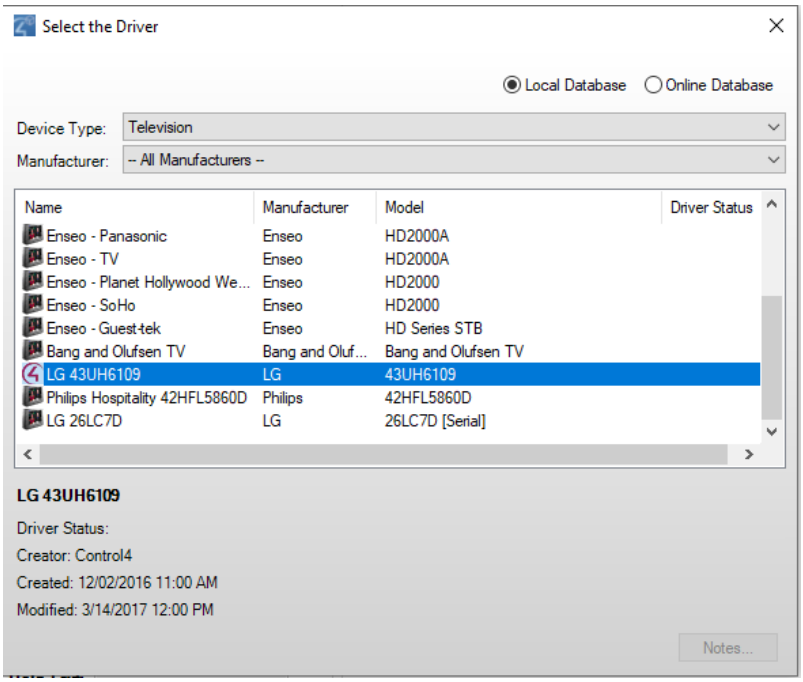


6.4 HDMI Display 1 and 2

Go to “Items” -> “My Drivers” -> Double-click “Television”.



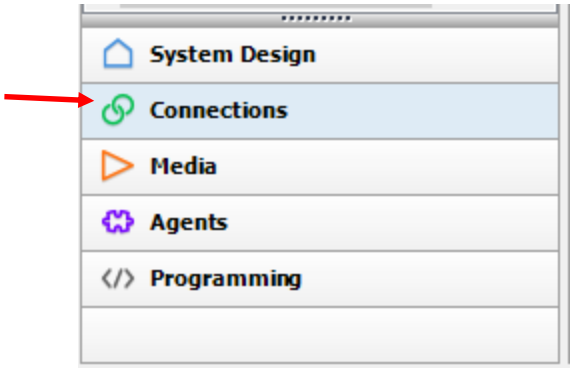
Double-click “LG 43UH6109”. If it’s not shown in the list, choose “Online Database” on the top right corner and search for LG Drivers.



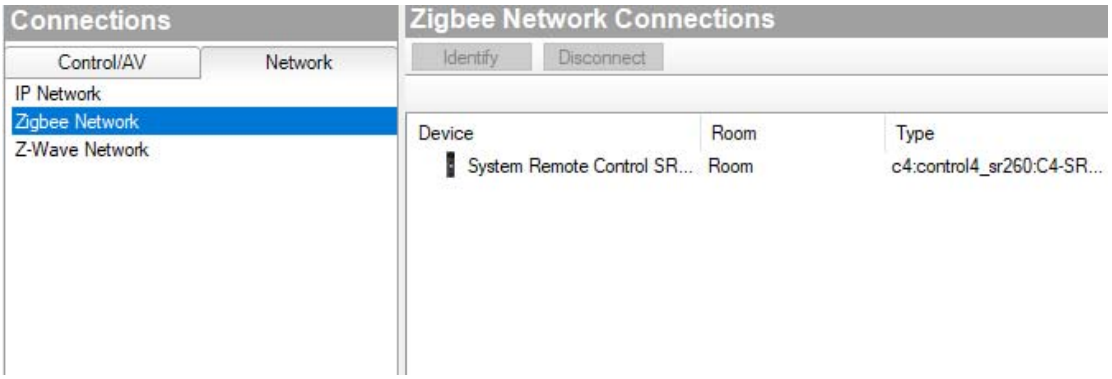
You don’t need to repeat this step as we want to keep this project as simple as possible. We will use this LG Television’s HDMI 1 port to simulate our Monitor 1 and HDMI 2 port to simulate our Monitor 2.

7. Make Zigbee Connection

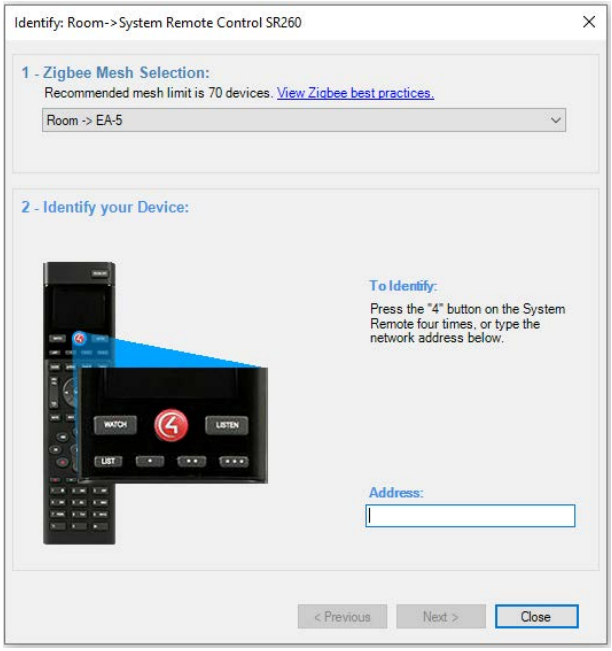
The next step is to let the EA-5 Controller know what the physical and Zigbee connections are. Check the bottom-left of the Composer Pro's main window. You should see "Connections" below "System Design" for which we have been editing. Click it.



On the left hand side, below the "Connections" Tab, choose the "Network" Tab and then the "Zigbee Network". You should see the SR260 Remote is listed here but not connected. Double-click this "System Remote Control SR260".

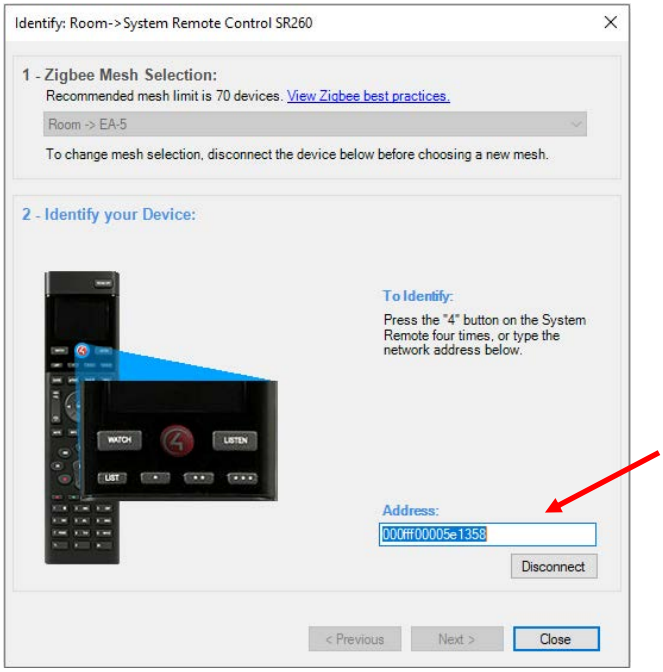


You should see the identification window pops up. Follow the instruction and press the red "4" button four times and wait until an address shows up in the text box.

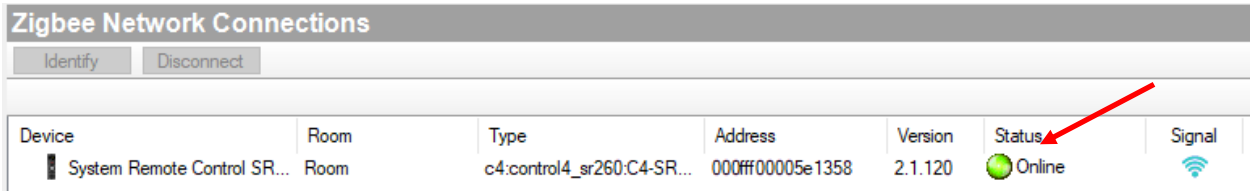


If you receive an error message at this step, go back to the **Add EA-5 Driver and Set up Zigbee Network** section of this manual (page 4), remove the created Zigbee network, and then recreate it. (This might take up to 3 minutes.) After the Zigbee network is recreated, wait at least 1 minute before you come back to this "Connections" page and try again to identify the remote.

Once you see an address in the Address block, click "Close".

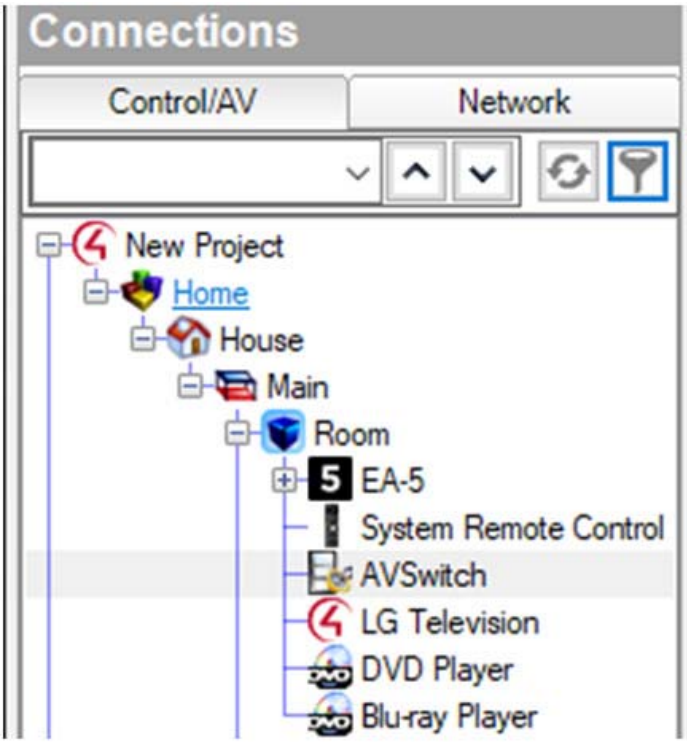


If you see the “status” is “Online”, then the remote has been successfully identified and connected to the EA-5 controller.

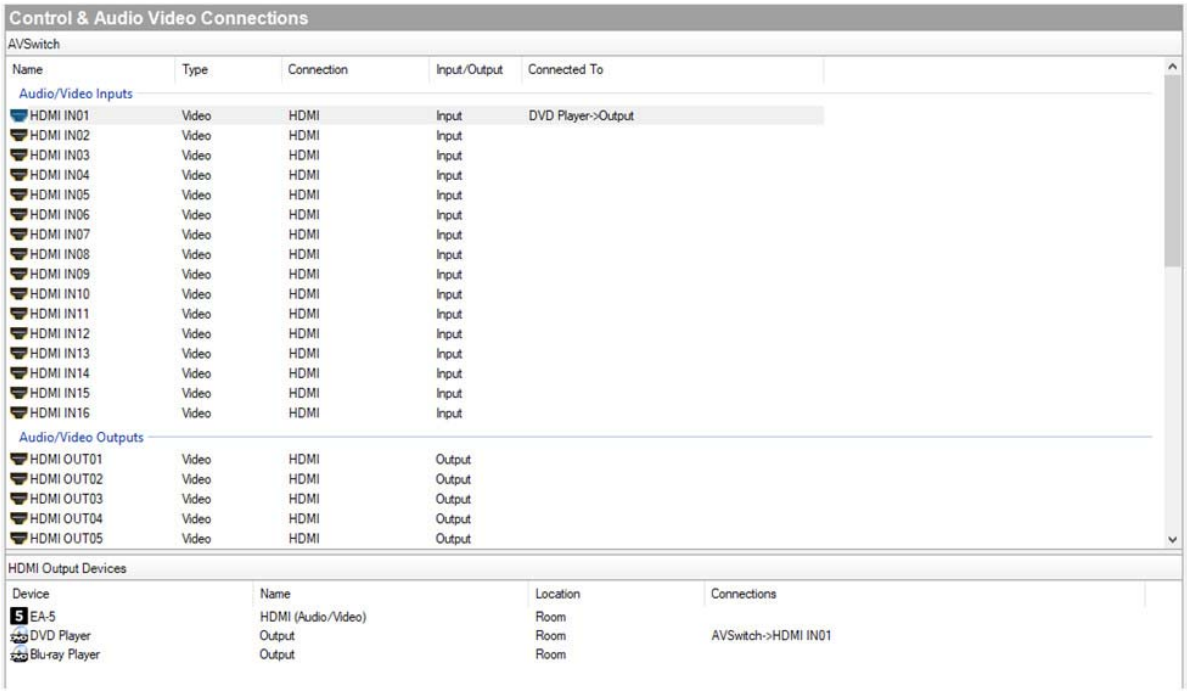


8. Map The Connections

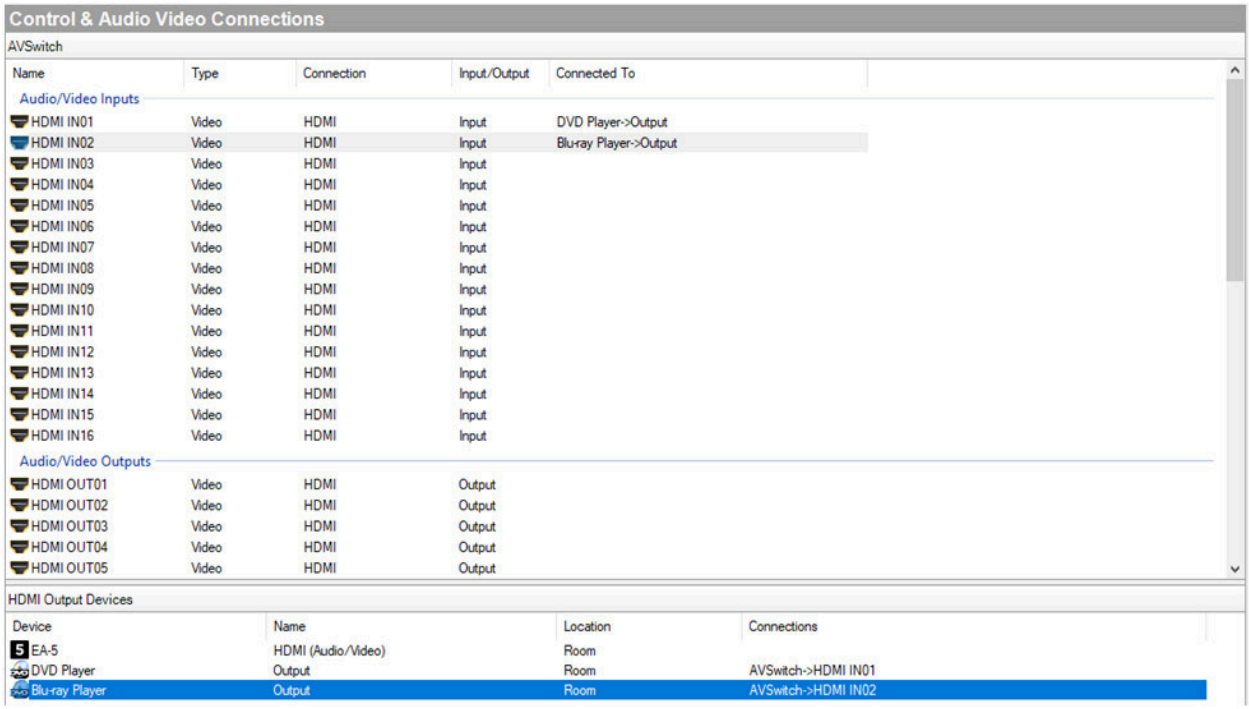
The next step is to map the connections as needed. Go to “Connections” -> “Control/AV” Tab. Choose “AVSwitch”.



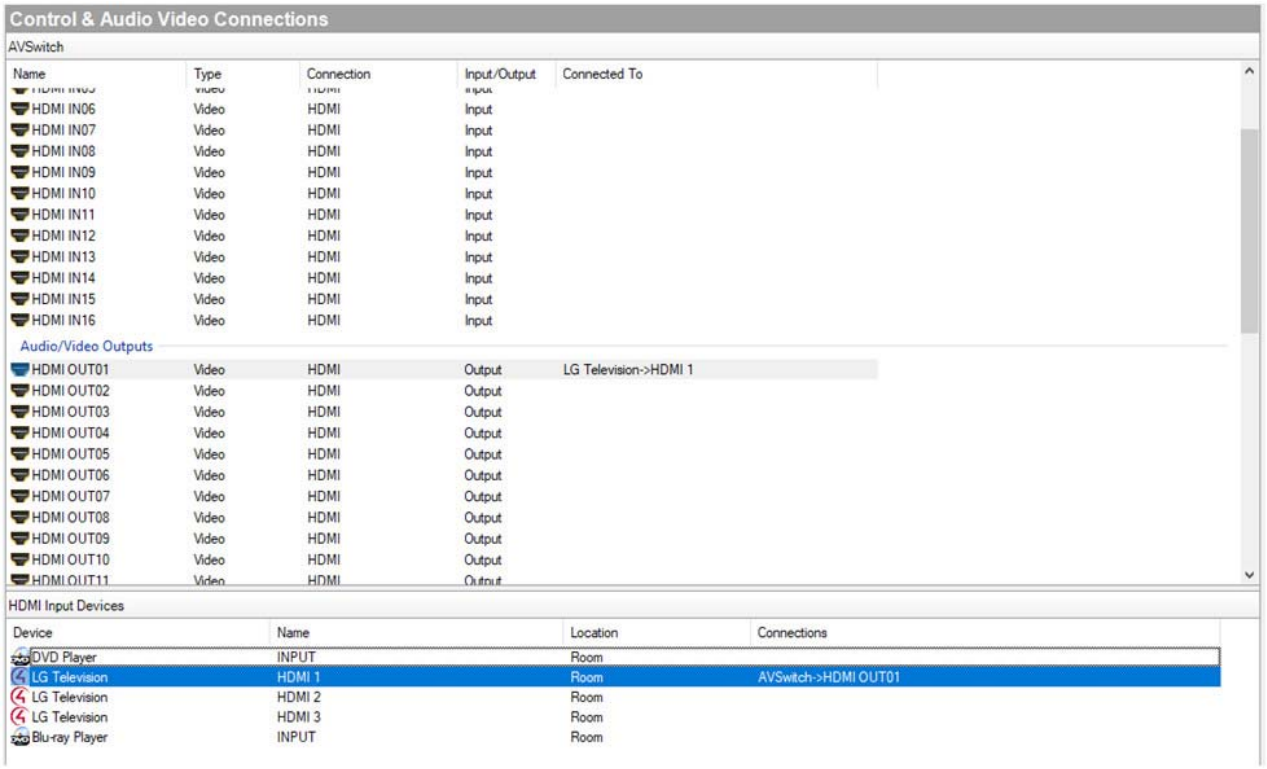
Find the “HDMI IN01” at the top of the list, select it using a mouse and drag it to the “DVD Player” in the “HDMI Output Devices” list at the bottom.



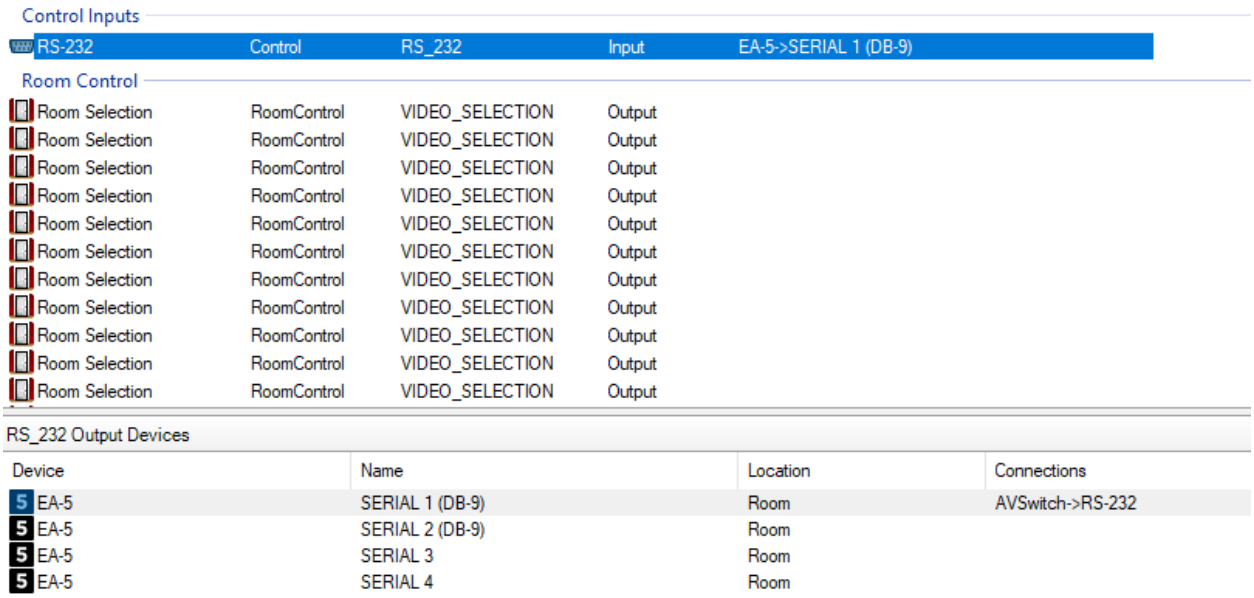
Repeat this step dragging “HDMI IN02” to “Blu-ray Player”.



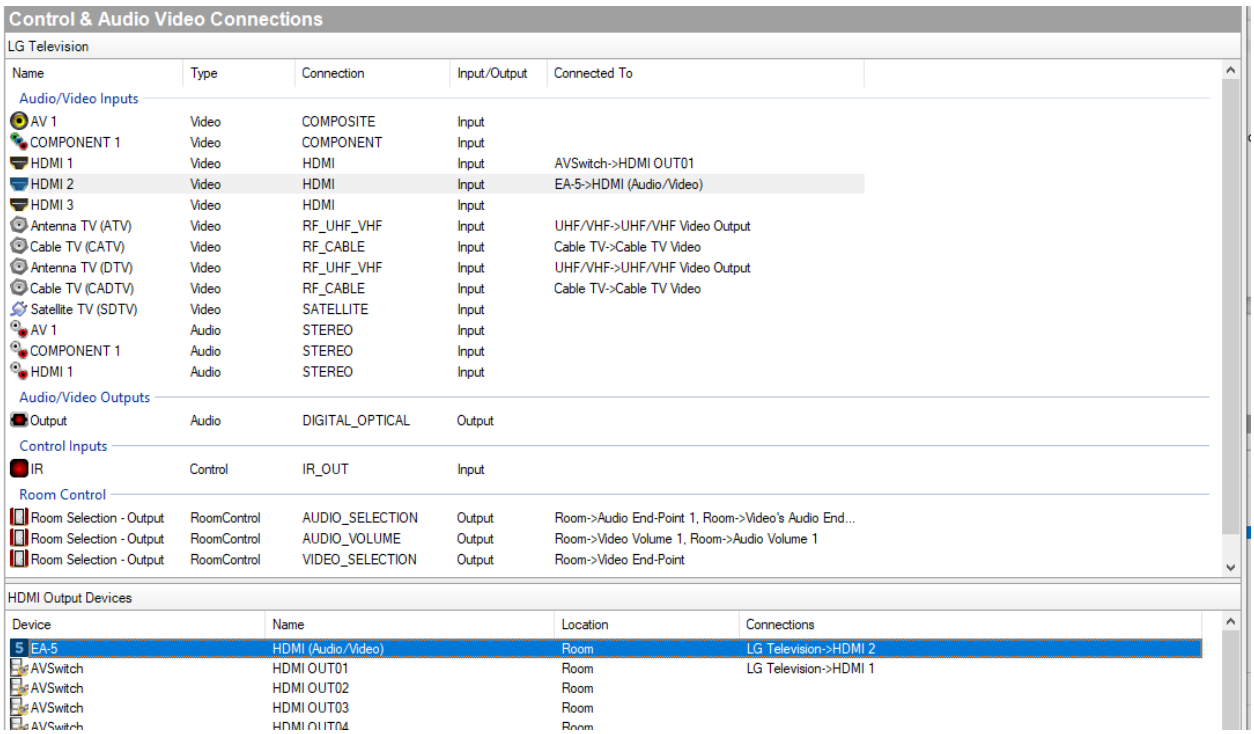
Find the “HDMI OUT01” from the list on the top, drag it to “LG Television -> HDMI1” in the list on the bottom.



Connect (drag) the “RS-232 Control” to EA-5’s “SERIAL 1 (DB-9)”.



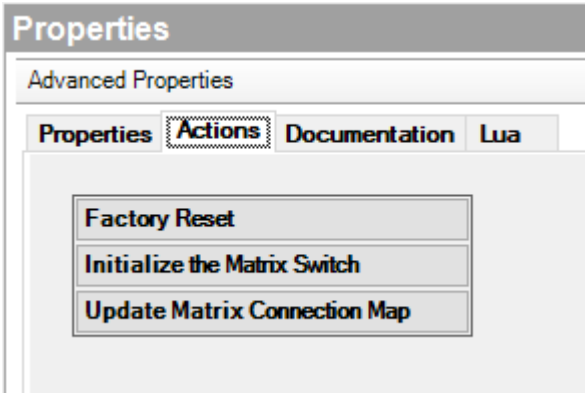
Next, choose “LG Television” in the “Connections” -> “Control/AV” Tab. Connect (drag) “HDMI 2” TO EA-5’s “HDMI” port.



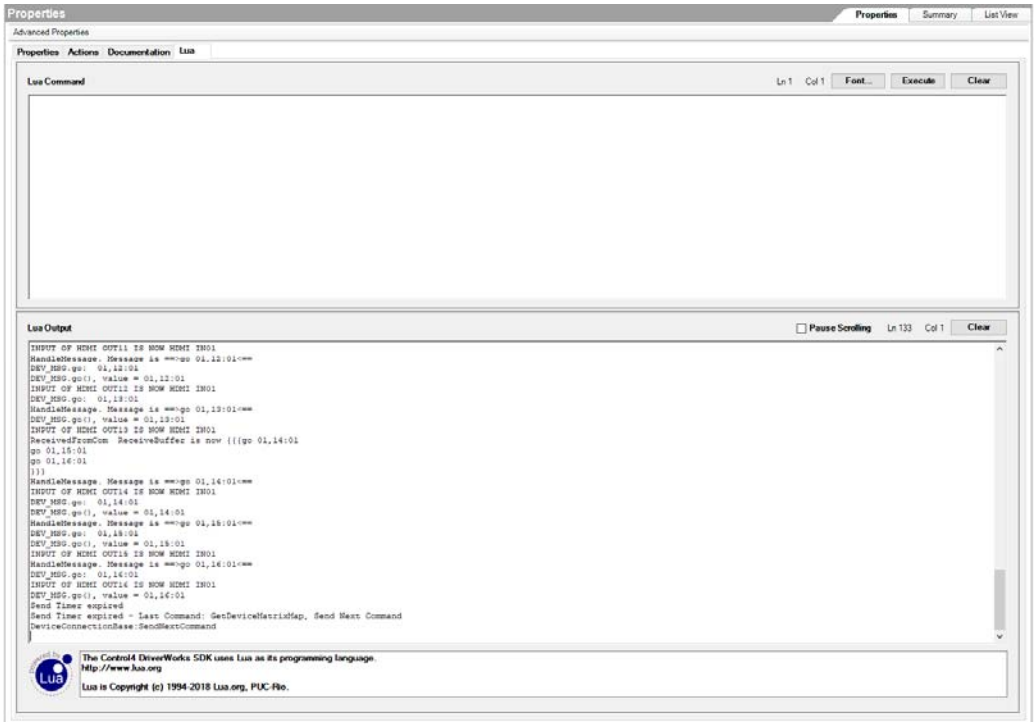
Now all of our connections have been finished.

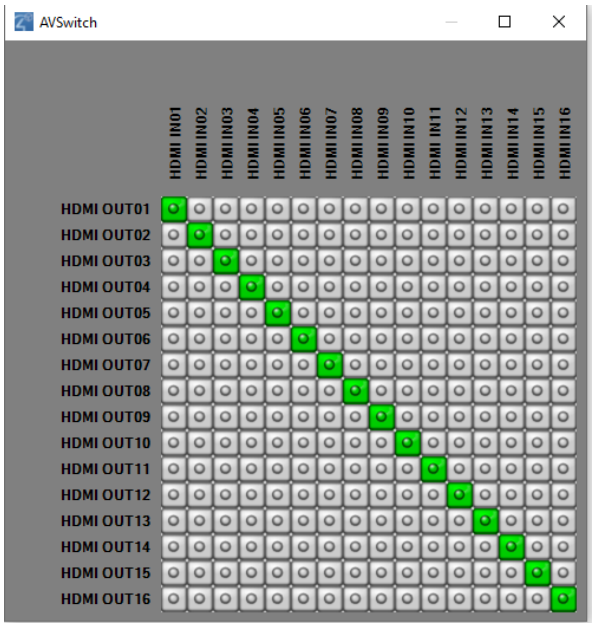
9. Action Test

Go to “Properties” -> “Actions”. You should see a few actions available.



Click “Initialize the Matrix Switch” button. This will enable the autostatus function and update the matrix connection map. After you click this button, you should see the LUA log has been updated and the connections have been read by the connection map GUI.



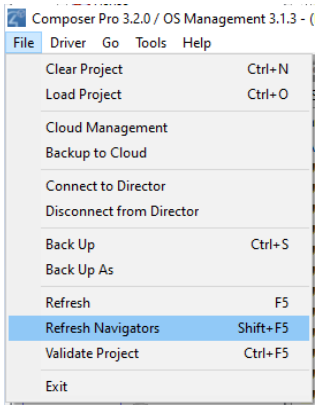


You can test other actions as described in *Documentation* tab under the Properties tab.

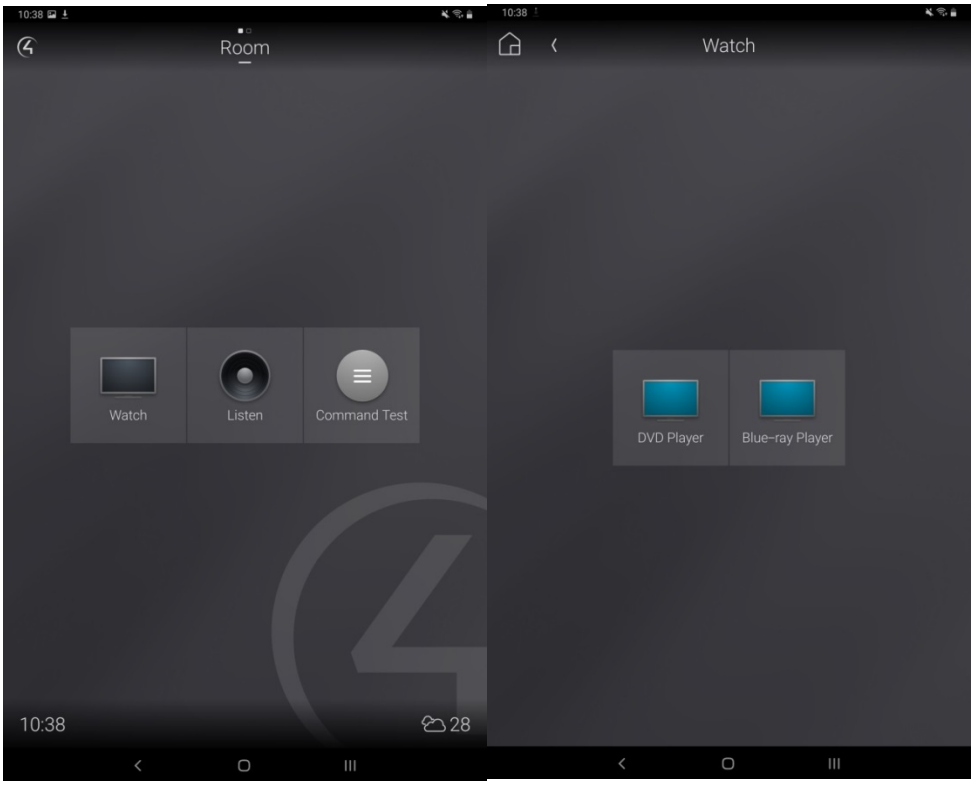
10. Customer's View: Navigator

Now that we have set up the connections and the initialization has been completed, the user can now use this AV system. The Control4 Navigator interface can be seen on the HDMI Display #2 because we have connected the EA-5 controller to it. A user can use the SR260 remote to switch video sources. In this manual, we will show how a user uses the Control4 app to control the SM-16x16-HD4K matrix switch.

Click File -> **Refresh Navigators.**



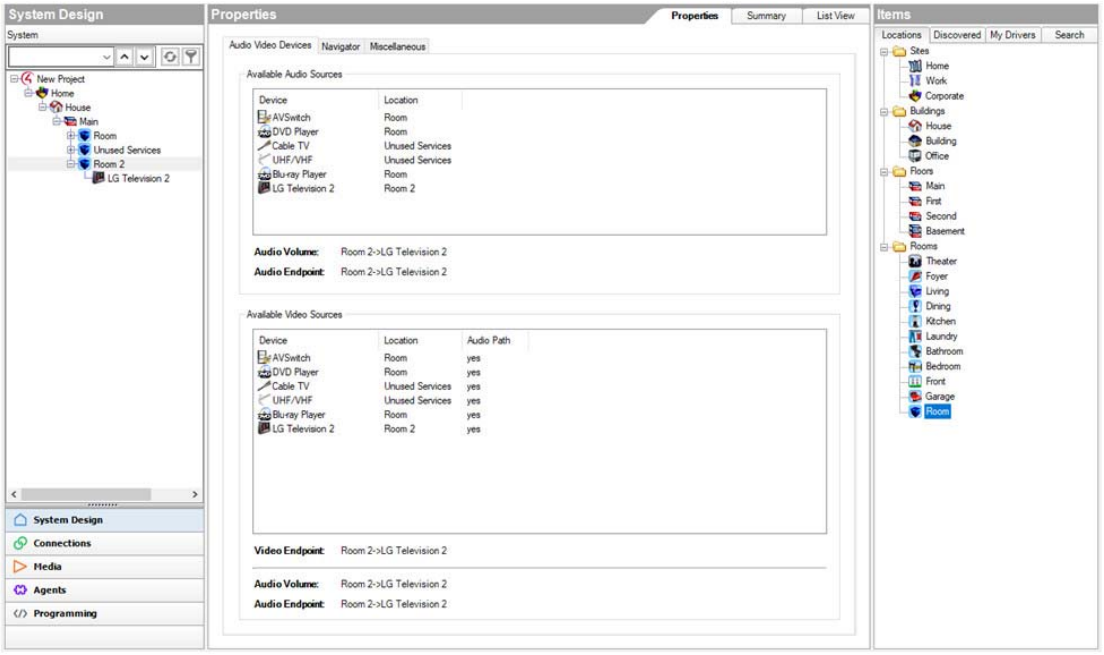
Open the Control4 app on the Android or iOS device. . Make sure the device is in the same subnet with the Control4 controller . You should see the home page below. Click "Watch". The two available video sources will appear. Choose "DVD Player" (or "Blu-ray player"), you should see the HDMI Source #1 (or #2) playing on the HDMI Display #1.



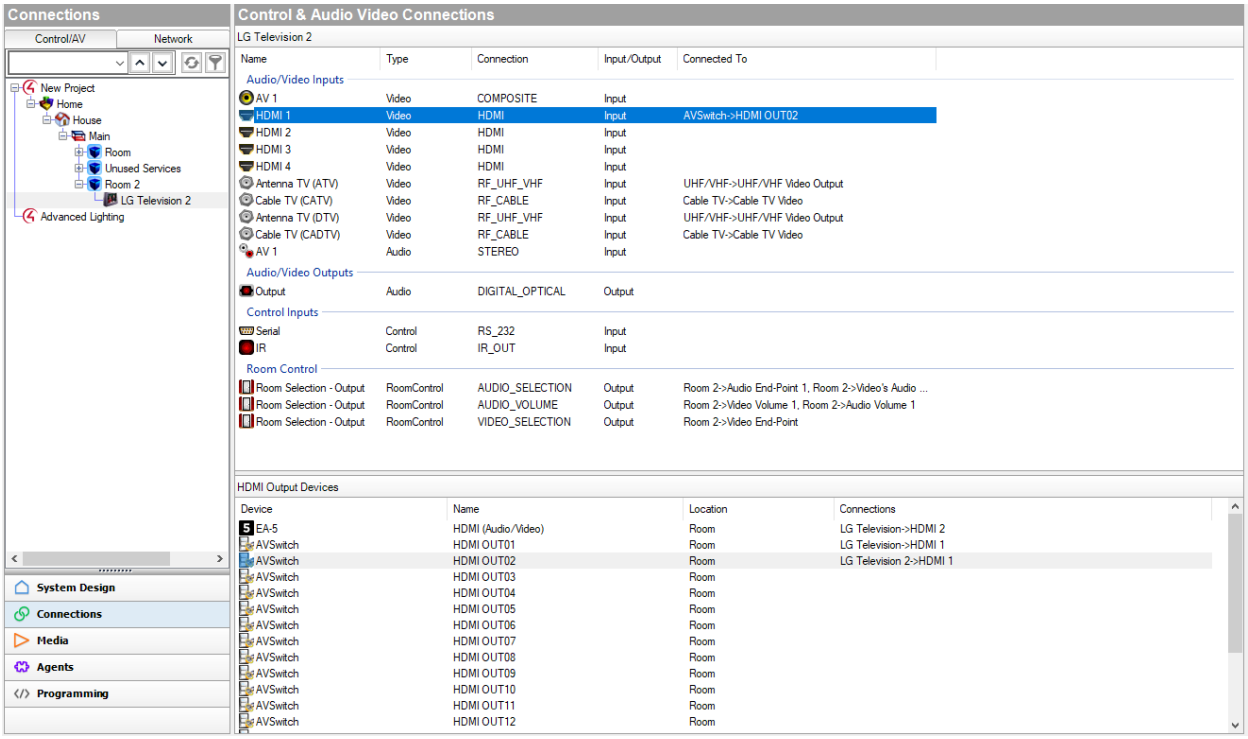
11. Multiple Video Outputs

Up to now, the basic usage of the NTI driver is complete. This example project shows a 2 input by 1 output video setup. If you prefer to make multiple output video, please go to the Composer Pro's Connection page; connect the corresponding HDMI output port of the matrix switch to other TVs. Note that usually each room can have one video endpoint (TV). To switch the video source for other TVs, you will have to set up other TVs in different rooms and assign them as the video endpoint.

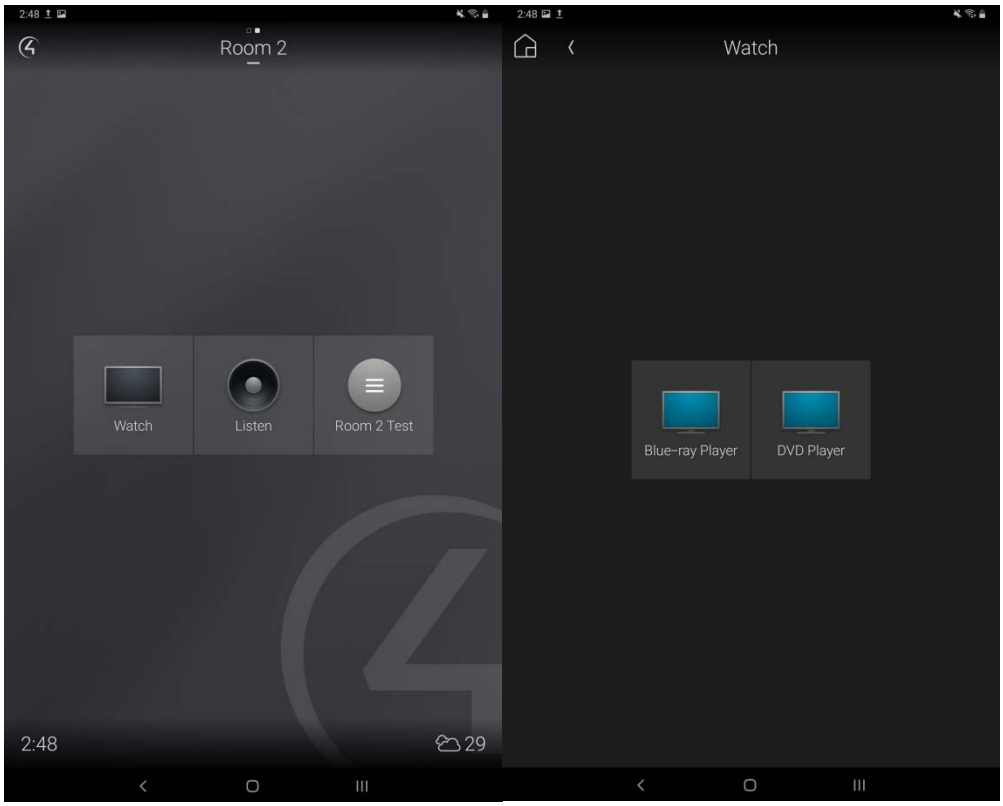
Go to the System Design page. Create a new room called "Room 2" by double-clicking the "Room" shown in the Locations Tab on the right. Then, create another TV driver. Since it's the only display in this room, it will be automatically assigned as the video endpoint of the room.



Then, go to the Connections page, connect this TV's HDMI 1 port to the AVSwitch's HDMI OUT02 port.



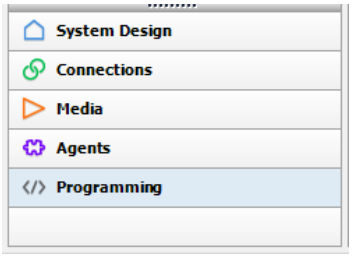
After refreshing the navigator (page 19), you should see Room 2 showing up in the navigator interface and you can assign its video source like you did for the TV in Room 1.



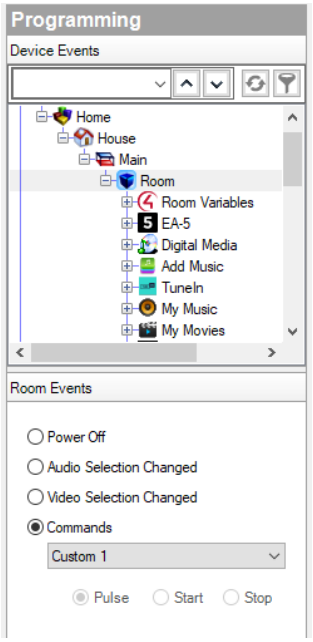
12. Programming Test

This section will show you how to test the programming.

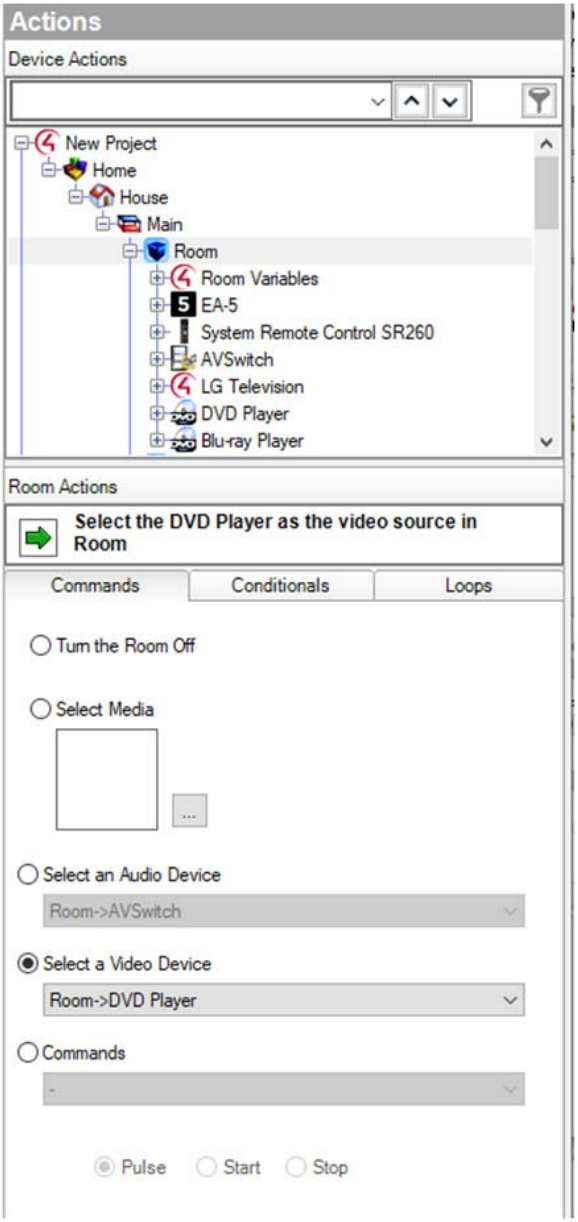
Go to the Programming Page.



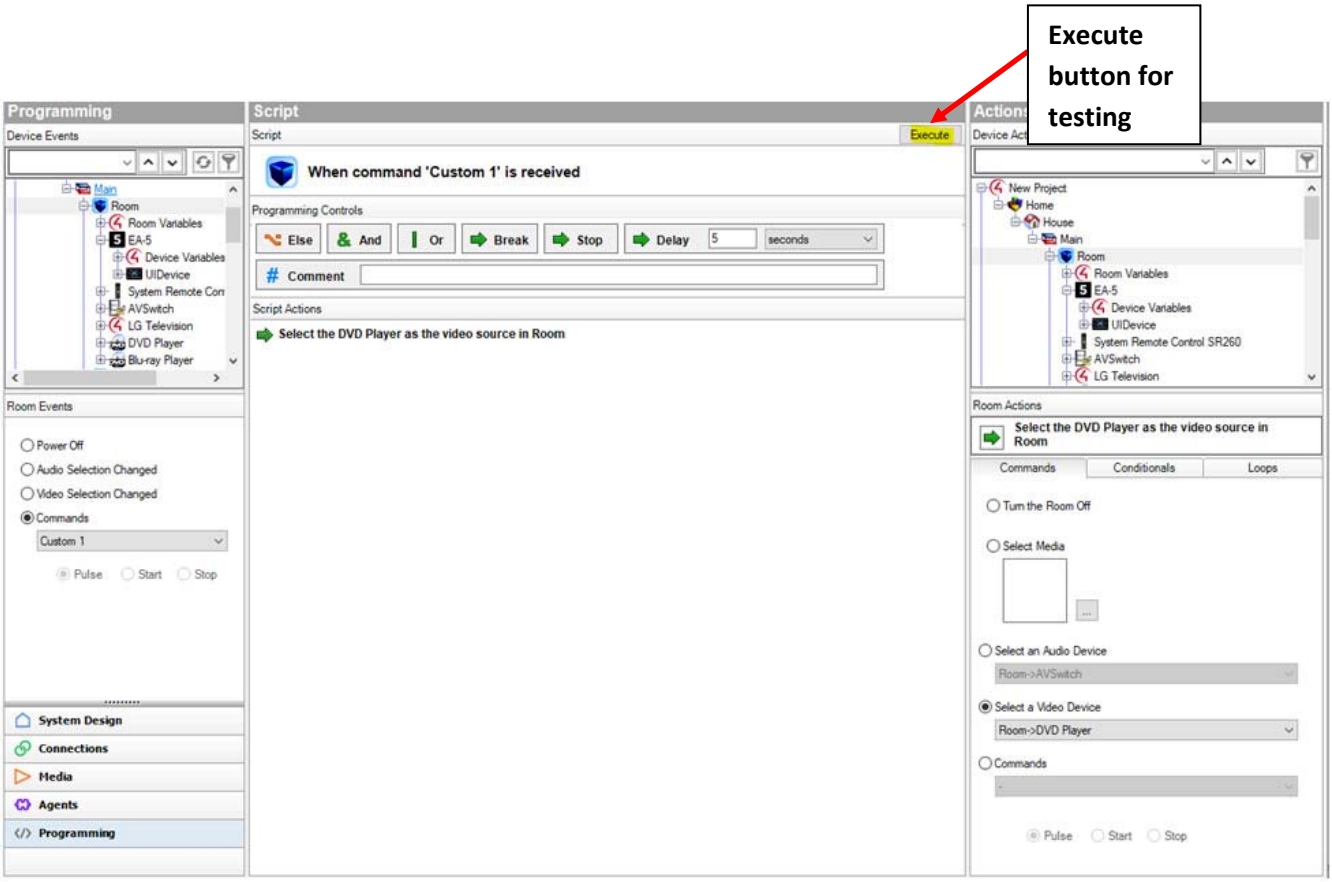
Let's create the simplest programming. A complete programming includes an event and an action. When the Event is triggered, the programming will execute the Action. Let's specify the Event as **"The '.' Button to the right of the "LIST" button on the SR260 Remote is pressed"**. You can find it in Device Events -> Room -> Commands -> Custom 1.



Next, on the right side of the window, find “Room” in the “Action” list (below). In the “Command” tab, you may specify an Action. Use the mouse to drag the green arrow to the middle “Script” window to add this Action to the Event.



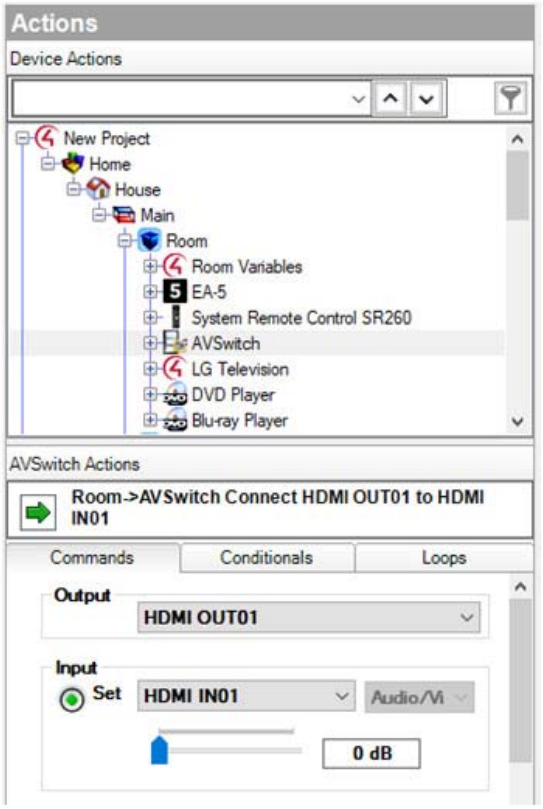
In the image above, we ask the matrix switch to connect the video source to the DVD player for the TV.



After you drag the Room Actions to the script window, please try to press the “Custom 1” button on the remote and check if the video source switches. Also, you can use the “Execute” button on the top right corner of the “Script” window to test the action itself, only for testing purposes.

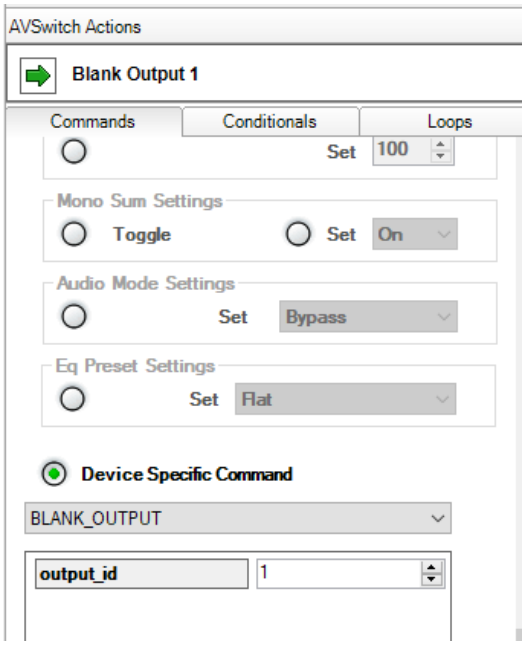
12.1 Special Note for switching video sources

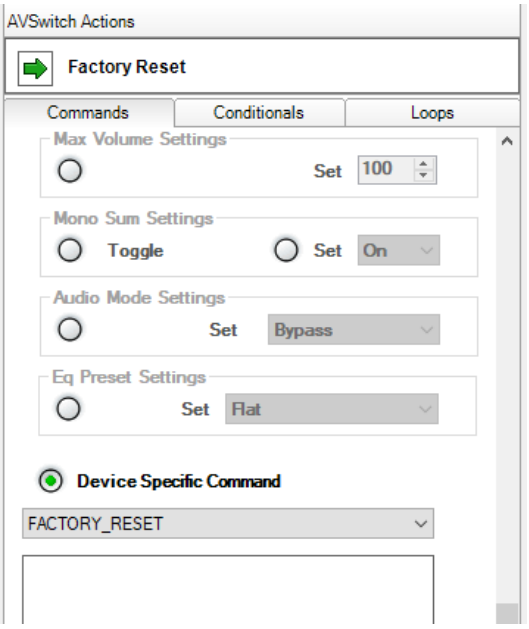
Note that when you create a program to switch video sources, ALWAYS use the Room's Video Device. DO NOT use the AVSwitch's "Connect HDMI OUTxx to HDMI IN yy" like shown below. If you program in this way, the video session on the Navigator screen will not be synchronized. It's a Control4 idiosyncrasy. This also applies to the "Conditionals" and "Loops" where an HDMI OUT is associated with an HDMI IN. Please keep in mind that in the AVSwitch's programming page, ONLY use the "device specific commands".



12.2 Device Specific Commands

You can find the device specific commands at the bottom of the commands list. Some commands have parameters which you can specify, while some don't. Below shows an example to Blank Output #1 and another example for Factory Reset.





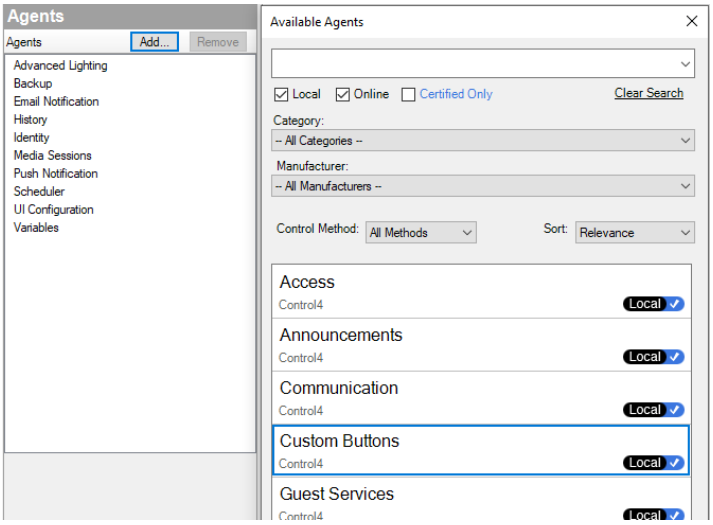
Same as in the previous example, drag the green arrow to the “Script” window and click “Execute” to test the command.

13. Custom Button Agent

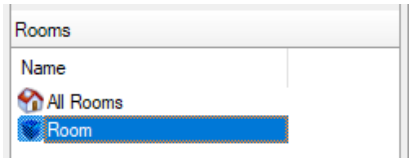
We know that we cannot use all buttons on the SR260 Remote since other devices might want to use it as well. As Control4 dealers, you might prefer using the custom button agent to program some common commands that your customers often use.

Go to “Agents” Page.

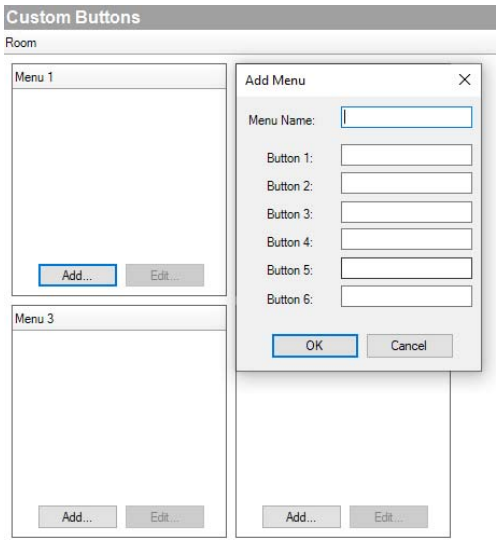
In the “Agents” window, click the “Add…” button. In the pop-up window, find and double-click “Custom Buttons”.



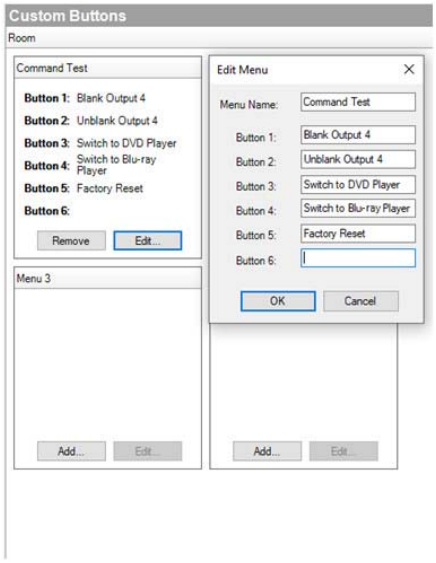
Below “Agents”, find the ”Rooms” window, click “Room”.



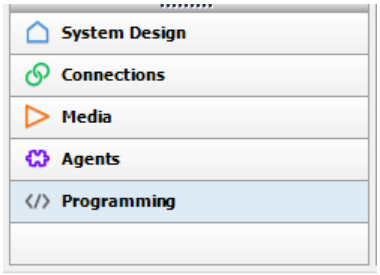
For “Menu 1”, click “Add…” button. Specify a menu name and six button names. (It’s not necessary to use all six buttons.)



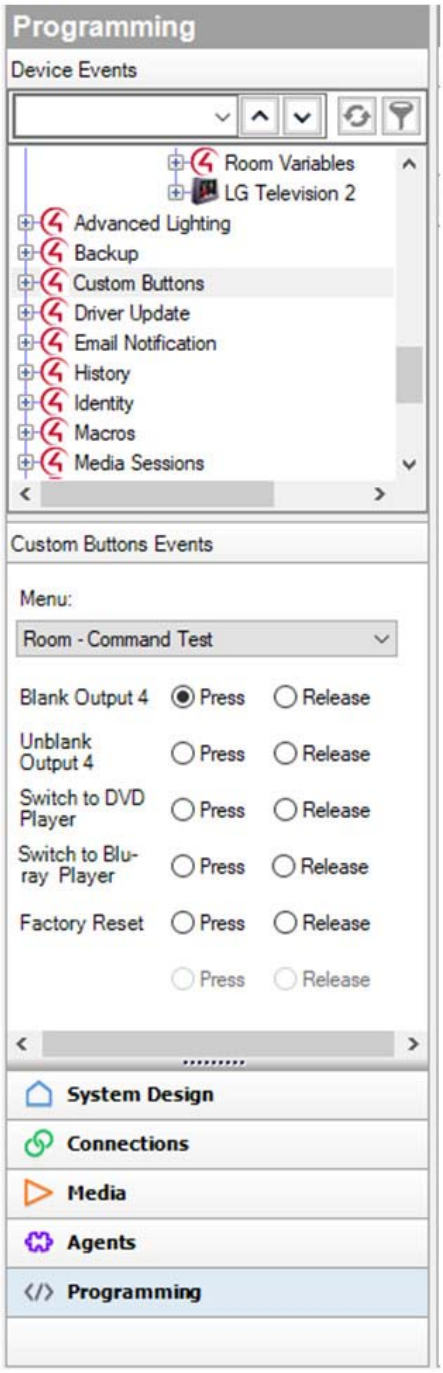
Below is an example. When finished, click “OK”.

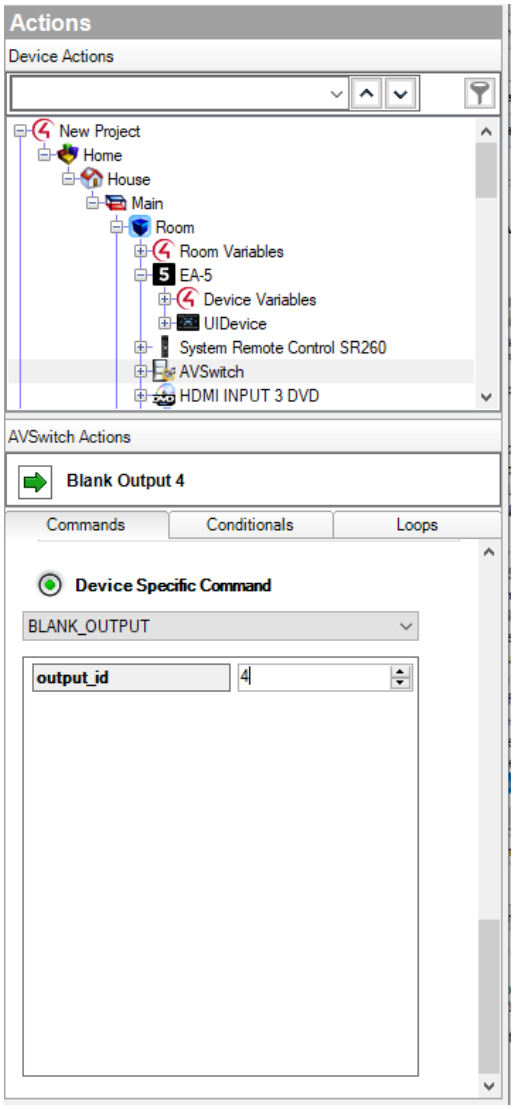


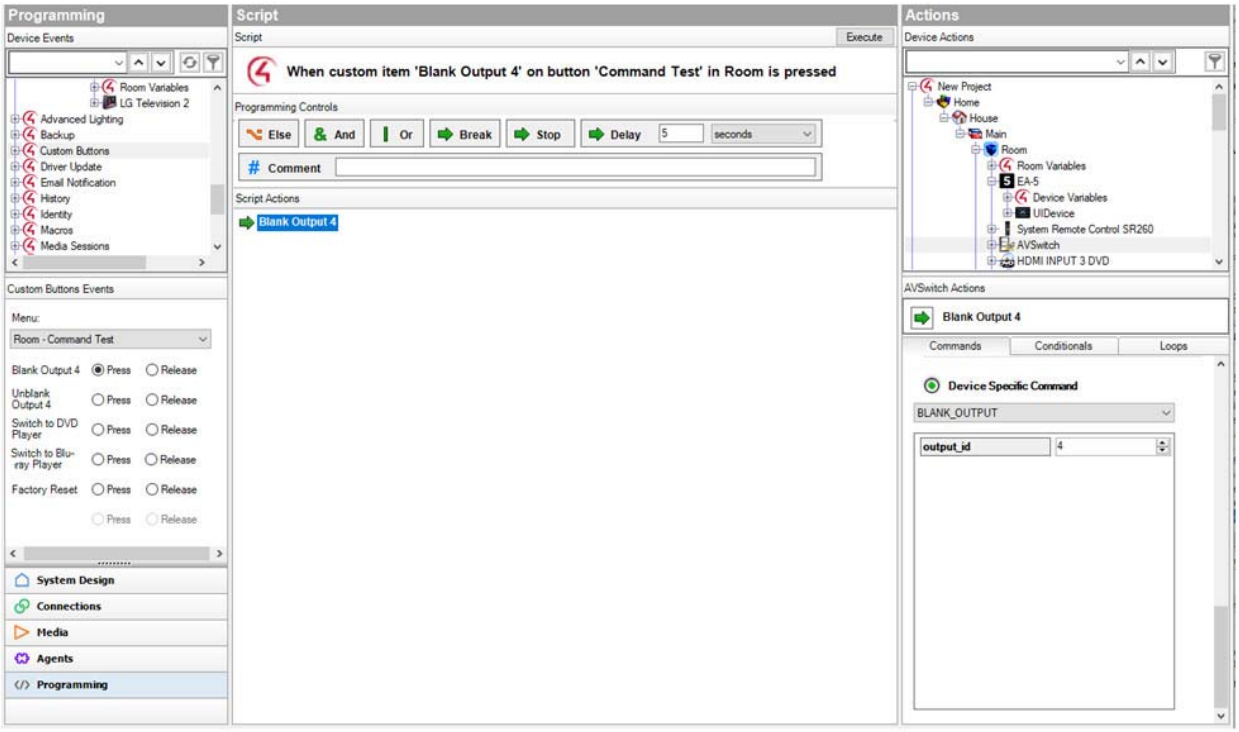
Then, go to “Programming” Page.



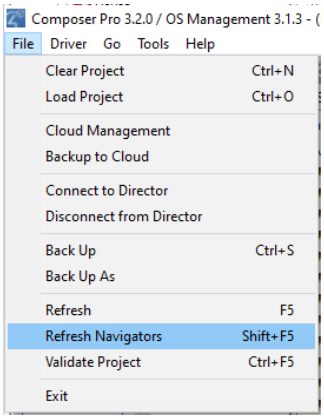
Find “Custom Buttons” in the “Device Event” window. Choose “Press” for a button, and program it as what we have done in the previous section.


Programming
Device Events
Room Variables
LG Television 2
Advanced Lighting
Backup
Custom Buttons
Driver Update
Email Notification
History
Identity
Macros
Media Sessions
Custom Buttons Events
Menu:
Room - Command Test
Blank Output 4 Press Release
Unblank Output 4 Press Release
Switch to DVD Player Press Release
Switch to Blu-ray Player Press Release
Factory Reset Press Release
Press Release
System Design
Connections
Media
Agents
Programming

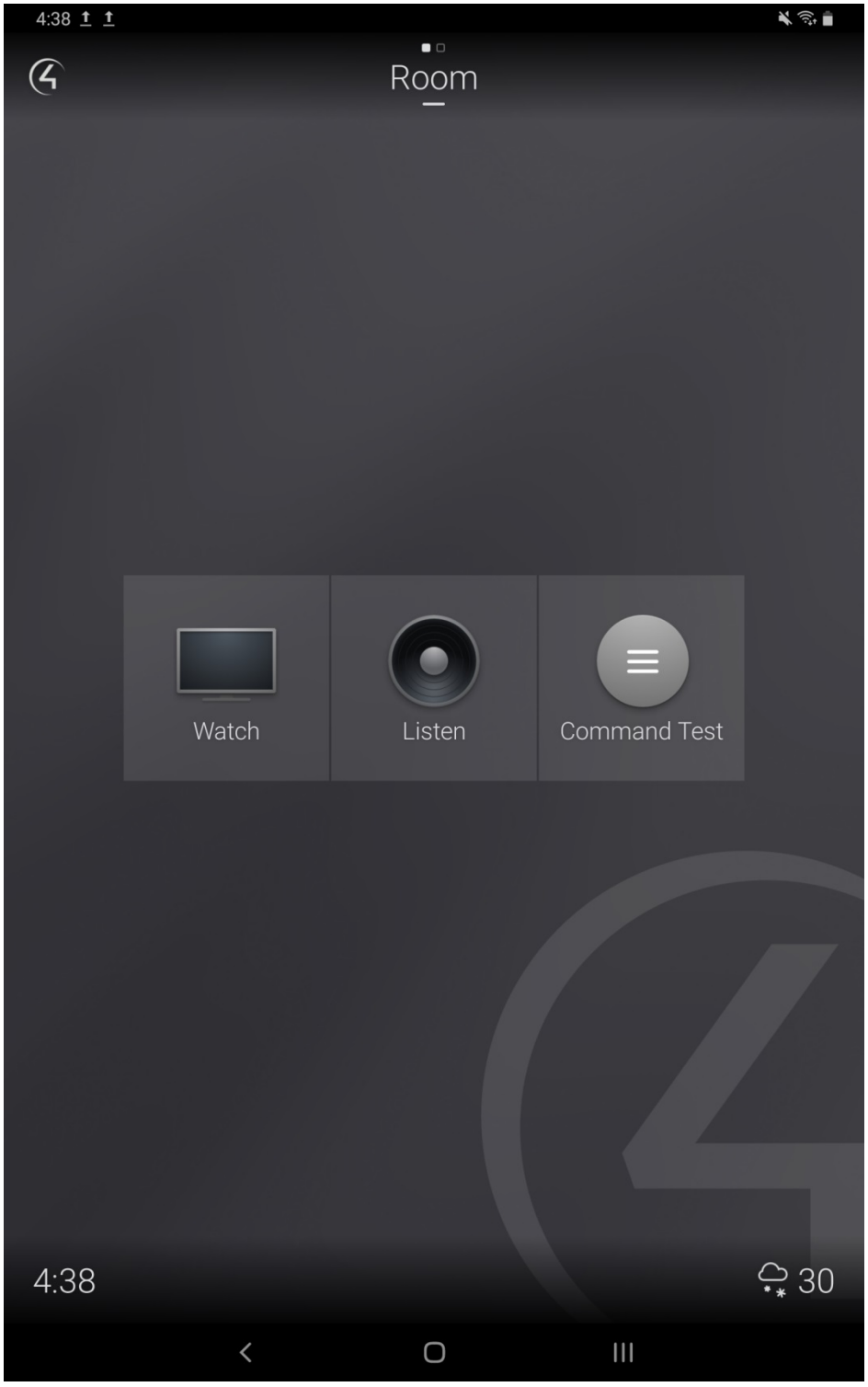

Actions
Device Actions
New Project
Home
House
Main
Room
Room Variables
EA-5
Device Variables
UIDevice
System Remote Control SR260
AVSwitch
HDMI INPUT 3 DVD
AVSwitch Actions
Blank Output 4
Commands
Conditionals
Loops
Device Specific Command
BLANK_OUTPUT
output_id
4



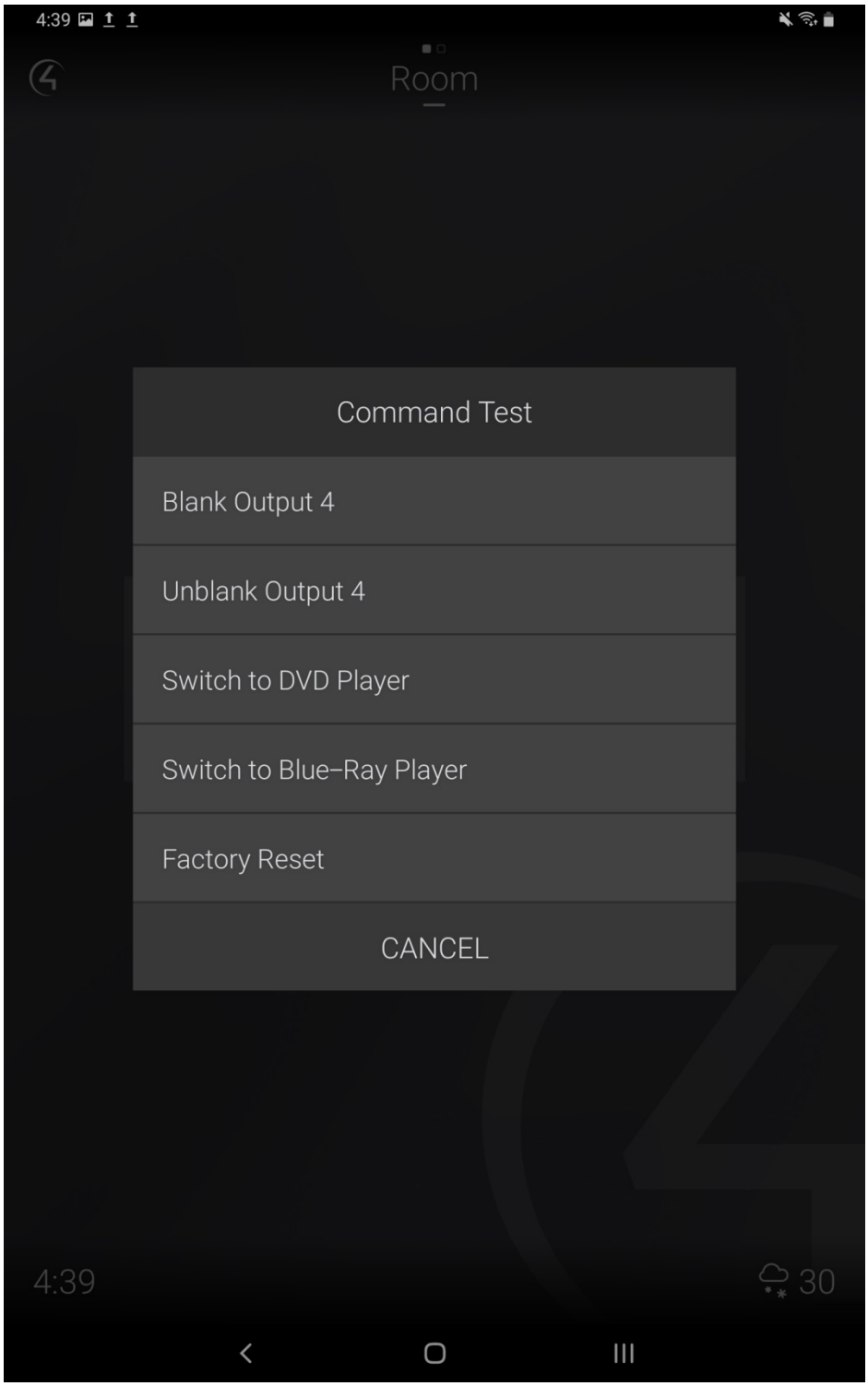
Go to File -> Refresh Navigators. Although the programming is synchronized, every time you make changes for the on-screen “Navigator”, you need to refresh it.



After you refresh the navigator, you should see the custom button menu showing up.



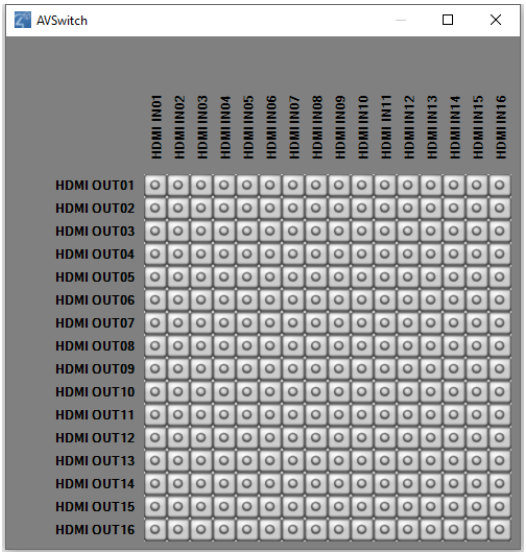
Click it to open the menu. You should see the buttons on the screen. Choose each of the buttons to test the functionality.



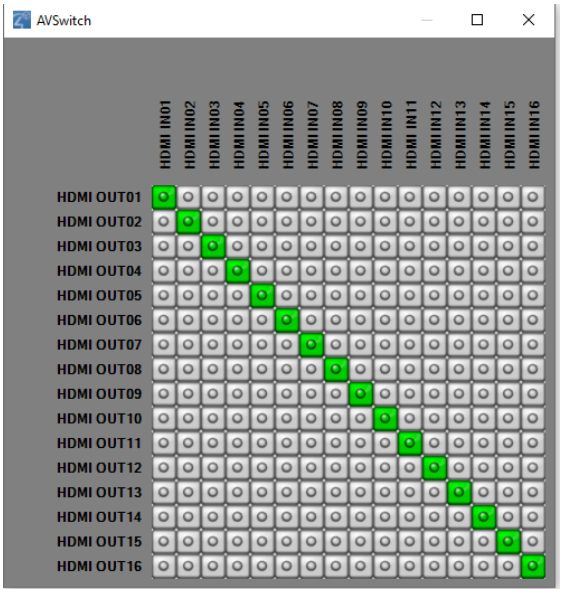
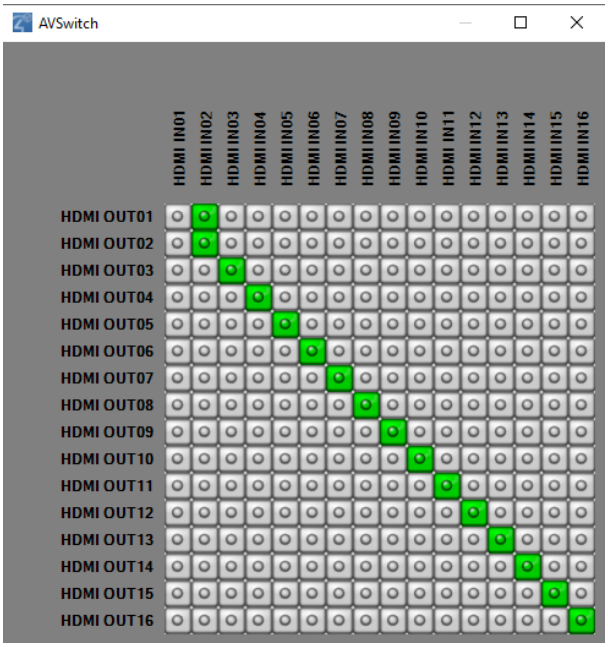
14. (DEBUG USE ONLY) Check Matrix Connection Map

Composer Pro offers a GUI that helps a hardware tester to debug a Matrix Switch easily. This section we will introduce this GUI. Keep in mind that although switching input-output pairs in the page would physically switch the video input, it's a Control4 idiosyncrasy that the change would not reflect on the video sessions of the Control 4 Navigator. So we don't recommend using this GUI to switch channels. This is for Debug use only.

Double-click the "AVSwitch" in the "System Design" list. You should see a window pop up showing the current matrix connections. You can also make connection changes by clicking an input-output pair.



Right now there's no connection showing up because the controller hasn't read the map from the switch. Close this window. Go to the Action Tab, and click "update the matrix map". When you open this matrix GUI again, you should see the current input-output pairs.



You just need to click a pair to change connections. You may verify the change by reading the LCD on the SM-16x16-HD4K's front panel.