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Composer Pro User Guide

Contents

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Composer Professional Edition User Guide, OS 2.5.0

Introduction

Composer Professional Edition (Composer Pro) is a Control4® software application that Control4 Dealers and Installers use to set up and configure Control4 and third-party devices to communicate with each other in the Control4 home automation system.

Purpose

The purpose of this document is to provide steps, tips, and examples about how to use the Composer Pro software for the Control4 Operating System (OS 2.5.0). To learn about what's new in this release, see the *Composer Pro Getting Started* guide in the Composer Pro application help or on the Control4 web.

Scope

This Control4 Composer Pro User Guide, which was formerly separated into two parts, is now compiled into a single manual. The *User Guide* covers these topics:

- Installing devices
- What's new in this release
- Configuring properties
- Configuring devices
- Customizing the Navigators
- Updating Composer and Director
- Example projects
- Troubleshooting the system
- Setting up the network configuration
- Creating device drivers
- Connecting and verifying devices
- Setting up the media
- Programming the system

If you've never used Composer Pro before, we suggest that you start by reading *Composer Pro Getting Started*, available in the Composer Pro application's *Help* menu or on the Control4 website in PDF. If you're already familiar with Composer Pro, you can skip through the *Composer Pro Getting Started*, and then continue with this document.

For information about what's new in this release, see the *Composer Pro Getting Started* guide.

Related documents and resources

Document Title	Location
Composer Pro Getting Started (200-00168)	Application Help: Available in the Composer Pro Help menu PDF: Composer Pro Getting Started
Control4 System Quick Start Guide (200-00153)	PDF Only: System User Guide
Control4 System User Guide (200-00001)	Web Help: System User Guide PDF: System User Guide
Control4 Operating System Release Version 2.0.1 Release Notes (TechDoc00031)	PDF Only: Included with software package on the Control4 Dealer website. Also available on the Control4 Knowledgebase.
Composer Pro Software Release Update Instructions - Release 1.7.4 to OS 2.0 (TechDoc00024)	PDF Only: Control4 Knowledgebase
Managing Dealer Accounts on My.Control4.Com (TechDoc00025)	PDF Only: Control4 Knowledgebase
Control4 MyHome Setup Guide (DOC-00003)	PDF Only: Control4 MyHome Setup Guide for Dealers

Basics

Composer Pro basics

If you are a new user, start by using the application Help in Control4® Composer Pro (same content as *Composer Pro Getting Started*). These sections assume that you are familiar with Composer Pro. This product runs on Control4 Operating System (OS) 2.5.0 and earlier.

Use this chapter to learn how to:

- Install and configure devices
- Configure Composer Pro properties

Installing devices

Use the Control4 dealer website at http://www.control4.com, Products > Additional Resources or Support > Documentation pages to access PDFs or web help for all current and past product installation and setup guides, and then install and set up your Control4 system devices according to these guides. OS 2.3.0 or later supports the auto discovery of many current devices. See "Guidelines for Configuring Devices" and "Configuring Third-Party Devices" in this document for details.

If you're installing devices that are not owned by Control4, you may need to edit an existing driver or create a new one. See "Creating Device Drivers."

To access the installation, setup, and user documents in PDF format:

1   Go to the dealer Documentation page.

2   Log in using your dealer username and password.

3   If the list of documents doesn't appear, click the **Products** link, and then select **Software** > **Documentation**.

4   View the list and then click the link for the document you want to view or print.

Configuring device properties

Use the Control4 Composer Pro Properties pane in System Design to change *device* properties. The Properties pane lets you make configuration changes to a project, room, or device.

In the Control4 system, you have a choice of configuration options using these property types:

- **Project Properties**—Lets you set project-specific configuration options.

- **Room Properties**—Lets you set room-specific configuration options.
- **List View Properties**—Lets you set device properties listed by location, for example, room, floor, house, etc.
- **Device Properties**—Lets you set device-specific configuration options.

To configure properties:

1   Start Composer and connect to a Director.

2   Click **System Design**.

3   Select one of the following property types:

- **Project**—Select the root node in the project tree, for example the project name (such as Franklin Smith Home) to access the project properties and modify the:
  - Project name
  - Zip Code
  - Latitude/longitude
  - Date
  - Time (12-hour and 24-hour clocks)
  - Time zone

  For more information, see "Composer Pro Properties" in *Composer Pro Getting Started*.

- **Room**—Select the room in the project tree, for example, **Theater**; the Properties tab is visible (default).

  Room properties let you:

  - View room-specific devices
  - View media information
  - Help you troubleshoot any incorrect room connections

  For more information, see "Room Properties" in *Composer Pro Getting Started*.

- **List View**—Select a room, and then select the **List View** tab. View and/or modify the devices in the room. For more information, see "Device Properties" in *Composer Pro Getting Started*.
- **Device**—Select the device to modify the available user options. For more information, see "Device Properties" in *Composer Pro Getting Started*.

Example of device properties configurations

Device properties vary by type of device. This example uses a light switch (C4-SW120277) and uses simplified descriptions.

Changes made to the properties of most devices are immediately applied to the system. Changes made to Navigators may not be noticeable until you refresh the Navigators using Composer Pro's **File** > **Refresh Navigators** command (**Shift+F5**).

Tip: *For the most up-to-date device properties information, click the* ***Documentation*** *tab in the Properties window (available only on select devices).*
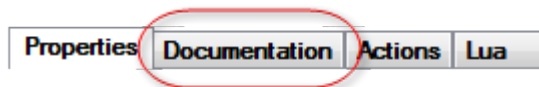
Device Settings for a Switch

Properties

- **LED Information—**Sets the LED colors for on, off, and toggle states of the switch's top and bottom buttons.

Advanced Properties

- **Fault Detection—**Displays the fault status of the switch.
- **Ambient Light Profiles—**Sets the brightness levels (variable according to the room's ambient light) and backlight color.
- **Button Settings—**Defines the text to be engraved on the keycaps, whether buttons control an electrical load, and whether the switch can be configured as a 2-button keypad.
- **2 Button Keypad Settings** (visible only when "Use as 2 Button Keypad" is selected)—Sets how the LEDs behave (follow the bound device, follow the load, or toggle).
- **Energy Information** (view only)—Displays device stats, such as time in use and energy used.
- **Network**—The current MAC address and firmware version of the selected device.
- **Replace Legacy Control4 Device—**Replaces a legacy device in your project with this new device and copies the old device's settings to the new one.
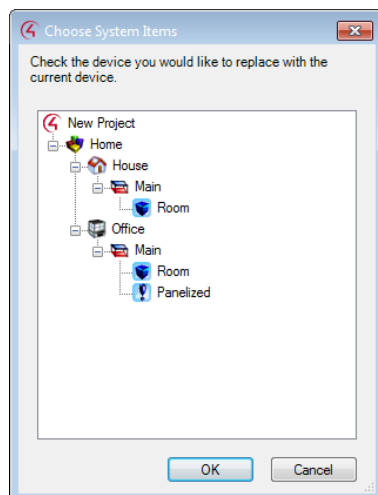
Configuring Devices

Use this chapter to learn how to configure Control4® devices. "Configuration" can mean anything from identifying the device to the network to configuring the device's properties within Composer Pro.

Note: The device listings in this chapter have been reorganized to better match the order in Composer Pro's My Drivers *tab.*

How to add devices to a project

There are three options to add a device to a project and identify it in the Control4 system:

- **Auto Discovery**—In OS 2.3.0 or later, current Control4 devices support auto discovery via the Simple Device Discovery Protocol (SDDP) using the Discovered tab in the Items pane. This is the easiest way to add and identify new devices attached to a Control4 system because it works automatically. If the device you want to add to a project and identify in the system appears in the Discovered tab, all you do is double-click to add the device to the selected room and Director does the rest. See "Auto Discovery (SDDP)" below for more details.
- **Composer Views**—You can add a Control4-supported device driver or a third-party driver to an existing project any time using the System Design and Connections views. See "Composer Views" or "Example Projects" in this guide or "Using Composer Views to Build a Project" in *Composer Pro Getting Started*.
- **Interviewer wizard**—You can add Control4-supported device drivers or third-party drivers to a project using the Interviewer method which shows you step by step how to add and identify devices to the system. See "Interviewer wizard" or "Example projects" in this guide or "Using the Interviewer wizard to build a project" in *Composer Pro Getting Started*.

Auto Discovery (SDDP)

Auto discovery uses SDDP to automatically discover IP devices and ensure that the correct device drivers are added to a project and installed into the Control4 system. When a device uses SDDP, it can advertise on the network what it is, what driver it uses, and what its network address is.

Note: As a best practice, Control4 recommends that you add and identify the Panelized Lighting products manually rather than using Auto Discovery.

The Auto Discovery function through SDDP does these things:

- Enables devices to use DHCP (Dynamic Host Configuration Protocol) while still being able to identify them uniquely
- Enables Director to discover and identify Control4 and some third-party devices in the Control4 system
- Enables automatic installation of drivers for discovered devices

Note: Auto Discovery does not make the room connections. You must do that manually. See "Connecting and verifying devices" in this guide.

Benefits:

- It discovers devices that are not yet in the project
- It adds the manufacturer's driver without having to search for it
- It identifies the device using a unique identifier when adding it to the project
- You don't need to type in TCP/IP addresses or restrict devices to static IP addresses

To use Auto Discovery:

1   Start Composer Pro and connect to a Director.

2   Click **System Design** (default view).

3   In the Items pane, click the **Discovered** tab. View the devices in the list.

4   In the project, click the **room** to add the device to.

5   In the Discovered list (Items pane), double-click the **device** to add it to the project. If the device you want to add does not appear in the list, it may be already added to the project or it does not support Auto Discovery. If you need to add a device that doesn't support Auto Discovery, you can use the Composer views or the Interviewer wizard to add and identify your device.
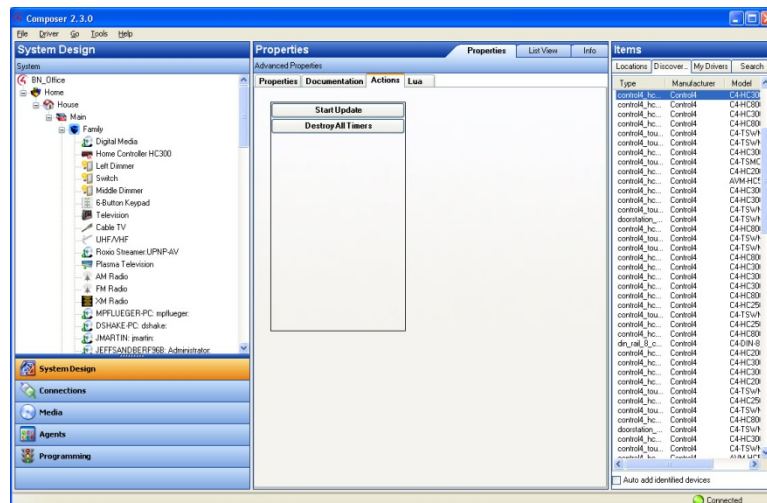
Add/Identify Options. Both options will add and identify a device in one step.

- Devices listed in the Discovered tab
- 'Auto add identified devices' box in the Discovered tab

To add discovered devices to the project:

1   Double-click the device to add it to the current room in the project which will add and identify it in one step.

To use the 'auto add identified' box:

1   Check the **auto add identified devices** box at the bottom of the Discovered Items pane. This allows you to go directly to the device and use the **Identify** button to add and identify it. This box is useful if you want to be very specific about the device you're adding. Without the box checked, the add/identify process will not be executed with a button press.

2   Press the **Identify** button or button-press sequence on the device.

3   The device will automatically be added to the current room in the project.

   Note: If the Identify button is pressed when 'auto add identified devices' is not selected, that device will be highlighted in yellow in the Discovered tab. It will not be automatically added to the project.

   Example: If you have third-party devices, for example, three (3) different TVs in three (3) different rooms in the home, you can check 'auto add identified devices,' select the room where the TV is located, and then have someone identify at the TV. The device will be added automatically to the project.

To view all devices on the network (including those already in the project) that use SDDP:

1   In Composer, click the **Connections** view.

2   Click the **Network** tab.

3   Notice in the right pane the list of devices. SDDP-recognized devices will have an SDDP text highlight.

To use the Info button:

1   Click the **Info** button in the Discovered tab, or right-click the device.

2   Select the device. An Info box opens which will give you identification and other information about that device (based on what the driver developer has provided).

Composer views

Using the My Drivers tab

In the System Design view, click the **My Drivers** tab to find device drivers and add them to the project tree (if you are not using Auto Discovery or the Interviewer wizard).

Read "Purpose of Device Drivers" and "Adding Items to the Project Tree" in *Composer Pro Getting Started* first to understand how to create and populate the project tree for a project.

Note: Some devices also require a free app from the Control4 4Store; for example, to take full advantage of Black & Decker KwikSet SmartCode lock management in a touch screen, MyHome app, or on-screen Navigator, you can download their free app. See the 4Store sections in the Control4 System User Guide for details.

To use the My Drivers tab:

1   Install and connect the physical devices that need to be added to the Composer Pro project.

2   In the project tree, click the room to add the driver to.

3   In the System Design view, click the **My Drivers** tab in the *Items* pane.

4   Locate the device and double-click or drag the device to the System Design pane's project tree.
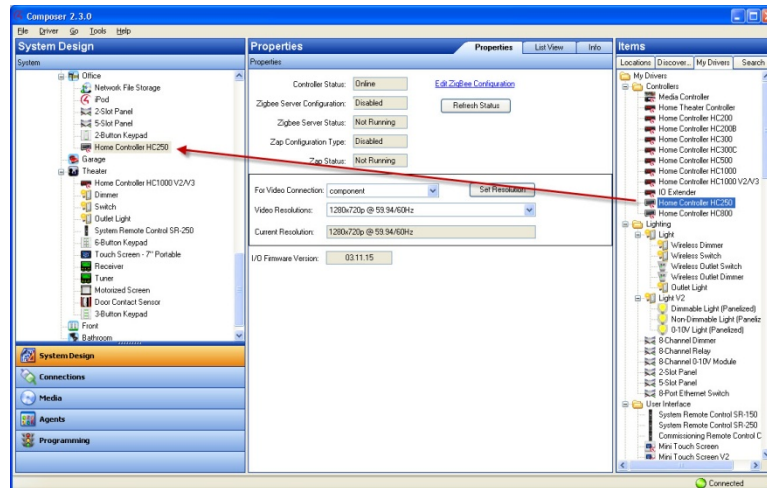
Tip: To ensure that you've got the correct device driver (SKU) in your project tree, after you've added it to the tree, hover over it. The SKU appears.

5   Click the **Connections** view, and then click the **Network** tab.

6   Locate the added driver in the **IP Network Connections** pane.

7   Select the device and then click **Identify**.

8   Follow the on-screen prompts in the popup. In most cases, you'll need to go to the physical device and press a button several times to identify it to the system.

9   Make the necessary control, network or AV connections. See "Connecting a Device to the Network," "Connecting and Verifying Devices," or "Connecting Devices" and "Testing the Device Connections" in *Composer Pro Getting Started* for information.

10 Set any necessary device properties by selecting the device (see "Properties Pane" in *Composer Pro Getting Started*). If any properties are available for a device, they will display in the Properties pane. The following "Configuring…" sections describe the various properties for devices.

11 If you are adding WiFi devices, refer to the Control4 training courses on the Control4 Dealer website to learn how to install and configure WiFi.

Using the Search tab

Thousands of third-party device drivers are supported in the device driver database. Drivers that are not in the local database can be found in the online database, if they are available. Use the **Search** tab to search for and add device drivers to the project tree that do not appear in the My Drivers list.

Certified and non-certified drivers are available. Look for the certification icon to the right of the driver in the list. Certified drivers appear at the top of the list if you search under **manufacturer** > **all certified**.

Note: Due to the large quantity of drivers in the database, Control4 has not validated every device driver provided. If you experience limited functionality using any device driver provided by Control4, please report the limitations to Control4 Technical Support. To report defects or enhancements, please contact *Control4 (phone: 1-888-400-4072 or email: support@control4.com).*

Read "Purpose of Device Drivers" and "Adding Items to the Project Tree" in *Composer Pro Getting Started* first to understand how to create and populate the project tree for a project.

To find a device driver using Search:

1   Install and connect the physical devices that need to be added to the Composer Pro project.

2   In the project tree, click the room to add the driver to.

3   In the System Design view, click the **Search** tab in the *Items* pane.

Locations	Discovered	My Drivers	Search

blinds

☑ Local   ☑ Online   ☐ Certified Only

All Device Types   ▼   All Manufacturers   ▼

Results   Sort by: Relevance ▼

Somfy Systems, Inc ILT Group Default 232
Somfy Systems, Inc   ILT Group Default
Blinds   Serial (Online)

Lutron RadioRA 2 Shade
Lutron   RadioRA 2 Shade
Blinds   (Online ✔)

Two-wire Shade
Generic   Two-wire Shade
Blinds   (Online)

Lutron HomeWorks QS Shade
Lutron   HomeWorks QS Shade
Blinds   (Online)

Somfy RTS[Channel 11]
Somfy   RTS
Blinds   Serial (Online)

Somfy RTS[Channel 4]
Somfy   RTS
Blinds   Serial (Online)

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4   From the project tree, select the room where the device resides.

5   In the Search tab, select the device type from the Device Types filter.

6   Select the manufacturer from the Manufacturers filter.

7   Drag the driver to the project tree, or double-click the device driver to add it the project tree.

- [**search text field**]—Type the text to search for here. You can use the drop-down menu to select terms that were previously typed.
- **Local (default)**—The Local checkbox lets you view device drivers stored on your local database.
- **Online**—The Online checkbox lets you view and download drivers from the online database.
- **Certified Only**—This checkbox specifies that only Control4-Certified drivers will appear in the search results.
- **Device Types**—Lets you select the device type (proxy), for example, AV Switch (includes audio switches), Blinds, CD, Disc Changer (includes DVD and CD Changers), DVD, Light, Receiver, Satellite (includes DVRs), Cable TV, Television, Thermostat, Tuner, VCR and more.
- **Manufacturers**—Lets you select the manufacturer.

- **Sort by**—Lets you select the order that search results are displayed.
- **Results**—Detailed search results appear, including the manufacturer, model, and driver location.

8 Configure the device by setting up the connections (Network and/or Control/AV tabs). See "Connecting and Verifying Devices" for details.

Interviewer wizard

If the device you want to add and identify doesn't support Auto Discovery, you can follow the steps in "Composer Views," "Example Projects" in this guide or see *Composer Pro Getting Started*.

Configuring third-party devices

Use the Control4 Composer Pro System Design and Connections views to configure third-party devices using third-party device drivers. The same basic steps apply to third-party drivers as with Control4 devices. Many of these drivers are 'certified' and are available in the drivers online database. Some of them will use Auto Discovery in the future.

Notes: *(1) If the device you want to add and identify doesn't support Auto Discovery, you can follow the steps in "Composer views" or "Example projects" later in this guide. (2) New drivers for Sony STR-DA2800ES and DA5800ES receivers (ZSO-STR-DA2800ES or ZSO-STR-DA5800ES) are available in the Search > Online Database list ('Receiver' if the device is used as a receiver only in the Control4 system). If the receiver will be used with full Control4 automation as a receiver and a controller, see "Configure an HC-Class Home Controller" or "Configure a Sony STR-DA2800ES or STR-DA5800ES Receiver" in this document.*

Although third-party drivers are supported, they are not documented in this guide. For information about the devices and drivers, see the product's own website.

Configuring controllers

Use the Control4 Composer Pro System Design view to add and identify a controller to the network connection, including Sony STR-DA2800ES and STR-DA5800ES with full Control4 automation (you can use Auto Discovery for this product if it is a primary controller). Refer to the sections below for the controller type you want to configure. This section also covers other controller-related tasks.

Note: *Home Theater Controller, Home Controller HC-500, HC-200, HC-300, HC-1000, and Media Controller are no longer sold by Control4.*

Configure an HC-class home controller

Use the Composer Pro System Design view to add and configure controllers (HC-200, HC-250, HC-300, HC-800, and HC-1000) or Sony STR-DA2800ES and STR-DA5800ES with full Control4 automation. The steps below are basically the same for all of these controllers; however, some properties may vary.

Note: *Emphasis is placed on the most recently released controllers.*

Prerequisites

Ensure that the controller is installed as directed in the controller's installation guide, which is available on the Control4 Dealer website.

To add and configure a controller HC-*x*00 or HC-*x*000 (for example, HC-800):

1   To add the driver and identify the device see "Guidelines for configuring devices." Ensure that the correct driver is added to the project tree. The Digital Media object is added automatically also.

Notes: (1) Several drivers are available for the Sony STR receiver. To ensure you're adding the correct Sony STR receiver drivers, refer to the Sony ZSO-STR-DA2800ES/5800ES-C4/ZSO-STR-DA5800ES-C4 Receiver with Control4 Automation Quick Start Guide and the Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide available on the Control4 Dealer website under Products > Sony or Support > > Documentation. (2) If you use the Sony STR receiver as a primary controller, the drivers are already added to a project and the device is identified.

2   Change the Properties for each controller as shown below.

Notes:

(1) Home controller HC-1000 V2 and HC-1000 V3 use the same driver, e.g., HC1000V2/V3. Release 1.7.3 and later use these driver versions.
*For **OS 2.0.1**, the HC-200 (C4-HC200B-E-B-NR-1) and HC-300 (C4-HC300C-E-B) have been updated.*
*For **OS 2.2**, the HC-800 (C4-HC800-E-B) has been added.*
*For **OS 2.2.1**, the HC-250 controller (C4-HC250-E-B) has been added.*
*For **OS 2.2.4**, the Sony STR-DA2800ES or STR-DA5800ES receiver and controller drivers have been added and the device has been identified if used as a primary controller. For a secondary controller, use the **Local Database** to get these Sony drivers: Sony STR-DA2800ES or STR-DA5800ES (the receiver and the Sony Receiver Home Controller 2800 or the Sony Receiver Home Controller 5800 will be added automatically along with various other AV drivers).*

*(2) If a controller is not listed in My Drivers, right-click in **My Drivers** and select **Restore Default List**. This action updates the list. See "Using My Drivers or Search Tabs."*

3   To establish a WiFi network connection to for older controllers, configure a USB WiFi Adapter for home controllers (sold separately). See "Configuring a WiFi Connection" or "Configure a USB WiFi Adapter for HC-300 for details." WiFi is built-in to HC-250 and HC-800 controllers, but you still have to configure them for WiFi.

Note: The Sony STR receiver comes with a USB ZigBee Wireless Adapter (UWA-C4Z) to be used with your ZigBee devices and should not be used for wireless connections.

4   (Optional) For additional controller setup, configure the properties.
   a   In the System Design view project tree, select the **Home Controller** object.
   b   Modify the properties in the Properties pane:
- **Controller Status**—Shows whether the controller is Online or Offline.
- **ZigBee Server Configuration**—Lets you view, enable and disable the Zserver. Edit ZigBee Configuration opens the ZigBee Network Settings dialog.

   *Note: The ZigBee Network Settings box shows which ZAPs are configured, identified, or enabled. See also **Tools** > **Network Tools** and select the **ZigBee Network** tab.*

  - **ZigBee Server Status**—Shows whether the controller as ZigBee Server is Running or Not Running. Older controllers show 'Not Supported.'
  - **ZAP Configuration Type**—Shows whether the controller is the Coordinator or ZAP. Older controllers show 'Not Supported.'
  - **ZAP Status**—Shows whether the controller as ZAP is Running or Not Running. Older controllers show 'Not Supported.'

- **SD Video Mode** (HC-200 and HC-300 only)—Lets you set the Standard Definition video format that the controller handles. **NTSC** mode is used in the U.S. Canada, Central America, and Japan; **PAL** mode is generally used in Europe, Africa, Australia, South America, and China. (Release 1.8 and earlier: This option is called Video Mode.)
- **For Video Connection** (HC-250 and HC-800 only)—Select **component** or **HDMI**, change the Video **Resolution**, and then click **Set Resolution**. This will cause the controller to set the configuration and restart. Select **HDMI** only for video, as it won't stream audio. *Note:* This does not reflect what is set in the Connections view for video output.
- **Video Resolution** (HC-250 and HC-800 only)—If your video doesn't display properly, use the drop-down to select your correct video resolution.
- **Current Resolution** (HC-250 and HC-800 only)—Displays what hardware resolution is currently configured.
- **I/O Firmware Version** (HC-250, HC-800, and Sony Receiver Home Controller xx00 only)—Lists the current firmware version of this controller.

Configure a USB WiFi adapter for Home Controller HC-300

Use the Control4 Composer Pro Tools menu and Connections > Network tab to configure a USB WiFi adapter (sold separately).

USB WiFi Adapter for Home Controller HC-300 lets the Home Controller HC-300 communicate with system devices via a WiFi (wireless) network. These steps can apply to the HC-500 also.

Notes: The USB WiFi Adapter should be used for secondary controllers. Control4 recommends that the USB WiFi Adapter not be used in a primary controller for a large system or a controller that is streaming digital audio to other end points on the network. Those usage scenarios will be better served by an Ethernet connection to the primary controller.

To connect and set up the USB WiFi Adapter for a Home Controller HC-300:

1 Connect the Home Controller HC-300 to the Ethernet network using an Ethernet CAT5 cable (this is a temporary connection to support set-up activities).
2 Plug the adapter to the USB port on the controller.
3 Start Composer and connect to **Director** on Local Network.
   a In the Tools menu, select **System Manager**.
   b In the Devices pane, select the **network address** of the device where you want to set up the network configuration, and click **Connect**.
      - If the device's network address is not on this list, click **Refresh**.
      - If it still does not appear, click **Add** to enter it manually.
      - If you do not know the network address, find it at the **Connections** view > **Network** tab.
   c Click the **Network** tab, and click **Configure**.
4 Click **Next** when a Network Configuration wizard dialog appears.
   a Continue through the wizard screens, and provide the following information appropriate for your system. Much of this information has to match that of your Wireless Access Point (WAP).
   b Enter the new device name, but do not include spaces in the new name.
   c Indicate the network type: **Wireless (WiFi) network**.
   d Indicate the method for obtaining the DNS server address: **DHCP** or **Static IP**. Control4 recommends DHCP (automatically selected).
   e Enter the **SSID**.
   f Enter the **WEP** key (if any).

    g Enter the encryption type (64 or 128).

    h Click on a **Key** type (**hex** or **ascii**).

    i Click **Finish** to complete the wizard and reboot the adapter to apply the network configuration changes.

  5 Disconnect the Ethernet CAT5 cable from the controller.

Ensure that ZigBee Server is running

Use the Control4 Composer Pro System Design view to check the controller's properties and ensure that ZigBee server is running on a controller.

Note: *This does not apply to Home Controller HC-1000.*

To ensure the controller properties are set correctly:

1 In the project tree, select the **Controller** object for the properties to appear.

2 Ensure that the ZigBee server is running. If not, see "Example: Verify the Network Connections" in this document.

  Tip: Be patient. In cases where the ZigBee mesh is moved, it can take up to five minutes for all connections to get re-established.
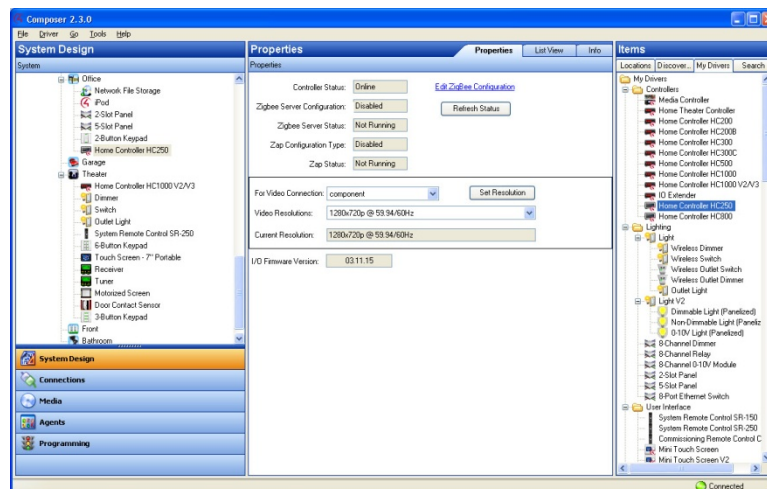
Ensure that video mode is set correctly

Use the Control4 Composer Pro System Design view to check the controller's properties and ensure that video mode is set correctly on a controller. Video Mode lets you set the video format that the controller handles.

To ensure the controller properties are set correctly:

1 In the project tree, select the **Controller** object for the properties to appear.

2 Ensure that the video format is set correctly. NTSC mode is used in the U.S. and PAL mode is generally used in Europe.
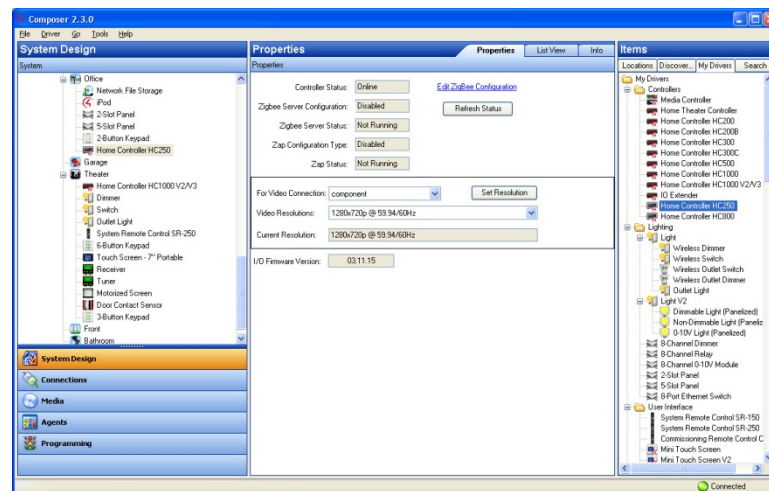
Configure multiple controllers

Use the Composer Pro System Design view and **Connections** > **Network** tab to configure multiple controllers. If you have more than one (1) controller in your Control4 system, you must designate one of them as the primary controller. The others will be secondary controllers.

To add and configure multiple controllers:

1 Start Composer Pro and connect to a **Director on Local Network**.

2 From the Directors dialog that appears, select the Director's **network address** of the primary controller hardware you are setting up, and click **Connect**.

3 If you have multiple controllers in the system, when you make this selection you are defining the primary controller. The next time you launch Composer Pro, only the network address of the Director of the primary controller appears on this screen. If the correct address is not listed, click **Add** to add the address manually.
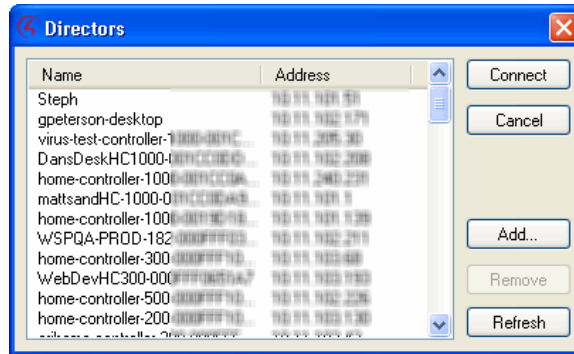
4 In the project tree, select the room where the controller resides, and add it to the system. Do the same for all the controllers you plan to add to the system. See "Guidelines for Configuring Devices" for details.

5 Click the **Connections** view.

6 In the Connections view, select the **Network** tab.

7 Select the first controller listed, and click **Identify**.

8 On the dialog that appears, follow the on-screen instructions, and click **Next** to continue to identify the other controllers you have added to the system.

9 When you finish identifying all of the controllers and any other devices in your project, click **Close** to return to the Network tab in the Connections view.

10 In the IP Network Connections pane under Address make sure that all the devices in your project have an address on the list.
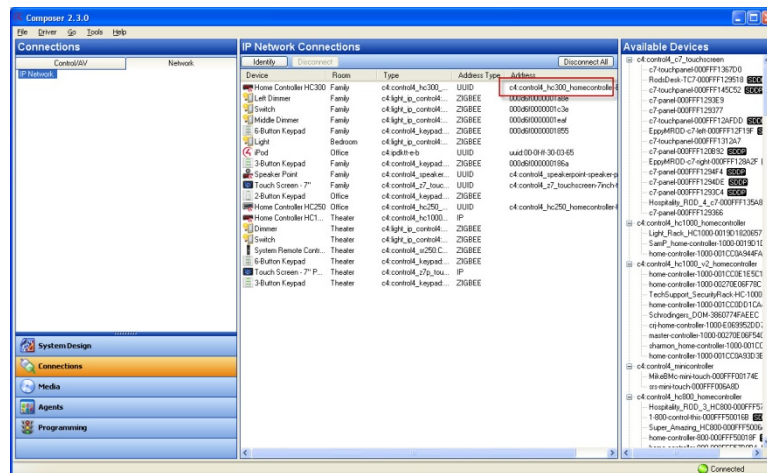
Configure an IO Extender

The Control4 IO Extender opens up a whole world of options in the Control4 system to control home theaters, distributed audio systems, video devices, motion sensors, and other devices that use infrared (IR), serial, contact, and relay connections and has digital and analog audio outputs. This device is a great companion to the HC-800 controller to expand output capability.

Ensure that the IO Extender is installed and set up as directed in the *Control4 IO Extender Installation Guide* available on the Control4 Dealer website.

To add and configure an IO Extender:

1   Follow the steps in "Guidelines for Configuring Devices" to add and identify the device. Ensure that the **IO Extender** driver is added to the project tree.

2   (Optional) For additional IO Extender setup, you can adjust the volume for three (3) outputs.

   a   In the System Design view project tree, double-click the **IO Extender** object.

   b   Use the slider bar to adjust the Stereo Volume *x* as needed.

Configuring lighting

Use the Composer Pro System Design and Connections views to configure dimmers, switches and keypads.

Tip: Double- and triple-tap events apply to the Control4 dimmers, switches, and keypads. When you tap a button consecutively two (2) or three (3) times for about one-half of one second the events fire. You can use these events for programming without requiring the more complex programming logic tied to timers and button 'Press/Release' events.

Note: When programming using double and triple-tap events, be aware that Press and Release events also occur when double and triple-tap events occur. Plan your programming using these events so that they don't conflict with the intended outcome. In most cases, when using double and triple-tap programming events, don't program on the Press and Release events.

Tip: These sections are organized by how devices are listed in the My Drivers *tab.*

Light

Dimmers and switches

Configure a Wireless Switch, Dimmer, or Inline Dimmer

Use the Composer Pro System Design and Connections views to configure Control4 switches and dimmers.

Ensure that the wireless switch, dimmer, or inline dimmer is installed as directed in the *Control4 Wireless Switch Installation Guide*, *Control4 Wireless Dimmer Installation Guide* or *Control4 Inline Dimmer Installation Guide* available on the Control4 Dealer website.

To configure a wireless switch, dimmer, or inline dimmer:

1   Add the device to your project tree, then identify it. For instructions, see "Guidelines for Configuring Devices."

   Note: The Wireless ELV Dimmer uses the same driver as the Wireless Dimmer.

2   In the System Design view, select the device. The device properties tab opens.

3   Configure the settings described below, then click **Set** to save the changes.

4   Click **Apply to**… to apply the changes to other lighting devices.

5   Click **OK**.

Device settings
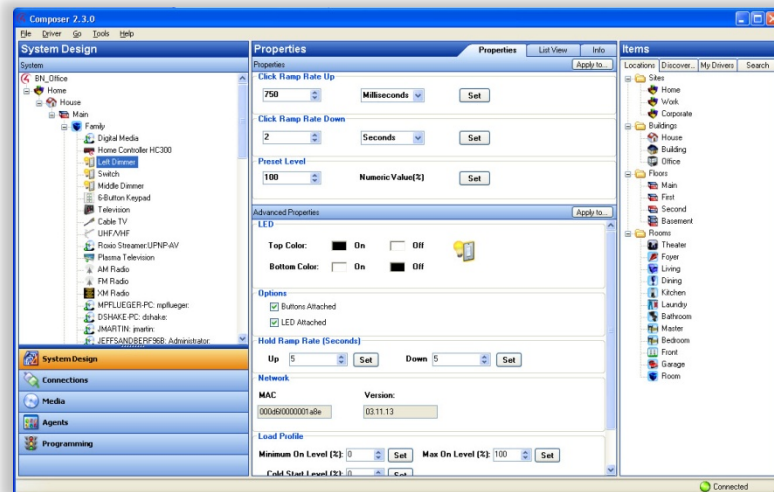
Properties (applies to only the wireless dimmer and inline dimmer.)

- **Click Ramp Rate Up**—The rate in seconds when the light ramps from OFF to ON.
- **Click Ramp Rate Down**—The rate in seconds when the light ramps from ON to OFF.
- **Preset Level**—The percentage that the load ramps up to when tapped. Press and hold the button to ramp to a level beyond the preset value, however, this value will not ramp beyond the Max On Level (see below).

Advanced Properties (applies to all dimmers and switches)

- **LED**
  - **Top Color On**—The LED color for the top LED when the LED state is ON.
  - **Top Color Off**—The LED color for the top LED when the LED state is OFF.
  - **Bottom Color On**—The LED color for the bottom LED when the LED state is ON.
  - **Bottom Color Off**—The LED color for the bottom LED when the LED state is OFF.
- **Options**
  - **Buttons Attached**—If checked, pressing the buttons on the dimmer or switch directly controls the connected load. If unchecked, pressing the buttons on the dimmer or switch doesn't control the load.
  - **LED Attached**—If checked, the LED state is controlled by the load status. If unchecked, the LED state and colors can be controlled by custom programming and not by the load status.
- **Hold Ramp Rate** (*Note:* These properties apply to only the wireless dimmer and the inline dimmer.)
  - **Up**—The rate in seconds when the load reaches the Maximum On Level from an Off state when the Top button is held down.
  - **Down**—The rate in seconds when the load reaches 0% from a full On state when the Bottom button is held down.

Network—The current MAC address and Firmware Version of the selected dimmer or switch. These fields are not editable.

Configure a Wireless Puck Dimmer or Switch Module

Use the Composer Pro System Design and Connections views to configure Wireless Puck Dimmer or Switch modules.

Ensure that either the Puck Switch Module or Puck Dimmer Module is installed as directed in the *Control4 Wireless Puck Dimmer or Switch Module Installation Guide* available on the Control4 Dealer website.

To add and configure a Wireless Puck Dimmer or Switch Module:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Puck Switch** or **Puck Dimmer** driver is added to the project tree (see the next step).

2   In the Items pane > Search tab > Device Type: Light > Manufacturer: Control4 double-click the **Wireless Puck Dimmer Module: C4-DM201-Z** or the **Wireless Puck Switch Module: C4-SM201-Z** to add the object to the project tree.

3   Identify the device.

4   (Optional) To change the properties, click **System Design**. In the project tree, select the **Puck Switch** or **Puck Dimmer** object for the properties to appear as shown below. Click **Set** to save your changes.

5   Click **Apply to**… to apply the changes to other lighting devices.

Puck Dimmer properties:

Puck Switch properties:

Modifiable properties for the Wireless Puck Dimmer Module or Wireless Puck Switch Module include:

Properties (Wireless Puck Dimmer Module Only)

- **Click Ramp Rate Up**—The rate the light ramps from off to on when the button is clicked.
- **Click Ramp Rate Down**—The rate the light ramps from on to off when the button is clicked.
- **Preset Level**—The percentage of the load to which the Puck Dimmer Module ramps when turned on.

Advanced Properties

Aux 1 or Aux 2 Properties

Set these properties when you want to control the Puck module with a switch connected to the auxiliary terminals.

- **Aux Type**—From the drop down select the type of auxiliary switch connected to the terminal.
    - **Momentary**—A momentary switch only closes the circuit when the button is pressed. Momentary switches typically have a "spring-back" action that returns the button to its original position after it is released.
    - **Latch**—A latching switch typically takes the form of a toggle or rocker button and opens or closes the circuit depending upon the position of the switch. When using a latching switch with the Puck Module, the Puck reacts to each transition of the switch from on-to-off or off-to on. It does not react to the actual on/off state of the switch. Each transition is treated as a "click." *Note:* It is not possible to perform a press-and-hold with a latching switch.
- **Aux Behavior**—From the drop-down list select the desired behavior that will occur when a momentary button is pressed or a latching switch is toggled.
    - **Load On**—The load is set to on (not available with latching switches).
    - **Load Off**—The load is set to off (not available with latching switches).
    - **Load Toggle**—The load is toggled between on and off.
    - **Generic**—The button/switch is not tied to the load and can be programmed as desired.
- **LED Behavior**—From the drop down select the desired behavior for the associated LED.
    - **Load On**—The LED is on when the load is on.
    - **Load Off**—The LED is on when the load is off.
    - **Contact Open**—The LED is on when the auxiliary contact is in the Open position.
    - **Contact Closed**—The LED is on when the auxiliary contact is in the Closed position.
    - **Unmanaged**—The LED is not tied to the contact or load and can be controlled using the Programming view.

Virtual Button Colors

The virtual button color defines the LED color that will appear on a keypad button that is bound to the Puck module when that keypad button is set to **Follow Bound Color**.

Select a virtual button LED from the drop-down list, select the LED color and then click the **Set** button. (*Note:* the Set button must be clicked before selecting a different virtual button LED from the drop-down list or the previous selection will be lost.)

Fault Detection

The status field indicates whether the Puck Module is in a fault state. Fault conditions can be caused by a short circuit, overloading the module, or potentially an incandescent bulb blowing.

To reset the device, click the **Reset** button. Alternatively, the button on the Puck or the button attached to Contact 1 can be clicked 15 times to reset the device.

If the device returns to a fault state after reset, verify the wiring and and/or the total wattage of loads connected to the device.

Load Profile (Wireless Puck Dimmer Module Only)

These are the minimum and maximum load settings for light output which includes the Cold Start Level and time. Test the settings to determine what fits best with your bulb type.

Note: The Navigators show 0% to 100% even though the settings may be set at Minimum On Level percent at 25%, and the Max On Level percent at 80%.

Minimum On Level (%)—Use the arrows selection box to select the minimum % in 1% increments. The default is 0. The minimum level can vary, depending on the light type (incandescent, fluorescent, LED, etc.).

This is especially important in compact fluorescent (CLF) and LED lighting that sometimes have a minimum threshold for producing visible light that could be anywhere from the 10 – 40% range. Some loads will flicker or pulse right at their minimum threshold.

Example: A bulb doesn't produce visible light until it reaches 20%. The minimum On to 25% will ensure a clean On transition.

Cold Start Level (%)—Use the arrows selection box to select the start level in 1% increments. The default is 0. This level is set above the Minimum On Level % setting.

This setting is mainly applicable to CFL loads. Switching from an Off state to On sometimes exhibits a higher visible light threshold than after the CFLs have been on and have warmed up. If a Cold Start % is set (above the Minimum On %), the dimmer cleanly jumps to that level from Off to On. However, when the dimmer has been on for the time period designated by the Cold Start timer, the dimmer can ramp below the Cold Start On % to the minimum On%.

Example: Fluorescent lights go on, warm up, and then will dim down to the Minimum On Level % setting.

Cold Start Time (milliseconds)—Use the arrows selection box to select the time in milliseconds. The default is 0. This is the length of time a light takes to warm up before it dims down to the Cold Start Level setting.

Max On Level (%)—Use the arrows selection box to select the maximum % light level in 1% increments. The default is 100. This is the level set for maximum light output, such as 100%. This setting enables capping of the light level for a given load below 100%, either to enhance bulb life or better match the light level in a given living space. This is an absolute maximum level rather than the Preset On level, which can be bypassed.

Dimming Mode

- **Autodetect**—Automatically detects the load type and determines whether the dimmer should use Forward or Reverse Phase dimming. This is the default and should not be changed unless the load is not dimming properly.
- **Forward Phase**—Forces the dimmer module to use forward phase dimming. Should only be used with magnetic transformers.
- **Reverse Phase**—Forces the dimmer module to use reverse phase dimming.

Hold Ramp Rate (Wireless Puck Dimmer Module Only)

- **Up**—The time, in seconds, it takes the load to ramp to 100% when a button controlling the load is pressed and held.
- **Down**—The time, in seconds, it takes the load to fade to 0% when a button controlling the load is pressed and held.

Energy Information

- **Minutes Off**—The number of minutes that the load has been off since the Puck Module was last reset.
- **Minutes On**—The number of minutes that the load has been on since the Puck Module was last reset.
- **Minutes On Today**—The number of minutes that the load has been on today.
- **Current Power**—The current power being used by the load (in watts).
- **Energy Used**—The total number of watt hours used by the load since the device was last reset.
- **Energy Used Today**—The total number of watt hours used by the load from 12:00 AM until 11:59 PM today.

Network

This is the current MAC address and firmware version of the selected Puck Dimmer or Switch. These fields are not editable.

Outlet switches and dimmers

Configure a Wireless Outlet Switch

Use the Composer Pro System Design and Connections views to configure a wireless outlet switch.

Configure and use the wireless outlet switch and its plugged-in device to:

- Control a plugged-in audio/video component (such as a DVD player or VCR) or other electrical equipment controlled by IR.
- Control power to a plugged-in relay device (such as a pump) or other household appliances.
- Switch a plugged-in lamp to On or Off.

Each wireless outlet switch has two (2) outlets: Outlet 1 and Outlet 2. When the wireless outlet switch is plugged into the wall, Outlet 1 is on the left and Outlet 2 is on the right.
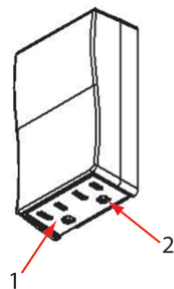
Prerequisites

1   Ensure that the wireless outlet switch is installed as directed in the *Control4 Wireless Outlet Switch Installation Guide* available on the Control4 Dealer website.
2   Ensure that your project has a controller added and identified in the Control4 system.

To add and configure a wireless outlet switch:

IMPORTANT TIP: When configuring the wireless outlet switch, add two (2) drivers: one for the wireless outlet switch and one for the plugged-in device. In addition, define the connection between these two (2) devices In the Connections view > Control/AV tab.

1 To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Wireless Outlet Switch** driver is added to the project tree.

2 Add a driver for the device you want to plug into the wireless outlet switch as appropriate for your use (power sensing, power controlling, or switching lamps on and off).

Power Sensing (Contact)—Using the wireless outlet switch, the system can sense the power state of the plugged-in device, and the controller can send the appropriate control commands based on the power state.

For a plugged-in device:

a Add the appropriate driver.

b (For an AV device only, such as a DVD Player) Edit the driver to change the power management option in the driver for the correct connection to appear in the Connections view. To do this, see the "Change Power Management Options." For other devices, it is not necessary to edit the driver.

c Before you can use power sensing for the plugged-in device, perform Power Learning on the wireless outlet switch for the plugged-in device on the appropriate outlet. For information about Power Learning when using the wireless outlet switch power sensing, see "Perform Power Learning" later in this section.

Power Control (Relay)—For a plugged-in device, add the appropriate driver.

*Example: Add a relay device by selecting a **Pump** to the project. Go to the **System Design** view in the Items pane, select the **My Drivers** tab > **Motorization**, and double-click the **Pump** object.*

Lighting—For a lamp, add an Outlet Light to the project. Go to the **System Design** view in the Items pane. Select the **My Drivers** tab > **Lighting** > **Light**, and double-click the **Outlet Light** object.

Note: This is the Outlet Light object, and not the regular Wireless Outlet Switch object.

3 Define the connection between the wireless outlet switch and the plugged-in device.

a Click the **Control/AV** tab.

b Make a connection between the **wireless outlet switch** and the device that is plugged into the wireless outlet switch. Make this connection for any of these three (3) possible uses: power sensing (contact), power control (relay), and switching a lamp On or Off.

c In the Connections view, select the device that is plugged into the wireless outlet switch.

d   From the top screen, drag the appropriate connection to the wireless outlet switch connection on the bottom screen.

Example: *Connection between the wireless outlet switch and the light outlet.*
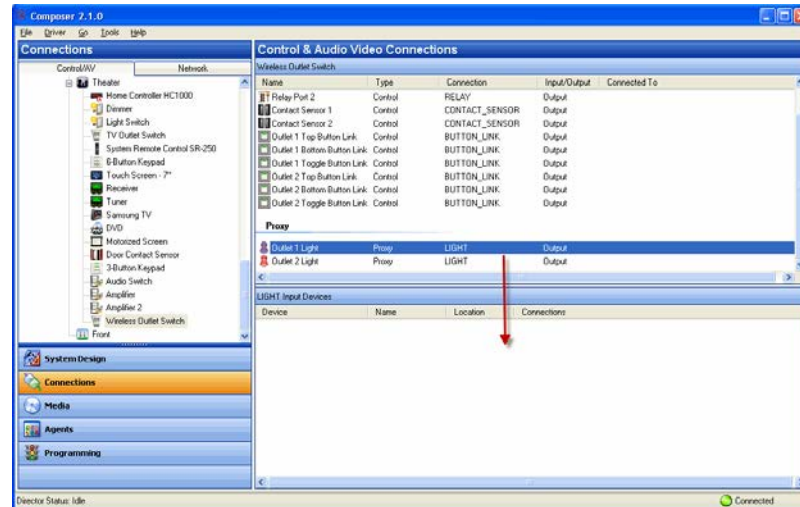
Perform power learning

To enable use of the power-sensing features, configure your wireless outlet switch to read the power state of the devices that you plug into it.

To perform power learning:

1   Follow the steps in the previous section.

2   Turn Off the device plugged into the wireless outlet switch.

3   Push and hold the button on the Top panel of the wireless outlet switch until the two (2) LEDs toggle orange On/Off, alternating back and forth.

4   Select an outlet to configure (Outlet 1 or 2) by releasing the button when the LED that corresponds to that outlet number lights up.

Example: If a device is plugged into Outlet 1, release the button when LED 1 lights up. Upon doing so, the LED you chose flashes orange, indicating that the wireless outlet switch is learning a steady state of the device (such as On or Off). When the LED turns solid orange, the wireless outlet switch has learned the steady state, but has not yet determined whether the state is On or Off.

5   With the LED now solid orange, turn the device plugged into the wireless outlet switch to an **On** state. The LED again flashes orange while the wireless outlet switch is learning the On state of the device. When learning completes, the LED glows solid orange again to indicate the wireless outlet switch has learned the steady state.

6   With the LED now solid orange again, turn the device **Off**. The LED flashes orange to indicate the wireless outlet switch is waiting for a steady state. When the device reaches a steady state, the LED glows red to indicate the wireless outlet switch has learned the Off state.

7   With the LED now solid red, turn the device **On** again. The LED flashes orange to indicate it is waiting for a steady state. When the device reaches a steady state, the LED glows green to indicate the wireless outlet switch has learned the On state.

8   With the LED now solid green, press the **button** on the wireless outlet switch one time to save and exit the Power Learning mode.

> ***IMPORTANT TIP:*** *You can use a quick button press during any step of this process prior to the LEDs turning solid red or green to exit the Learning mode without saving.*

9   Repeat the steps to configure the other outlet (Outlet 1or 2) as needed for any additional plugged-in device.

> ***Note:*** *To unlearn a device, press the button nine (9) times, but use with care; this will reset both outlets.*

Configure a Wireless Outlet Switch for power-sensing AV devices

Use the wireless outlet switch and its plugged-in device to:

- **Control** a plugged-in audio/video component (such as a DVD player or VCR) or other electrical equipment controlled by IR.
- **Control** power to a plugged-in relay device (such as a pump) or other household appliances.
- **Switch** a plugged-in lamp On or Off.

The instructions below describe how to configure an Outlet Switch in Composer Pro for a Samsung television. For instructions about how to configure the other actions, see "Configure a Wireless Outlet Switch."

Each wireless outlet switch has two (2) outlets: Outlet 1 and Outlet 2. When the wireless outlet switch is plugged in to the wall, Outlet 1 is on the left and Outlet 2 is on the right.
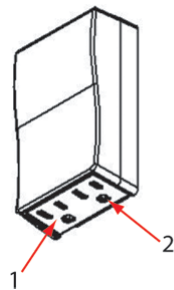
IMPORTANT! *When configuring the wireless outlet switch, you need to add two (2) drivers:*

- *One (1) for the wireless outlet switch*
- *One (1) for the plugged-in device*

In addition, define the connection between these two (2) devices in the **Connections** view > **Control/AV** tab.

Prerequisites

1   Ensure that your project has a Control4 controller added and identified on the Control4 system.

2   Ensure that the Wireless Outlet Switch object is added to the project tree, and is identified on the Control4 system.

3   Ensure that the AV device, for example, the Samsung Television object, is added and configured for the device.

To configure a wireless outlet switch to use an AV device:

Select the Power Codes

1   In the project tree, right-click, for example, **Samsung Television** and select **Edit Driver**.
       The Driver Wizard opens.

2   In the Driver Wizard, check **Has power feedback**.

3   Change the Power Management option to **Contact sensor**; ensure that the **Send toggle code** is selected.

4   Click **Codes**.

    a   In Codes under Default Commands, make sure **Power On** and **Power Off**, or **Power Toggle** items are *not* checked. If they are, any programming you do in conjunction with power using the wireless outlet switch and the television is invalid.

    b   Click **Finish**.

    c   Click **next** to close the window.

    IMPORTANT! *Don't click back to check if the selection was saved because it refreshes the screen; in that case, you will need to redefine what you just defined.*

Define the connection

5   Define the connection between the wireless outlet switch and the plugged-in device (Samsung Television).

6   To do this, in the **Connection** > **Control & Audio Video Connections** pane select the Samsung Television that is plugged into the wireless outlet switch.

7   From the top screen drag the **Contact Sensor** connection to the correct sensor on the wireless outlet switch in the bottom screen.

8   Before you can use power sensing for the plugged-in device, perform **Power Learning** on the wireless outlet switch for that plugged-in device on the appropriate outlet.

    a   Turn off the device plugged into the wireless outlet switch.

    b   Push and hold the **button** on the top panel of the wireless outlet switch until the two (2) LEDs toggle orange On/Off, alternating back and forth.

    c   Select an outlet to configure (Outlet 1 or 2) by releasing the **button** when the LED that corresponds to that outlet number lights up.

Example: *If a device is plugged into Outlet 1, release the button when LED 1 lights up. The LED you chose flashes orange, indicating that the wireless outlet switch is learning a steady state of the device (such as On or Off). When the LED turns solid orange, the wireless outlet switch has learned the steady state, but has not yet determined whether the state is On or Off.*

d   With the LED now solid orange, turn the device plugged into the wireless outlet switch **On**. The LED again flashes orange while the wireless outlet switch is learning the On state. When the learning completes, the LED glows solid orange again to indicate the wireless outlet switch has learned the steady state.

e   With the LED now solid orange again, turn the device **Off**. The LED flashes orange to indicate the wireless outlet switch is waiting for a steady state. When the device reaches a steady state, the LED glows red to indicate that the wireless outlet switch has learned the Off state.

f   With the LED now solid red, turn the device **On** again. The LED flashes orange to indicate it is waiting for a steady state. When the device reaches a steady state, the LED glows green to indicate the wireless outlet switch has learned the On state.

g   With the LED now solid green, **press** the button on the wireless outlet switch **one time** to save and exit the Power Learning mode.

Tip: Use a quick-button press during any step prior to the LEDs turning solid red or green to exit the Power Learning mode without saving.

9   Repeat the steps to configure the other outlet (Outlet 1or 2) as needed for any additional plugged-in device.

10   To unlearn a device, press the **button** nine (9) times, but use with care; as this will reset both outlets.

Configure a Wireless Outlet Dimmer

Use the Composer Pro System Design and Connections views to configure a Wireless Outlet Dimmer. Configure the Wireless Outlet Dimmer to control and dim lamps.

Prerequisites

1   Ensure that the Wireless Outlet Dimmer is installed and set up as directed in the *Control4 Wireless Outlet Dimmer Installation Guide* available on the Control4 Dealer website.

2   Ensure that your project has a Control4 controller added and identified on the Control4 system.

To add and configure a Wireless Outlet Dimmer:

Note: Each Wireless Outlet Dimmer has two (2) outlets: Outlet 1 and Outlet 2. When the Wireless Outlet Dimmer is plugged into a wall, Outlet 1 is on the left and Outlet 2 is on the right.
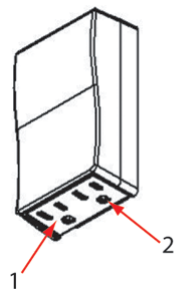
3   In the Items pane > My Drivers tab > Lighting > Light double-click the **Wireless Outlet Dimmer** object driver to add it to the project.

4   Double-click the **Outlet Light** twice to add one for each outlet.

5   Ensure that three (3) objects are added to the project tree:

- One (1) for the Wireless Outlet Dimmer
- Two (2) other objects representing Outlet 1 and Outlet 2 (Light 1 and Light 2)

6   To configure the properties, click **System Design**. In the project tree, select the **Wireless Outlet Dimmer** object to view the device properties.

- **LEDs**—Enabled/Disabled radio buttons—Lets you enable or disable the LED lights on the Wireless Outlet Dimmer.
- **Networking**
  - **Channel**—Lets you view the channel that the device is using to communicate on the network.
  - **Gateway** —Lets you view the Gateway that the Wireless Outlet Dimmer is using on the network.
  - **MAC**—The MAC address that the device is using on the network.
  - **Version**—The device version.

Light (v2)

Device settings for dimmers

Properties (applies to: Keypad Dimmer, Forward Phase Dimmer, Adaptive Phase Dimmer, 0-10V Dimmer)

- **Click rates**
    - **Preset Level**—The percentage of light output is used for On.
        - **Ramp Up**—The time it takes to reach the preset On level.
        - **Ramp Down**—The time it takes to reach 0% (Off).
    - **Hold Ramp Rates**
        - **Up**—The rate in seconds for reaching the Max On level from an Off state when the top button is held down.
        - **Down**—The rate in seconds for reaching the Off state from an On state when the bottom button is held down.
    - **Range Levels**
        - **Min On**—The percentage of light for the minimum "On" power level. The default is 0. The functional minimum level can vary, depending on the light type (such as incandescent, fluorescent, compact fluorescent, and LED).

            This is especially important in compact fluorescent (CLF) and LED lighting that sometimes have a minimum threshold for producing visible light that could be anywhere from the 10-40% range. Some loads will flicker or pulse right at their minimum threshold.

            Example: A bulb doesn't produce visible light until it reaches 20%. The minimum On to 25% will ensure a clean On transition.

        - **Max On**—This setting enables capping the light level for a given load below 100%, either to enhance bulb life or match the light level in a given living space better. This is an absolute maximum level rather than the Preset On level, which can be bypassed.
    - **Cold Start Values**—These settings are mainly applicable to compact fluorescent (CFL) loads. Switching from an Off state to On sometimes exhibits a higher visible light threshold than after the CFLs have been on and have warmed up. If a Cold Start % is set (above the Minimum On %), the dimmer cleanly jumps to that level from Off to On. However, when the dimmer has been on for the time period designated by the Cold Start timer, the dimmer can ramp below the Cold Start On % to the minimum On%.

        Example: Fluorescent lights go on, warm up, and then will dim down to the Minimum On Level % setting. Tapping the keypad on a 2-button dimmer sets the light to its preset level. If you press and hold the button, the light checks the Minimum On Level % setting.

        - **Time**— The time a light takes to warm up before it dims (ramps) down to the Cold Start Level setting.
        - **Level**— The light level that the bulb returns to after bulb warmup. This value must be higher than the Min On level defined under Range Levels.
    - **LED Information**
        - **Top**—The On and Off LED colors for the top LED.
        - **Bottom**—The On and Off LED colors for the bottom LED.
        - **Toggle**—The LED colors of the LEDs while being held down(?).

Advanced Properties

- **Fault Detection**
    - **Status**—Displays the device's current fault status. Green is normal, but red indicates a fault.
    - **Reset**—Resets the fault status indicator. If the fault repeats, make sure that the load type is compatible, that the device is wired correctly, and that the device is not damaged.

- **Dimming Mode** (Adaptive Phase Dimmer only)
- **Ambient Light Profiles**
  - Select a preset brightness profile for the keypad backlight and LEDs that changes their brightness according to the room's ambient light. You can also select Fully Customized and manually set each brightness level according to ambient lighting.
  - **Backlight Color—**Sets the keypad's backlight color. If you don't want a keypad backlight, keep the default setting (black).

Button Settings

- **Engraving**—Text that you want printed onto the buttons. See "Ordering keycap engraving" on page 65. *Note:* When the custom engraved keycaps are installed, make sure that the device properties in Composer Pro match the device's actual configuration.
- **Finish**—Color of the buttons.
- **Icons**—Icons that you want printed onto the buttons. To add an icon to the Engraving text box, click **Icons**, then double-click the icon to add.
- **Buttons Control Load**—When selected, this checkbox tells the system that the device directly controls an electrical load, such as a light fixture.
- **LEDs Follow Load**—When selected, this checkbox tells the dimmer's LEDs to indicate the electrical load status.
- **Use as 2 Button Keypad**—When selected, this checkbox allows you to configure and program the device as a 2-button keypad, and a new section "2 Button Keypad Settings" appears.
  - **Hide From Nav**—When selected, this hides the keypad from any Navigator. Navigators must be refreshed for this setting to take effect.

2 Button Keypad Settings (visible only when "Use as 2 Button Keypad" option is selected)

- **Button**—Select the button to configure.
- **LED Behavior**
  - **Follow Bound Device**—LED behavior reflects the state of the device the button is bound to.
  - **Follow Load**—LED behavior reflects the state of the lighting load (on or off).
    - **On Color**—Sets the LED color when the controlled load is on.
    - **Off Color**— Sets the LED color when the controlled load is off.
  - **Push/Release**—LED behavior reflects the button state (pressed or released).
    - **Push Color**—Sets the LED color while the button is pressed.
    - **Release Color**— Sets the LED color while the button is released.

Energy Information (view only)

- **Minutes Off**—Elapsed minutes since device was turned off.
- **Minutes On**—Elapsed minutes since device was turned on.
- **Minutes On Today**—Total minutes device has been on for the current day.
- **Current Power**—Power being consumed by the device at the present time.
- **Energy Used**—Total watt hours consumed by the device over its lifetime.
- **Energy Used Today**—Watt hours consumed by the device for the current day.

Network—The current MAC address and firmware version of the selected device. These fields are not editable.

Replace Legacy Control4 Device

- **Replace Light**—Replaces a legacy device in your project with this new device. After you configure this new device, click this button, select the older device in the mini project tree that opens, then click **OK**.

- **Ignore device when it comes online**—When selected, this checkbox tells the system to ignore the older device when it comes back online.

Configuring the Keypad Dimmer's buttons

When you add a new lighting Keypad Dimmer, a "Keypad" proxy is added underneath the Keypad Dimmer in the project tree.
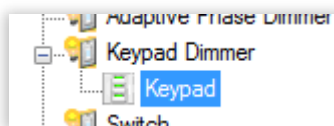
To configure the Keypad Dimmer's buttons:

1   Add the keypad to your project tree, then identify it. For instructions, see "Guidelines for Configuring Devices."

2   In the System Design view, select the device. The device's Properties tab opens.

3   In the Button Settings area, click and drag the appropriate **Keypad Parts** items to the Assembled Keypad example until the example matches the desired keypad configuration.

Tips:

- *The Down/Up buttons can be placed only in the bottom slot and cannot have custom engraving.*
- *Drag the desired button to the* top *slot of the range where you want the button positioned.*

4   Configure the settings described below.

5   Click **Apply to…** to apply the changes to other lighting devices.

6   If you entered text for custom engraving, go to "Ordering keycap engraving" on page 65.

Device settings for the keypad dimmer

Properties

- **Button Settings**
    - **Name**—The name of the button (used for defining its connections to other devices or events within Composer Pro).
    - **Engraving**—Text that you want printed onto the buttons. For more information, see "Ordering keycap engraving" on page 65.
    - **Icons**—Icons that you want printed onto the buttons. To add an icon to the Engraving text box, click **Icons**, then double-click the icon to add.
    - **Button Behavior**
        - **Load On**—Turns on the load (always acts as an "on only" switch).
        - **Load Off**— Turns off the load (always acts as an "off only" switch).
        - **Toggle**—Toggles the load on and off.
        - **Keypad**—Performs actions as programmed in Composer Pro.
    - **LED Behavior**
        - **Follow Bound Device**—LED behavior reflects the state of the device the button is bound to.
        - **Follow Load**—LED behavior reflects the power state.
        - **Push/Release**—LED behavior reflects the button state (pressed or released).
            - **Push Color**—Sets the LED color while the button is pressed.
            - **Release Color**— Sets the LED color while the button is released.
    - **Finish**—Color of the buttons.

Device settings for switches

Properties (applies to new lighting Switch C4-SW120277)

- **LED Information**
    - **Top**—The On and Off LED colors for the top LED.
    - **Bottom**—The On and Off LED colors for the bottom LED.
    - **Toggle**—The LED colors of the LEDs while being held down.

Advanced Properties

- **Fault Detection**
    - **Status**—Displays the device's current fault status. Green is normal, but red indicates a fault.
    - **Reset**—Resets the fault status indicator. If the fault repeats, make sure that the load type is compatible, that the device is wired correctly, and that the device is not damaged.

- **Ambient Light Profiles**
  - Select a preset brightness profile for the switch backlight and LEDs that changes their brightness according to the room's ambient light. You can also select Fully Customized and manually set each brightness level according to ambient lighting.
  - **Backlight Color—**Sets the switch's backlight color. If you don't want a switch backlight, keep the default setting (black).
- **Button Settings**
  - **Engraving**—Text that you want printed onto the switch. See "Ordering keycap engraving" on page 65. *Note:* When the custom engraved keycaps are installed, make sure that the device properties in Composer Pro match the device's actual configuration.
  - **Finish**—Color of the switch.
  - **Icons**—Icons that you want printed onto the buttons. To add an icon to the Engraving text box, click **Icons**, then double-click the icon to add.
  - **Buttons Control Load**—When selected, this checkbox tells the system that the device directly controls an electrical load, such as a light fixture.
  - **LEDs Follow Load**—When selected, this checkbox tells the dimmer's LEDs to indicate the electrical load status.
  - **Use as 2 Button Keypad**—When selected, this checkbox allows you to configure and program the device as a 2-button keypad, and a new section "2 Button Keypad Settings" appears.
    - **Hide From Nav**—When selected, this hides the switch from any Navigator. Navigators must be refreshed for this setting to take effect.
- **2 Button Keypad Settings** (visible only when "Use as 2 Button Keypad" option is selected)
  - **Button**—Select the button to configure.
  - **LED Behavior**
    - **Follow Bound Device**—LED behavior reflects the state of the device the button is bound to.
    - **Follow Load**—LED behavior reflects the state of the lighting load (on or off).
      - **On Color**—Sets the LED color when the controlled load is on.
      - **Off Color**— Sets the LED color when the controlled load is off.
    - **Push/Release**—LED behavior reflects the button state (pressed or released).
      - **Push Color**—Sets the LED color while the button is pressed.
      - **Release Color**— Sets the LED color while the button is released.
- **Energy Information** (view only)
  - **Minutes Off**—Elapsed minutes since device was turned off.
  - **Minutes On**—Elapsed minutes since device was turned on.
  - **Minutes On Today**—Total minutes device has been on for the current day.
  - **Current Power**—Power being consumed by the device at the present time.
  - **Energy Used**—Total watt hours consumed by the device over its lifetime.
  - **Energy Used Today**—Watt hours consumed by the device for the current day.
- **Network**—The current MAC address and firmware version of the selected device. These fields are not editable.

- **Replace Legacy Control4 Device**
  - **Replace Light**—Replaces a legacy device in your project with this new device. After you configure this new device, click this button, select the older device in the mini project tree that opens, then click **OK**.

  - **Ignore device when it comes online**—When selected, this checkbox tells the system to ignore the older device when it comes back online.

Changing LED colors on a switch or dimmer

After you verify that your connections are correct in Composer Pro, you can set the properties and configure the system to meet the home control needs.

To change the LED colors on a switch or dimmer:

1   In the project tree, select the **Switch** or **Dimmer** object for the properties to appear.
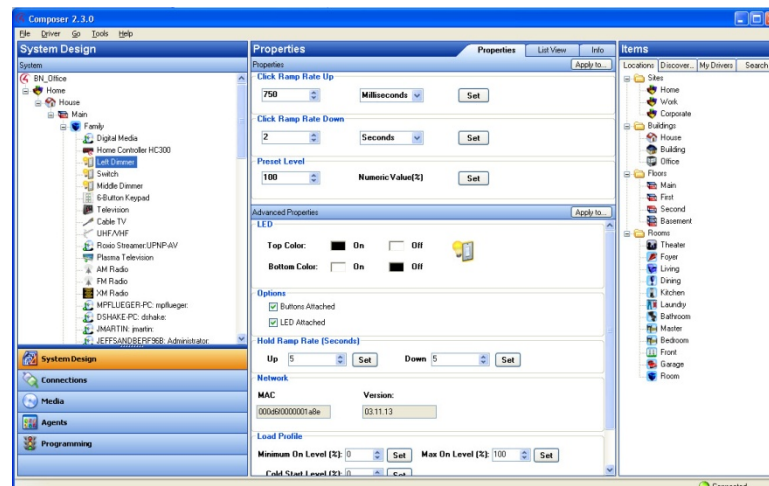
2   For each LED light (Top and Bottom), click the color box to set a different color for the On and Off states.

- **Top Color On**—The LED color for the Top LED when the LED state is On.
- **Top Color Off**—The LED color for the Top LED when the LED state is Off.

- **Bottom Color On**—The LED color for the Bottom LED when the LED state is On.
- **Bottom Color Off**—The LED color for the Bottom LED when the LED state is Off.

Tip: You can change the LED lights based on programming. See the Programming view > Switch or Dimmer objects for the events available. Also, see the actions available for both switch and dimmer.

Panelized Lighting

Panelized Lighting lets you install a lighting control central panel in a mechanical room for new construction. Along with terminal blocks, the 8-Channel Dimmers, 8-Port Ethernet switches, 8-Channel 0-10V Dimmers, and 8-Channel Relay modules can be installed in these panels and connected to dimmers and switches in all rooms of the house. With any Navigator, you can control lights in any room or in the entire house, while eliminating wall clutter.

The products in the Panelized Lighting family include:

- 5-Slot Panel (C4-DIN-5PAN)
- 2-Slot Panel (C4-DIN-2PAN)
- 8-Channel Dimmer (C4-DIN-8DIM-E)
- 8-Port Ethernet Switch (C4-DIN-8ESW-E)
- 8-Channel Relay (C4-DIN-8REL-E)
- 8-Channel 0-10V Dimmer (C4-DIN-8TV-E)
- Bus Power Supply (C4-DIN-BPS)
- Bus Ethernet Gateway, DIN Rail (C4-DIN-BEG)
- 4-Channel Bus Dry Contact Input (C4-BDCI4)

Each device you install needs to be:

1 Added to the project.
2 Identified (except for the panels and 8-Port Ethernet Switch).
3 Configured.

See the following sections for details. Configure the light properties first (next section), and then configure each of the modules after that.

To learn how to design, plan, set up, and install the Panelized Lighting products, see the Panelized Lighting information under Lighting on the Control4 Dealer website.

Tip: Use the Advanced Lighting Scenes and Light Properties agents with Panelized Lighting.

Tip: Also refer to "Configuring user interfaces" for Panelized Lighting keypad configurations.

Adding Panelized Lighting to your project

Use the Composer Pro System Design view to add dimmable, non-dimmable, and 0-10V lights.

- **Dimmable light**—Use for any line-voltage dimmable light. Connect only to an 8-Channel Dimmer.
- **Non-dimmable light**—Use for non-dimmable lights including non-dimmable CFLs and fluorescents. Connect to an 8-Channel Relay or 8-Channel Dimmer if the wattage is low enough.
- **0-10V light**—Use for 0-10V lights (fluorescent lights and LEDs). Connect to an 8-Channel 0-10V Dimmer and an 8-Channel Relay at the same time).

Ensure that a project has been created using Virtual Director and rooms have been added. Refer to the Control4 training or the *Panelized Lighting Quick Start Guide* on the dealer portal for details.

To add a Panelized Lighting device:

1   To add the drivers, see "How to add devices to a project" on page 5. Ensure that the **Light** drivers are added to the project tree (see the next step).

2   Start Composer Pro and connect to a Director.

3   Click **System Design**.

4   In the Items pane, click the **MyDrivers** tab > **Light V2** > **Dimmable Light (Panelized)**, **Non-Dimmable Light (Panelized)**, or **0-10V Light (Panelized)** to add the lights to the project tree.

5   (Optional) Rename the lights to something meaningful in the room, for example, "Overhead Lights."

Next, you need to configure the light's properties.

Configure light properties for Panelized Lighting

Use the Composer Pro System Design view to configure dimmable, non-dimmable, and 0-10V lights.

To add and configure a Panelized Lighting device:

1   In the project tree, select the light, then make changes to the device in the Properties pane.

   Tip: Before you do anything else, set the values for the Load # and Watts. For your convenience, we recommend that you add all of the lights to the project first, and then go to Agents and add the Light Properties agent. This will bring up a table with all of your lights. You can then add all of the Load#s and Watts to that page, eliminating the need to go into the properties for each light and configure these two values individually.

2   To save your changes, click **Set**.

Dimmable Light properties

Properties: Dimmer Information

- **Click Rates**
    - **Preset Level**—The percentage of the load to which the dimmer module ramps when turned on.
    - **Ramp Up**—The rate the light ramps from off to on when the button is clicked.
    - **Ramp Down**—The rate the light ramps from on to off when the button is clicked.
- **Hold Ramp Rates**
    - **Up**—The time, in seconds, it takes the load to ramp to 100% when a button controlling the load is pressed and held.
    - **Down**—The time, in seconds, it takes the load to fade to 0% when a button controlling the load is pressed and held.

- **Range Levels**. Setting the Range Levels smooths out the dimming curve between the minimum and maximum values. This provides a much better dimming experience, particularly with LED lights.
    - **Min On**—The minimum dimmed level, for example, 10%.
    - **Max On**—The maximum dimmed level where the light will not get any brighter, for example, at 80%, the light will never get brighter than that.
- **Cold Start Values**. Many dimmable fluorescents and some LEDs require an initial burst of energy to get them to turn on. In this case, you could set the Time to 500 milliseconds and the Level to 50%.
    - **Time**—Use the arrows selection box to select the time in milliseconds. The default is 0. This is the length of time a light takes to warm up before it dims down to the Cold Start Level setting.
    - **Level**—Use the arrows selection box to select the minimum cold start % light level in 1% increments.
- **LED Information**—The virtual LED colors used when a keypad button is bound to the load. Select Top, Bottom, or Toggle LED Colors.

Advanced Properties

- **Options**
    - **Load #**—The Load number or circuit number may be specified in the lighting plan. Adding that information here will provide the link from the lighting plan to the project and then to the reports that must be generated later (see "Creating Reports" in this document for details). If the lighting plan doesn't include load numbers it's a good idea to create a unique load number for each load leg. To do this, assign a number for each floor (e.g., Basement = 1, Main = 2). Assign a number for each room on the floor (e.g., Kitchen=01, Master Bedroom = 02), and add a number for each light in the room (e.g., 01, 02, 03, etc.), so the load number would look something like this: '02-01-03.' The load number must be unique for each Panelized Lighting light.
    - **Watts**—The wattage value of the light (or collection of lights in the load leg). You must enter this value prior to connecting the light to a module to ensure that the wattage calculations are correct and that the module does not overload. *Example*: the light leg controls six (6) can lights in the Kitchen; each can is 100 watts. In this case, enter 600 watts (6 x 100).
    - **Override Level (%)**—Defines the level or on/off state that the dimmer load will be set to when the module override button is pressed or when the auxiliary override is engaged.
    - **Dimming Mode** (8-Channel Dimmer only)—Defaults to Autodetect until the dimmer detects the load type and sets the forward or reverse-phase dimming mode appropriately. LEDs usually auto detect as reverse-phase. Some LEDs work better in forward-phase. Experiment with forward and reverse phase after installation to see which option works the best.
    - **Detected**—(8-Channel Dimmer only). Indicates whether forward-phase or reverse-phasedimming is detected when the dimming mode is set to **Autodetect**.
    - **Use Power Booster**—(8-Channel Dimmer only). Select this option as a power booster that will be used to control the light. Power boosters allow loads greater than the maximum wattage for individual channels on the 8-Channel Dimmer to be properly dimmed. Selecting the Power Booster option automatically changes the wattage to 25W for the load calculations, and indicates in the reports that a power booster should be used.
- **Energy Information**
    - **Minutes Off**—The number of minutes that the load has been off since the dimmer module was last reset.
    - **Minutes On**—The number of minutes that the load has been on since the dimmer module was last reset.
    - **Minutes On Today**—The number of minutes that the load has been on today.
    - **Current Power**—The current power being used by the load (in watts).

- **Energy Used**—The total number of watt hours used by the load since the device was last reset.
- **Energy Used Today**—The total number of watt hours used by the load from 12:00 AM until 11:59 PM today.

Non-Dimmable properties

Properties: LED Information

- The virtual LED colors used when a keypad button is bound to the load. Select Top, Bottom, or Toggle LED Colors.

Advanced Properties

- **Options**
  - **Load #**—The Load number and circuit number may be specified in the lighting plan. Adding that information here will provide the link from the lighting plan to the project and then to the reports that must be generated later (see "Creating Reports" in this document for details). If the lighting plan doesn't include load numbers, it's a good idea to create a unique load number for each load leg. To do this, assign a number for each floor (e.g., Basement = 1, Main = 2). Assign a number for each room on the floor (e.g., Kitchen=01, Master Bedroom = 02), and add a number for each light in the room (e.g., 01, 02, 03, etc.). So the load number would look something like this: '02-01-03.' The load number must be unique for each Panelized Lighting device.
  - **Watts**—The wattage value of the light (or collection of lights in the load leg). You must enter this value prior to connecting the light to a module to ensure that the wattage calculations are correct and that the module does not overload. ***Example***: The light leg controls six (6) can lights in the Kitchen; each can is 100 watts. In this case, enter 600 watts (6 x 100).
  - **Override Level (%)**—Defines the level or on/off state that the dimmer load will be set to when the module override button is pressed or when the auxiliary override is engaged.
- **Energy Information**
  - **Minutes Off**—The number of minutes that the load has been off since the dimmer module was last reset.
  - **Minutes On**—The number of minutes that the load has been on since the dimmer module was last reset.
  - **Minutes On Today**—The number of minutes that the load has been on today.

- **Current Power**—The current power being used by the load (in watts).
- **Energy Used**—The total number of watt hours used by the load since the device was last reset.
- **Energy Used Today**—The total number of watt hours used by the load from 12:00 AM until 11:59 PM today.

0-10V properties

Properties

- **Dimmer Information**
  - **Click Rates**
    - **Preset Level**—The percentage of the load to which the dimmer module ramps when turned on.
    - **Ramp Up**—The rate the light ramps from off to on when the button is clicked.
    - **Ramp Down**—The rate the light ramps from on to off when the button is clicked.

- **Hold Ramp Rates**
  - **Up** —The time, in seconds, it takes the load to ramp to 100% when a button controlling the load is pressed and held.
  - **Down**—The time, in seconds, it takes the load to fade to 0% when a button controlling the load is pressed and held.
- **Range Levels**
  - **Min On**—The minimum dimmed level, for example, 10%.
  - **Max On**—The maximum dimmed level where the light will not get any brighter, for example, at 80%, the light will never get brighter than that.
- **Cold Start Values**
  - **Time**—Use the arrows selection box to select the time in milliseconds. The default is 0. This is the length of time a light takes to warm up before it dims down to the Cold Start Level setting.
  - **Level**—Use the arrows selection box to select the minimum cold start % light level in 1% increments.
  - **LED Information**—The virtual LED colors used when a keypad button is bound to the load. Select Top, Bottom, or Toggle LED Colors.

Advanced Properties

- **Options**
  - **Load #**—The load number and circuit number may be specified in the lighting plan. Adding that information here will provide the link from the lighting plan to the project and then to the reports that must be generated later (see "Creating Reports" in this document for details). If the lighting plan doesn't include load numbers, it's a good idea to create a unique load number for each load leg. To do this, assign a number for each floor (e.g., Basement = 1, Main = 2). Assign a number for each room on the floor (e.g., Kitchen=01, Master Bedroom = 02), and add a number for each light in the room (e.g., 01, 02, 03, etc.). So the load number would look something like this: '02-01-03.' The load number must be unique for each Panelized Lighting device.
  - **Watts**—The wattage value of the light (or collection of lights in the load leg). You must enter this value prior to connecting the light to a module to ensure that the wattage calculations are correct and that the module does not overload. *Example*: The light leg controls six (6) can lights in the Kitchen; each can is 100 watts. In this case, enter 600 watts (6 x 100).
  - **Override Level(%)**—Defines the level or on/off state that the dimmer load will be set to when the module override button is pressed or when the auxiliary override is engaged.
  - **Load Type**—Select an option based on the specific type of 0-10V light being used:
    - **0-10V Regular**—Used when 0V = minimum dimmed level and 10V = maximum level. Note that most "0-10V" lights do not actually use 0-10V, they use 1-10V. Only select this option if you know that the light actually requires true 0-10V control.
    - **1-10V Regular**—Used when 1V = minimum dimmed level and 10V = maximum level. This is the default selection as it is the actual standard for 0-10V lights.
    - **0-10V Inverted**—Used when 10V = minimum dimmed level and 0V = maximum level. (Rarely used.)
    - **1-10V Inverted**—Used when 10V = minimum dimmed level and 1V = maximum level. (Rarely used.)
  - **Use External Relay**—Check the box if an external relay such as a Leviton Power Pack Relay will be used for on/off control of the 0-10V light. Uncheck if on/off control will be provided by a Control4 Relay Module or if the 0-10V light does not require separate on/off control. If the **Use External Relay** box is checked, the 0-10V light will not be able to be connected to a Control4 Relay Module and the reports will indicate that an external relay should be used.

Energy Information

- **Note**—Energy information is only provided when the 0-10V light is connected to a Control4 Relay Module.
- **Minutes Off**—The number of minutes that the load has been off since the relay module was last reset.
- **Minutes On**—The number of minutes that the load has been on since the relay module was last reset.
- **Minutes On Today**—The number of minutes that the load has been on today.
- **Current Power**—The current power being used by the load (in watts).
- **Energy Used**—The total number of watt hours used by the load since the device was last reset.
- **Energy Used Today**—The total number of watt hours used by the load from 12:00 AM until 11:59 PM today.

Configure an 8-Channel Dimmer

Use the Composer Pro System Design and Connections views to configure an 8-Channel Dimmer module for Panelized Lighting.

Ensure that the 8-Channel Dimmer module (C4-DIN-8-DIM-E) is installed as directed in the *Control4 8-Channel Dimmer Installation Guide, 8-Channel Dimmer Operation and Configuration Guide,* and the *8-Channel Dimmer Wiring Guide* on the Control4 Dealer website.

To add and configure an 8-Channel Dimmer module:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **8-Channel Dimmer** driver is added to the project tree (see the next step). Add as many 8-Channel Dimmer drivers as needed (eight (8) loads per module).

2   In the Items pane > My Drivers tab > Lighting > Panelized Lighting select the **8-Channel Dimmer** to add the driver to the project tree.

   Notes: *(1) Auto Discovery is available, but we recommend that you add the drivers manually for best results.(2) It's best to add all of the modules at the same time before making all of the connections.*

3   (Optional) Rename the module drivers to something meaningful in the room, for example, 8-Channel Dimmer 1 in the Mechanical Room.

4   (Optional) To configure the dimmer's properties, in the project tree select the **8-Channel Dimmer** object and view the items in the Properties pane.

Dimmer Properties:
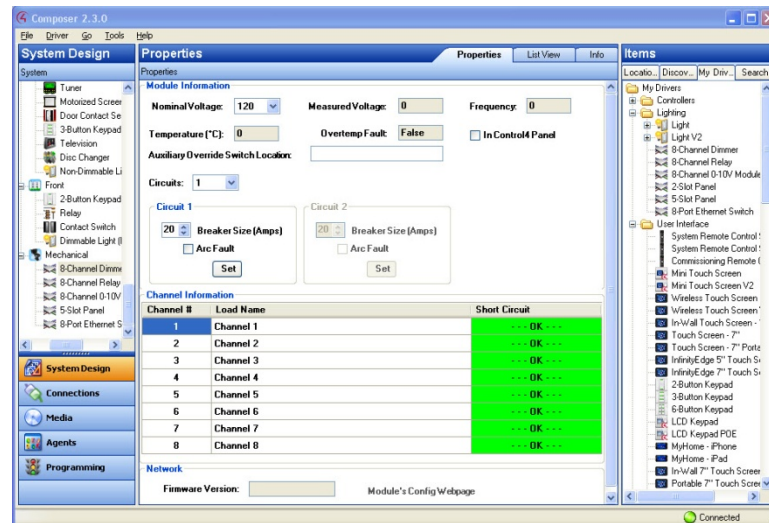
Module Information

- **Nominal Voltage**—(110V – 277V) The voltage of the circuit to which the module will be connected. Measured voltage may differ slightly from nominal voltage depending on the electrical supply. This is used for wattage calculations when connecting loads to the module.
- **Measured Voltage**—Indicates the electrical voltage that the module is measuring. Not editable.
- **Frequency**—Indicates the electrical frequency that the module is measuring. Not editable.
- **Temperature**—View the module's temperature.
- **Overtemp Fault**—View the module's temperature fault, if displayed.
- **In Control4 Panel**—Check if this module will be installed in a Control4 2-slot or 5-slot panel. Do not check if the module will be installed in a third-party DIN rail panel. This is used in maximum wattage calculations. Dimmers in third-party panels must be derated with lower wattage limits.
- **Auxiliary Override Switch Location**—Indicates where the override switch should be installed and wired, e.g., the Master Bedroom Closet. Type the room's name. This information will be included in the Module Report that can be provided to the electrician.
- **Circuits** (2 maximum)—Set to 1 or 2. It's usually best to set this value to 2 and then reduce it to 1 if the connections made later are under the maximum wattage for a single circuit.
- **Circuit 1, 2**—The breaker size for each circuit. This can be set from 10A to 20A. Used for maximum wattage calculations.
- **Arc Fault**—Check with the local electrician to determine the local requirements for arc-fault breakers. In the U.S., NEC requires arc-fault breakers (AFCIs) for circuits serving most living areas. Some municipalities using an older version of the code may require them only on lights in bedrooms or not require them on lighting circuits. AFCIs are prone to interpret dimming as a fault and nuisance trip. They are limited to only 8.3A of dimming on the circuit. This setting is used for maximum wattage calculations.

Channel Information

- **Channel#**—The channel number indicated on the module's hardware.
- **Load Name**—The name of the load that is connected to the indicated channel.
- **Fault Status**—Refer to the *8-Channel Dimmer Installation Guide* for fault details.

Network

- **Firmware Version**—Indicates the firmware driver version for this module.
- **Modules Config Page**—Click to open the network configuration page for the module in your internet browser.

Configure an 8-Channel Relay

Use the Composer Pro System Design and Connections views to configure an 8-Channel Relay module for Panelized Lighting devices.

Ensure that the 8-Channel Relay module (C4-DIN-8REL-E) is installed as directed in the *Control4 8-Channel Relay Installation Guide* on the Control4 Dealer website.

To add and configure an 8-Channel Relay module:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **8-**Channel **Relay** driver is added to the project tree (see the next step). Add as many 8-Channel Relay drivers as needed (eight (8) relays per module).

2   In the Items pane > My Drivers tab > Lighting > Panelized Lighting select the **8-Channel Relay** to add the driver to the project tree.

   Notes: (1) Auto Discovery is available for this product, but we recommend that you add the drivers manually for best results. (2) It's best to add all of the modules at the same time before making all of the connections.

3   (Optional) Rename the module drivers to something meaningful in the room, for example, 8-Channel Relay 1 in the Mechanical Room.

4   (Optional) To configure the relay's properties, in the project tree select the **8-Channel Relay** object and view the items in the Properties pane.

Relay Properties:
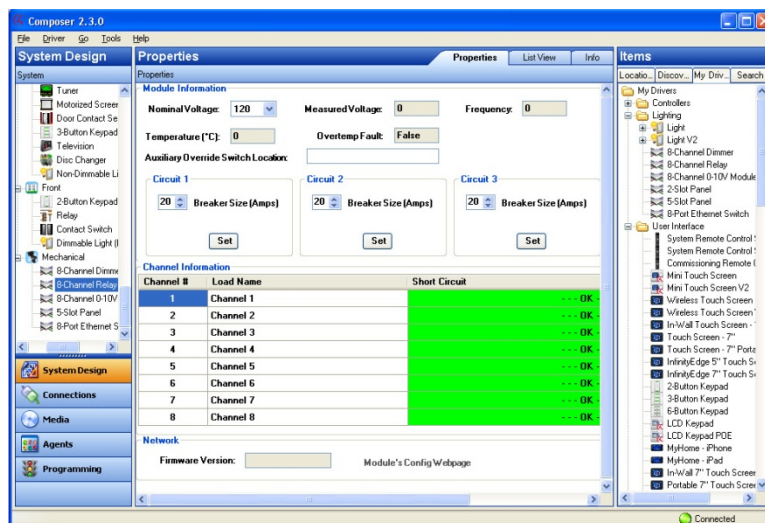
Module Information

- **Nominal Voltage (110V – 277V)**—The voltage of the circuit to which the module will be connected. Measured voltage may differ slightly from nominal voltage depending on the electrical supply. This is used for maximum wattage calculations.
- **Measured Voltage**—Not editable.
- **Frequency**—Not editable.

- **Temperature**—View the module's temperature.
- **Overtemp Fault**—View the module's temperature fault, if displayed.
- **In Control4 Panel**—Check if this module is installed in a 2-slot or 5-slot panel. Do not check if the module will be installed in a third-party DIN rail panel. This is used in maximum wattage calculations. Relays in third-party panels must be derated with lower wattage limits.
- **Auxiliary Override Switch Location**—Indicates where the override switch should be installed and wired, e.g., the Master Bedroom Closet. Type the room's name in the box.
- **Circuit 1, 2, 3, 4**—The breaker size for each circuit. This can be set from 10A to 20A. Used for maximum wattage calculations.

Channel Information

- **Channel#**—The channel number indicated on the module's hardware.
- **Load Name**— The name of the load that is connected to the indicated channel.

Network

- **Firmware Version**—Indicates the firmware version for this driver.
- **Modules Config Page**—Click to open the network configuration page for the module in your Internet browser.

Configure an 8-Port Ethernet Switch

There are no properties to define for the 8-Port Ethernet Switch (C4-DIN-8ESW-E) driver in Composer Pro.

Configure an 8-Channel 0-10V Dimmer

Use the Composer Pro System Design and Connections views to configure an 8-Channel 0-10V Dimmer module.

Ensure that the 8-Channel 0-10V Dimmer module (C4-DIN-8TV-E) is installed as directed in the *Control4 8-Channel 0-10V Dimmer Installation Guide* and *8-Channel 0-10V Dimmer Wiring Guide* available on the Control4 Dealer website.

To add and configure an 8-Channel 0-10V Dimmer module:

1 To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **8-Channel 0-10V Dimmer module** driver is added to the project tree (see the next step). Add as many 8-Channel 0-10V Module drivers as needed (eight (8) dimmers per module).

2 In the Items pane > My Drivers tab > Lighting select the **8-Channel 0-10V Module** to add the driver to the project tree.

   Notes: (1) Auto Discovery is available, but we recommend that you add the drivers manually for best results. (2) It's best to add all of the modules at the same time before making all of the connections.

3 (Optional) Rename the module drivers to something meaningful in the room, for example, 8-Channel 0-10V Module 1 in the Mechanical Room.

4 (Optional) To configure the dimmer's properties, in the project tree select the **8-Channel 0-10V Module** object and view the items in the Properties pane.

0-10V Dimmer Properties:
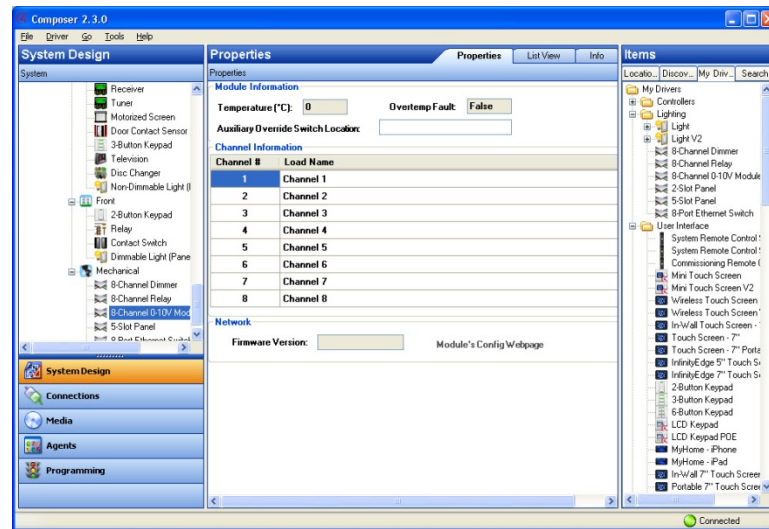
Module Information

- **Temperature**—View the module's temperature.
- **Overtemp Fault**—View the module's temperature fault, if displayed.
- **Auxiliary Override Switch Location**—Indicates where the override switch should be installed and wired, e.g., the Master Bedroom Closet. Type the room's name in the box.

Channel Information

- **Channel#**—The channel number indicated on the module's hardware.
- **Load Name**—The load name used.

Network
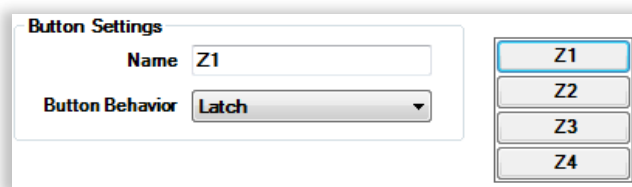
- **Firmware Version**—Indicates the firmware driver version for this module.
- **Modules Config Page**—Click to open the network configuration page for the module in your internet browser.

Configure a 4-Channel Bus Dry Contact Input

Use the Composer Pro System Design and Connections views to configure a 4-Channel Bus Dry Contact Input device.

To add and configure a 4-Channel Bus Dry Contact Input:

1 To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **4-Channel Bus Dry Contact Input** driver is added to the project tree (see the next step).

2 In the Items pane > My Drivers tab > Lighting select the **4-Channel Bus Dry Contact Input** to add the driver to the project tree.

3 Click each button to define its name and behavior.

4-Channel Bus Dry Contact Input Properties:

Button Settings

- **Name**—The name of the button (used for defining its connections to other devices or events).
- **Button Behavior**—How the button works mechanically.
  - **Latch**—Pressing and releasing the button toggles between "button pressed" and "button released" states.
  - **Momentary**—Pressing and releasing a button creates only a momentary connection.

Configure a Bus Ethernet Gateway

Use the Composer Pro System Design and Connections views to configure a Bus Ethernet Gateway.

To add and configure a Bus Ethernet Gateway:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Bus Ethernet Gateway** driver is added to the project tree (see the next step).

2   In the Items pane > My Drivers tab > Lighting select the **4-Channel Bus Dry Contact Input** to add the driver to the project tree.

3   Click each button to define its name and behavior.

Bus Ethernet Gateway Properties:
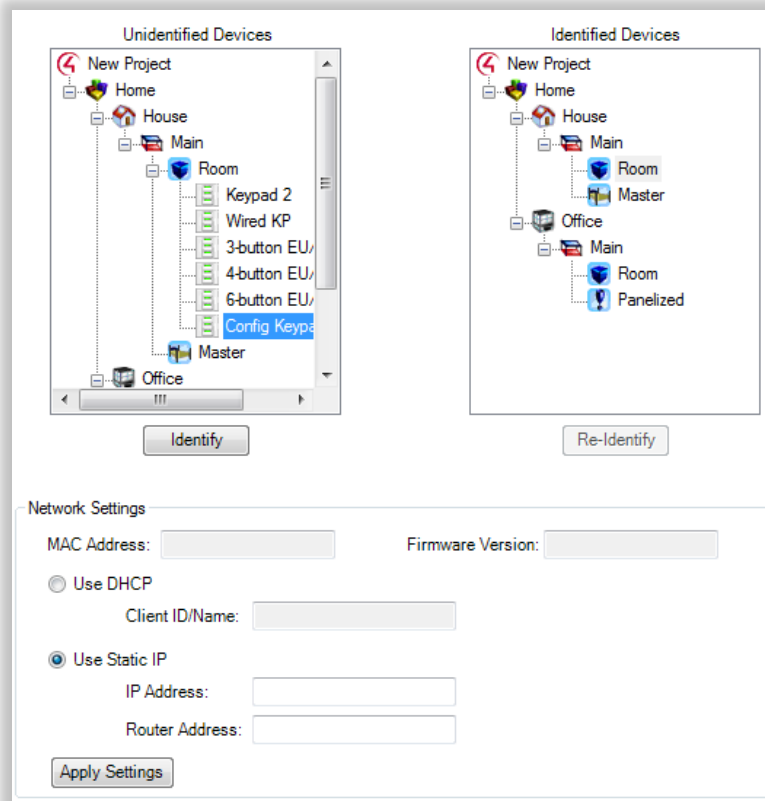
Configuring user interfaces

Use the Composer Pro System Design and Connections views to configure Navigators for the Control4 system.

Notes: *(1) You may have noticed a "Commissioning Remote Control SR-250" driver in the Online Database; this driver is not used for residential customers. (2) As of OS 2.3.0, the MyHome drivers no longer appear in the drivers list. This is because if you have a valid license, new apps will be installed and identified automatically. See the* MyHome Setup Guide for Dealers *or* MyHome Setup Guide for Homeowners *for updates.*

These subsections provide information about configuring system remote controls and touch screens:

- "Configure System Remote Control SR-150B"
- "Configure System Remote Control Version 3, SR-250"
- "Configure a 7" Portable Touch Screen with Camera"
- "Configure a 7" Portable Touch Screen"
- "Configure a 7" Tabletop or Wall-Mounted Touch Screen"
- "Configure a 7" In-Wall Touch Screen with Camera"
- "Configure a 5" or 7" In-Wall Touch Screen"

- "Configure Mobile Devices or PCs/Tablets as Navigators"
- "Configure a Door Station"

Change the order of Watch/Listen sources

To change the order of your customer's sources when they press Watch/Listen:

1   In the project tree, click the **room** to control.

2   Click the **Navigator** tab.

3   From the Menu (left side), select the function to change; for example, **Watch** or **Listen**.

4   Select the item in 'Device Visibility and Display Order,' and then click **Modify**.

5   Change to the desired order, and then click **OK**.

Configuring remote controls

Configure System Remote Control SR-150B

Use the Composer Pro System Design and Connections views to add and identify this device.

Ensure that the SR-150B is installed as directed in the *Control4 System Remote Control SR-150B Setup Guide*.

To add and configure an SR-150B:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **System Remote Control SR-150** driver is added to the project tree.

Note: To complete the identification process, the system remote control must be on the same ZigBee channel as the controller, and the controller must have Zserver enabled. To change the ZigBee channel on the remote, see Step 5.

2   (Optional) To configure the properties, click **System Design**.

3   In the project tree, select the **System Remote Control** object.

4   View and change the properties in the Properties pane.

Note: Press any button on the system remote control to display the configurable property values in the Properties pane. Because the SR-150B has no window, some of the options below are not supported in the SR-150B.

Modifiable properties include:

- **Screen Backlight**—Not used.
- **Keypad Backlight**—Lets you set the light level of the backlight. The default is 0%. Click **Set Level**.
- **Sleep Mode**—Lets you configure sleep mode settings. The default is five (5) seconds, but can be extended to 60 seconds. Select **Wake on Movement** if you want the remote control to wake up when moved.
- **Batteries**—Lets you view the battery level on your remote control.
  - **Enable Recharge Station**—Check this box if you received a Remote Recharging Station *with* a remote. This feature updates your existing remote to recognize the new rechargeable battery.
- **Network**—Lets you view the remote control's ZigBee channel, gateway, MAC address and firmware version.
  - **MAC**—Displays the remote's own MAC address.
  - **Firmware Version**—Displays the current firmware version of the remote control.

- **Watch/Listen Button Behavior**—If you select one of the options below, the following action occurs when you press the **Watch** button.
  - **No Action—**When you press the **Watch** button, nothing happens. This option can be tied to programming a button (see the section below).
  - **Select Most Recently Used Device**—Lists the last three (3) devices; e.g., DVD player, media player, television, etc.

5 Change the system remote control settings as needed at the physical system remote control SR-150B using the applicable button-press sequence:

- **Check ZigBee Channel**—To determine the current ZigBee channel, press **Room Off, 0, 0, 3** (or **Room Off, 7, 4, 7**) (in that order), and then count the blinks of Room Off. The number of blinks corresponds with the channel number.
- **Reset to Factory Defaults**—To reset all settings to the factory defaults (including ZigBee channel), press **Room Off, 9, 9, 9**.

Program the System Remote Control SR-150B programmable buttons

On the system remote control SR-150, you can program six (6) buttons (red, green, yellow, blue, *, and #) to perform programmed activities. The buttons can be programmed to execute any of the AV device's macros or IR codes or be programmed by room.

To program the buttons:

1 Ensure that you have the following devices in your project:

- Controller
- System remote control SR-150B
- An AV device to be controlled

2 In Composer Pro, click **Connections**.

3 Click the **Network** tab. Ensure that the controller and the remote are both network identified.

4 Program the programmable buttons (Red, Green, Yellow, Blue, *, or #) either based on the selected AV device or the selected room.

Based on AV device:

a Click **System Design**.

b Select an **AV device** to display the device's Properties page.
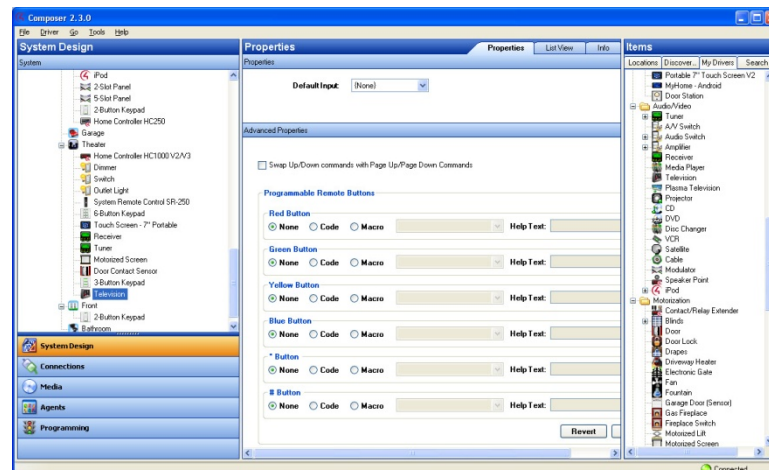
     c   On the device's Properties page, select **Code** or **Macro** for the button you want to program, and then select a code or macro from the drop-down list.

     d   Edit the Help text as needed, and then select **Set**.

Note: Help text describes custom programming to users in the House option in any of the Navigators.

*Example: (1) In System Design, select **Disc Changer**. (2) In the Red button, select **Code**. (3) From the drop-down list, select **Subtitle**. (4) Select the **Set** button to create a **Subtitle** button.*

Based on room:

a   Click **Programming**.

b   Select a room in the Device Events pane.

c   Select the **Commands** radio button in the <Room> Events pane.

d   Use the drop-down menu to select a **command** or **button** (example, **Blue Button**).

e   In the Actions pane, build the script using the items to program the actions in the selected room when the selected command or button is used.

Configure System Remote Control SR-250

Use the Composer Pro System Design and Connections views to add and identify this device.

Ensure that the system remote control SR-250 is installed as directed in the *Control4 System Remote Control SR-250 Setup Guide* available on the Control4 Dealer website.

To add and configure an SR-250:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **System Remote Control SR-250** driver is added to the project tree.

Note: To complete the identification process, the remote must be on the same ZigBee channel as the controller, and the controller must have Zserver enabled. To change the ZigBee channel on the remote, see Step 6.

2   (Optional) To configure the properties, click **System Design**.

3   In the project tree, select the **System Remote Control** object.

4   View and change the properties in the Properties pane.

Note: Press any button on the SR-250 to display the configurable property values in the Properties pane.

*Tip: You can also change most of these settings on the SR-250 using **Info** > **Config**.*

Modifiable properties include:

- **Screen Backlight**—Lets you set the light level of the screen's backlight. Select a percentage from 0 (Off) to 100 (full brightness). The default is 100%. Click **Set Level**.
- **Keypad Backlight**—Lets you set the light level of the keypad's backlight. Select a percentage from 0 (Off) to 100 (full brightness). The default is 100%. Click **Set Level**.
- **Sleep Mode**—Lets you set how long the remote control stays awake after no activity. The default setting is five (5) seconds, but can be extended to 60 seconds. Select **Wake on movement** to wake the SR-250 up when moved.
- **Batteries**—Lets you view the battery level (strength in %) of your remote.
  - **Enable Recharge Station**—Check this box if you received a Remote Recharging Station *with* a remote. This feature updates your existing remote to recognize the new rechargeable battery.

- **Network**—Lets you view the remote's ZigBee channel, gateway, MAC address and firmware version.
    - **Channel**—Displays your ZigBee channel (1-15), which should match the ZigBee channel set for the controller.
    - **Gateway**—Displays the MAC address of the ZigBee server (usually your controller unless you specify otherwise).
    - **MAC**—Displays the remote's own MAC address.
    - **Firmware Version**—Displays the current firmware version of the remote.
- **Watch/Listen Button Behavior**—If you select one of the options below, the following action occurs when you press the **Watch** button.
    - **No Action—**If you select this option and you press the **Watch** button, nothing happens. This option can be tied to programming a button (see the section below).
    - **Select Most Recently Used Device**—Lists the last three (3) devices; e.g., DVD player, Media Player, Television, etc.
    - **Show Device List**—Lists the source device of the selection.

5   (Conditional) Change ZigBee Channel: If you need to change the ZigBee channel to match the controller's channel or to improve reception, do the following on the system remote control SR-250.

If the system remote control is NOT identified, follow these steps:

a   Press buttons **2, 4, 8, 6, #, ***, and then press the **List** button (in that order) to get into Edit mode.

b   Use the **up** or **down** arrows to pick the ZigBee channel.

c   Press **Select** to change the ZigBee channel.

d   Press **CNCL** to exit Edit mode.

If the system remote control IS identified, follow these steps:

a   Press the **List** button once or twice to display the menu options.

b   Press buttons **2, 4, 8, 6, #, *** and then press the **List** button (in that order) to get into Edit mode.

c   Use the **up** or **down** arrows to pick a ZigBee channel.

d   Press **Select** to change the ZigBee channel.

e   Press **CNCL** to exit Edit mode.

Program the SR-250 programmable buttons

On the system remote control SR-250, you can program six (6) buttons (Red, Green, Yellow, Blue, *, and #) to perform programmed activities. You can program these buttons to execute any of the AV device's macros or IR codes or they can be programmed by room.

To program the SR-250 programmable buttons:

1   Ensure that you have the following devices in your project:

- Controller
- System remote control SR-250
- An AV device to be controlled

2   In Composer Pro click **Connections**.

3   Click the **Network** tab. Ensure that the controller and the remote are both network identified.

4   Program the programmable buttons (Red, Green, Yellow, Blue, *, or #) either based on the selected AV device or the selected room.

Based on AV device:

a   Click **System Design**.

b   Select an **AV device** to display the device's Properties page.
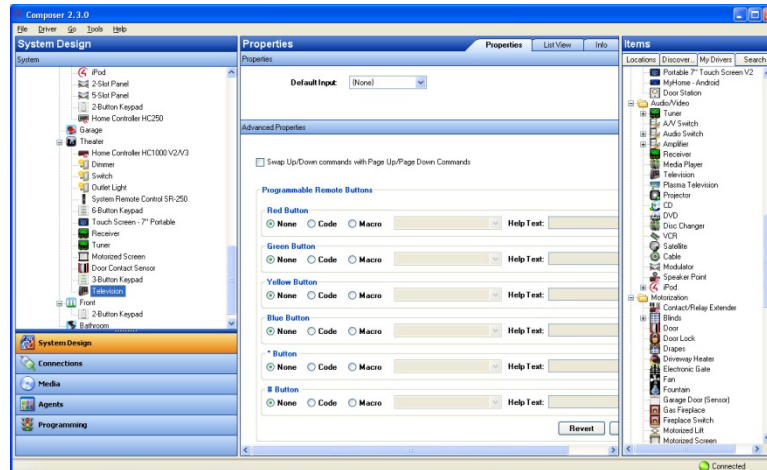
c   On the device's Properties page, select **Code** or **Macro** for the button you want to program, and then select a code or macro from the drop-down list.

d   Edit the **Help** text as needed, and then select **Set**.

Note: Help text describes custom programming to users in the House option in any of the Navigators.

*Example: (1) In System Design view, select **Disc Changer**. (2) In the Red button, select **Code**. (3) From the drop-down list, select **Subtitle**. (4) Select the **Set** button to create a **Subtitle** button.*

Based on room:

a   Click **Programming**.

b   Select a **room** in the Device Events pane.

c   Select the **Commands** radio button in the <Room> Events pane.

d   Use the drop-down menu to select a **command** or **button** (example, **Blue Button**).

e   In the Actions pane, build the script using the items to program the actions in the selected room when the selected command or button is used.

Program the SR-250 Paging feature

Configure the Beep paging feature for this remote version through programming. Use this feature to page a lost remote. You can program a keypad or a custom button to cause the remote to beep when pressed.

To program the paging feature for this system remote control:

1   In Composer Pro click **Programming**.

2   Select the event that you want to use to start the page. *Example:* To select a keypad button press, first select the **Keypad** in the Device Event pane, and then select the button in Events.

3   In the Actions list, select **System Remote Control SR-250**.

4   In the Commands list, select an action below for the remote, and then drag the **green** arrow
     to the Script pane.
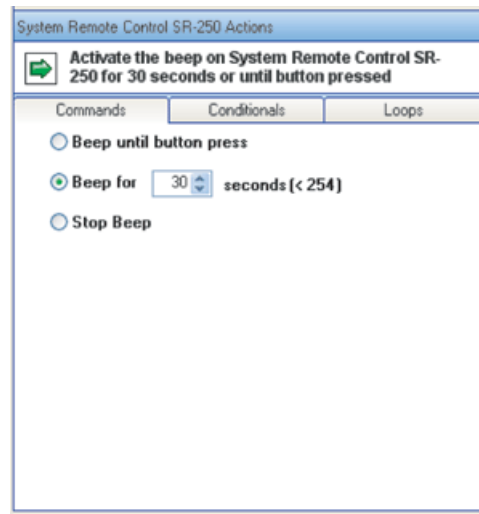
- **Beep until button press**—The remote beeps until you press one of its buttons.
- **Beep for X seconds (<254)**—The remote beeps until X seconds have elapsed or you
  press one of its buttons.
- **Stop Beep**—The remote stops beeping.

5   Click **Execute**.

Configuring touch screens

Configure a 7″ In-Wall Touch Screen with Camera (C4-TW7CO)

Use the Composer Pro System Design and Connections views to add and configure the 7″ In-
Wall Touch Screen (C4-TW7CO) with a camera.

Note: *This particular touch screen includes full duplex point-to-point Intercom sessions,
broadcast support to multiple touch screens, monitoring from the interface, and comes with a
camera for video conferences to another device that supports cameras. An Intercom driver and
agent must be added and configured in the Composer project before the customer can use the
Intercom functions on their touch screen. See this section, the Control4* System User Guide*, and
"Example: Using the Intercom agent" for details.*

*As of June 1, 2013, the HC-800 (C4-HC800-BL-1) and HC-250 (C4-HC250-BL-1) ship with
included support for Intercom and MyHome. For controllers shipped before that time, you must
purchase an Intercom and MyHome license for consumers who want this feature. In either case,
the license must be assigned and active on the consumer's account for the Intercom and
MyHome to function. See* Managing Dealer Accounts on My.Control4.Com *on the
Knowledgebase for information about how to purchase and assign an Intercom license.*

Scenarios

1   **The user wants to have full-duplex, room-to-room calling**. In this case, the Control4 system must have at least two (2) 7" In-Wall Touch Screens installed.
2   **The user wants to broadcast a message without a response**. In this case, the Control4 system must have at least one (1) 7" In-Wall Touch Screen installed.
3   **The user wants to broadcast a message with a response**. In this case, the Control4 system must have at least two (2) 7" In-Wall Touch Screens installed.
4   **The user wants to monitor the sounds in** another **room**. In this case, the Control4 system must have at least two (2) 7" In-Wall Touch Screens installed.
5   **The user wants to have a video conference with others**. In this case, the Control4 system must have at least two (2) devices that support Video Intercom (7" In-Wall Touch Screen with Camera, 7" Portable Touch Screen with Camera, or Door Station – Exterior).

Prerequisites

1   Ensure that the 7" In-Wall Touch Screen (C4-TW7CO-XX) is installed as directed in the Control4 *7" In-Wall Touch Screen Installation Guide* available on the Control4 Dealer website.
2   Ensure that your project has a Control4 controller added and identified in the Control4 system.

To add and configure a 7" In-Wall Touch Screen with Camera:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **In-Wall 7" Touch Screen V2** driver is added to the project tree.

    Note: If this touch screen will be providing audio output, the touch screen needs to be connected as an Audio end point for the room.

2   (Optional) To configure the properties, click **System Design**.
3   In the project tree, select the **7" Touch Screen** object.
4   View and change the properties in the Properties pane as needed.

    Modifiable properties include:

    Backlight Level—Use the up or down arrows to set the light level of the backlight. You can change the brightness of the backlight with this option by percentage, so 100% is On at full brightness and 0% is Off. Click **Set** to save your changes.

    Backlight Preset Level—Lets you set the default backlight level. If you ever restart or power the touch screen again, this is the backlight level it would go to. Click **Set** to save your changes.

    WiFi Signal Strength (%)—If WiFi is used this shows the strength of the signal. Ensure that the signal is strong and robust if you use the Door Station for WiFi. We recommend using Ethernet rather than WiFi for best results.

    Notes: (1) Video Intercom usage. Although this device supports b/g/n, 802.11 b is not recommended for Video Intercom. (2) Wireless-n is recommended for Video Intercom. See "Wireless Network Limitations" below.

    Refresh—Click to refresh the signal strength values.

    Enable Camera— Checked by default. When checked, this allows the device to use the camera for Video Intercom in addition to audio.

Wireless Network Limitations—Many WiFi Access Points handle Multicasts (WiFi simultaneously sent to multiple devices, for example, when the 7" In-Wall Touch Screen with Camera broadcasts video to all stations) by slowing down transmission speed to the 1 Mb basic rate. This can cause overall WiFi congestion in the WiFi network during the broadcast. Video Intercom response times and images may degrade at each device.

If a home requires a large number of WiFi Video Intercom devices, ensure that you have a robust WiFi network (possibly consisting of multiple access points).

Configure a 7" Portable Touch Screen (C4-TSM7)

Use the Composer Pro System Design and Connections views to add and configure this device.

Note: If you want to add and configure the new 7" Portable Touch Screen with Camera released with OS 2.2, see the next section.

Prerequisites

1   Ensure that the 7" Portable Touch Screen (C4-TSM7-G-B) is installed as directed in the *Control4 7" Portable Touch Screen Installation Guide* available on the Control4 Dealer website.
2   Ensure that your project has a Control4 controller added and identified in the Control4 system.

To add and configure a 7" Portable Touch Screen:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Touch Screen - 7" Portable** driver is added to the project tree.

    Note: If this touch screen will be providing audio output, the touch screen needs to be connected as an Audio end point for the room.

2   (Optional) To configure the properties, click **System Design**.
3   In the project tree, select the **Touch Screen - 7" Portable** object.
4   View and change the properties in the Properties pane.

    Modifiable properties include:

    Backlight Level—Use the **up** or **down** arrows to set the light level of the backlight. You can change the brightness of the backlight with this option by percentage, so 100% is On at full brightness and 0% is Off.

    Backlight Preset Level—Lets you set the default backlight level. If you ever restart or power the Mini Touch Screen again, this is the backlight level it would go to.

    Button Animation Enabled—Lets you select a button to glow.

    Volume Control Follows Selected—Lets you select other rooms aside from the one that contains the touch screen, and change its volume when leaving the room.

    Wake on motion—Select to wake up the touch screen when it is moved.

Configure a 7" Portable Touch Screen with Camera (C4-TSMC7-EN)

Use the Composer Pro System Design and Connections views to add and configure this device.

Prerequisites

1   Ensure that the 7" Portable Touch Screen with Camera (C4-TSMC7-EN) is installed as directed in the *Control4 7" Portable Touch Screen with Camera Setup Guide* available on the Control4 Dealer website.

Note: If you want to install the new 7" Portable Touch Screen with Camera, ensure that the part number says "C4-TSMC7-EN" when you add the driver.

2   Ensure that your project has a Control4 controller added and identified in the Control4 system.

To add and configure a 7" Portable Touch Screen with Camera:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that you add the driver **Portable 7" Touch Screen V2** to the project tree.

   Note: *If this touch screen will be providing audio output, the touch screen needs to be connected as an audio* end point *for the room.*

2   (Optional) To configure the properties, click **System Design**.
3   In the project tree, select the **Portable 7" Touch Screen V2** object.
4   View and change the properties in the Properties pane.

   Modifiable properties include:

   Backlight Level—Use the **up** or **down** arrows to set the light level of the backlight. You can change the brightness of the backlight with this option by percentage, so 100% is On at full brightness and 0% is Off. Click **Set** to save.

   Backlight Preset Level—Lets you set the default backlight level. If you ever restart or power the touch screen again, this is the backlight level it would go to. Click **Set** to save.

   WiFi Signal Strength—If using WiFi, shows you the strength of your wireless signal.

   Notes: (1) Video Intercom. Although this device supports b/g/n, 802.11 b is not supported for Video Intercom use. (2) Wireless-n is recommended for Video Intercom. See "Wireless Network Limitations" below.

   Enable Camera—Check to use the camera with this device for video intercom.

   Wireless Network Limitations

   Many WiFi Access Points handle Multicasts (WiFi simultaneously sent to multiple devices, for example, when the 7" Portable Touch Screen with Camera broadcasts video to all stations) by slowing down transmission speed to the 1 Mb basic rate. This can cause overall WiFi congestion in the WiFi network during the broadcast. Video Intercom response times and images may degrade at each device.

   If a home requires a large number of WiFi Video Intercom devices, ensure that you have a robust WiFi network (possibly consisting of multiple access points).

Configure a 7" Tabletop Touch Screen (C4-TST7-EG-B or C4-TSTR7-EG-B)

Use the Composer Pro System Design and Connections views to add and configure this device.

Prerequisites
- Ensure that the 7" Tabletop Touch Screen (C4-TST7-EG-B or C4-TSTR7-EG-B) is installed and on (not in Sleep Mode) as directed in the *Control4 7" Tabletop Touch Screen Installation Guide* on the Control4 website.
- Ensure that your project has a Control4 controller added and identified in the Control4 system.

To add and configure a 7" Tabletop Touch Screen:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Touch Screen - 7"** object is added to the project tree.

2   (Optional) To configure the properties, click **System Design**.

3   In the project tree, select the **Touch Screen - 7"** object.

4   View and change the properties in the Properties pane.

Modifiable properties include:

- **Backlight Level—**Use the **up** or **down** arrows to set the light level of the backlight, and then click **Set**. You can change the brightness of the backlight with this option by percentage, so 100% is On at full brightness and 0% is Off.
- **Backlight Preset Level—**Lets you set the default backlight level. If you ever restart or power the touch screen again, this is the backlight level it would go to. Click **Set** to save your changes.
- **Button Animation Enabled—**Lets you enable animated buttons for a 3D effect.
- **Wake on proximity—**Lets you set the touch screen to wake up when someone approaches within four (4) feet of the device.
- **Detect Ambient Light Levels—**Lets you set the options according to how much light is in the room. You can use this option in programming also.
  - **Set Threshold—**Threshold settings from 0 to 100; 0 means no light; 100 means full light.
  - **Current Light Level—**Shows current light level.

Configure a 5" or 7" In-Wall Touch Screen (C4-TSWMC5 or C4-TSWMC7)

Use the Composer Pro System Design and Connections views to add and configure this device.

Note: *This touch screen includes full duplex point-to-point Intercom sessions, broadcast support to multiple touch screens, and monitoring from the interface.*

As of June 1, 2013, the HC-800 (C4-HC800-BL-1) and HC-250 (C4-HC250-BL-1) ship with included support for Intercom and MyHome. For controllers shipped before that time, you must purchase an Intercom and MyHome license for consumers who want this feature. In either case, the license must be assigned and active on the consumer's account for the Intercom and MyHome to function. See this section, the Control4 System User Guide, and "Example: Using the Intercom *agent" for details. See Managing Dealer Accounts on My.Control4.Com on the Knowledgebase for information about how to purchase and assign an Intercom license.*

Scenarios

1   **User wants to have full-duplex, room-to-room calling**. In this case, the Control4 system must have at least two (2) 5" or 7" In-Wall Touch Screens installed.

2   **User wants to broadcast a message without a response**. In this case, the Control4 system must have at least one (1) 5" or 7" In-Wall Touch Screen installed.

3   **User wants to broadcast a message with a response**. In this case, the Control4 system must have at least two (2) 5" or 7" In-Wall Touch Screens installed.

4   **User wants to monitor the sounds in another room**. In this case, the Control4 system must have at least two (2) 5" or 7" In-Wall Touch Screens installed.

Prerequisites

- Ensure that the 5" In-Wall Touch Screen (C4-TSWMC5) or 7" In-Wall Touch Screen (C4-TSWMC7) is installed as directed in the *Control4 5" and 7" In-Wall Touch Screen Installation Guide* available on the Control4 Dealer website.
- Ensure that your project has a Control4 controller added and identified in the Control4 system.

To add and configure a 5" or 7" In-Wall Touch Screen:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **IE 5" Touch Screen** or **IE 7" Touch Screen** driver is added to the project tree.

Note: If this touch screen will be providing audio output, the touch screen needs to be connected as an Audio End Point for the room.

2   (Optional) To configure the properties, click **System Design**.

3   In the project tree, select the **IE 5" Touch Screen** or **IE 7" Touch Screen** object.

4   View and change the properties in the Properties pane as needed.

Modifiable properties include:

- **Backlight Level**—Use the up or down arrows to set the light level of the backlight. You can change the brightness of the backlight with this option by percentage, so 100% is On at full brightness and 0% is Off.
- **Backlight Preset Level**—Lets you set the default backlight level. If you ever restart or power the touch screen again, this is the backlight level it would go to. Click **Set** to save your changes.
- **Button Animation Enabled**—Lets you enable animated buttons for a 3D effect.
- **Volume Control Follows Selected**—Lets you select other rooms aside from the one that contains the touch screen, and change its volume when leaving the room.

Keypads

Configure a 2-, 3-, or 6-Button Keypad

Use the Composer Pro System Design and Connections views to configure keypads.

Note: To configure a 2-, 3-, or 6-Button Keypad for a 3-way switch, see "Configuring Lights for 3-Way," "Configuring a 2-Button Keypad as a 3-Way Light," or "Configuring a 3-Button Keypad to Control a 3-Way Light."

Ensure that the Keypad is installed as directed in the *Control4 Wireless 2, 3, or 6-Button Keypad Installation Guide* available on the Control4 Dealer website.

To add and configure a 2-, 3-, or 6-Button Keypad:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the correct driver is added to the project tree.

2   (Optional) To configure the properties, click **System Design**. In the project tree, select the **2-Button Keypad**, **3-Button Keypad**, or **6-Button Keypad** object for the properties to appear.

Modifiable properties include (depending on the device selected):

- **LED**
  - **Button x**—You can change these properties for each button.
  - **Keypad Managed**—The LED state is controlled by pressing and releasing the buttons on the keypad (the LEDs are managed at the keypad). This is the factory default for the keypad.

    If you check **Keypad Managed**, the following buttons can be activated.

    - **Push Color**—Indicates the LED color when the button is pushed. Click to select the LED color.
    - **Release Color**—Indicates the LED color when a pressed button is released. Click to select the LED color.

If you uncheck **Keypad Managed** the following buttons change and can be activated. The LED state can be controlled by custom programming.

- **ON Color**—Ensures that the LED state is ON with the selected color.
- **OFF Color**—Ensures that the LED state is OFF with the selected color.
- **Follow Bound Color**—If checked, Keypad Managed is grayed out. The keypad LED colors are set based on the device to which they are bound using the button-link bindings. This lets the installer specify the On/Off colors for the keypad LEDs independently of the device to which they are linked.

  If unchecked, *Keypad Managed* is available. No other settings can be assigned for this option. See the sections related to "Connecting Devices" in this document.

  Example: You can set a 3-way dimmer or switch to use the same colors for On and Off for the two (2) physical dimmers if requested by the customer.

- **On Color**—LED color when button is pressed to ON.
- **Off Color**—LED color when button is pressed to OFF.
- **Network**
  - **MAC**—The device's MAC address.
  - **Version**—The version of the firmware the controller is running.

Changing LEDs on 2-, 3-, or 6-Button Keypads

Use the Composer Pro System Design view to change keypad button LEDs.

To change the LED colors on the keypad:

1   In the project tree, select a **2-Button Keypad**, **3-Button Keypad**, or **6-Button Keypad** object for the properties to appear.
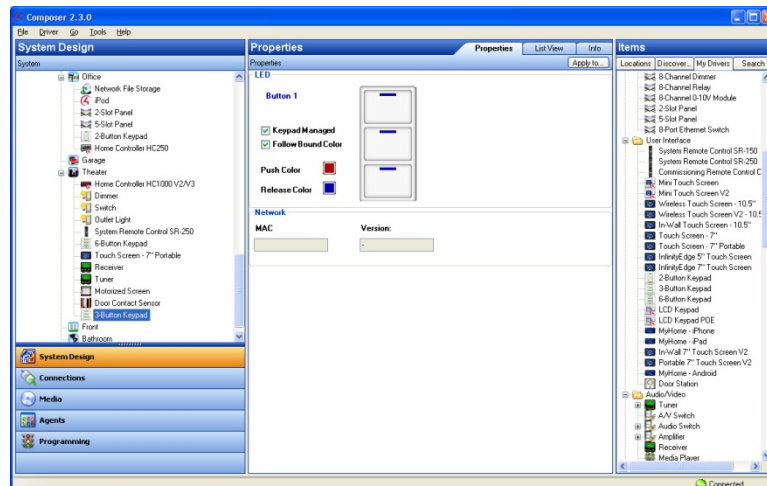
2   To change the LED color when the button is pushed and released, check **Keypad Managed**.

- If Keypad Managed is *checked*, the LED state is controlled by pressing the buttons on the keypad.
- If Keypad Managed is *unchecked*, the LED state can be controlled by custom programming.

  Tip*: You can change the LED lights based on programming. See the Programming view > 2-Button Keypad, 3-Button Keypad, or 6-Button Keypad objects for the events available. Also, see the actions available for the keypads.*

3　Select the Push and Release colors:

　　a　Click the **color box** next to Push Color for a color dialog to appear where you can select the color. The Push Color indicates the LED color when the button is pushed.

　　b　Click the **color box** next to Release Color for a color dialog to appear where you can select the color. The Release Color indicates the LED color when a pressed button is released.

Configure a Configurable Keypad

This applies to next generation lighting (compatible with OS 2.5 and later).

To configure a Configurable Keypad:

1　Add the keypad to your project tree, then identify it. For instructions, see "Guidelines for Configuring Devices."

2　In the System Design view, select the device. The device's Properties tab opens.

3 In the Button Settings area, click and drag the appropriate **Keypad Parts** items to the Assembled Keypad example until the example matches the desired keypad configuration.

Tips:

- *The Down/Up buttons can be placed only in the bottom slot and cannot have custom engraving.*
- *Drag the desired button to the* top *slot of the range where you want the button positioned.*

4 Configure the settings described below.

5 Click **Apply to…** to apply the changes to other lighting devices.

6 If you entered text for custom engraving, go to "Ordering keycap engraving" on page 65.

Device settings for Configurable Keypads

Properties

- **Button Settings**
  - **Name**—The name of the button (used for defining its connections to other devices or events within Composer Pro).
  - **Engraving**—Text that you want printed onto the buttons. For more information, see "Ordering keycap engrav" below.
  - **Icons**—Icons that you want printed onto the buttons. To add an icon to the Engraving text box, click **Icons**, then double-click the icon to add.

- **LED Behavior**
  - **Follow Bound Device**—LED behavior reflects the state of the device the button is bound to.
  - **Push/Release**—LED behavior reflects the button state (pressed or released).
    - **Push Color**—Sets the LED color while the button is pressed.
    - **Release Color**— Sets the LED color while the button is released.
- **Finish**—Color of the buttons.

Advanced Properties

- **Ambient Light Profiles**
  - Select a preset brightness profile for the keypad backlight and LEDs that changes their brightness according to the room's ambient light. You can also select Fully Customized and manually set each brightness level according to ambient lighting.
  - **Backlight Color—**Sets the keypad's backlight color. If you don't want a keypad backlight, keep the default setting (black).
- **Network**—(wireless keypads only) Displays the MAC address and firmware version of the selected device. These fields are not editable.
  - **Replace Legacy Control4 Device**
    - **Replace Keypad**—Replaces a legacy device in your project with this new device. After you configure this new device, click this button, select the older device in the mini project tree that opens, then click **OK**.
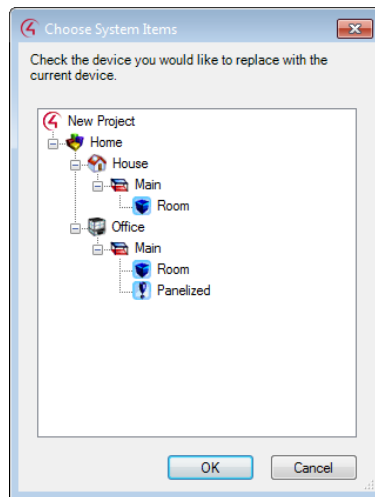
- **Ignore device when it comes online**—When selected, this checkbox tells the system to ignore the older device when it comes back online.

Ordering keycap engraving

If you entered text to be engraved onto keycaps, you need to special order the custom engraving. You can order in three ways:

United States and Canada:

- Upload the engraving order file on the dealer website (easiest for most orders).
- Enter the information on the dealer website (good for small orders of individual keycaps).

All other regions:

- Send the engraving order file to your ISA.

When your custom engraved keycaps arrive, install the keycaps according to the keycap installation guide, then make sure that the keypad configuration matches the device properties in Composer Pro.

To create an engraving order file:

1 In Composer Pro, make sure that the text and icons for each keycap have been entered on the device Properties pages exactly as you want them to appear. Pay special attention to spelling.

  Tip: In a keypad's Button Settings *properties, the button* Name *is used only for defining connections within Composer Pro. For engraving, make sure that you enter text in the* Engraving *fields.*

2 Click **Tools**, then **Reports**.

3 Click **Keypad Engraving**, then click **Display Report**.
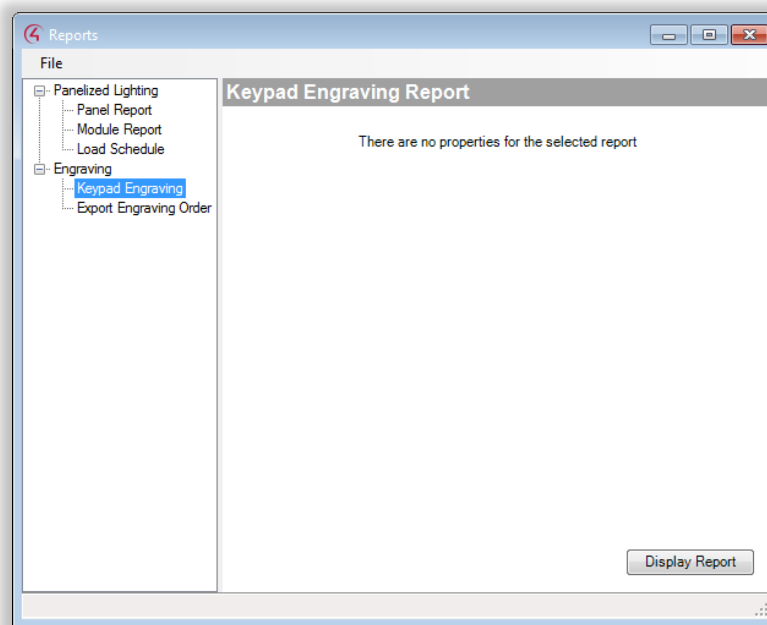
4 Print the report and review with your customer to make sure that all engraving meets the customer's expectations.

5 Click **Export Engraving Order**, then click **Export Order File**.

6 Specify a location to store the file, then click **Save**.

To upload the engraving report file on the dealer website:

1 Access the Dealer website at dealer.control4.com.

2 Go to **Products** > **Lighting** > **Engraving**.

3 Click **Upload Composer File**. The file upload page opens.

4 Select the file you created above, then click **OK**.

5 Complete the order process.

To enter engraving information on the dealer website:

1   While building the system, take note of the text and icons you want to be engraved on each keycap. Pay special attention to spelling.

2   Access the Dealer website at dealer.control4.com.

3   Go to **Products** > **Lighting** > **Engraving**.

4   Click **Single Keycap Engraving**. The configuration page opens.

5   Select the type of keycap, then type the text for the engraving into the _____ box.

6   Complete the order process.

To send the engraving report file to your ISA (international customers only):

1   Create an email message to send to your ISA.

2   Attach the engraving report file you created above, then send the message.

3   Follow up with your ISA regarding order status and schedule.

Configuring lights for 3-way

Rather than creating programming to tie lighting variables and Control4 3-way lights together, you can use a simplified lighting configuration to set up lighting control. In the Connections view, you can configure global changes in Composer Pro Properties, and configure 3-way lights by dragging the lighting and control connections.

The Push and Release features available on the keypads let you dim lights like a dimmer.

Tip: To find out how to configure global changes for lights and other devices, see "Accessing Properties from the Project Tree" in Composer Pro Getting Started*.*

Configuring a 2-Button Keypad as a 3-way light

Use the Composer Pro Connections view to configure a 3-way light using a 2-button keypad.

Example: Configure a 2-Button Keypad to turn On (Top button) and turn Off (Bottom button) a dimmer, and to use the Push/Release function available on the 2-Button Keypad to dim a light.

Prerequisites

1   Ensure that your controller hardware is added and identified to the Control4 system.

2   Ensure that you have a 2-Button Keypad and dimmer (or switch) added and identified to the project.

To configure a 2-button keypad as a 3-way light:

1   In the project tree, select the **2-Button Keypad**.

2   In the Control & Audio Video Connections pane under Control Inputs, click the **Button 1 Link** connection, and drag it to the dimmer's **Top Button Link** in the bottom pane.

3   Click the **Button 2 Link** connection, and drag it to the dimmer's **Bottom Button Link** in the
       bottom pane.
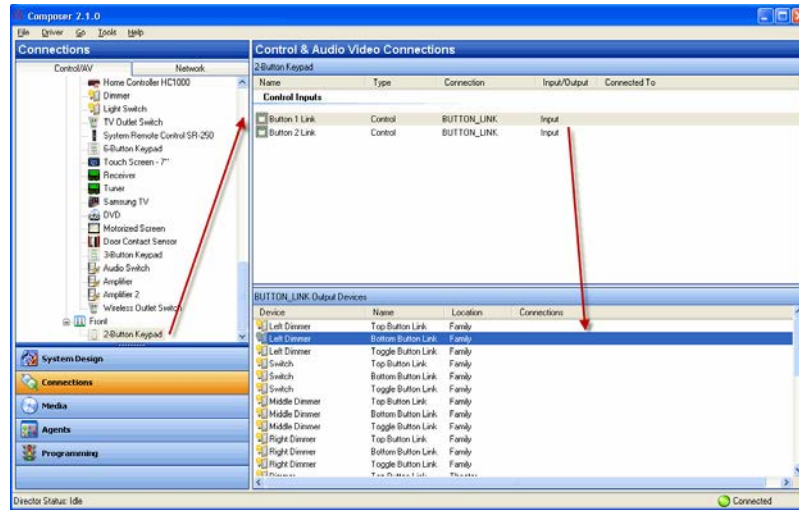
4   Test to ensure that the 2-Button Keypad turns the light on and off, and that the
       Push/Release functions dim the light.

Configuring a 3-Button Keypad to control a 3-way light

Use the Composer Pro Connections view to configure a 3-Button Keypad to use a toggle for a 3-
way light.

Example: *Configure a 3-Button Keypad to toggle the light On and Off. Use Push and Release to*
dim and brighten the light as desired.

Prerequisites

1   Ensure that your controller hardware is configured properly, and that the 3-Button Keypad
       and dimmer (or switch) are added to the project and identified.

2   Ensure that you have a 3-Button Keypad added and identified to the project.

To configure a button on a 3-Button Keypad to control a 3-way light:

1   In the project tree, select the **3-Button Keypad**.

2   In the Control & Audio Video Connections pane, drag the **Button 1 Link** connection from the top list over the light's **Toggle Button Link** in the bottom list.
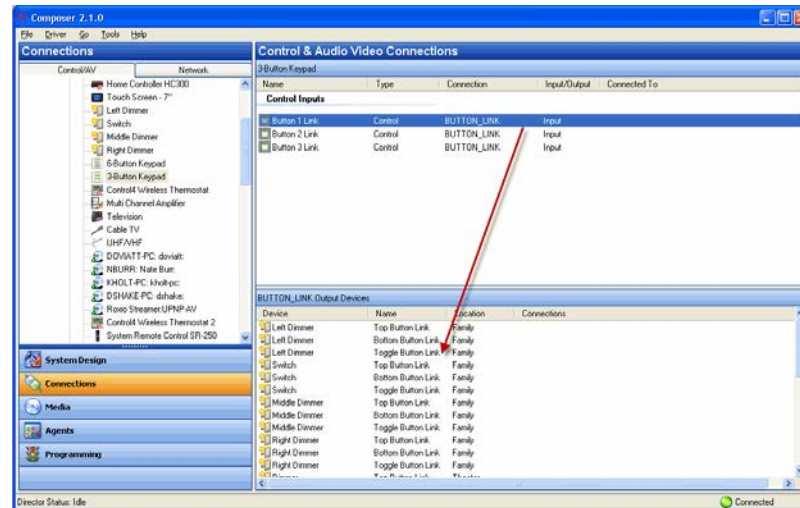
3   Test to ensure that the 3-Button Keypad turns the light On and Off, and that the Push/Release functions dim the light.

Configure mobile devices or PCs/tablets as Navigators

Use the MyHome apps to configure an iPod Touch, iPad, iPhone, Android, or PC device for use as a touch screen in a Control4 system.

Ensure that the license and correct apps are installed as indicated in the *Control4 MyHome Setup Guide for Dealers* or *Control4 MyHome Setup Guide for Homeowners*. These documents are located on the Control4 website.

Note: As of OS 2.3.0, the MyHome drivers no longer appear in the drivers list. This is because if you have a valid license, the drivers will be installed and identified automatically so you won't have to select them from the drivers list. For new installations, the driver will be added during the wizard install. See the latest revision of MyHome Setup Guide for Dealers or MyHome Setup Guide for Homeowners for updates.

Follow the instructions in the documents mentioned previously to set up the apps for these devices. You don't need to do anything in Composer Pro.

Configure a Door Station (C4-DSC-EN-XX or C4-DSC-EN-INT)

Use the Composer Pro System Design and Connections views to add and configure a Door Station – Exterior (C4-DSC-EN-XX) or Door Station – Interior (C4-DSC-EN-INT).

Prerequisites

- Ensure that the Door Station – Exterior (C4-DSC-EN-XX) or Door Station – Interior (C4-DSC-EN-INT) is installed as directed in the Control4 Door Station – Exterior Setup Guide or Door Station-Interior Setup Guide available on the Control4 Dealer website.
- Ensure that your project has a Control4 controller added and identified in the Control4 system.

To add and configure a Door Station:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Door Station** driver is added to the project tree.

   Note: If this device will be providing audio output, the device needs to be identified as an Audio End Point for the room.

2   (Optional) To configure the properties, click **System Design**.

3   In the project tree, select the **Door Station** object. Both Door Station models use the same driver.

4   View and change the properties in the Properties pane as needed.

   Modifiable properties include:

   - **Reboot**—Click **Reboot** to reboot the Door Station.
   - **WiFi Signal Strength (%)**—If WiFi is used this shows the strength of the signal. Ensure that the signal is strong and robust if you use the Door Station for WiFi. We recommend using Ethernet rather than WiFi for best results.

      Notes: (1) Video Intercom. Although this device supports b/g/n, 802.11 b is not supported for video intercom use. (2) Wireless-n is recommended for video intercom.

   - **Refresh**—Click to refresh the signal strength values.
   - **Select Intercom Group**—If a group has been created, use the drop-down list to select the group. The default is **All**.

   Door Station Options:

   - **Button 1 Name**—Check to select this button, and then type the button's name in the box. This can be used in programming, for example, if you set up an 'Outside Lights On' custom button to turn on the porch lights when the Door Station button is pushed.
   - **Button 2 Name**—Check to select this button, and then type the button's name in the box.
   - **Broadcast Calls**—Checked by default. When checked, this allows the device to receive broadcast calls. This can be disabled if programming is used; for example, if you want to send an announcement rather than send a broadcast to all touch screens in the home or if you don't want this device to receive broadcast calls.
   - **Enable Camera**—Checked by default. When checked, this allows the device to use the camera for video intercom in addition to audio.

- **Door Bell Ring**—Checked by default. When checked, this allows the device to be used with the doorbell. This can be disabled if programming is used; for example, if you want a different sound or lights to come on.
- **Enable Button Backlight**—Checked by default. When checked, this turns on the button's backlight. If you don't want to use the backlight, uncheck this option. *Tip:* This option can be used in programming to turn on the backlight at night.

Wireless Network Limitations

Many WiFi Access Points handle Multicasts (WiFi simultaneously sent to multiple devices, for example, when the Door Station broadcasts video to all stations) by slowing down transmission speed to the 1 Mb basic rate. This can cause overall WiFi congestion in the WiFi network during the broadcast. Video intercom response times and images may degrade at each device.

If a home requires a large number of WiFi Video Intercom devices, ensure that you have a robust WiFi network (possibly consisting of multiple access points).

Configuring AV devices

Configuring audio-video (AV) devices means that you want to 'identify' or make the device connection to the Control4 system so the devices communicate with the controller and other devices in the system. Use the Control4 Composer Pro System Design and Connections views to configure audio-video devices. See "Guidelines for Configuring Devices" to add and identify the device.

Configure an Audio Matrix Switch

Use the Composer Pro System Design and Connections views to identify an Audio Matrix Switch to the Control4 system. This device switches up to 16 input sources and up to 16 outputs. The driver contains no user-configurable fields.

Ensure that the home controller is installed as directed in the *Control4 Audio Matrix Switch Installation Guide* on the Control4 Dealer website.

To add the driver and identify an Audio Matrix Switch see "Guidelines for Configuring Devices." Ensure that the **Audio Switch** driver is added to the project tree.

IMPORTANT! *(Applies to only C4-16S2-E-B) The Audio Matrix Switch driver can be identified by IP or ZigBee. The Audio Matrix Switch can communicate with the Control4 system either using the TCP/IP network or via the ZigBee network. Identify it to the network you want to use for communications. Do not identify it on both the IP and the ZigBee networks.*

Note: *If using a TCP/IP network and the latest shipping version of this device, you can set this device to either DHCP Client (default) or a client that uses Static IP. To change this setting, see the LCD screen menu on the device.*

Configure an audio or AV switch

Use the Composer Pro System Design and Connections view to set up an audio or audio/video switch.

You can access the AV switch drivers from the System Design view in the Items pane by clicking the **Search** tab > **Device Type: A/V Switch or Audio Switch** > Manufacturer: **All Manufacturers**. Use the Driver Wizard for additional support for your audio or AV switch.

Install the audio or AV switch according to the manufacturer's instructions.

To add and configure an audio or audio/video switch:

1   Install and set up the audio or audio/video switch and any associated hardware.

2   In the System Design view, locate the driver. Click the **Search** tab > Device Type: **Audio Switch** or **A/V Switch** > Manufacturer: **All manufacturers**.

3   Select the **Audio Video** or **AV Switch** object in the project tree to view the device properties for that object and make configuration changes if applicable.

Example: The Knox AV Switch has no properties to modify, but other switches have properties, for example, the Control4 Audio Switch.

4   Make any necessary network or control/AV connections as necessary for your configuration. See "Connecting and Verifying Devices" for details.

5   Modify any room connections as needed for your configuration.

Configure a Dock for iPod

Use the Composer Pro System Design view to configure the Dock for iPod. The Dock for iPod is a dock in which your iPod sits. With your iPod connected to the dock and the Control4 system, you can enjoy music throughout the home.

Configure the Dock for iPod as directed in the *Control4 Dock for iPod Tabletop Kit Setup Guide* available on the Control4 Dealer website.

To add and configure Dock for iPod:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **iPod** driver is added to the project tree.

2   Connect the Dock for iPod. See "Connecting and Verifying Devices" for details.

3   Change the properties as needed. In the System Design view, select **iPod**.

4   In the Properties pane, click the **Properties** tab.

- **Cover Art**—Select the delay or Off.
- **Now Playing Timer**—Select when to play.
- **Room Off**—Select whether to stop the iPod from playing or pause it when Room Off is pressed on the system remote control.
- **Debug Mode**—Use the drop-down list to select an option to log or print in this mode. Select from Print, Log, or Print and Log. This option is tied to the output options in the Lua tab (Step 9).
- **Firmware Version**—Shows the version number for the firmware.

5   (Optional) See the **Documentation** tab for more information.

6   Click the **Lua** tab to view logging output.

Configure a 4-Zone Amplifier

Use the Composer Pro System Design and Connections views to add and configure a 4-Zone Amplifier. This device lets you enjoy up to four (4) zones (rooms) of music in the home.

Ensure that the 4-Zone Amplifier is installed as directed in the *Control4 4-Zone Amplifier Installation Guide* available on the Control4 Dealer website.

To add and configure a 4-zone Amplifier:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Multi Channel Amplifier 4 Zone** driver (under Audio/Video > Amplifier) is added to the project tree.

IMPORTANT! The amplifier can be identified by IP only. The amplifier can communicate with the Control4 system using the TCP/IP network.

Note: If you are using a TCP/IP network and the latest shipping version of this device*, you can set this device to either DHCP Client (default) or a client that uses Static IP. To change this setting, see the LCD screen menu on the device.*

2   Make the necessary connections. See "Connecting and Verifying Devices" for details.

3   (Optional) Change the 4-Zone Amplifier properties.

    a   In the System Design view on the project tree, select the **Amplifier** object.

    b   Modify the properties in the Properties pane:
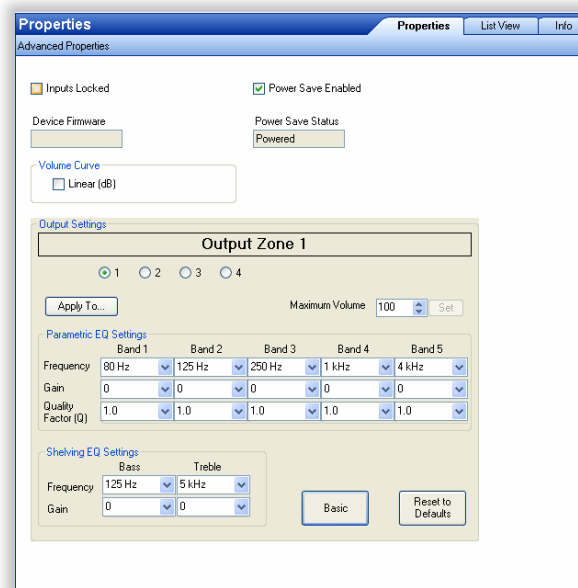
Modifiable properties include:

- **Advanced Properties**
    - **Inputs Locked**—This locks Audio Inputs to set Audio Outputs. You can have one (1) Audio Input with several Audio Outputs, but an Audio Output may only have one Audio Input.
    - **Power Save Enabled**—Check to save power.
    - **Device Firmware**—This displays the firmware version.
    - **Power Save Status**—This displays when power save is enabled.
    - **Volume Curve**—Shows how the output volume of the amplifier reacts (the device compensates) to an increase in volume as heard by the human ear.
- **Output Settings**
    - **Output Zones**—Select zones 1 through 8.
    - **Maximum Volume**—Use the drop-down menu to select the volume up to 100. Click **Set**.
- **Parametric EQ Settings**
    - **Frequency**—Center frequency to be adjusted.

- **Gain**—Set from -24dB (cut) to +6dB (boost) for the center frequency.
- **Quality Factor (Q)**—Width of the EQ boost/cut can be set from 0.5 to 1.0 in 0.1 steps and 1.0 to 10.0 in 1 step (there are no units for Q).

- **Shelving EQ Settings**
  - **Frequency**—Center frequency to be adjusted.
  - **Gain**—Set from -24dB (cut) to +6dB (boost) for the center frequency

Notes on EQ settings: The Q setting on the EQ setting determines the bandwidth of the boosted frequency (or cut frequency).

The *Quality Factor* is the center frequency divided by the bandwidth (Q=Center Frequency/Bandwidth), where bandwidth is determined by the frequency points; either side of the center frequency are -3dB from the center frequency. A setting of 1kHz with a Q of 1 means that the boosted frequencies affected are from 500Hz to 1.5kHz (1kHz wide to the -3dB points centered at 1kHz).

Example: If the Q is increased to 10 with the same 1kHz center frequency, then the bandwidth must decrease by the same ratio. Mathematically:

Q = Freq/BW
10 = 1kHz/BW
BW = 100Hz
Affected frequencies are Center Frequency +/- ½ (BW)
1kHz +/- ½ (100Hz)
1kHz +/- 50Hz = 950Hz to 1,050Hz

The higher the Q setting the narrower the frequency range affected by the gain setting, while a lower Q setting increases the frequency range affected by the gain setting at each EQ frequency.

The frequency response can be visualized as a tall, skinny building with a high Q value or a tall, wide (or pyramid shaped) building with a low Q value. The peak (or height of the building) at the center frequency is set by the Gain setting.

Configure a Multi-Channel Amplifier

Use the Composer Pro System Design and Connections views to add and configure a Multi-Channel amplifier. This device provides eight (8) stereo inputs and outputs with full audio switching.

Note: In Release 1.8 and later, the Multi-Channel amplifier does not work with ZigBee Pro. Configure this device with Ethernet.

Ensure that the Multi-Channel amplifier is installed as directed in the *Control4 Multi Channel Amplifier Installation Guide* available on the Control4 Dealer website.

To add and configure a Multi-Channel amplifier:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Multi Channel Amplifier - 16** driver is in the project tree.

IMPORTANT! Two (2) amplifier objects appear for identification. The amplifier can be identified either by IP or by ZigBee. The amplifier can communicate with the Control4 system either using the TCP/IP network or via the ZigBee network. Identify it on the network you want to use for communications. Do not identify it on both the IP and the ZigBee networks.

Note: If using a TCP/IP network and the latest shipping version of this device, you can set this device to either DHCP Client (default) or a client that uses Static IP. To change this setting, see the LCD screen menu on the device.

2   Make the necessary connections. See "Connecting and Verifying Devices" for details.

3   (Optional) Change the properties as needed.

    a   In the System Design view on the project tree, select the **Amplifier** object.

    b   Modify the properties in the Properties pane:
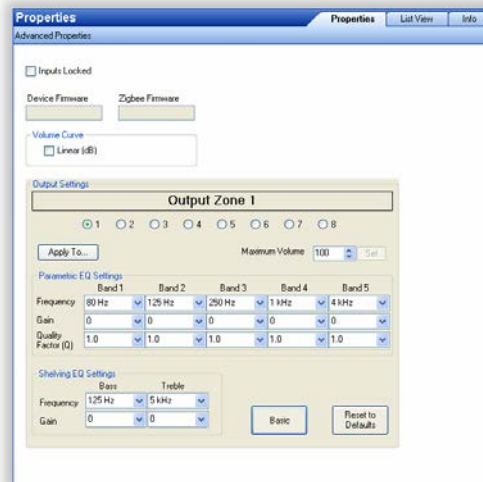
Modifiable properties include:

- **Inputs Locked**—This locks Audio Inputs to set Audio Outputs. You can have one Audio Input with several Audio Outputs, but an Audio Output may only have one Audio Input.
- **Device Firmware**—This displays the version of firmware.
- **ZigBee Firmware**—This displays the version of firmware.
- **Volume Curve**—Shows how the output volume of the amplifier reacts to an increase in volume; the soft-to-loud response of the volume control.
- **Output Settings:**
    - **Output Zones**—Select zones 1 through 8.
    - **Maximum Volume**—Use the drop-down menu to select the volume up to 100. Click **Set**.
- **Parametric EQ Settings:**
    - **Frequency**—Center frequency to be adjusted.
    - **Gain**—Set from -24dB (cut) to +6dB (boost) for the center frequency.
    - **Quality Factor (Q)**—Width of the EQ boost/cut settable from 0.5 to 1.0 in 0.1 steps and 1.0 to 10.0 in 1 step (there are no units for Q).
- **Shelving EQ Settings**
    - **Frequency**—Center frequency to be adjusted.
    - **Gain**—Set from -24dB (cut) to +6dB (boost) for the center frequency.

Notes on EQ settings: *The Q setting on the EQ setting determines the bandwidth of the boosted frequency (or cut frequency).*

The Quality Factor is the center frequency divided by the bandwidth (Q=Center Frequency/Bandwidth), where bandwidth is determined by the frequency points are either side of the center frequency are -3dB from the center frequency. A setting of 1kHz with a Q of 1 means that the boosted frequencies affected are from 500Hz to 1.5kHz (1kHz wide to the -3dB points centered at 1kHz).

Example: If the Q is increased to 10 with the same 1kHz center frequency, then the bandwidth must decrease by the same ratio. Mathematically:

Q = Freq/BW
10 = 1kHz/BW
BW = 100Hz
Affected frequencies are Center Frequency +/- ½ (BW)
1kHz +/- ½ (100Hz)
1kHz +/- 50Hz = 950Hz to 1,050Hz

The higher the Q setting the narrower the frequency range affected by the gain setting, while a lower Q setting increases the frequency range affected by the gain setting at each EQ frequency.

The frequency response can be visualized as a tall, skinny building with a high Q value or a tall, wide (or pyramid shaped) building with a low Q value. The peak (or height of the building) at the center frequency is set by the Gain setting.

Configure a Multi Tuner – Versions 1 and 2

Use the Composer Pro System Design view to add and configure a Multi Tuner for Versions 1 and 2. This device provides up to three (3) audio signals and an optional satellite radio signal for multi-zone versatility.

Notes: *(1) Refer to the [Control4 XM Module for Multi Tuner V2 Installation Guide](#) available on the Control4 Dealer website for instructions about how to add and configure the XM Module that is compatible with Multi Tuner V2. (2) If you are installing C4-TUN2-E-B or C4-TUN2-E-B_with_C4-XMOD, refer to Version 2 notes. (3) In Release 1.8 and later, the Multi Tuner Version 1 does not work with ZigBee Pro.*

Installation scenarios

Several possible installation scenarios for the multi tuner products exist, depending on the version.

Version 1:

- Model AVM-TUN1-B (AM/FM tuner) —Use the Multi Tuner in the My Drivers tab.
- Model AVM-TUN1X-B (AM/FM/XM tuner) —Use the Multi Tuner w/XM in the My Drivers tab.
- XM module being added to an existing AVM-TUN1-B—Remove the original Multi-Tuner driver (AVM-TUN1-B) and replace it with Multi Tuner w/XM (AVM-TUN1X-B), then re-create the connections.

Version 2:

- Model C4-TUN2-E-B—Adding a C4-Multi Tuner V2 (with AM/FM tuners).
- Model C4-TUN2-E-B_with_C4-XMOD—Adding a Multi Tuner V2 (with AM/FM tuners) that also has the XM module installed.
- To add an XM Module to a tuner already installed, you must (1) delete the original tuners in the project tree, Tuner and Tuner 2 (which were added for C4-TUN2-E-B), (2) replace them with C4-TUN2-E-B_with_C4-XMOD (which adds Tuner, Tuner 2, and TunerXM to the tree), and (3) re-create the connections.

See the following sections as applicable to configure the tuner:

- "Activate the XM Satellite Radio Service"
- "Configure the Multi Tuner"
- "Set Up Radio Stations"

Ensure that the Multi Tuner, Version 1 or 2, is installed as directed in the *Control4 Multi Tuner Installation Guide*.

Activate the XM Satellite Radio service

Notes:

Version 1—*Model # AVM-TUN1X-B or tuners upgraded with the XM$^®$ Module Kit require a monthly subscription to the XM Satellite Radio service to receive XM radio channels.*

Version 2—*Model # C4-TUN2-E-B_with_C4-XMOD or tuners upgraded with the XM Module Kit require a monthly subscription to the XM Satellite Radio service to receive XM radio channels.*

To subscribe and activate these services:

1   Use the **Select** dial to tune the XM tuner to Channel **0** and record the XM Radio ID (SDARS ID) that displays in the LCD window.

2   Contact XM Satellite Radio Inc., to subscribe to the XM radio service. Go to http://www.siriusxm.com or call XM's Listener Care at 1-800-XMRADIO (800-967-2346), which requires your SDARS ID.

3   When instructed to do so by XM Satellite Radio Inc., tune the XM tuner to Channel **1** for about 20 minutes. When the tuner begins receiving XM stations, the LCD screen is enriched with station-specific information.

4   If the XM tuner is not receiving XM stations after 20 minutes:

   a   Move your antenna to a new location.

   b   Go to http://www.siriusxm.com.

   c   Tune to Channel **1** again, and wait approximately 20 minutes for the LCD screen to refresh.

Configure the Multi Tuner

Notes: *(1) If you are installing C4-TUN2-E-B or C4-TUN2-E-B_with_C4-XMOD, refer to the Version 2 notes. (2) If you are installing models AVM-TUN1-B or AVM-TUN1X-B, refer to Version 1 notes.*

To add and configure the Multi Tuner V1 to an existing system:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the correct driver is added to the project tree.

2   Add the driver: In My Drivers, double-click the applicable Control4 Multi Tuner model:

- **Version 1**—Multi Tuner for the AVM-TUN1-B model.
- **Version 1**—Multi Tuner w/XM for the AVM-TUN1X-B model or if adding the XM Module to the AVM-TUN1-B model.
- **Version 2**—C4-TUN2-E-B or C4-TUN2-E-B_with_C4-XMOD if the XM Module upgrade kit (sold separately) is being used with an C4-TUN2-E-B model.

3   Make the necessary connections:

   a   In the Connections view, click the **Control/AV** tab.

   b   For each tuner object in the project tree—such as Tuner, Tuner 2, and Tuner XM (XM Models only)—select each one, and ensure it is connected to a radio.

    c   For each tuner object in the project tree, select each **Audio Video Output**, and then drag them one-by-one onto an item in the Input Devices list below. The association displays in both lists.

    d   Click the **Network** tab, right-click on the tuner with the appropriate address type: **IP** or **ZigBee**, and then select **Identify**.

IMPORTANT! (Version 1 only) Two (2) Tuner objects appear for identification. The tuner can be identified either by IP or by ZigBee. The Multi Tuner V1 can communicate with the Control4 system either using the TCP/IP network or via the ZigBee network. Identify it on the network you want to use for communications. Do not identify it on both the IP and the ZigBee networks.

4   Press the **Select** dial on the Multi Tuner's front panel to identify this device to the system. After a brief delay, the network address for this Multi Tuner is added to the Device list.

5   Verify that the Multi Tuner is an accessible device. In the System Design view, select the **room**, and then click the **Properties** tab and **Audio Video Devices** tab to view the Available Audio Sources list for that room.

6   Go to the next section.

Set up radio stations

To provide users easy access to radio stations throughout the system and to enrich the graphical interfaces, use Composer Pro to search for radio broadcasts and refresh your Navigators.

1   In Composer Pro click the **Media** view.

2   Select a radio in the media list (on the left): XM Radio, FM Radio, or AM Radio, and then click **Search**.

3   When the dialog box appears, enter your zip code in the box, and then click **Search**. The available stations display in the Search Results list.

4   In the Search Results list, select the stations to add to the Navigators (on-screen Navigator, touch screen, MyHome, and system remote control). Select them individually or click **Select All**.

5   Click **OK**. The selected stations populate the XM, FM, or AM Radio pane.

6   Repeat Steps 2 through 5 for the remaining radios.

7   Refresh the Navigators (see *Composer Pro Getting Started* for details). Each radio station you select is now available in the Navigators.

For XM Tuner models:

8   Click **System Design**, and select **Tuner XM** in the project tree.

9   In the Properties tab, ensure that the tuner has a good signal and that the SDARS ID matches the Radio ID listed on Channel 0 of the tuner.

Configure an XM module for Multi Tuner V2

Refer to the Control4 *XM Module for Multi Tuner V2 Installation Guide* for instructions about how to add and configure this module.

Configure Speaker Point – Ethernet or WiFi

Use the Composer Pro System Design and Connections views to add and configure Speaker Point. This device provides output to multiple speakers while connected to a Control4 system.

Prerequisites

1   Ensure that the Speaker Point device is installed as directed in the *Control4 Speaker Point Installation Guide* available on the Control4 Dealer website.

2   Connect the Speaker Point device to an Ethernet CAT5 cable to set up the Ethernet or wireless connection.

   IMPORTANT TIP: *The Speaker Point device requires an Ethernet connection for initial setup.*

The following procedures teach you to configure:

- Speaker Point for Ethernet use, or
- Speaker Point for WiFi use.

Configure Speaker Point for Ethernet

To add and configure an Ethernet Speaker Point to a Control4 project:

Note: By default, Speaker Point is configured for Ethernet use. If you are using WiFi, however, also follow the instructions in the section, "Configure Speaker Point for WiFi Use" later in this section.

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Speaker Point** driver is added to the project tree.

2   Ensure that the room connections are set correctly for the room.

   Note: When you add a Speaker Point, Audio or AV switch to a room, by default the Audio End Point is assigned by the first device added to the room. When you add a Receiver to a room, it is automatically set or reset as the Audio End Point.

   a   To get to Room Connections, go to **Connections** and select the **room**.

   b   Verify that the Audio End Point setting matches the intended setup of your Control4 system. The Room Connections appear in the center pane. If you are setting up a custom configuration, adjust the Room Connections accordingly. For more information about Room Connections, see "Connecting Rooms."

3   Preset Treble, Bass, and Balance. In either the System Design or Connections view, double-click the **Speaker Point** object in the project tree to bring up its on-screen controls, and then click to make the adjustments for Treble, Bass, and Balance (supported values are 0 - 100).

4   (Optional) Change the properties as needed.

   Modifiable properties include:

- **Local Amp Mode**—not checked (default). When the box is *not* checked, the Speaker Point streams the analog input through the Control4 audio distribution system, making the source digitized and available to other audio zones throughout the house.

- **Local Amp Mode**—checked. When the box *is* checked, it sets the Speaker Point in Local Amp Mode, enabling a local input source outputs directly, is not digitized and provides audio and video in one room. This enables devices that provide audio and video, such as a DVD, VCR, or Satellite Receiver to send output to the amplified audio outputs: the Right and Left Speakers in the room. If Local Amp Mode is not checked and you try to watch video in the room, the video or audio sound will be out of sync with the video.

5   Now configure the system for WiFi. By default, the Speaker Point is configured for Ethernet use. If you are using WiFi, follow the instructions next.

Configure Speaker Point for WiFi

To configure Speaker Point for WiFi use:

1   Start Composer Pro and connect to **Director on Local Network**.

2   In the Tools menu, select **System Manager**.

3   In the Devices pane, select the **network address** of the device you want to configure, and click **Connect**.
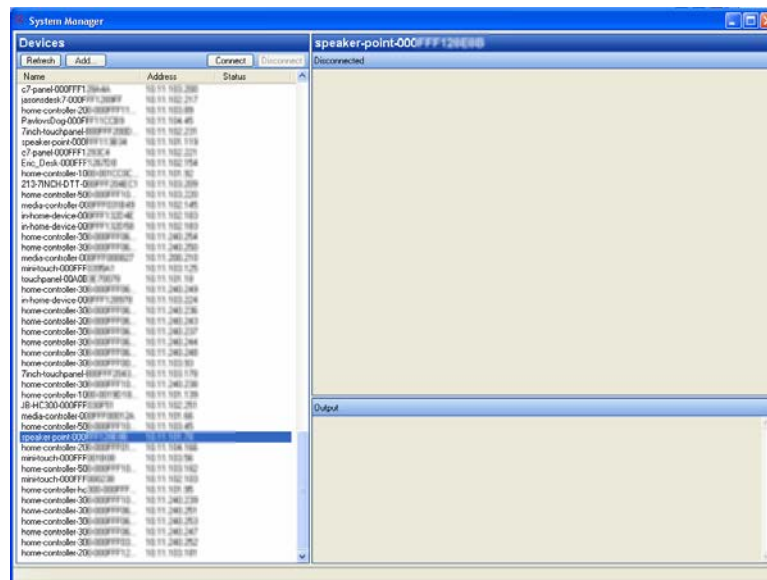
Tip: If the device's network address is not on this list, click **Refresh**. If it still does not appear, click **Add** to enter it manually. If you don't know the network address, look in the **Tools** menu > **Network Tools**.

4   Click the **Network** tab, and click **Configure**.
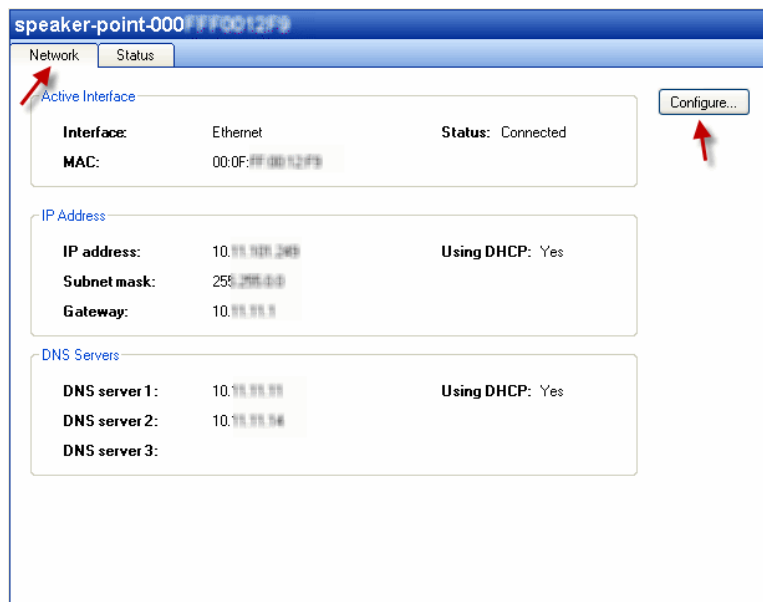
5   Click **Next** when a Network Configuration wizard dialog appears.

6   If desired, enter a new name for the device, and click **Next**.

> **IMPORTANT TIP!** *If the device has already been identified on the Control4 system, and you change the name (on this wizard screen), identify the device again. Until it is identified again, the* controller *cannot recognize the name and will not be able to communicate with the device.*
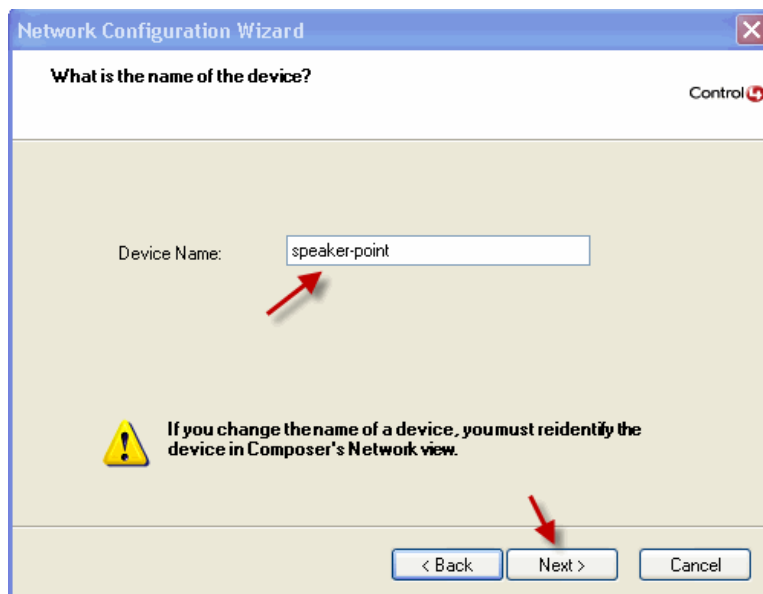
7   Select the type of network you want the device to be a part of, and click **Next**.

Example: Wireless network.

8   Select the method to obtain an IP address, such as **DHCP** (first option) or **Status IP** (second option) distribution, and click **Next**.

Example: Obtain an IP address automatically using DHCP.

9   Select the method to obtain the DNS server address automatically, and click **Next**.

Example: Obtain the DNS server address automatically.

10   Enter the **Network Name** (SSID) of your wireless access point.

11   Use the pull-down menu to indicate your Data encryption preference (**64** or **128** bit).

12   Select the Key type (**hex** or **ASCII**).

13   Enter your **Network Key** (WEP Key), and click **Test**.

- **Hex**—64 bit (10 digits) or 128 bit (26 digits)—acceptable values 0 - 9, A- F
- **ASCII**—64 bit (5 digits) or 128 bit (13 digits)—acceptable values ASCII characters

Example:

- **Network Name** (SSID)—<name of wireless access point>
- **Data encryption**—wep64
- **Key Type**—hex
- **Network Key** (in hex)—ABCDE12345.
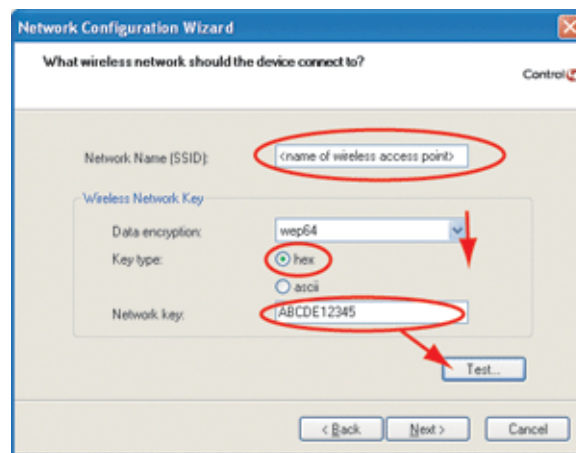
Note: If the hex Network Key you insert is not valid, a screen with a red exclamation point comes up. In this case, enter your key again.

14   Click **Test** to test your network connection. If it fails, follow the on-screen instructions.

15   Click **Finish** when you come to the "Congratulations! You have successfully changed your network configuration" screen.

16   At this time, the system reboots. Do not disconnect any temporary Ethernet cables until the device has successfully rebooted and is powered on.

17   If you are using the WiFi to communicate to your controller, disconnect the Ethernet cable.

Configure a Media Player

Use the Composer Pro System Design and Connections views to add and configure a Media Player. The device automatically scans videos. A Media Player (such as Netgear EVA8000) lets you play media that is stored on a network drive or available through the Internet to a TV.

The Media Player driver lets the Control4 system interact with the Media Player hardware through one of the Control4 system remote controls. The driver also supports the video playback functionality of the hardware, allowing the Control4 Navigators to be used to select a video title.

Note: In Release 1.8, the Media Player (V1) does not work with ZigBee Pro. Use Media Player V2. The Media Player V2 driver is C4-MP2-E, located in the driver database.

Ensure that your Media Player is installed as directed in the *Media Player Installation Guide* and *Media Player User Guide* shipped with the hardware or available on the Control4 Dealer website.

To configure a Media Player in your system:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Media Player V2** driver is added to the project tree.

2   Add a **Network File Storage** driver to your Composer Pro project (available on the My Drivers tab), then configure the properties including browsing to the network location. For information on adding and configuring network file storage, see "Using External Storage Devices." The network location must be an open share location (no password required). The Network File Storage driver supports both audio and video content.

3   Make the necessary audio and video connections. See "Connecting and Verifying Devices" for details.

4   To use the features of the Media Player, do one of the following:

- Scan the videos. In the Media view, **scan** the videos that are in video_ts format:
  - Select **Video Media** under the network file share where you want to add the videos.
  - Click **Scan**. The scan operation identifies the video_ts format video files, adds them to the media database, and automatically associates the video metadata including cover art. When the scan completes, the videos in video_ts format are available for playback from the Navigators.
- Manually add the videos. In the Media view, manually add videos that are in formats other than video_ts. Video formats other than video_ts that are supported by your Media Player can be added to the media database in Composer Pro manually.
  - Select **Video Media** under the network file share where you want to add the videos.
  - Click **New**, and then select the **Browse** option next to the Location text box in the pop-up window. A new pop-up window will appear.
  - In the pop-up window, select the drop-down menu for Files of type, and then select the ***.*** option.
  - Select the file format you want to add to the database.

When the videos in alternative video formats are added to the system manually, those videos become available for playback from the Navigators.

Note: When using a system remote control Version 2, the Cancel button is mapped to the EVA8000 Back button and the DVR button toggles between aspect ratios.

5   Check the properties. In the System Design view, select the **Media Player**.

6   In the Properties pane, click the **Properties** tab.

Modifiable properties include:

- **Debug Mode**—Use the drop-down list to select an option to log or print in this mode. Select from Print, Log, or Print and Log. This option is tied to the output options in the Lua tab (see Step 13).
- **Resolution**—Use the drop-down list to select the video output screen resolution. Auto indicates that the device negotiates over HDMI.
- **Current Resolution**—Indicates the current video output screen resolution. If you know the highest resolution allowed for this device, set it to that resolution for best results.
- **Background Image URL**—Indicates the background image.
- **Screen Saver Image URL**—Indicates the screen saver image.
- **Firmware Version**—Indicates the device's firmware version.
- **Update Status**—Indicates the status of the current update if being updated. This status box is used with the Actions tab. See Step 8.
- **Last Error**—Displays error messages if found.
- **Update URL**—Indicates the URL for the updates.
- **Switchable Resolutions**—Use all of the boxes below this box with the system remote control Pg up and Pg down buttons. If set to True, the option can be changed on the remote.

7   Click the **Documentation** tab for more information about this device.

8   To update this device, in the Properties pane, click the **Actions** tab, and then click **Start Update** to update this device. *Note:* Updates to this device occur separately from Update Manager updates.

9   To view logging output, in the Properties pane, click the **Lua** tab.

Configure a Sony STR-DA2800ES or STR-DA5800ES Receiver

Use the Composer Pro System Design and Connections views to add the driver to the project and identify the receiver to the Control4 system (secondary controller and receiver only – primary controllers get added and identified automatically using Auto Discovery).

Use the Connections view to configure the bindings. See "Connecting and Verifying Devices" in this guide.

Models supported:

- Sony STR-DA2800ES AV Receiver (ZSO-STRDA2800ES, receiver only)
- Sony STR-DA2800ES with Full Control4 automation (ZSO-STRDA2800ES-C4, use as primary or secondary controller, Control4 Automation License is included)
- Sony STR-DA5800ES AV receiver (ZSO-STRDA5800ES, receiver only)
- Sony STR-DA5800ES with full Control4 automation (ZSO-STRDA5800ES-C4, use as primary or secondary controller, Control4 Automation License is included)

IMPORTANT!

- If the receiver is configured as a simple receiver only (ZSO-STRDA2800ES or ZSO-STRDA5800ES) controlled by another controller in the Control4 system, then the dealer can find the appropriate certified Sony driver in **Search** > **Online Database**.

- If the receiver has a Control4 Activation License and is also configured as a primary controller (the drivers are added and identified for you via Auto Discovery) or secondary controller (ZSO-STRDA2800ES-C4 or ZSO-STRDA5800ES-C4), then the dealer needs to install both a receiver (Sony STR-DA2800ES or Sony STR-DA2800ES, considered an "internal" receiver driver which is different from the "certified" external receiver driver in the Online Database) and a controller driver (added automatically: Sony Receiver Home Controller 2800 or Sony Receiver Home Controller 5800) in the project. These are located in the Composer Pro **Search** > **Local Database** that ships with OS 2.2.4 or later (see the next figure). These drivers are tied together, so if one is added to the project, then the other one is added with it. Both devices must be identified (first the receiver then the controller).

- Before installing the Control4 Activation License or using the receiver, perform a Sony software update. To update go to the following page: Home > Settings > Network Update. The update may take up to 15 minutes—so please be patient.

Notes: (1) If you intend to use full Control4 automation with this receiver and configure it as the primary controller or secondary controller, see "Configuring an HC-Class Controller." (2) If you intend to use this device as a receiver only, follow the steps below. The certified Sony STR receiver driver (if using as a receiver only), available in the Online Database, lets the user interact with the receiver as a receiver only in a Control4 system. (3) If you intend to use this receiver as a ZigBee device, the ZigBee adapter will need to be installed. See the documentation listed below on the Products > Audio/Video > Amplifiers/Receivers > Sony STR Receiver pages at control4.com for details.

Make sure you add the correct drivers as mentioned in the Sony® ZSO-STR-DA2800ES-C4/ZSO-STR-DA5800ES-C4 Receiver with Control4 Automation Quick Start Guide and Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide available on the Control4 Dealer website under Products > Sony STR Receiver or Support > Documentation.

Prerequisites

Ensure that your Sony STR AV Receiver is installed as directed in the Sony STR receiver documentation in the box or on the Sony product pages at control4.com (for your model). Also refer to the *Sony ZSO-STR-DA2800ES-C4/ZSO-STR-DA5800ES-C4 Receiver with Control4 Automation Quick Start Guide* or *Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide* and videos available on the Control4 Dealer website under Products > Sony STR Receiver.

Procedures

To configure a Sony STR-DA2800ES/DA5800ES with Full Control4 automation (model ZSO-STRDA2800ES-C4 or ZSO-STRDA5800ES-C4):

Notes:

(1) You'll be adding a receiver driver and a controller driver (the controller driver is added automatically with the receiver driver) in these steps (secondary controller only, unless the primary controller driver needs to be added again). You'll also need to identify both drivers to the Control4 system.

(2) If the receiver will be a primary controller, the drivers are already added and the device is identified in a default project. If the receiver will be a secondary controller, you must add the drivers and identify the devices.

(3) The identification procedure is slightly different from the identification of other Control4 devices to the system. You'll need to push a sequence of buttons on the receiver to identify it (the controller's identification window in Composer shows you how to identify). See the Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide for details.

1 Add the driver and identify the device; see "Guidelines for Configuring Devices." Ensure that the correct drivers are added to the project tree from the Local Database (see the next figure).

Note: You can add the drivers from the Local Database either using Device Type: Receivers and Manufacturer: Sony or Device Type: Others and Manufacturer: Sony. Either way installs the same drivers.
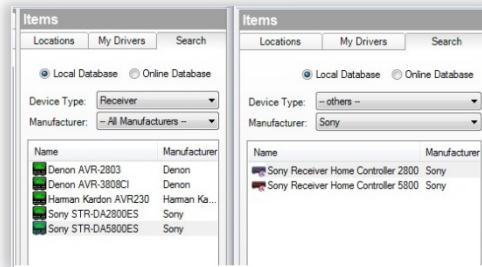
The drivers will appear in the project as Receiver along with the Sony Receiver Home Controller xx00 and several other AV drivers.

2   Make the necessary audio and video connections which are set up on the back of the receiver. See "Connecting and Verifying Devices" in this guide for details.

3   To use the features of the Sony STR receiver, see the Sony STR receiver documentation on the Control4 website, Product pages, for your model.

4   Check the properties. In the System Design view, select the receiver.

5   In the Properties pane, click the **Properties** tab.

Modifiable properties include:

- **IP Port**—The port on which the receiver is listening.
- **Connected To Network**—Shows 'true' if connected or 'false' if not connected.
- **Debug Mode**—Set to Off by default.
- **GUI Mode**—The mode used: Sony GUI or Control4 GUI.
- **Firmware Version**—The firmware version for the receiver.
- **Auto Updates Enabled**—Allow or not allow receiver firmware updates. See the section, "Updating Composer and Director" for details about updates for the Sony STR AV Receiver.
- **Update Status**—Shows the status of a receiver update.
- **GUI Language**—Shows the language selected for the receiver to display in the interface.

To configure a Sony STR AV Receiver (as a receiver only; model ZSO-STRDA2800ES or ZSO-STRDA5800ES):

Note: The identification procedure is slightly different from the identification of other Control4 devices to the system. You'll need to push a sequence of buttons on the receiver to identify it. See the Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide for details.

1   Add the driver and identify the device; see "Guidelines for Configuring Devices." Ensure that the **Sony STR-DA2800ES** or **Sony STR-DA5800ES** driver is added to the project from the Online Database. The driver will appear as "Receiver" along with a bunch of other AV drivers.

2   Make the necessary audio and video connections which are set up on the back of the receiver. See "Connecting and Verifying Devices" in this guide for details.

3   To use the features of the Sony STR receiver, see the Sony STR receiver documentation on the Control4 website Product page for your model.

4   Check the properties. In the System Design view, select the **Receiver** (the properties are the same for both the Sony STR models).

5   In the Properties pane, click the **Properties** tab.

Modifiable properties include:

- **IP Port**—The port on which the receiver is listening.
- **Command Delay-Millisecond**—Not used for the receiver.
- **Connected to Network**—If 'true,' the receiver is connected; if 'false' the receiver is not connected.
- **Debug Mode**—Set to Off by default.
- **Power On Delay-Seconds**—Not used for the receiver.
- **Volume Ramp Delay-Millisec**—Not used for the receiver.

Configure a Wireless Music Bridge

Use the Control4 Composer Pro System Design view to identify a Wireless Music Bridge (C4-WMB-B) to a Control4 system. This bridge lets you play music, Internet radio, podcasts, and more through your smartphone and tablet devices to the whole house (supported in OS 2.5 and later).

Prerequisites
- Ensure that the Wireless Music Bridge is installed as directed in the Control4 Wireless Music Bridge Installation Guide.
- Ensure that a 4-Zone Amplifier or 8-Zone Amplifier is installed and configured. The bridge connects to the amplifier.

This audio output device uses SDDP (Auto Discovery) to identify the device automatically.See *Composer Pro Getting Started* for details about Auto Discovery. If you ever need to identify the device again, use the standard method. If you want to play different streams for each zone in the home, you need a separate bridge for each stream. This device will play one stream in all supported zones, however.

To add and configure the Wireless Music Bridge:
1   In Composer Pro > System Design > Discovered tab (Items pane), locate the **Wireless Music Bridge** (also listed in My Drivers > Audio/Video).
2   Click the room to add the bridge to.
3   Double-click the bridge driver to add it to the room.
4   Make the necessary connections. See "Connecting and Verifying Devices" for details.
5   Change the properties as needed. Select the bridge in the room.

6 In the Properties pane, click the **Properties** tab. View and change the properties as needed. See the *Documentation* tab for more detailed information.

- **Device Name**—Type a unique name for this device. This name displays in the mobile device.
- **Media State**—Displays "Playing," "Paused," or "Stopped" for Airplay and DLNA devices. Bluetooth also displays "Pairing" and "Connected."
- **Media Source**—Displays the source being played: None, Airplay, Bluetooth, or DLNA.
- **Album**—Displays the metadata of the album being played.
- **Artist**—Displays the metadata of the artist playing.
- **Track**—Displays the metadata of the track number.
- **Play Time**—Displays the elapsed and total play time for the current stream.
- **Play Time Interval**—Use the drop-down list to select the interval for Control4 Navigators to update their information. Values are: Disabled, Every 1 Second, Every 2 Seconds, Every 3 Seconds, Every 4 Seconds, Every 5 Seconds, Every 10 Seconds. Click **Set** to apply the change.
- **Output Volume** (read only)—Displays the current output volume level (0 to 100, default=100). Programming may be used to set the default room volume.

- **Auto Room(s) Select**—When a source device starts streaming audio, this is the room(s) in which the Wireless Music Bridge will be automatically selected as the room device. Auto room selection occurs when the Wireless Music Bridge is not already selected in any room and there is no other device selected in a room.
- **Room(s) Override**—When thi s option is enabled, the Wireless Music Bridge will be auto selected as the room device, overriding the currently selected room device.
- **Auto Room(s) Off**— Automatically turns off a room when playback stops for the selected number of minutes. The room off command will occur in all rooms where the Wireless Music Bridge is the selected device. A value of 0 causes this action to be performed immediately when playback stops or pauses, so use caution when using a value of 0. A timeout value of 1441 disables the timeout. Default timeout is 3 minutes.
- **Bluetooth Module**—Enables or disables the Bluetooth module functionality.
- **Firmware Version**—Shows the version number for the firmware.
- **Update Status**—Displays the firmware update status for the bridge.
- **Update URL**—Displays the URL source of the firmware update.
- **Update Method**—Select **Automatic** or **Manual** firmware updates. Automatic mode causes the Wireless Music Bridge to be automatically updated when a new version of firmware is available. A firmware update check will occur each time a connection is made between the driver and the device. Manual mode requires you to click the **Start Firmware Update Action** button to start the update.
- **Network Connection**—Displays Ethernet or WiFi, depending on how the device is connected.
- **IP Address**—Displays the IP address for this device.
- **Net Mask**—Displays the net mask address.
- **MAC Address**—Displays the MAC address for this device. Ethernet and WiFi connections share this address.
- **Network Status**—Displays whether the device is Online or Offline.
- **SSID**—Displays the wireless ID number or is blank.
- **Debug Level**—Select one of these levels: 0-Alert, 1-Error, 2-Warning, 3-Info, 4-Trace, or 5-Debug. Click **Set** to apply the change.
- **Debug Mode**—While enabled, this setting allows you to capture traces for the Wireless Music Bridge. The Log option sends debug output to the Control4 director log. Debug mode is automatically disabled after 45 minutes.

See the *Documentation* tab for more detailed information.

7   Click the **Lua** tab to view logged output.

Configure TuneIn

Use the Control4 Composer Pro System Design view to access and change TuneIn properties for a Control4 system. The TuneIn app lets you play music, Internet radio, podcasts, news, sports, and more through your Navigators and smartphone devices to the whole house (supported in OS 2.4 and later).

Prerequisites
- The TuneIn app, driver, and license are included in OS 2.4 and later, but your customers will need to set a TuneIn account to pair TuneIn with their system and they must have a HC-250, HC-800, or HC-1000 Controller as their primary controller. The TuneIn driver appears below the controller in the Composer Pro project when these conditions are met.
- For the best audio experience, have your customers create a TuneIn account and add **Favorites**. They can then pair their TuneIn account to the Control4 system so they can play their favorite stations on their Navigators. See the *TuneIn Setup Guide* or *TuneIn User Guide* in the Residential or dealer Documentation page for details.

This TuneIn driver is added automatically (see "Prerequisites" above). If you need to add the driver again, use the standard method. The driver is located in the Search > Local Database > Media Service category.

To configure the TuneIn properties:

1 In Composer Pro > System Design > Controller (HC-250, HC-800, or HC-1000), locate the TuneIn driver.

2 Change the properties as needed. Select **TuneIn** (next to the primary controller).

3 In the Properties pane, click the **Properties** tab. View and change the properties as needed:

- **Debug Mode**—Use the drop-down list to select **Off** or **On**. When On, this setting lets the dealer capture traces for the TuneIn driver. Click **Set** to apply your change.

- **Allow Browse Settings**—Use the drop-down list to select **True** or **False**. When True, this setting displays a root menu item 'Settings' if the system is not registered on a TuneIn account. This lets the user pair their system with TuneIn without dealer intervention. Click **Set** to apply your change.

- **Now Playing History Length**—Use the **up** or **down** arrows to select the number of stations to display in the 'Now Playing' screen. Click **Set** to apply your change.

- **TuneIn Account Group**—Use the **up** or **down** arrows to select the number of instances of this driver (0-99) for use in separate TuneIn accounts. Click **Set** to apply your change.

- **Username**—The TuneIn account username registered with the system (not recommended). The customer should use the 'Settings' button to register their system. See the 'Documentation' tab for details.

- **Password**—The TuneIn account password (not recommended). The customer should use their 'Settings' button to register their system. See the 'Documentation' tab for details.

- **Status**—Displays various status messages when the TuneIn account is or is not paired with the system. See the 'Documentation' tab and Step 4 (Actions tab) for details.

- **Supported Controller**—Displays a True message if the primary controller is a valid model to use with TuneIn or False if it is not.

- **Disabled**—Use the drop-down list to select **True** or **False**.

Click the **Documentation** tab for more information.

4 (Optional) Click the **Actions** tab to sync Favorite stations, update the TuneIn pairing status, drop a TuneIn account, or join a TuneIn account.

- **Sync Favorites for Programming**—Click to sync the TuneIn Favorites in the Navigators. This is useful for programming purposes, for example, if you set up a 'Wakeup' scene to play a certain Internet station.

- **Update Status**—Click to update and display the current status in the 'Status' option on the Properties page.

- **Drop**—Click to drop the TuneIn account and pairing from this device.

- **Join**—Click to join the TuneIn account and pair this device to the Control4 system.

5 (Optional) Click the **Lua** tab to view logged output.

Configuring Motorization

Use the Composer Pro System Design and Connections views to add and configure contacts and relays.

Configure a Gas Fireplace Relay

Use the Composer Pro System Design and Connections views to configure a Gas Fireplace Relay.

Ensure that the Wireless Fireplace Switch is installed as directed in the *Control4 Wireless Fireplace Switch Installation Guide* available on the Control4 Dealer website. The Gas Fireplace Relay installs with the Wireless Fireplace Switch.

To add and configure a Gas Fireplace Relay:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Gas Fireplace** driver is added to the project tree.

2   Click **Connections**.

3   Make the necessary connections. See "Connecting and Verifying Devices" for details.

4   (Optional) To configure the properties, click **System Design**.

5   In the project tree, select the **Gas Fireplace** object.

6   View and change the properties in the Properties pane.

Modifiable properties include:

Invert Relay—Normally, the relay is open when the switch is off. If you check this option, the switch's off position closes the relay.

Radio Buttons:

- **Toggle Type**—Select if the fireplace needs two (2) wires always touching to stay on.
- **Pulse Type**—Select if two (2) fireplace wires only need to touch momentarily to turn the fireplace on or off.

  Pulse length is **x** milliseconds. Add the desired value here.

Watts—(For use with a future product.)

Configure a Wireless Fireplace Switch

Use the Composer Pro System Design and Connections views to configure a Wireless Fireplace Switch.

Ensure that the Wireless Fireplace Switch is installed as directed in the *Control4 Wireless Fireplace Switch Installation Guide* available on the Control4 Dealer website. The Gas Fireplace Relay installs with the Wireless Fireplace Switch.

To add and configure a Wireless Fireplace Switch:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Fireplace Switch** driver is added to the project tree.

2   Click **Connections**.

3   Make the necessary connections. See "Connecting and Verifying Devices" for details.

4   (Optional) To configure the properties, click **System Design**.

5   In the project tree, select the **Fireplace Switch** object.

6   View and change the properties in the Properties pane.

Modifiable properties include:

Properties:

- **Invert Relay**—If checked, the relay that appears as normally open becomes a closed circuit. The default is open.

Advanced Properties:

- **LED**
  - **Top Color**
    - On—The LED color for the Top LED when the LED state is On.
    - Off—The LED color for the Top LED when the LED state is Off.
  - Bottom Color
    - On—The LED color for the Top LED when the LED state is On.
    - Off—The LED color for the Top LED when the LED state is Off.
- **Options**
  - **Top LED Link**—Select to enable. If *checked*, swap on and off the state and color on the top LED.
  - **Bottom LED Link**—Select to enable. If *checked*, swap the on and off state and color on the bottom LED.
  - **Buttons Attached**—Select to enable. If *checked*, pressing the buttons on the Switch directly controls the connected load.
  - **LED Attached**—If *checked*, the LED state is controlled by the button presses. If *unchecked*, the LED state and colors can be controlled by custom programming.
- **Hold Ramp Rate** (Seconds)
  - **Up**—The rate in seconds when the load increases when the top button is held down.
  - **Down**—The rate in seconds when the load decreases if the bottom button is held down.
- **Network**—The network information is added automatically (Channel, Gateway, MAC, and Version).

Configure Pulse Single Relay Support

Use the Composer Pro System Design view to check and change relay properties.

When using a Pulse Type Relay in your project, you can add a single relay device, and then configure it as a "Pulse Type" relay rather than having to program anything to provide the pulse functionality. This option is in the System Design Properties pane when you select a relay.

To view relay properties:

1   Click **System Design**.

2   Select the **relay** object from the project tree. View its properties in the Properties pane.

Modifiable properties include:

Invert Relay—Normally, the relay is open when the switch is off. If you check this option, the switch's off position closes the relay.

Radio Buttons:

- **Toggle Type**—Select if the device needs two (2) wires always touching to stay on.
- **Pulse Type**—Select if two (2) wires only need to touch momentarily to turn the device on or off.

Pulse length is **x** milliseconds. Add the value here.

Watts—When making the connection between a device and the 8-Channel Relay module, the 8-Channel Dimmer and 8-Channel Relay keep track of the watts of each light or relay connected to them and don't allow you to exceed the maximum wattage for the module. Use the **up** or **down** arrows to set the wattage. Click **Set**.

3 To use this option, select the **Pulse Type** radio button, and select the **Pulse Length is x milliseconds** for the relay pulse (the default is 500 milliseconds).
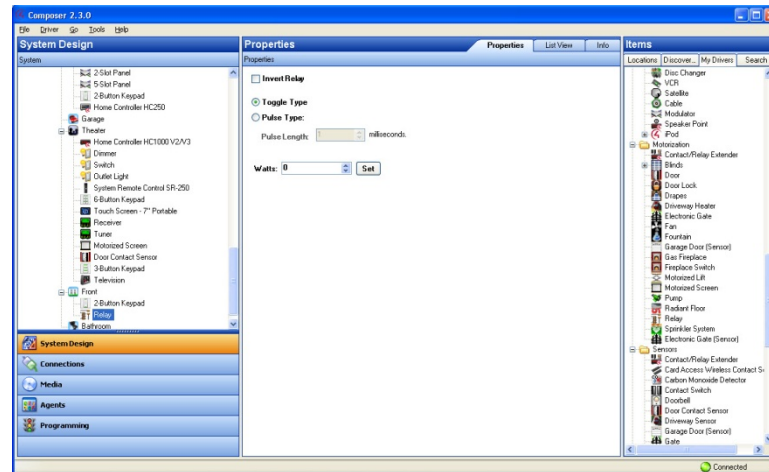
Configure Single Contact Relay Support

Use the Composer Pro System Design view to check and change Single Contact Trigger support for contacts.

When using a contact in your project, the physical change of the contact's state might not always result in a single open-to-close or close-to-open state change, but rather bounce between states multiple times before the final state is reached.

To eliminate false notification of the contact state to the Control4 system, you can configure a 'Debounce Timer' to allow the system to see only a single state change.

In the System Design view, you can set this option in the Properties pane when you select a contact.

To set this option:

1 Select the **contact** object from the project tree. View its properties in the Properties pane.

Modifiable properties include:

Invert Sensor—Depending on the sensor type, the controller sends a small amount of voltage through the sensor to close it, if for example when a door is closed with feedback indicating such. You use Invert Sensor if you want to feedback to be the opposite.

Enable Debounce Timer—Sets an amount of time that lapses before the sensor triggers to on.

Debounce Time(ms)—The amount of time in milliseconds before the sensor state changes to on.

2 Check the **Enable Debounce Timer** box.

3   In the Debounce Time(ms) (in milliseconds) drop-down menu, select to delay notification of the contact state (the default is 100 milliseconds).
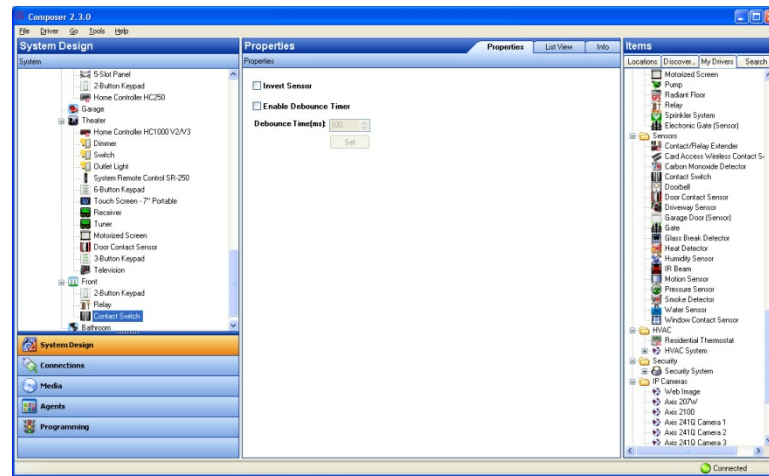
Configure a Fan Speed Controller

This applies to next generation lighting (compatible with OS 2.5 and later).

When adding a Fan Speed Controller to your project, a keypad is also added underneath it. Both devices need to be configured.
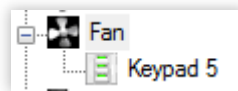
To configure a Fan Speed Controller:

1   Add the Fan Speed Controller to your project tree, then identify it. For instructions, see "Guidelines for Configuring Devices."

2   In the System Design view, select **Fan Speed Controller**. The device's *Properties* tab opens.

3   Configure the settings for the device as described in the following *Properties* sections.

4   If you entered text for custom engraving, go to "Ordering keycap engraving" on page 65.

Fan properties

Properties

- **Preset Level**— Select a fan speed from the drop-down list. This is the speed that will be used when the fan is toggled on.

Advanced Properties

- **Fault Detection**
  - **Status**—Displays the device's current fault status. Green is normal, but red indicates a fault.
  - **Reset**—Resets the fault status indicator. If the fault repeats, make sure that the load type is compatible, that the device is wired correctly, and that the device is not damaged.
- **Fan Speed Colors**
  - **Name**—Select the fan speed using the **Name** drop-down menu, then click the **True** or **False** color bars to change them. *True* is the keypad color when that speed is active.

- **Ambient Light Profiles**
  - Select a preset brightness profile for the keypad backlight and LEDs that changes their brightness according to the room's ambient light. You can also select Fully Customized and manually set each brightness level according to ambient lighting.
    - **Backlight Color—**Sets the keypad's backlight color. If you don't want a keypad backlight, keep the default setting (black).

Energy Information (view only)

- **Minutes Off**—Elapsed minutes since device was turned off.
- **Minutes On**—Elapsed minutes since device was turned on.
- **Minutes On Today**—Total minutes device has been on for the current day.
- **Current Power**—Power being consumed by the device at the present time.
- **Energy Used**—Total watt hours consumed by the device over its lifetime.
- **Energy Used Today**—Watt hours consumed by the device for the current day.

Network—(read only) The current MAC address and firmware version of the selected device. These fields are not editable.

Keypad properties
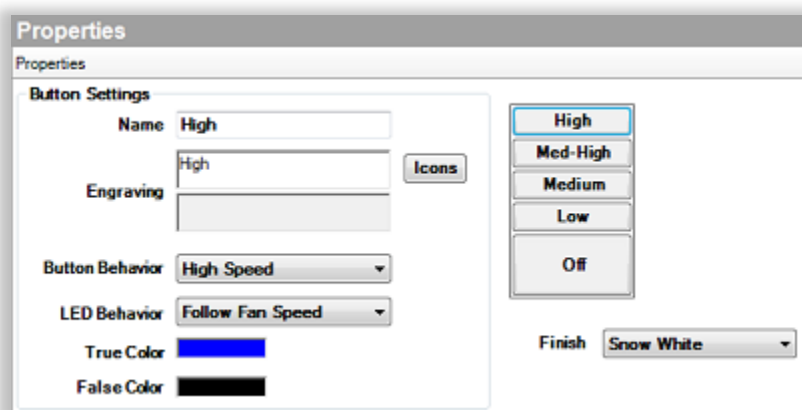
Properties

- **Button Settings**
  - **Name**—The name of the button (used for defining its connections to other devices or events within Composer Pro).
  - **Engraving**—Text that you want printed onto the buttons. For more information, see "Ordering keycap engraving" on page 65.
    - **Icons**—Icons that you want printed onto the buttons. To add an icon to the Engraving text box, click **Icons**, then double-click the icon to add.
  - **Button Behavior—**The fan speed that the selected button activates. You can also select **Keypad** for the button to act like a standard keypad button that doesn't directly control the fan speed.
  - **LED Behavior**
    - **Follow Bound Device**—LED behavior reflects the state of the device the button is bound to.
    - **Follow Fan Speed**—LED behavior reflects the fan speed.
    - **Push/Release**—LED behavior reflects the button state (pressed or released).

- **Push Color**—Sets the LED color while the button is pressed.
- **Release Color**— Sets the LED color while the button is released.
- **Programmed**—LED behavior follows programming commands.
- **Finish**—Color of the buttons.

Configuring HVAC systems

Use the Composer Pro System Design and Connections views to configure a Control4 Wireless Thermostat. Control4 also supports multiple third-party thermostat models.

Note: Previous releases of Composer Pro documentation included instructions about how to configure third-party products and older versions of the Wireless Thermostat. Starting with OS 2.0, third-party device configurations are no longer included in the Control4 documentation, although they are still supported in the drivers list (for example, EnviraZone and Aprilaire RS232). Refer to previous releases of the Composer Pro User Guide *for information about these third-party drivers and examples of older thermostat models.*

Setting up a Wireless Thermostat

Use the Composer Pro System Design and Connections views to set up a Control4 Wireless Thermostat.

Prerequisites

- Ensure that your project has a Control4 controller added to the project tree and is identified on the Control4 system.
- Ensure that the thermostat is installed at the wall as directed in the *Control4 Wireless Thermostat Installation Guide* available on the Control4 Dealer website.
- Ensure that the Control4 Wireless Thermostat is added to the project tree.

To configure a Wireless Thermostat for the Control4 system:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Residential Thermostat** driver is added to the project tree (unless you're using a third-party thermostat).

2   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **Residential Thermostat** driver is added to the project tree (unless you're using a third-party thermostat).

- To program the schedule, see "Programming the Control4 Thermostat Schedule."
- To set up advanced properties, see "Using the Wireless Thermostat Advanced Properties."

Programming the Control4 Thermostat schedule

Use the Composer Pro System Design view to set a heating and cooling schedule for your Control4 Wireless Thermostat (model number: Control4-CCZ-T1-x for OS 2.0 and later). The Control4 Wireless Thermostat works with your heating and cooling system to maintain a consistent temperature called a 'set point.' Using the Control4 Wireless Thermostat, you can specify separate heating and cooling set points.

Tip: New in OS 2.0 and later, you can set the heating and cooling schedule from a touch screen or on-screen Navigator. See the Control4 System User Guide *for details.*

The Control4 Wireless Thermostat automatically engages the appropriate heating or cooling system until the room reaches the desired temperature. In Composer Pro, you can set up a Heat Point and a Cool point for six (6) possible Program Events in a day time period.

Program Events include:

- **Awake**—Sets the wakeup time and related Heat/Cool Points.
- **Leave**—Sets the away time and related Heat/Cool Points.
- **Return**—Sets for return time and related Heat/Cool Points.
- **Sleep**—Sets for sleep time and related Heat/Cool Points.
- **Custom 1**—Sets a specified time and related Heat/Cool Points.
- **Custom 2**—Sets a specified time and related Heat/Cool Points.

You can enable these Program Events for weekdays, weekends, or individual days to match activity in the home.

Prerequisite

Ensure that the thermostat is installed as directed in the _Control4 Wireless Thermostat Installation Guide_ available on the Control4 Dealer website.

To program the Wireless Thermostat schedule:

1   In the System Design view, select the **Control4 Wireless Thermostat** object.

2   The Properties appear in the center pane. Fahrenheit is selected by default; select Celsius as needed.

3   In the Properties tab, select **View/Edit Schedule**. The Schedule dialog appears with the currently programmed schedule for Monday through Sunday.

**Note:** You can schedule the thermostat either in Composer Pro or in the Control4 touch screens, MyHome apps, or on-screen Navigators. See the **Control4 Wireless Thermostat User Guide** or the **Control4 System User Guide** for information about scheduling a Wireless Thermostat from a Navigator.
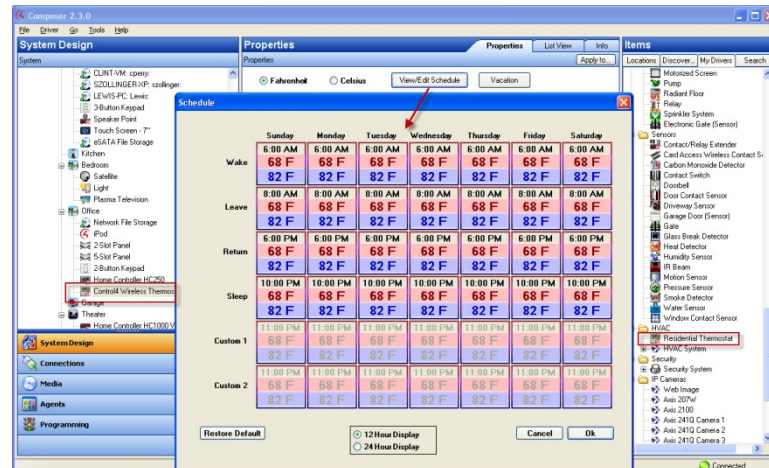
**Tip:** To return to the original settings, click the **Restore Default** button.

4   For each line item: Awake, Leave, Return, Sleep, Custom 1, and Custom 2, use the **up** and **down** arrows to set the day and temperature Heat and Cool set points.

**Notes:** (1) You can view the schedule by selecting the **12 Hour Display** or the **24 Hour Display**. (2) The Cool and Heat Points stay two (2) degrees apart. **Example**: If you set the Heat Point to **72** degrees, the lowest you can set the Cool Set Point is **74** degrees. This keeps your furnace and your air conditioner from competing with each other.

5   When you are finished, click **Ok**. Your updated schedule displays. You may then set the
     modifiable properties. See "Using the Wireless Thermostat Advanced Properties."

Using the Wireless Thermostat advanced properties

Use the Composer Pro System Design view to view and change the Wireless Thermostat
properties. Set the Properties to create a schedule and the Advanced Properties to modify the
thermostat's configuration.

Ensure that the Control4 Wireless Thermostat (model number: Control4-CCZ-T1-x for OS 2.0
and later) is installed as directed in the *Control4 Wireless Thermostat Installation Guide* available
on the Control4 Dealer website.

To use the thermostat advanced properties:

1   In the project tree select the **Control4 Wireless Thermostat**.

2   Click the **Properties** tab to view the list below.

Note: *Different properties may appear, depending on the thermostat model. The properties
below apply to the Control4 Wireless Thermostat for OS 2.3.0 or later.*
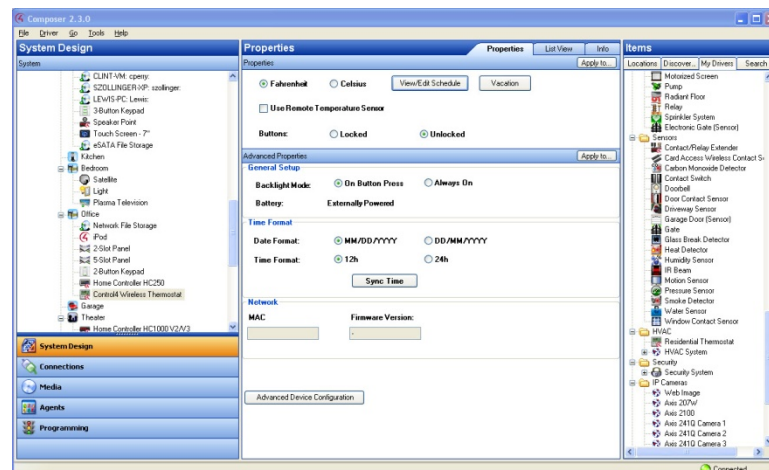
Modifiable Advanced Properties include:

Properties

- **Fahrenheit** or **Celsius**—Sets the temperature display in Fahrenheit or Celsius.

- **View/Edit Schedule**—Brings up the schedule page to set heat and cool set points for auto mode (see below). In the mode (Awake, Leave, Return, etc.), set the day and temperature set points. Click **OK** to close the window. *Note:* You can view the schedule by selecting the **12 Hour Display** or the **24 Hour Display**.
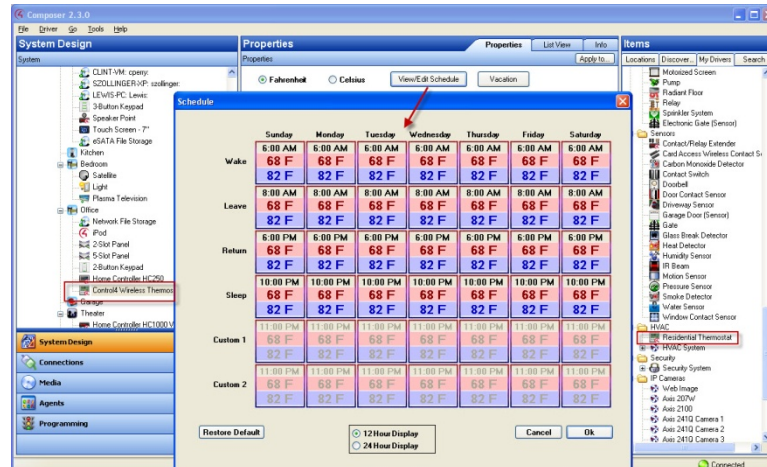
- **Vacation**—Lets you set the Heat Set Point and Cool Set Point when the homeowner is on vacation. Use the **up** or **down** arrows to set the heat and cool set points, and then click **OK**.
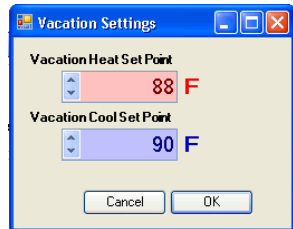
- **Use Remote Temperature Sensor**—Sets the thermostat to use either the on-board Local temperature sensor (default) or an optional Remote temperature sensor to control the HVAC system by selecting the **Use Remote Temperature Sensor** radio button.
- **Buttons**—Locks local buttons to prevent unwanted changes to thermostat settings. Select the **Locked** and **Unlocked** radio buttons. *Note:* If buttons are disabled, they will be re-enabled when the thermostat power cycles. This is a safety mechanism to prevent a thermostat from becoming completely inoperable if it were removed from a project while the buttons were disabled.

Advanced Properties

- **General Setup**
    - **Backlight Mode**—Lets you select your preferences for the backlight. Select **On Button Press** to light the backlight for ten (10) seconds when any button is pressed. Select **Always On** to keep the backlight on constantly. When using batteries for power with power stealing enabled, the Always On option is not recommended.
    - **Battery**—Shows the power source or battery level (for example, "Externally Powered").
- **Time Format (Date and Time)**—Lets you set preferences regarding Date Format (MM/DD/YYYY or DD/MM/YYY) and Time Format (12 h or 24 h). Click the **Sync Time** button under Time Format to update the time on your thermostat manually to the controller. (The thermostat also updates automatically at 3:00 AM each morning.)

- **Network**—Displays informational boxes that provide ZigBee networking information (MAC and Firmware Version).
- **Advanced Device Configuration**—Click this button to fine-tune your thermostat (see below).

3   Select **Apply to** to apply the current properties to the selected Wireless Thermostats.

Advanced Device Configuration

Control4 has enhanced the available thermostat settings to allow users and installers to modify engage and cutoff temperature deltas—as well as maximum and minimum run time, off, and delay times—so that the thermostat can be configured to run optimally with any HVAC system.

Note: Allowing such fine tuning of all settings can result in setting improper values and combination of values to cause the HVAC system to run less than optimal. To prevent thrashing the cool and heating engage (constant heat, then cool, engagement), cutoff and set points are enforced to have at least a one (1) degree difference for engage temperatures.

The formula for the dependency of these values is:

Heat/cool engage delta—Opposite stage (if heat engage, then cool cutoff and visa versa) cutoff delta + set points delta (cool set point – heat set point) >=1

The screen below shows the Advanced Device Configuration properties.

- **Temperature Calibration**—Use the **up** or **down** arrows to set *x* degree(s), and then click **Set Calibration**. This lets you fine tune the current temperature reported by the thermostat by +/- 5 degrees. *Example:* If your thermostat reads **72** degrees Fahrenheit, and you determine that the current temperature should be **70** degrees Fahrenheit, press the **down** button two times to lower the thermostat's reading to 70 degrees Fahrenheit. Click **Set Calibration**.

Note: No changes to calibration should be made within 20 minutes of powering on the thermostat. The thermostat generates a small amount of heat which affects the calibration. After 20 minutes of continuous operation, this will stabilize allowing proper calibration.

- **Heating Cutoff Point**—Use the **up** or **down** arrows to set *x* degree(s) from the set point, and then click **Set Heat Cutoff**. This sets how far over the setpoint you want the heating system to remain engaged before shutting off. ***Example:*** If the heat set point is set to **68** degrees Fahrenheit and the cutoff point is set to **2** degrees Fahrenheit, the heating system will engage until reaching **70** degrees.
- **Cooling Cutoff Point**—Use the **up** or **down** arrows to set *x* degree(s) from the set point, and then click **Set Cool Cutoff**. This sets how far under the setpoint you want the cooling system to remain engaged before shutting off. ***Example:*** If the cool setpoint is set to **68** degrees Fahrenheit and the cutoff point is set to **2** degrees Fahrenheit, the cooling system will engage until reaching **66** degrees.
- **Stage Minimum Off Time (Minutes)**—Use the **up** or **down** arrows to set the minimum off time in minutes. ***Note:*** This setting takes effect as soon as the Advanced Device Configuration box is closed.

  This is the minimum amount of time that the heating or cooling will remain off before initiating again. ***Example:*** If while cooling, the temperature does not reach the designated cutoff point before the maximum run time is reached, the cooling system will shut off and not initiate cooling again until the Minimum Off Time is reached. ***Note:*** Some HVAC systems automatically enforce a Minimum Off Time. In this case, the heating or cooling will remain off for the higher of the two settings (thermostat or HVAC system).

  Stage Configuration (Heat Stage 1, 2; Cool Stage 1, 2; Auxiliary; Emergency)

  The stage configuration boxes allows for setting the engage delta, minimum run time and maximum run time for each stage.

  Note: *These settings take effect as soon as the Advanced Device Configuration box is closed.*

- **Delta** (degrees)—Use the **up** or **down** arrows to set the stage engage temperature delta. This sets how many degrees the current temperature will reach beyond the setpoint before the stage engages.

  Example:

  For heat, if the heat setpoint is **70** degrees Fahrenheit and the engage delta is **2** degrees Fahrenheit, the heat stage will engage when temperature reaches **68** degrees.

  Note: *For multi-stage systems, the deltas for the first and second stages are cumulative. If the first stage delta is set at **2** degrees Fahrenheit and the second stage delta is set at **2** degrees Fahrenheit, the second stage will not engage until the current temperature has passed the stage setpoint by **4** degrees Fahrenheit. However, the Auxiliary Heat and Emergency Heat deltas are NOT cumulative.*

- **Minimum Run Time**—Use the **up** or **down** arrows to set the stage *x* minimum run time in minutes. The minimum run time is one (1) minute. This sets the minimum time the heating and cooling will run before shutting off. ***Example:*** If while cooling or heating, the temperature reaches the designated Cutoff Point before the Minimum Run Time is reached, the system will not shut off until the Minimum Run Time is reached. Also, if heat or cool is engaged and shut off manually, the system will not shut off until the Minimum Run Time is reached. ***Note:*** Some HVAC systems have built-in Minimum Run Times that may be greater than that set on the thermostat.
- **Maximum Run Time**—Use the **up** or **down** arrows to set the Heat Stage *x* maximum run time in minutes. The maximum run time is 255 minutes. This sets the maximum time the heating or cooling will run before turning off. ***Example:*** If heating or cooling is engaged, but does not reach the Cutoff Point before the Maximum Run Time is reached, the cooling system will turn off. ***Note:*** The Maximum and Minimum Run Times are not per stage, but for cooling and heating run times regardless of first or second stage transitions.

Auxiliary Stage

The Auxiliary and Emergency Heat stages are specifically for heat pump systems. The switches on the back of the thermostat allow the thermostat to operate a heat pump system.

Note: These settings take effect as soon as the Advanced Device Configuration box is closed.

- **Stage Delay (Minutes)**—Use the **up** or **down** arrows to set the stage delay for *x* minutes. This sets the allotted time the main heat pump system will run without reaching the desired heat setpoint goal before the Auxiliary stage engages. *Note:* If set to the maximum time allowed, the auxiliary system will be disabled and never engage.
- **Stage Cutoff Delay (seconds)**—Use the **up** or **down** arrows to set the stage cutoff delay in seconds. This sets how much of a delay before the main heat pump cuts off, leaving the Auxiliary heating stage to run on its own. *Note:* If set to the maximum time allowed, the main heat pump stage and the Auxiliary heat stage will run together indefinitely.

IMPORTANT! *Starting with OS 2.0, the thermostat driver and firmware use a different temperature scale. Due to this, existing programming which evaluates temperature values will not work correctly and must be deleted and re-done. Also, any thermostat variables used for the Email Notification agent must be changed to use the new V1 variables for the temperatures to be displayed correctly.*

Configuring an IP camera or web image

Use the Composer Pro System Design and Connections views to configure this device. Internet Protocol (IP) security cameras, including on-screen controls in Navigators, such as pan, tilt, zoom, and preset settings are supported along with HTTP control and JPEG or MJPEG images.

Prerequisites
- Ensure that your project has a Control4 controller added to the project tree and is identified on the Control4 system.
- Ensure that the IP security camera is installed at the wall as directed in the manufacturer's installation guide.

To add and configure an IP security camera or Web JPEG image:

1   To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure that the **IP Cameras** driver is added to the project tree.

2   In the Properties pane, do the following:
- For an IP Security camera, configure the IP Address, port, and authentication information (if applicable).
- For Web JPEG Image only, enter the URL and authentication user name and password (if a secure HTTP address), select the refresh rate in minutes, and then tests.
- Click **Test HTTP Connection** to test it.

Configuring Black & Decker locks

Use the Composer Pro System Design view to add and configure Black & Decker KwikSet®
SmartCode® with Home Connect™ Technology ZigBee Deadbolt locks, Baldwin, or other
supported locks for exterior doors. In general, these instructions can be used to add and
configure lock drivers for other lock products compatible with Control4 systems.

Ensure that the Black & Decker locks are installed as directed in the Black & Decker Installation
instructions shipped with the product.

To add and configure Black & Decker locks:

1 To add the driver and identify the device see "Guidelines for Configuring Devices." Ensure
that the **Black and Decker SmartLock RF ZigBee** driver is added to the project tree.

> **Tip***: If you are adding several locks in a home, it might be useful to give each lock a unique
> name.*

2 For each lock you add to the project, add a **Relay** to the project tree also. See "Configuring
Contacts and Relays."

3 Click the **Connections** view.

4 In the Connections view, use the **Control & Audio Video Connections** tab to make the
necessary control connection.

5 Under Control Outputs, select the **Lock State** and drag it down to the **Relay** in the RELAY
Input Devices pane.

6 (Optional) For additional Black and Decker ZigBee Lock setup, configure the Properties.

    a In the System Design view project tree, select the **Black and Decker ZigBee Lock**
object.

    b Modify the properties in the Properties pane, and then click **Set** (if applicable).

- **Debug Mode**—Use the drop-down menu to select logging and printing.
- **Lock Sleep Timer**—Use the drop-down menu to select how long the lock is in
sleep mode (in seconds).
- **# of Log Items**—Use the up or down arrows to set the number of items to log.
- **Last Status**—Last change made in Debug Mode.
- **Firmware Version**—Indicates the ZigBee firmware version for the lock.
- **Instructions**—See the Documentation tab.
- **Name, Code *x***—Enter the lock name and code here. You can enter up to 30 code
entries. Set up the user codes here. Type the user's name, then a comma (,), and
then add the numeric code (4 to 8 characters allowed). Example: Bob, 12345. Up
to 30 codes can be entered.

> **Tip:** *The codes can be entered also on the touch screen or on-screen Navigator if you
> download the Black & Decker application from 4Store.*

    c Click the **Documentation** tab for additional information about setting the properties,
user codes, and actions for the locks.

    d Click the **Actions** tab.

- **Get Battery Status**—Click to show the status of the battery on the lock.
- **Show User Codes**—Click to show all of the user codes assigned to this lock. The
user codes appear in the Properties tab.
- **Hide User Codes**—Click to hide all user codes assigned to this lock. The user
codes appear as x's in the Properties tab.
- **Delete All Codes**—Click to delete all user codes assigned to this lock.

Note: You can set the user codes either from Composer Pro, or from the touch screen or on-screen Navigator in My Apps (downloaded from 4Store). The priority for setting user codes and Actions is whoever set the codes or actions last, whether it was in Composer Pro or on a touch screen or on-screen Navigator, will be the valid codes or actions used. See the Black & Decker KwikSet SmartCode with HomeConnect™ Locks User Guide on the Control4 Products page for details.

   e   Click the **Lua** tab. This is used for the DriverWorks SDK (developers only).

Configuring SNMP

Installing the SNMP MIBs

The following SNMP MIBs are required to use SNMP to manage a Control4 network remotely:

- **Control4 MIBs**—CONTROL4-DIRECTOR-MIB, CONTROL4-GLOBAL-REG, and CONTROL4-TEST MIB. These MIBs are installed by default when you install Composer 2.2. They appear in Program>Files>Control4>Composer 2.2>SNMP>MIBs/ on the computer where Composer resides.
- **SNMP MIBs**—Make sure the NMS console you use has the following SNMP MIBs: SNMPV2-SMI, SNMPV2-TC, SNMPV2-CONF, and INET-ADDRESS-MIB. The Control4 MIBs reference these MIBs.

Configuring the SNMP Configuration Agent

Use the Control4 Composer Pro Agents view to use and manage SNMP devices, including; adding trap targets; setting up route information; enabling SNMP; configuring SNMP settings; setting up SNMP system and user variables, and more.

You can change the SNMP Configuration agent settings either using Director or Virtual Director.

Notes:

- *If you use Virtual Director, even though you click **Apply** to save your changes, they will not take effect until the project displays and the SNMP-enabled devices are online.*
- *If you use SSH and VI at the command line to edit a configuration file, and later change any settings in the Agents view, your changes in Composer will overwrite those made at the command line.*

Prerequisites

To use SNMP in a Control4 system, you need:

- An NMS console or an installed MIB browser and the three (3) Control4 MIBs (installed by default with Composer 2.2): CONTROL4-DIRECTOR-MIB, CONTROL4-GLOBAL-REG, and CONTROL4-TEST-MIB. These MIBs are located in Program>Files>Control4>Composer 2.2>SNMP>MIBs/ on the computer where Composer resides.
- SNMP MIBs. Make sure the NMS console you use has the following SNMP MIBs: SNMPV2-SMI, SNMPV2-TC, SNMPV2-CONF, and INET-ADDRESS-MIB (Dave to provide links). The Control4 MIBs reference these MIBs.
- SNMP Configuration agent. To configure SNMP in a Control4 system you must add the SNMP Configuration agent in the Composer Pro Agents view. See Example: Program Using the SNMP Configuration Agent to add the agent.

Procedure

1   In Composer Pro click **Agents**.
2   In Agents, select the **SNMP Configuration** agent, or add it if it's not already in the list.
3   When you are finished with your changes, click **Apply** at the top of the page.

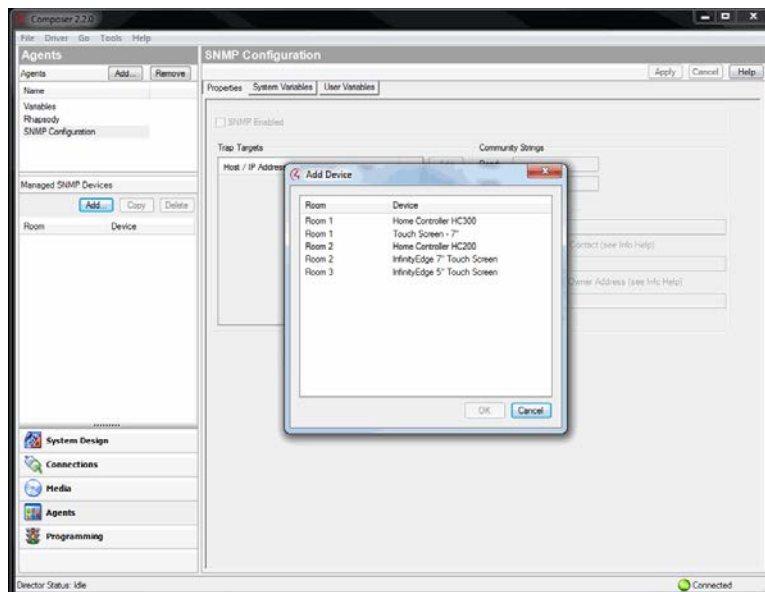**To configure SNMP settings in the Properties pane:**

1   In the SNMP Configuration pane, click **Properties**.
2   If they are SNMP-enabled, all of your controllers, IO Extenders, and touch screens in the project will appear in the Managed SNMP Devices pane. If you've updated the system to OS 2.2 or later, those devices appear automatically.
3   Use the Properties pane to disable SNMP from the project, add traps, set community strings, and change contact information.

- **SNMP Enabled**—By default SNMP is enabled if controllers, IO Extenders, and touch screens have been updated to OS 2.2. Uncheck to disable a selected device.
- **Trap Targets**—Use to add the IP address for the NMS console or MIB browser to send traps to. See "To add trap targets" below.
- **Community Strings**—The default is Read: Public, Write: Private. Use the MIB browser and this Properties tab to change these settings for Get and Set commands. The strings must match in the MIB browser and in this page. *Example:* Read: Public must be the same in the MIB and in the Properties tab.
- **Contact Information.**
  - **sysContact**—Check **Use Project Primary Contact** to populate this text box with information from the Info tab in the System Design view, or uncheck and type a contact name here.
  - **sysLocation**—Check **Use Project System Owner Address** to populate this text box with information from the Info tab in the System Design view, or uncheck and type the owner's address and city here.
  - **sysName**—Check **Use Room** to populate this text box with information from the room name that the device is in (appears automatically), or uncheck and type another value, for example, a hotel room number.

To add one or more devices:

Add devices that you want to manage using SNMP in the Properties pane.

1   In the Managed SNMP Devices pane, click **Add** or right-click and select **Add Device**.
2   In Add Device, select the device to add. To add several devices use **CTRL** or **SHIFT** and select the devices.

3 Click **OK**. The device(s) appear in the Managed SNMP Devices pane.

Note: If you select multiple devices and their properties are different, a red warning message appears, and Composer Pro attempts to notify you of the conflict.

Tip: You can configure one device and then copy it to other devices to save the properties you've defined. See the next steps for details.

To copy a device:

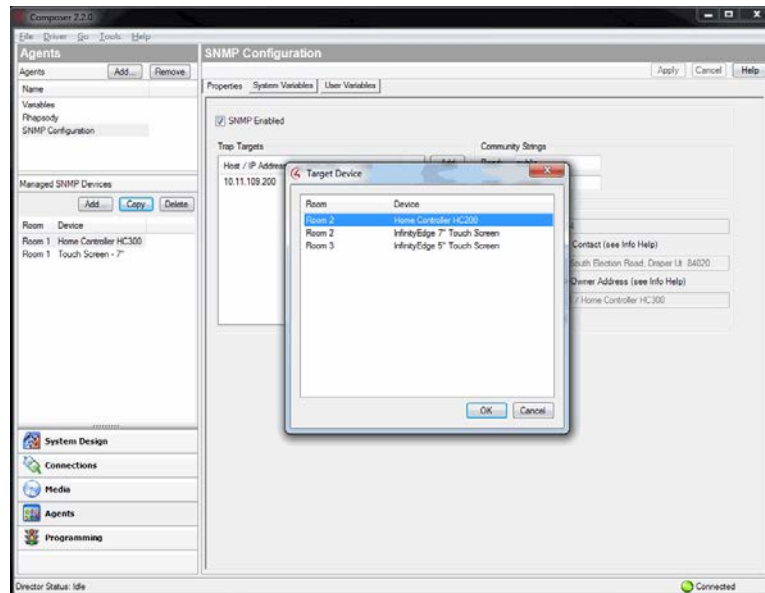Copy a device to other devices if you want to use the device's properties.

Note: You cannot copy a device to another device that's already been identified in Composer Pro.

1 In the Managed SNMP Devices pane, click **Copy** or right-click and select **Copy Device**.
2 In Target Device, select the device to copy.
3 Click **OK**. The device appears in the Managed SNMP Devices pane.

4   In the Managed SNMP Devices pane, select the devices to copy to.

To delete a device:

Remove a device from the managed list in the Properties pane.

1   In the Managed SNMP Devices pane, click **Delete** or right-click and select **Delete Device**.
2   In Target Device, select the device to delete. To delete several devices use **CTRL** or **SHIFT** and select the devices.
3   Click **OK**. The device(s) disappear from the Managed SNMP Devices pane.

    Notes:

    (1) Deleting a device removes it from the list, but the properties are saved.

    (2) You can add the device back into the project with the last saved SNMP settings.

To add trap targets:

Add the IP address or host name of the NMS console to send trap targets to in the Properties pane.

1   In the Managed SNMP Devices pane, select the device to manage.
2   In the Trap Targets pane, click **Add**.
3   In Add Trap Target, type the following:
    • **Target**—IP address of the console that will receive the traps.
    • **Community**— (Optional) Information will be taken from the Community Strings boxes.
    • **Port**—(Optional) The default is 162.

4   Click **OK**. The information will be added to the Trap Targets pane.
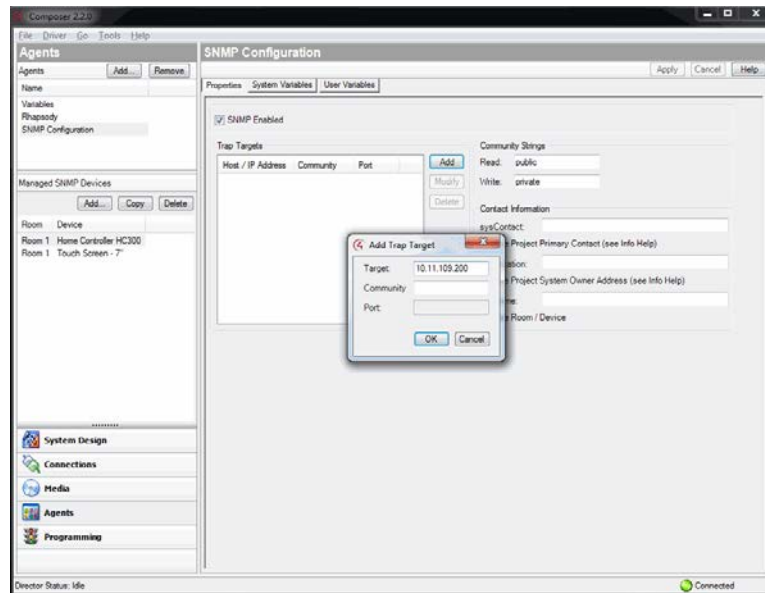
Tip: If you click the **System Variables** tab and select **SNMP Trap Enabled**, the traps will be enabled for the selected variable.

Caution: You may have conflicts if the Trap Enabled values in System Variables are different (some True, some False).

To change the 'Trap Enabled' system variables in the System Variables pane:

Change the 'Trap Enabled' status in the System Variables pane when you want traps sent to the NMS console you set up (see the previous steps) for the selected variable(s) agents or in programming. *Example:* You can set a 'Trap Enabled' status to 'True' for the CURRENT_SELECTED_DEVICE variable in Room 100.

1   In SNMP Configuration, click the **System Variables** tab.
2   Select the Variables to change. Select all that apply.

3 Check or uncheck **SNMP Trap Enabled** or right-click and select **Enable Trap** or **Disable Trap** in System Variables. The 'Trap Enabled' column changes from 'False' to 'True' or vice versa for those selections.
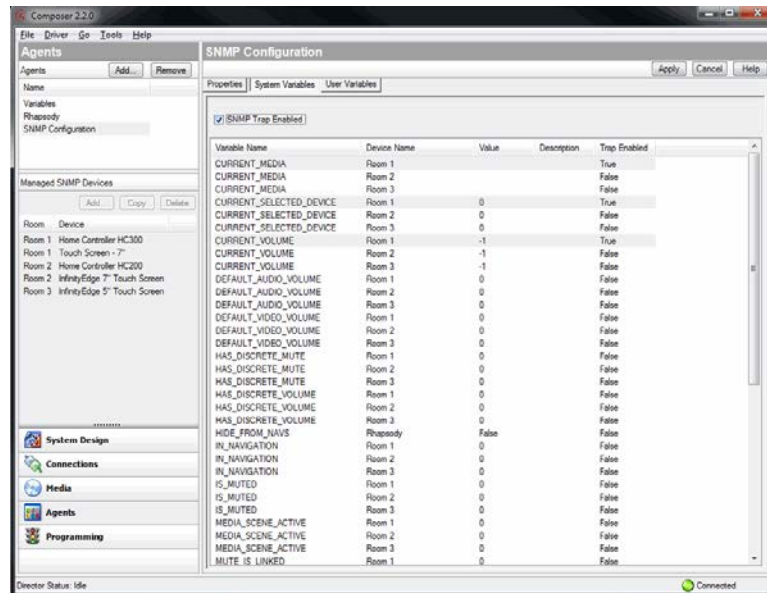
To change the 'Trap Enabled' user variables in the User Variables pane:

Change the 'Trap Enabled' status in the User Variables pane when you want traps sent to the NMS console you set up (see the previous steps) for the selected variable(s) agents or in programming. Example: You can set a 'Trap Enabled' status to 'True' for 'Boolean Var.'

1 In SNMP Configuration, click the **User Variables** tab.

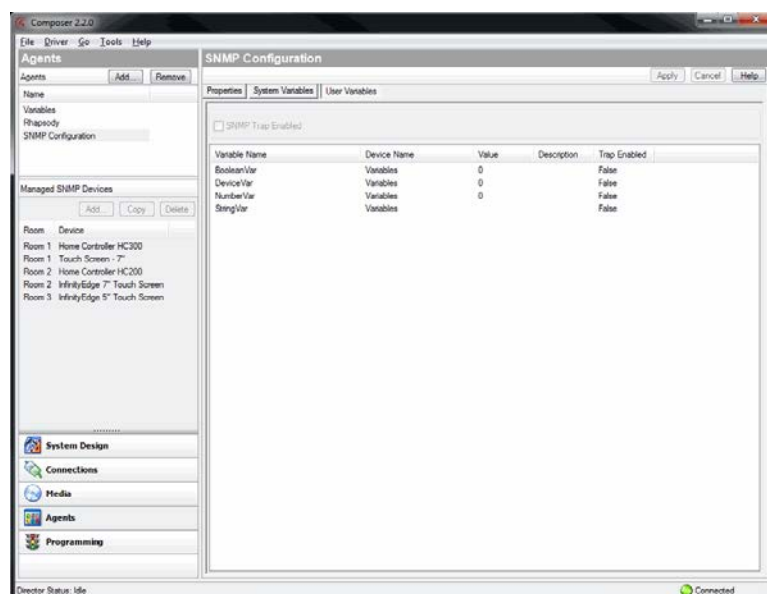**2** Select the variables to change. Select all that apply.

3 Check or uncheck **SNMP Trap Enabled** or right-click and select **Enable Trap** or **Disable Trap** in System Variables. The 'Trap Enabled' column changes from False to True or True to False for those selections.

Connecting Devices

After you plan and create the project in Composer Pro's System Design for a Control4 system (adding the buildings, rooms, devices, etc.), you are ready to make the necessary connections in the system. Just like you connect cables and wires between your physical devices so they work together, those same connections need to be added virtually in Composer Pro using the Connections view.

Use this chapter to learn how to:

- Connect devices virtually
- Verify the connections by testing them

Why you need connections

The software connections represent either connections between the controller and its attached devices OR connections among AV devices.

When you match the connections together in Composer Pro, the software connections mirror the hardware connections in the system where appropriate. The system can then control the connected devices and identifies where to route the media where it's available.

These types of connections are used in the Control4 system:

- **Network Connections**—Defines the devices that use a network address. Network connections include IP and ZigBee or ZigBee Pro devices.
- **Control Connections**—Defines the control connection between a device and the controller. Control connections include contact*s*, relays, serial, and IR -controlled devices.
- **Audio and Video Connections**—Defines the devices that have audio and/or video signals.
- **Room Connections**—Defines the video, audio, or video/audio end points and the video/audio or audio volume for the selected room.

Connection design tips for Panelized Lighting

Because there could be potentially many devices in a Panelized Lighting solution, making the proper connections between the modules and loads is key to efficient Panelized Lighting design. It will require some practice and trial and error on each project to get the system designed the way you want it.

Keep these things in mind:

- Each module ideally should use all channels and be close to the maximum wattage allowed. This must be traded off, however, against certain realities; for example, arc-fault breakers, numerous small loads, and very large loads.
- Whenever possible, put the loads in the same room on the same module. This allows each module override scene to control loads that would be grouped together logically.
- When using multiple panel/module installation locations, connect loads to modules in a nearby location to minimize long wiring runs.

Connect and verify devices

In Composer Pro Connections, you can:

- Identify Control4 devices to establish a network connection
- Check all network connections
- Define AV connections
- Define control connections

When only one (1) connection is available in a room for a given connection type, Composer Pro assumes that connection.

Tip: *To remove any inappropriate connection, right-click the connection, and select* **Disconnect**.

Example: *If a TV is the only Audio Output device in a room, the system assumes that the Audio Output connection is routed to the TV. This feature adds value to Composer Pro, but increases the need to verify every connection.*

To connect devices:

1 Start Composer Pro and connect to a Director.
2 Click **Connections**.
3 Identify the devices to add their network addresses to the project.
   a In Connections, click the **Network** tab > **IP Network** (default).

      Notice the devices that do not have an address listed in the Address column of the IP Network Connections pane. These devices need to be identified and connected.

Tip: Devices that appear with a highlighted SDDP in the Available Devices pane can be added and identified using Auto Discovery. See "Auto Discovery" in Composer Pro Getting Started *for details.*
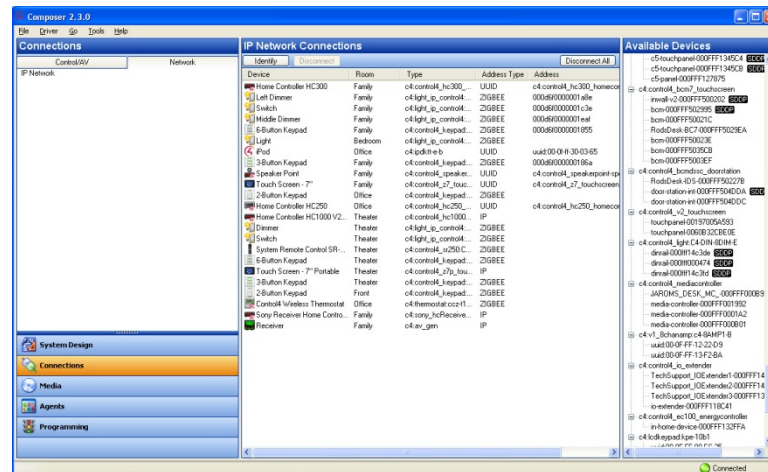
b Select an unidentified device in the address list, then right-click and select **Identify** (or click the **Identify** button in the list header). A device-specific instruction screen with a graphic of the device displays (for example, Home Controller HC-1000).
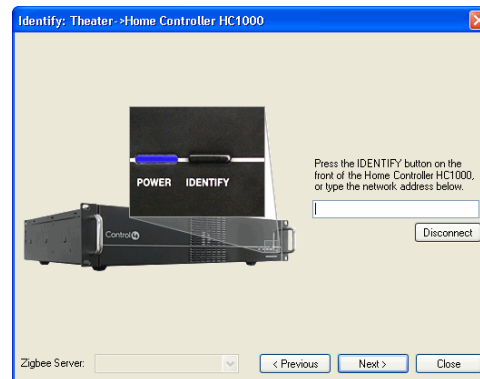
c At the physical device, press the **Identification** button or dial, as indicated on the screen. The button to be pushed on the device flashes on the screen.

d When the device's network address displays in the box, click **Next** to continue, or click **Close** if you've identified the IP network device. Follow these steps for each device.

When you are finished, notice that the Address column is populated with an address for the network device.
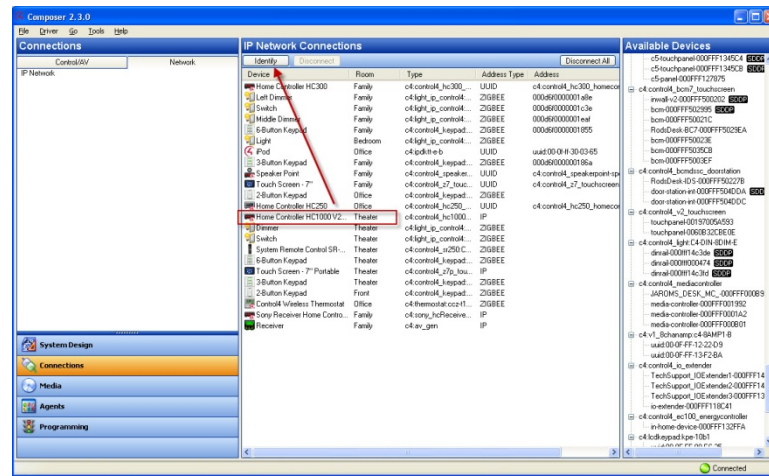
Define the control and AV connections

4   For each device, define the following when applicable:

- Video connections (path of video signals)
- Audio connections (path of audio signals)
- Control connections (how the controller communicates with the device)

To define the connections:

a   In Connections, click the **Control/AV** tab.

b   Select a **device** in the Control/AV tab. The Control & Audio Video Connections for the selected device display in the top pane.

c   Select one of the device's connections in the top pane. The available connections for the selected connection display in the bottom pane.

d   To make a connection, **drag** a device's input (or output) in the top pane to the output (or input) in the bottom pane.
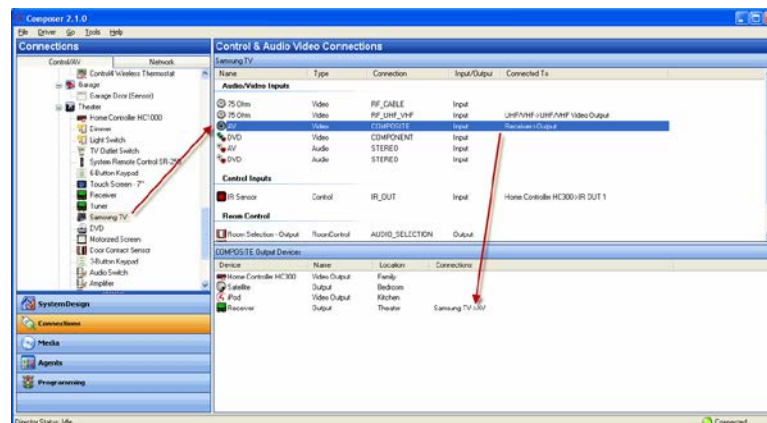
Example 1: *Make Receiver Connections*

In the top pane under Audio Video Inputs:

5   Click **INPUT DVD (Video-COMPOSITE)**, and drag it to **DVD (Output—Theater)** in the
        bottom pane.
6   Click **INPUT VIDEO 1 (Video-COMPOSITE)**, and drag it to **Home Controller HC-1000
        (Video Out 1-Theater)** in the bottom pane. This connects the Receiver Video 1 input to the
        controller Video 1 output.
7   Click **INPUT DVD (Audio-STEREO)**, and drag it to **DVD (Output-Theater)** in the bottom
        pane.
8   Click **INPUT VIDEO 1 (Audio-STEREO)**, and drag to **Controller (Stereo 1-Theater)** in the
        bottom pane.
9   In the top pane under the Control Inputs pane (scroll down), click **IR Sensor (Control-
        IR_OUT)**, and drag it to **Controller (IR Output 2-Theater)** in the bottom pane.
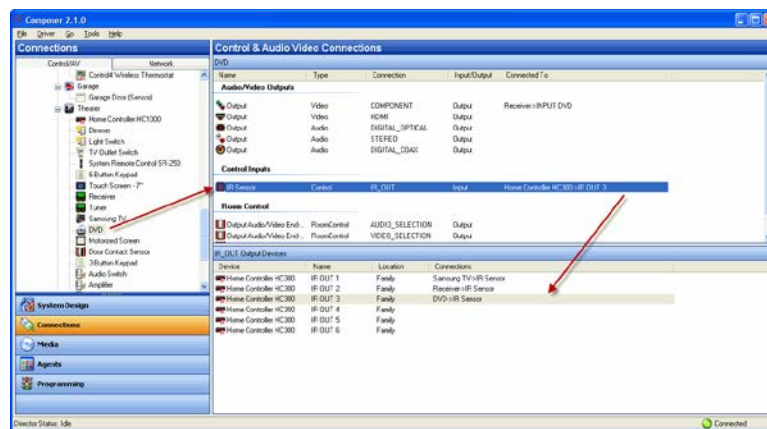
Example 2: *Make Television Connections*

In the top pane under the Audio Video Inputs pane:

10   Click **AV (Video-COMPOSITE)**, and drag it to **Receiver (Output-Theater)** in the bottom
        pane.
11   Click **AV (Audio-STEREO)**, and drag it to **Receiver (Output -Theater)** in the bottom pane.
12   Under Control Inputs, click **IR Sensor (Control-IR_OUT)**, and drag to **Controller (IR
        Output 1-Theater)** in the bottom pane.
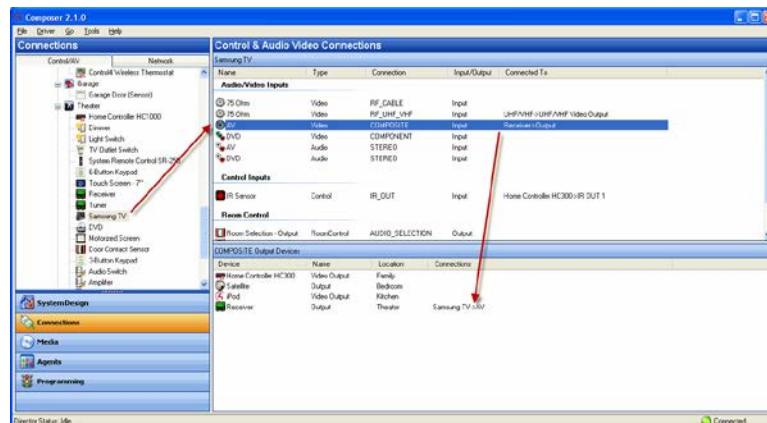
Example 3: *Make module and load connections for Panelized Lighting*

In the Control/AV tab:

13 Select the room where the module is located, **Mechanical Room**, and then select the module, for example, **8-Channel Dimmer 1**.

14 In Control & Audio Video Connections, locate the first entry **Channel 1** under Circuit 1.

15 Click **Channel 1** and drag it to **Overhead Lights** in the bottom pane.

16 Click **Channel 2** and drag it to **Fan Light** in the bottom pane.

17 Click **Channel 3** and drag it to **Alcove Lights** in the bottom pane.

18 Note 'Connected To' in the top pane and 'Connections' in the bottom pane. You should see that the module and load are now connected.
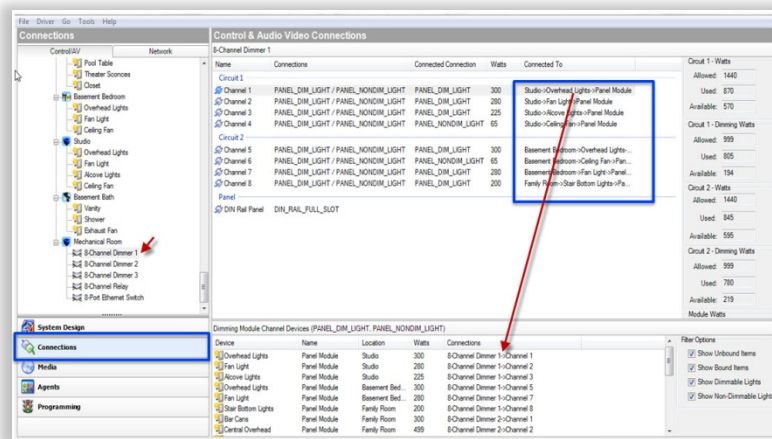
19 Filter the loads by Unbound, Bound, Dimmable lights, and Non-Dimmable lights:
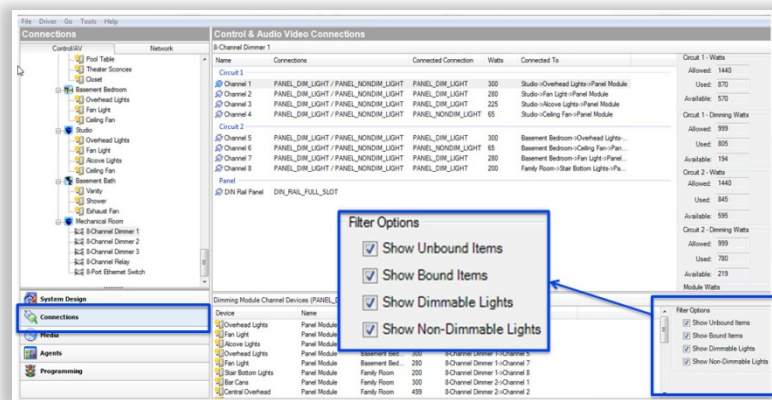
20 The following example shows bound, non-dimmable lights. This is an easy way to make sure all of your connections are correct.
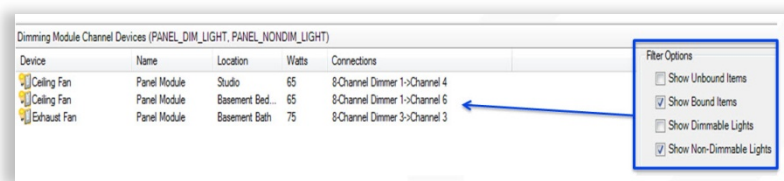
21 View the wattage: max, used, and available wattage for each circuit as you make the connections.
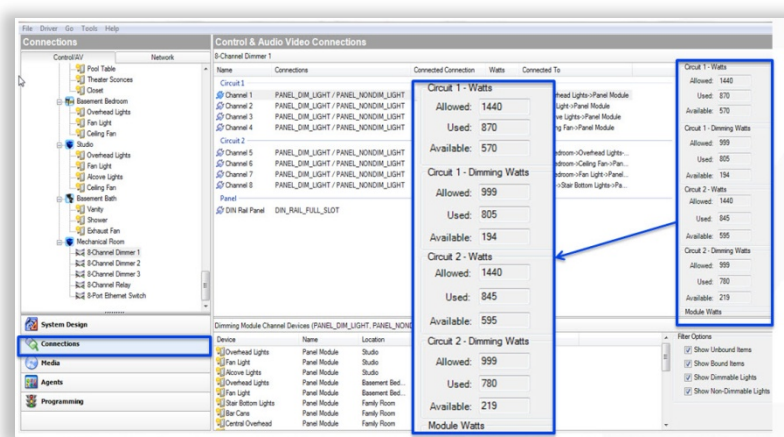
Watt types:

- **Circuit watts**—The total number of watts allowed on each circuit.
- **Dimming watts**—The dimming number of watts allowed when using Arc-Fault breakers.
- **Module watts**—The total number of watts allowed for the module.

22 If you get an overloaded circuit error message, connect the load to a different module.
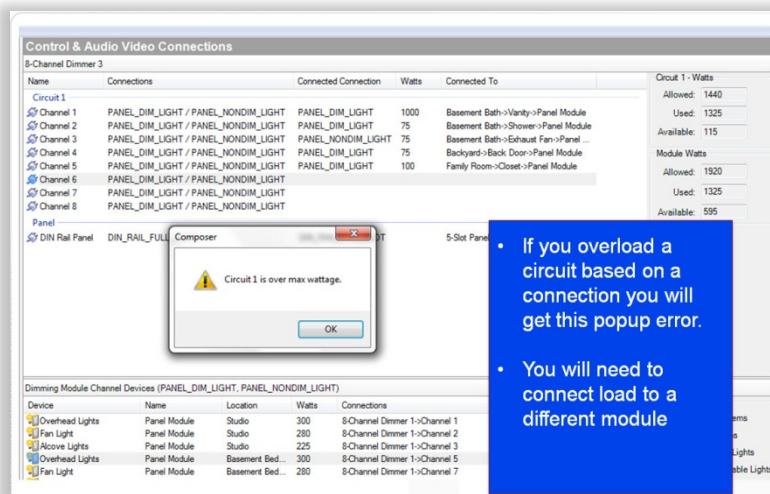
23 Connect the modules to the panels.

- It's easier to connect from the panel to the module.
- Ethernet switches are installed in Slot 5 (bottom slot).
- If 8-channel dimmers are mixed with other module types, the dimmers should be installed toward the top of the panel for the best heat ventilation.
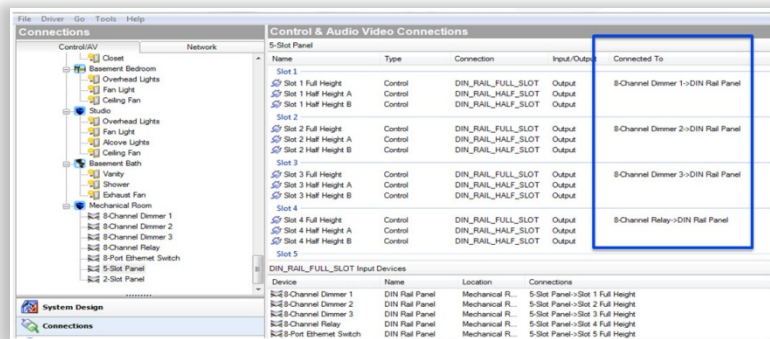
Connecting rooms

Use the Control4 Composer Pro Room Connections to set configuration connection options to customize and optimize audio and AV paths to control devices in a room.

Get room connections

To get to room connections:

1 Start Composer Pro and connect to a Director.

2 Click **Connections**.

3 Select the **room** in the project tree.

4 Click the **Control/AV** tab. The Control & Audio Video Connections pane displays.

If you run Interviewer or set up your system using System Design, room connections use the default settings according to the devices you add.

Example: *For a basic system with a television, DVD player, VCR, and satellite, Composer Pro by default makes the television the video end point which is the end of the AV path for viewing video. The video audio end point is the end of the AV path for listening and managing volume for sound when viewing a DVD, VCR or satellite.*
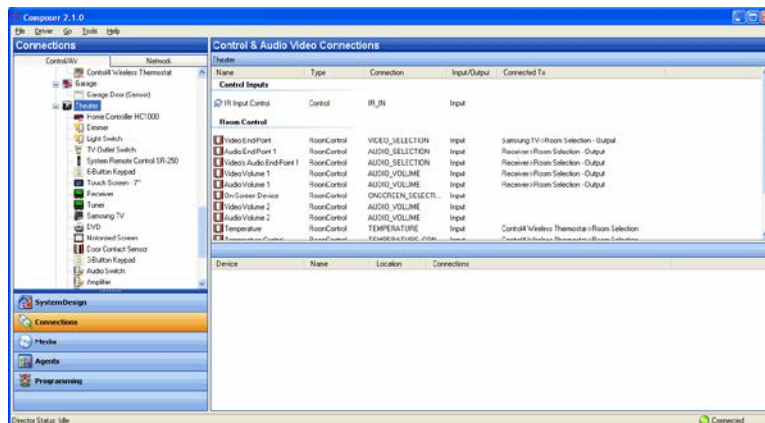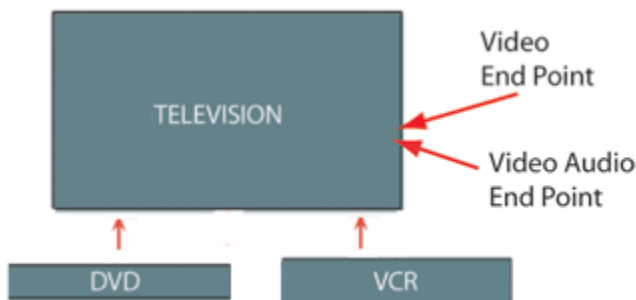
Example: *Video End-Point—The Plasma Television displays video for DVD, VCR, and satellite.*

Note: *For the Control4 system to work properly, verify that the default settings match your physical environment. Define each room connection according to your Control4 system. If the default settings do not match your system setup exactly, change the settings to match the physical environment, and define each room connection according to that system setup.*

An End Point defines the software path that an audio or video signal must follow to reach the desired destination.

Example: *When a device is selected as a Video End Point, start at the device and work backward to figure out the source-selection and input-switching that must take place to display video.*

Note: *Speakers are not included in the Control4 project configuration.*

A room provides two (2) priority levels for end points of audio (Audio End Point 1 and 2) and two (2) for audio playing for video (Video Audio End Point 1 and 2). The system automatically connects the first end point in the room to End Point 1 as the first priority. If that device is part of AV path selected, it manages the volume in the room automatically.

Room connection types

The general types of room connections are:

- **Video End Point**—On the Control4 system, this is the end of the path in the selected room that defines video. The default is the Television.
- **Audio End Point 1 and 2**—On the Control4 system, this is the end of the path in the selected room that defines audio. The default is the first applicable devices added to the system, for example, a Speaker Point or touch screen. However, when a television is added, it overrides the initial setting. When a receiver is added, it overrides the television.
- **Video Audio End Point**—On the Control4 system, this is the end of the path in the selected room that defines audio when watching video on the Control4 system. The default is the first applicable device added to the system. However, when a television is added, it overrides the first device. When a receiver is added, it overrides the television.
- **Video Volume 1 and 2**—Options that let you set the volume management to a device that is not an audio end point or a video audio end point.

  Example: If you added an AV switch to your system, the television is probably the video audio end point, but you want to use the AV switch for volume control to utilize added features of the switch.

- **Audio Volume 1 and 2**—Options that let you set the volume management to a device that is not an audio end point or an audio video end point.

  Example: If you added an audio switch to your system, another device is probably the audio end point, but you should use the audio switch for volume control.

- **On-Screen Device**—Defines the device (television) that displays the on-screen Navigator.
- **Temperature and Temperature Control**—Defines the device that manages the temperature in the room, such as a thermostat.
- **Security System**—Defines the device that manages the security system in the room, such as a security system.

Examples of system configurations

The following examples show possible system configurations: **Video Audio End-Point 1 and 2**—The Plasma Television is Video Audio End-Point 1 and the receiver is Video.

Example 1: Audio End Point 2—The Plasma Television manages the volume when the homeowner watches cable, and the receiver manages the volume when the homeowner watches the DVD or VCR.
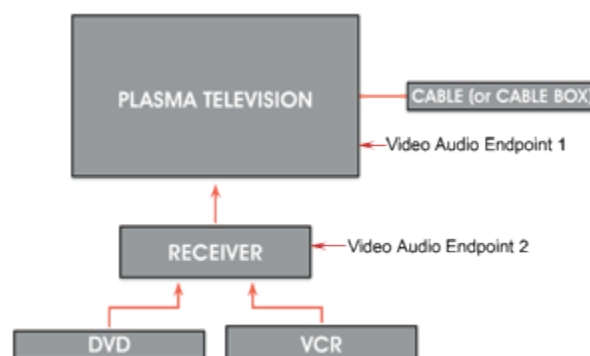
Example 2: Video Audio End-Point 1—*The receiver is Video Audio End Point 1 and manages the volume in the room when the homeowner watches video using the DVD, VCR, or cable.*
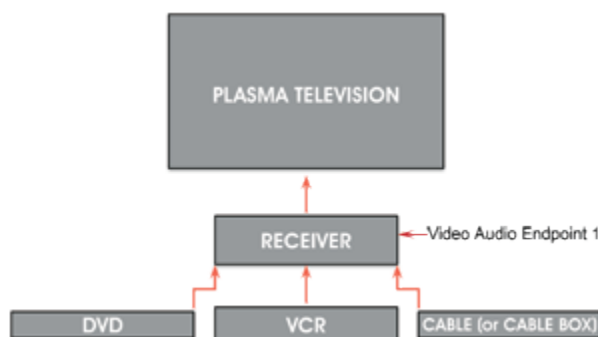
Example 3: Video End-Point—*The Plasma Television switches video for DVD, VCR, and satellite.*
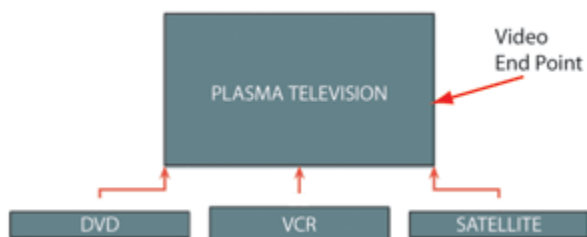
Example 4: Video Audio End-Point (combined)—*The receiver switches both audio and video for DVD, VCR, and satellite.*
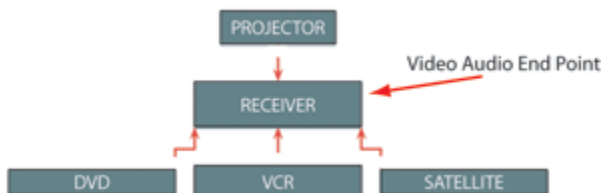
Example 5: Audio End-Point—*The receiver switches audio for DVD, VCR, and satellite.*

Tip: Understand the physical room connections on your system. The system uses default settings. It cannot auto-detect how your system is set up.

Verify default room connections

To verify default room connections including prioritized AV audio end point providers:

1   Set up a project either using Interviewer or Composer Pro views. See *Composer Pro Getting Started* for details.

While you set up the project, room connections are set for you according to the default settings. The defaults are set by rules in the system, and they might not match your physical environment. Manually ensure that the settings match your desired outcome.

2   Verify that the initial room connections are set up correctly for each room.

   a   From Connections, click the **Control/AV** tab (default).

   b   Click the room in the project tree.

   c   Verify each **connection** by ensuring that it mirrors your exact hardware setup.

   d   To change a connection, select a **device** in the project tree, and then select the **device** to change in the Control & Audio Video Connections pane.

   e   In the Room Control list, select an item in the upper list, and then drag it to an **item** in the lower list to connect the two (2) items. When successful, both lists update to reflect the connection.

   *Example: To show how to change a connection from the top center pane, click **Video Audio End Point (RoomControl-AUDIO_SELECTION)**, and drag it to the bottom pane to connect it to **Television (Room Selection - Output-Theater)**.*

   Example Project: Using the sample project, ensure that the following room connections exist as outlined in the table.

Room	End Point or Volume	Device (End Point or Volume Management)
Theater	Video End Point 1	Television (default setting)
	Audio End Point 2	Receiver (default setting)
	Video Audio End Point 1	Receiver (default setting)
	Video Volume	Not set
	Audio Volume	Not set
Bedroom	Audio End Point Mini	Touch screen
	Audio Volume	Touch screen
Front	There are no video or audio End Points or any devices that can manage volume in the Front room, so you don't need to identify the video or audio source or volume control device in that room, or modify the room for room connections.	

3   Create a connection to define the other devices in the room where you want volume.

   a   Select a room in the project tree.

   b   In the Room Control list, select an item in the Control & Audio Video Connections, and then drag it to an item in the lower list to connect the two (2) items. When successful, both lists are updated to reflect the connection.

   *Example: From the top center pane, click **Video Volume 2 (RoomControl-AUDIO_VOLUME)**, and drag to the bottom center pane to connect it to Television (Room **Selection - Output-Theater)**.*

Connecting devices to the network

After you complete your planning and design of a Control4 system (adding the buildings, rooms, devices, etc., see the *Composer Pro Getting Started* guide for details), you are ready to make the necessary connections in the system.

Connecting a device to the network

The Control4 Composer Pro Network tab lists all devices in the systems with a network connection and lists network addresses.

Verify the network address for any device that communicates to the controller using TCP/IP, WiFi, ZigBee, ZigBee Pro or any other device that uses a network address.

To connect network devices:

1   Start Composer Pro and connect to a Director.
2   Click **Connections** > **Network** tab.
3   Select the device, and then click **Identify** for the wizard to open.
4   Follow the on-screen instructions to identify each device as indicated. After identifying the network connection, the device's address appears.
5   Use the **Network** tab to identify devices to the Control4 system that use a network address.

     There are two (2) places to verify network connections: the Network tab and the Tools menu.

Configuring a WiFi connection

Use the Control4 Composer Pro System Manager tool to connect to WiFi.

Some devices can be connected directly to Ethernet, and then can be configured on a Navigator. See your device's installation instructions for details about how to configure wireless on a Navigator page (**More** > **Settings** > **Network**).

Prerequisites

To establish a WiFi network connection to a Home Controller HC-300 or other wireless device in the Control4 system, first establish an Ethernet connection, and then configure a USB WiFi Adapter for Home Controllers (sold separately).

To connect to WiFi, complete the following steps:

1   Establish an initial temporary Ethernet connection from the device to the Ethernet network using a Category 5 (CAT5) cable.
2   Plug the USB WiFi Adapter into the USB port on the controller (if configuring WiFi on a controller).
3   Start Composer Pro and connect to a Local Director.
4   From the Tools menu, select **System Manager**.
5   From the Devices pane, select the network address for the device you want to set up, and click **Connect**.

     •   If the device's network address is not on this list, click **Refresh**.
     •   If it still does not appear, click **Add** to enter it manually.
     •   If you do not know the network address, you can find it at the **Connections** > **Network** tab.

6   Click the **Network** tab, and then click **Configure**.

7   Click **Next** when the Network Configuration Wizard dialog appears. Continue through the wizard screens and provide the following information appropriate for your system. Much of this information has to match that of your Wireless Access Point (WAP).

8   Enter the new **device name**. Do not include spaces in the new name.

9   Indicate the network type: **Wireless (WiFi) network**.

10 Indicate the method for obtaining DNS server address: **DHCP** or **Static IP**. Control4 recommends DHCP (automatically selected).

11 Enter the **SSID** number.

12 Enter the **WEP** key (if any).

13 Enter the encryption type (**64** or **128**).

14 Click on a key type (**hex** or **ascii**).

15 Click **Finish** to complete the wizard; reboot the adapter to apply the network configuration changes.

16 Disconnect the Ethernet cable from the controller.

Verifying the network connections

Use the Composer Pro Network tab or Network Tools to verify the Control4 system network connections.

Prerequisites

Ensure that the devices to be connected have been added to the project.

Network Tab

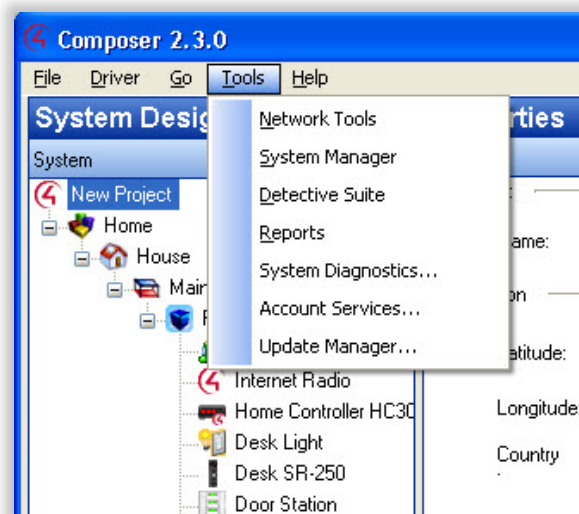**To ensure that all network connections are identified on the Network tab:**

1   Click **Connections** > **Network** tab > **IP Network**.

2   In the Address column, check whether there is an address for every line item.

Network Tools Option

To ensure that all Network connections are connected and active at the Network Tools:

1   From the Tools menu, select **Network Tools**.

2 Check both the IP Network and Zigbee Network tabs for Green, Yellow, and Red connection icons.

The colors indicate the following:

- **Green**—An address is identified and the *device* is online. For example, the dimmer is identified and communicating to the system.
- **Yellow**—An address is identified and the device is offline. For example, if the System Remote Control goes to sleep, the status turns yellow. This indicates that the System Remote Control has been identified, but is offline. Make this device active so it can communicate to the system.
- **Red**—A device is not identified. Go to the **Connections** view > **Network** tab and identify the device to the system.

Tip: Be patient. In cases where the ZigBee mesh is moved, it can take up to five minutes for all connections to get re-established.

3 If you find yellow or red icons, do the following:

- **Yellow icons**—Go to the device and activate it according to its documentation.
- **Red icons**—Go to the **Connections** view > **Network** tab and identify the device to the system.
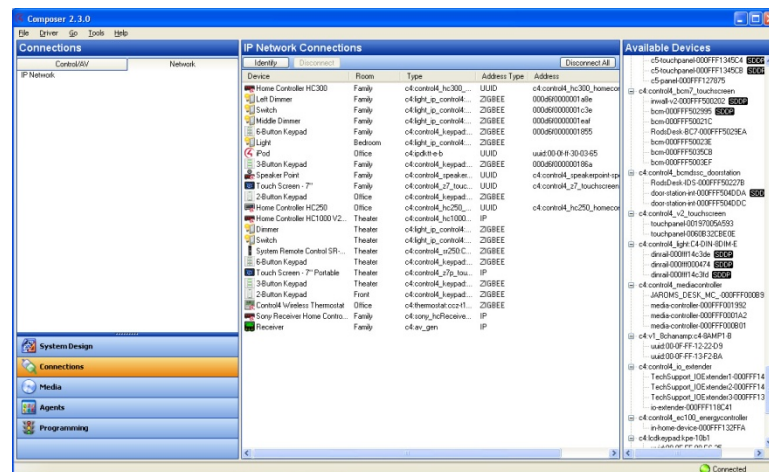
*Example: At this point in your project, the System Remote Control should be yellow (or the only device not green). The System Remote Control turns green as soon as you wake it. To wake the System Remote Control press the red Control4 **4** button.*
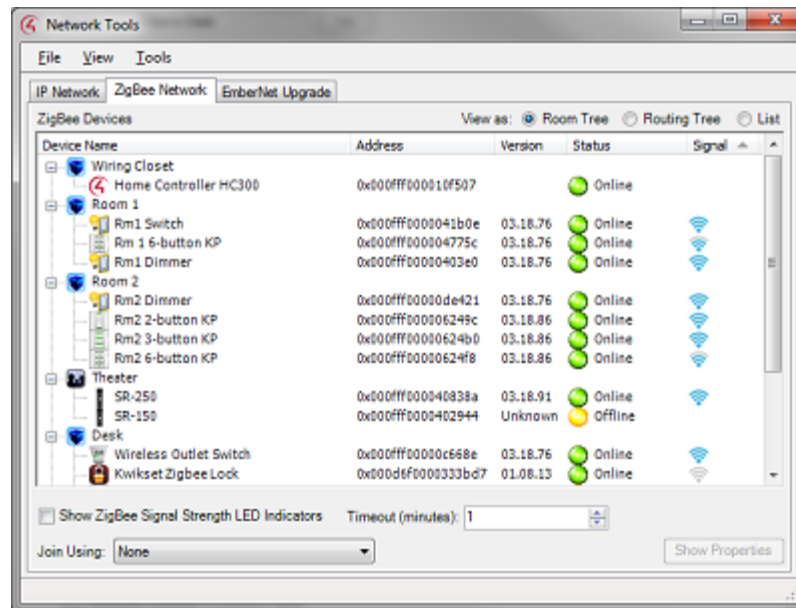
Tip: You can also review a device's ZigBee signal strength by checking the strength meter icons in the Signal column. The strength meters show the strength of the signal as detected by the next nearest ZigBee device.

Connecting and managing control and AV devices

Control/AV connections are visible when you select the Control/AV tab in the Control4 Composer Pro Connections view. The Control/AV tab lets you define the physical connections between the controller or other devices, including AV signals, IRs, relays, contacts, and/or serial connections.
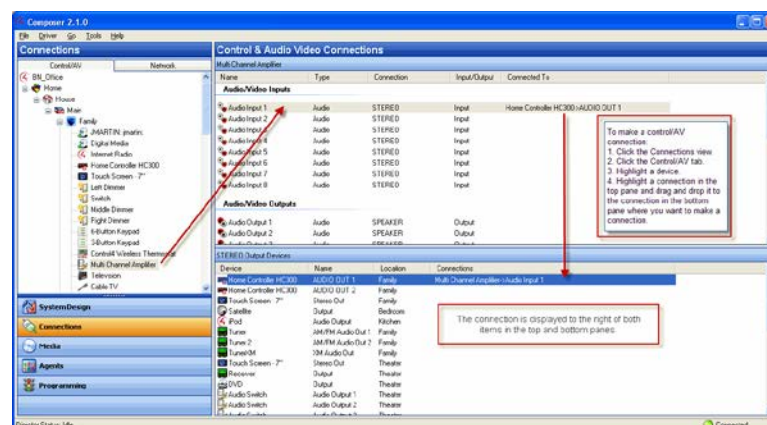
Tip: If connections do not appear as needed, edit the driver to create the needed connections as described in "Editing a Driver Using the Driver Wizard."

Verifying control and AV connections

Use the Control4 Composer Pro Control & Audio Video Connections pane to verify connections, and use the System Design view to verify room connections.

To verify all Control and AV connections by checking the connection list:

1   Click **Connections**, and select the project from the project tree. The Control & Audio Video Connections pane displays.

2   Carefully go through all your Control and AV connections by verifying each connection in the pane.

To verify all Control and AV connections by checking room properties:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   Select a **room** in the project tree.

4   Click the **List View** tab. On the List View tab check whether your AV devices are accessible in the room. If an AV device is in a room and in your project; but if it is not in the view, see "Connecting and Verifying Devices."

Disconnecting or removing control/AV connections

Use the Control4 system Composer Pro Connections view to remove and disconnect a connection.

To disconnect or remove a Control/AV connection:

1   Start Composer Pro and connect to a Director.

2   Click **Connections**.

3   Click the **Control/AV** tab.

4   In the Control/AV project tree, select a device for the device's control and AV connections to appear.

5   In the Control and AV Connections pane, right-click an input (or output) connection and select **Disconnect**.
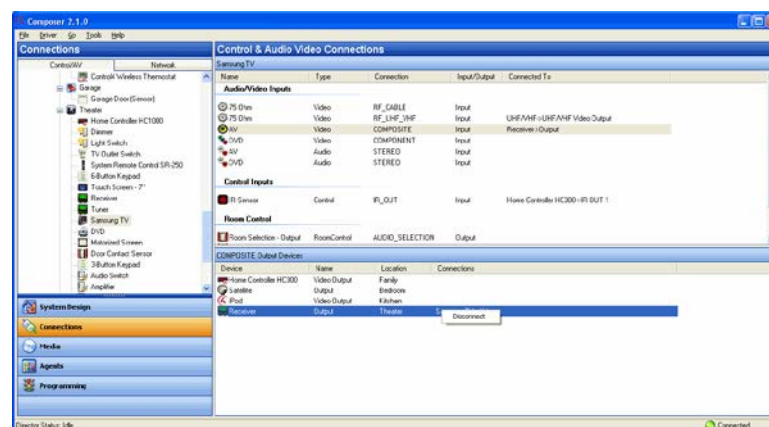
Reassigning control/AV connections

Use the Control4 Composer Pro Connections view to reassign connections.

To re-assign Control/AV connections:

1   Start Composer Pro and connect to a Director.

2   Click **Connections** > **Control/AV** tab.

3   In the project tree, select a device. The device's control and AV connections appear.

4   In the Control and AV Connections pane, **drag** an input from the top pane to a different output on the bottom pane. The connection is moved to the specified output.
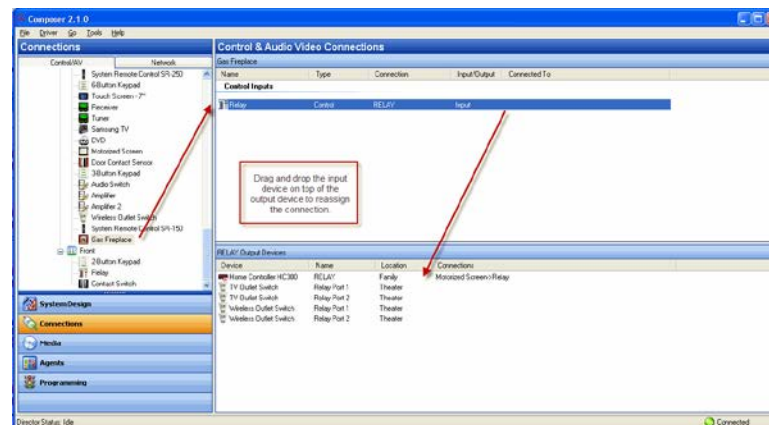
Updating connections when a location changes

If you use the same project but you change locations, update all of the Control4 system connection information in Composer Pro.

To update the connection information in an existing project:

1   Start Composer Pro and connect to a Director.

2   Click **Connections**.

3   Click the **Control/AV** tab, and review your connections to ensure they are updated in the current control and AV topology.

4   Click the **Network** tab. Disconnect all connections by right-clicking and selecting **Disconnect**.

5 Re-assign each connection.
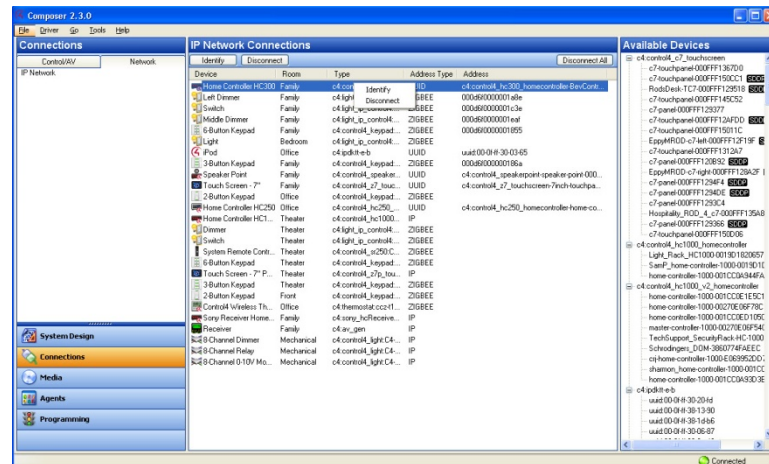
Testing device connections

Use the Control4 Composer Pro Connections view to test that connected devices work.

After you've added and identified the device, in Connections check the **Network** tab to see if an IP address appears in the IP Network Connections pane. If it doesn't, the device has not been connected properly. Try to connect the device again.

Testing device controls

After you add an item to the Control4 Composer Pro project tree and the device is physically connected, test that you can control the device.

To ensure the devices are controllable:

1 Click **System Design**.

2 In the project tree, double-click the icon of each device for its Device Control window to appear.

Example: Television

3   Click the available controls in the graphical representation to:

- Ensure that the commands work
- Set the parameters temporarily (for example, configuring the LED lights on dimmers)

Notes:

- *If you double-click a device and a Device Control window does not appear, it indicates that one is not available for that device or item.*
- *These user interfaces are not specific for each device and model. Understand the capabilities of a device before testing it.*

Discrete power control

Example: The Samsung TX-P1430 Television does not have discrete power control.

Discrete Power Control means that a device can turn on with the On button and turn off with the Off button. Some devices, like the Samsung television, only offer Toggle Power Control which means you can toggle between On and Off using one button. The control system has to assume that toggle devices are always On, because with a power toggle, the power state cannot be determined with these models. For the Samsung model, the Television Device Control shows discrete power buttons. These buttons do not apply to devices that do not have discrete power.

Device Control Examples

*Note: The Device Control windows in Composer Pro are provided for testing purposes only. When you make changes on the Device Control windows for each device, it only changes the device settings temporarily. Use the **Properties** pane or programming to change the device settings permanently.*

The following examples show Device Control windows for various devices:

3 Button Keypad
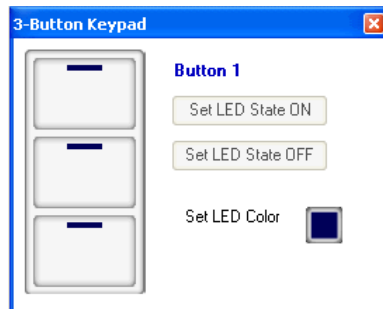
6 Button Keypad
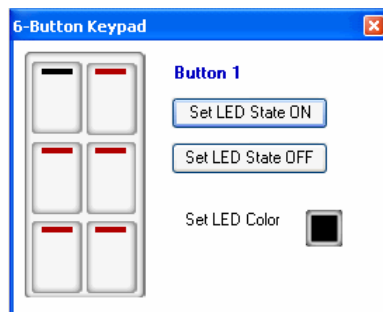
Controller
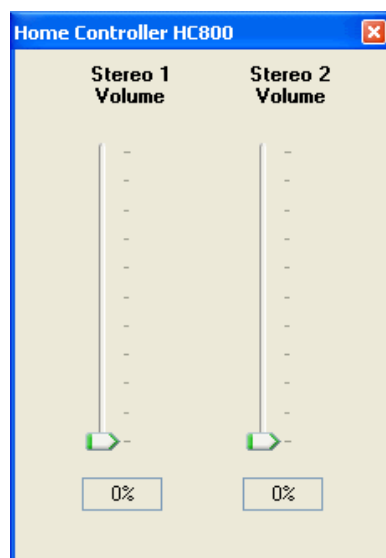
Dimmer

DVD Player

Electronic Gate

Gas Fireplace
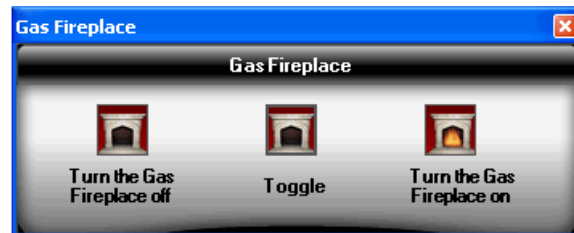
Motorized Screen
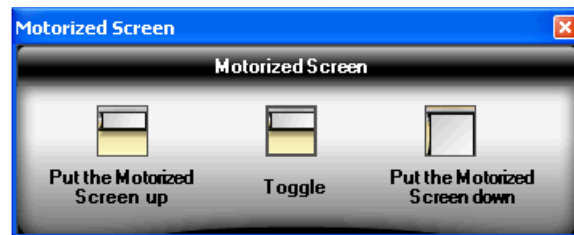
Receiver

Sprinkler System
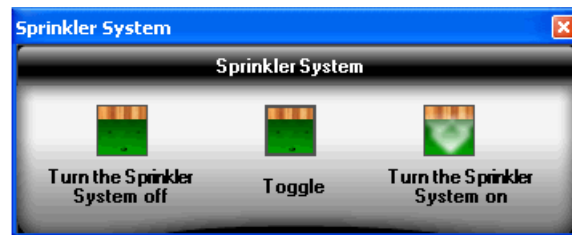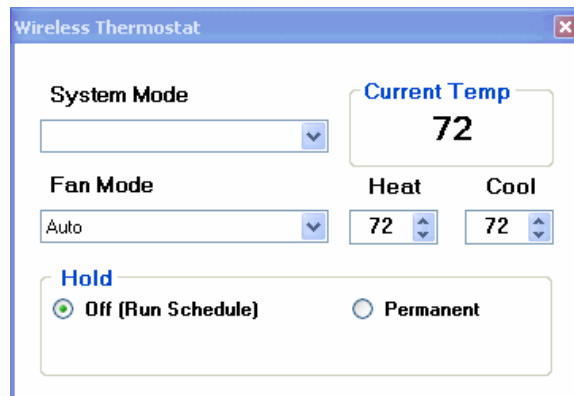
System Remote Control, SR-250
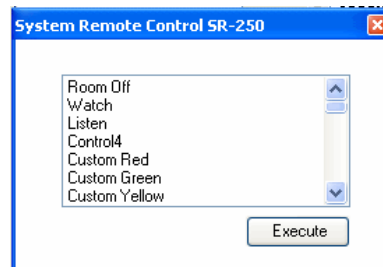
Television

Wireless Thermostat

Wireless Outlet Switch

7" Portable Touch Screen

Examples

Use this chapter to see examples of how to:

- Set up a project using the interviewer method
- Set up a project using the Composer Views method
- Set up an Intercom agent
- Manage apps with the 4Store agent
- Use the Access agent
- Use the Advanced Lighting agent
- Use the Rhapsody agent
- Use the SNMP Configuration agent

Example home project: Interviewer method

The following sample project sections step you through the creation of a Control4® project using Interviewer wizard in Composer Pro. Alternatively, you can create a new project using the Composer Pro views in Composer Pro. See *Composer Pro Getting Started* for details.

To use the Interviewer wizard:

1 Start Composer and connect to a Director.
2 Click **System Design**.
3 From the **File** menu, select **Run Interview**.

Example: System specifications

Use either the Control4 Composer Pro views or the Interviewer wizard to create a project.

First start by reviewing these system specifications to understand what is in three (3) rooms of the home and which Control4 device*s* are used in each room. The example scenario sets up home control for a Theater, a Bedroom, and the Front of the home. Follow the sections in order.

Devices by room
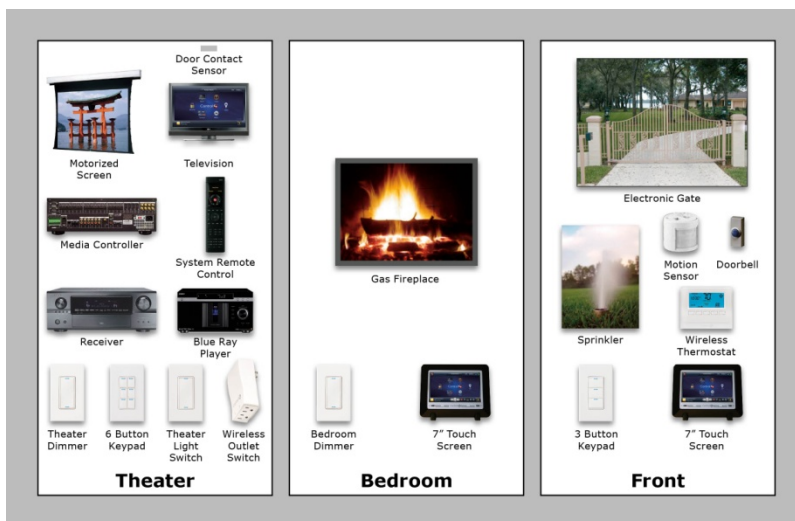
This project includes the following rooms and Control4 devices in those rooms:

- Theater
    - Controller
    - Theater dimmer
    - Theater light switch
    - Wireless outlet switch
    - System remote control
    - 6-Button Keypad
    - Receiver
    - Television
    - DVD player or Sony CX 777ES disc changer
    - Motorized Screen
    - Door contact sensor
- Bedroom
    - Touch screen
    - Bedroom dimmer
    - Gas fireplace
    - Gas fireplace relay
- Front
    - 3-Button Keypad or 6-Button Keypad
    - Thermostat
    - Electronic gate
    - Sprinklers, doorbell
    - Motion sensor

Hardware connections

The following tables detail the connections that need to be made for the devices to be automated. Refer to these tables as you move through the project creation process.

Table 1. Output to Input

Connect From Output Device:	Connect To Input Device:
Controller	
Video Out 1 (Video—COMPOSITE)	Receiver (INPUT VIDEO 1—Theater)
Stereo 1(Audio—STEREO)	Receiver (INPUT VIDEO 1—Theater)
Contact Sensor 1 (Control—CONTACT_SENSOR)	Motion Sensor (Contact Sensor—Front)
Contact Sensor 2 (Control—CONTACT_SENSOR)	Doorbell (Contact Sensor—Front)
Contact Sensor 3 (Control—CONTACT_SENSOR)	Door Contact Sensor (Contact Sensor—Theater)
IR Output 1 (Control—IR_OUT)	Television (IR Sensor—Theater)
IR Output 2 (Control—IR_OUT)	Receiver (IR Sensor—Theater)
IR Output 3 (Control—IR_OUT)	DVD (IR Sensor—Theater)
Relay Port 1 (Control—RELAY)	Gas Fireplace (Relay—Bedroom)
Relay Port 2 (Control—RELAY)	Sprinklers (Relay—Front)
Relay Port 3 (Control—RELAY)	Motorized Screen (Relay—Theater)
Relay Port 4 (Control—RELAY)	Electronic Gate (Relay—Front)
Receiver - Tuner — Harman Kardon AVR 230	
Output (Video—COMPOSITE)	Television (*AV* In — Theater)
Output (Audio—STEREO)	Television (AV in —Theater)
DVD Player — Samsung HD841	
Video Out (Video—COMPOSITE)	Receiver (INPUT DVD—Theater)
Mixed Audio Out (Audio—STEREO)	Receiver (INPUT DVD—Theater)

Table 2. Input to Output

Connect from Input Device:	Connect to Output Device:
Receiver — Harman Kardon AVR 230	
INPUT VIDEO 1(Video—COMPOSITE)	Controller (Video Out 1— Theater)
INPUT DVD (Video—COMPOSITE)	DVD (Output—Theater)
INPUT VIDEO 1(Audio—STEREO)	Controller (Stereo 1—Theater)
INPUT DVD (Audio—STEREO)	DVD (Output—Theater)
IR Sensor (Control—IR_OUT)	Controller (IR Output 2—Theater)
Television — Samsung TX-P1430	
Input Side (Video—COMPOSITE)	Receiver (Output—Theater)
Input Side (Audio—STEREO)	Receiver (Output—Theater)
IR Sensor (Control—IR_OUT)	Controller (IR Output 1—Theater)
Contact Sensor (Control—Contact_Sensor)	Television

DVD Player — Samsung HD841	
IR Sensor (Control—IR_OUT)	Controller (IR Output 3—Theater)
Motorized Screen	
Relay (Control—RELAY)	Controller (Relay Port 3—Theater)
Door Contact Sensor	
Contact Sensor (Control—CONTACT_SENSOR)	Controller (Contact Sensor 3—Theater)
Gas Fireplace	
Relay (Control—RELAY)	Controller (Relay Port 1—Theater)
Electronic Gate	
Relay (Control—RELAY)	Controller (Relay Port 4—Theater)
Sprinklers	
Relay (Control—RELAY)	Controller (Relay Port 2—Theater)
Doorbell	
Contact Sensor (Control—CONTACT_SENSOR)	Controller (Contact Sensor 2—Theater)
Motion Sensor	
Contact Sensor (Control—CONTACT_SENSOR)	Controller (Contact Sensor 1—Theater)

Refer to "Example: Design and create the project" to go to the next example steps.

Example: Define devices in each room

This section discusses using Control4 Interviewer wizard in *Composer* Pro to define devices in each room.

Note: This procedure follows "Example: Design and create the project." If you have not read that section, go there first before you review this section.

You are now in the Rooms section of Interviewer. In this section, Interviewer asks you a series of questions about each room to find out what devices you want to control there, and it asks questions about the selected room before moving to the next room.

To define devices in the Theater:

1 Check the boxes to indicate the types of devices in this room.

Example: For the Theater room: De-select Multi-Room Audio. Check Controllers, User Interface, AV *Components, Lighting, Motorization, and Sensors.*

2   Click **next**.
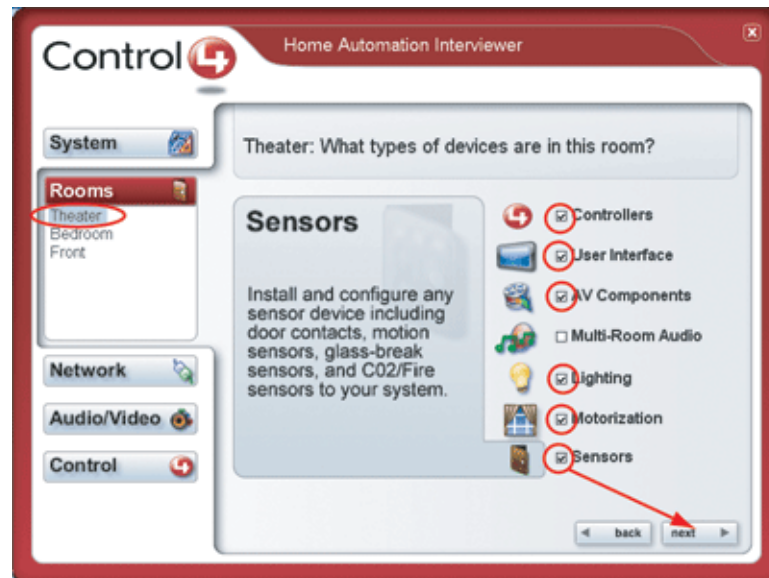
3   Add the controllers that reside in the room.

The Digital Audio and Controller objects appear in the 'Devices in the Room' pane. The Digital Audio object represents the audio that exists on the Control4 controller. Only one (1) Digital object added per project, so if you tried to add another controller, a second Digital Audio object would not be added to the project tree.

*Note: When you click **next** and return to this screen, the object no longer appears on the screen. However, if you look in Composer Pro project tree, it still appears.*

*Example: Add the **Controller** to the **Theater**. The Digital Audio and Controller objects appear.*

4   Click **next**.

5   Add the objects for the devices to this room. Double-click a *device* (or select it and click **Add**) to move the devices from the 'Available Devices' list to the 'Devices in Room' list.

*Example: Double-click **6-Button Keypad** and* system remote *control to add them to the Theater room (If you do not have a 6-Button Keypad, add a 3-Button Keypad).*

*Note: If you have access to a **Wireless Touch Screen**, add it to your project now.*

6   Click **next**.

7   Add all **AV** component devices in this room. For example, if a *DVD* player, a receiver, and a television are in this room, add them as described in the following sub-steps.

*Tip: To add AV components, double-click the **device**; from the dialog that appears, select a manufacturer (from the drop-down list), and double-click the model.*

    a   Add **DVD** to the 'Devices in Room' list from the online database.

        *Example: Add the **DVD Player**, select **Online Database**, select the manufacturer **Samsung**, and then double-click the model **DVD-HD841 [IR]** model from the Online Database. If you can access the Sony CX 777ES Disc Changer, add this instead. Instructions about how to scan this bi-directional Disc Changer is described later in this section.*

Double-click to add a DVD to the project. On the dialog that appears, click the **Online Database** radio button, then use the scroll-down menu in Manufacturer to select Samsung.

Double-click to add the model to the Devices in the Room list.

b   Add the **Receiver** to the Devices in Room list using the Online Database.

*Example: Add the **Receiver**, select the **Online Database**, select the manufacturer **Harmon Kardon**, and then double-click the model **AVR 230[IR]** from the list.*

c   Add the **Television** to the 'Devices in Room' list using the online database.

*Example: Double-click **Television**, select **Online Database**, select the manufacturer **Samsung**, and then double-click the model **TX-P1430**. This adds the device driver for cable TV and UHF/VHF.*

d   Click **next**.

8   Add the **Dimmers**, **Switches**, and **Outlet Switches** to the Devices in Room list, and give each a descriptive name (edit immediately after adding while still in edit mode, or right-click later).

Example: Use the previous examples to

a   Add a **Wireless Dimmer**, and rename it **Dimmer**.

b   Add a **Wireless Switch**, and rename it **Light Switch**.

c   Add a **Wireless Outlet Switch**, and rename it **Television Outlet Switch**.

9   Click **next**.

10 Add the **Sensors** and **Contacts** to the Devices in Room list, and give each a descriptive name.

*Example: Add a **Door Contact Sensor** for the door to the Theater.*

11 Click **next**.

12 Add the **Motorized Device**s to the Devices in Room list.

*Example: Add a **Motorized Screen** to the Theater.*

13 You have just completed the setup for the Theater. Click **next** to move to the Bedroom.

To define devices in the Bedroom:

1   Notice that the selected room on the left is now **Bedroom**. For the selected room, check the appropriate boxes to indicate the devices used in this room.

Example: For the Bedroom: De-select AV Components and Sensors. Check User Interface, Multi-Room Audio, Lighting, and Motorization.

2   Click **next**.

3   Add the devices to this room. Double-click a **device** to move the devices from the Available Devices list to the Devices in Room list.

     Example: Add a Touch Screen to the Bedroom.

4   Click **next**.

5   Select how the digital audio is received in this room.

     *Example: Audio is sent digitally to the touch screen. Select **Through a Touch Screen**.*

6   Click **next**.

7   Add the **Dimmers**, **Switches**, and **Outlet Switches** to the Devices in Room list, and give each a descriptive name (edit immediately after adding while still in edit mode, or right-click later).

     Example: Add a Wireless Dimmer and rename it "Dimmer."

8   Click **next**.

9   Add the **Motorized Devices** to the Devices in the Room list.

     *Example: Add the **Gas Fireplace** to the Bedroom.*

10   You have just completed the setup for the Bedroom. Click **next** to move on to the Front of the house.

To define devices in the Front Room:

1   Notice that the selected room on the left is now Front Room. For the selected room (Front Room), check to identify the types of devices you have in that room, and then click **next**.

     Example: De-select AV Components, Multi-Room Audio, and Lighting. Check User Interface, Motorization, and Sensors.

2   Click **next**.

3   Identify which Navigators are included in each room by selecting the Navigator, and then clicking the double-arrow button.

     Example: Add a 3-Button Keypad for the Navigator in the Front Room.

4   Click **next**.

5   Add the **Sensors** to the Devices in the Room list.

   Example: *Add the **Doorbell** and **Motion Sensor** to the Front Room.*

6   Click **next**.

7   Add the **Motorized** devices to the Devices in the Room list.

   Example: *Add Electronic Gate and Sprinklers.*

8   If you have a thermostat, add it in Composer Pro after you exit Interviewer. See "Configuring HVAC systems."

9   Click **next** to continue to the next section to identify the network connections.

Example: Identify the devices on the network

This section discusses using Control4 Interviewer wizard in Composer Pro to identify the devices you've added in the project to the network.

Note: *This process follows "Example: Define Devices in Each Room."*

You are now ready to set up the network connections in the **Network** section of Interviewer. In this section, you identify the physical *device* to its network address so the devices can communicate with the controller.

Follow the on-screen instructions specific to the selected device to identify it on the network. The first item is selected by default automatically. When selected, the device is placed in 'Identify' mode. Devices that use network connections and associated instructions are found in "Example: Make and Verify the Connections."

Note: *To program lighting and keypad buttons, see "Programming the System." To set up Lighting Scenes, see "Program with the Lighting Scenes Agent."*

To identify devices on the network, go to the physical device and follow these instructions.

The diagram for the device indicates which button to press.

1 Go to the controller hardware, and press the **Select** dial to identify the device. When the address appears, click **next**.

2 Pick up the system remote control, and press the **4** button to identify the device. You may need to press it repeatedly until the address appears. When the address appears, click **next**.

3 Go to the **6-Button Keypad**, and press the **top left** button **four** (4) times in rapid succession to identify the device. When the address appears, click **next**.

4 Go to the **Theater Dimmer**, and press the **top** button **four** (4) times to identify the device. When the address appears, click **next**.

5 Go to the **Theater Light Switch**, and press the **top** button **four** (4) times to identify the device. When the address appears, click **next**.

6 Go to the **Theater Outlet Switch**, and press the button **four** (4) times to identify the device. When the address appears, click **next**.

7 Go to the **Touch Screen**, and identify the device. When the address appears, click **next**.

8 Go to the **Bedroom Dimmer**, and press the **top** button **four** (4) times to identify the device. When the address appears, click **next**.

9 Go to the **3-Button Keypad**, and press the **top** button **four** (4) times in rapid succession to identify the device. When the address appears, click **next**.

10 Click **next** to continue to the next section to define Audio/Video connections.

Example: Define the audio/video connections

This section discusses using Control4 Interviewer wizard in Composer Pro to define the audio and video connections. You set up the software for audio and video connections that directly correspond to your hardware connections between your devices.

Note: This process follows "Example: Identify the devices on the network."

You are now in the Audio/Video section of Interviewer. In this section you identify any devices and their connections that carry audio and/or video signals. Using the Smith Home example project (a controller project), complete the following steps.

To define audio/video connections:

1   Select the device(s) to which the specified controller sends audio and video signals.

*Example: The controller in the Theater Room sends audio and video to the Receiver. Add **Theater** > **Receiver** to the **Connected Devices** list.*

2   Click **next**.

The **Receiver** is the only device connected to the **Television**. Both the DVD player and the **Controller** route their audio and video signals through the **Receiver** to get to the **Television**.
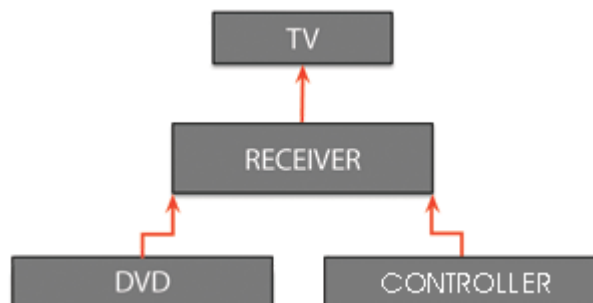
3   Select how the controller stereo outputs connect to the receiver.

    a   Select how the controller Stereo 1 Output connects to the Receiver.

       *Example: In Audio Connections, check **INPUT VIDEO 1** and check **STEREO**.*

    b   Click **next**.

    c   Select how the controller stereo 2 output connects to the receiver.

       *Example: Ensure that **none** is checked (controller stereo 2 does not connect to the receiver).*

    d   Click **next**.

    e   Select how the Controller Stereo 3 Output connects to the receiver.

       *Example: Ensure that **none** is checked (controller Stereo 3 does not connect to the Receiver).*

    f   Click **next**.

4   Select how the Controller Video Out Outputs connect to the receiver

    a   Select how the controller Video Out 1 Output connects to the receiver.

       *Example: In Video Connections, check **INPUT VIDEO 1**, and then check **COMPOSITE**.*

    b   Click **next**.

5   Select the device(s) to which the **DVD** sends audio and video signals.

*Example: In the Audio/Video list on the left, check **DVD**, and then double-click **Theater > Receiver** to add it to the **Connected Devices** list.*

    a   Click **next**.

    b   Select how the **Theater DVD Output** connects to the **Receiver**.

       *Example: In Audio Connections, check **INPUT DVD**, and then check **STEREO**. In Video Connections, check **INPUT DVD**, and then check **COMPOSITE**.*

    c   Click **next**.

6   Select the device to which the **Theater Receiver** sends audio and/or video.

*Example: Double-click **Theater > Television** to add it to the 'Connected Devices' list.*

    a   Click **next**.

    b   Select how the **Theater Receiver Output** connects to the **Television**, and then click **next**.

       *Example: In Audio Connections, check **INPUT AV1**, and then check **STEREO**. In Video Connections, check **INPUT AV1**, and then check **COMPOSITE**.*

    c   Click **next**.

    d   If applicable, select the device(s) to which the **Theater Tuner** sends audio and/or video signals. Make connections only to stand-alone tuners. A tuner that is a built-in component to another AV device, such as **Receiver**, uses the host's connections.

       Example: The tuner in this project is a built-in tuner to the receiver, and therefore, uses the same AV connections set up previously for the receiver.

    e   Click **next**.

7   Select how the **Bedroom Touch Screen** sends audio and/or video signals.

Example: The touch screen does not send audio to any of these devices. It only sends audio to the powered speakers, which are not shown in Composer Pro projects. Ensure that nothing is selected.

8   You have just completed defining audio/video connections. Click **next** to continue to the next section to define Control connections.

Example: Define the control connections

This section discusses using Control4 Interviewer wizard in Composer Pro to define the Control connections.

Note: This process follows "Example: Define the audio/video connections."

You are now in the Control section of Interviewer. In this section, you identify all Control connections in the system.

Tip: To complete this section, refer to the control connection tables shown in the "Hardware Connections" section "From Output to Input" in "Example: System Specifications."

Using the Smith Home example project (a controller project), complete the following steps.

To define Control connections:

1   Define the **IR OUT** port connections on the **Controller**.
   a   Select **IR OUT 1 to Television IR Sensor**, and then click **next**.

   b   Select **IR OUT 2** for the **Receiver IR Sensor**, and then click **next**.
   c   Select **IR OUT 3** for the **DVD IR Sensor**, and then click **next**.

*Tip: If you prefer to set up a video or contact sense loop instead of using a macro, see "Changing Power Management Options." After you add a video sense loop connection to the DVD player driver, add a **control connection** between the controller and DVD player.*

2   Define the **Contact and Relay** connections on the **controller**.
   a   Select **Contact 3** for the **Theater Door Contact Sensor**, and then click **next**.
   b   Select **Relay 3** for the **Theater Motorized Screen**, and then click **next**.
   c   Select **Relay 1** for **Bedroom Gas Fireplace**, and then click **next**.
   d   Select **Contact 2** for the **Motion Sensor**, and then click **next**.
   e   Select **Contact 1** for the **Motion Sensor**, and then click **next**.
   f   Select **Relay 4** for the **Electronic Gate**, and then click **next**.
   g   Select **Relay 2** for the **Sprinkler**, and then click **next**.
3   You have completed the setup of the system. Click **next** to exit the system.

After you have completed setting up the system using Interviewer, you may want to do one of the following:

- If you followed the "Example" instructions exactly and have completed all the Interviewer screens, you are ready to verify your connections and test the device control on the system. For instructions about how to do this, see "Connecting Devices."

- If you want to learn how to set up the same example project using the Composer Pro screens rather than Interviewer, you can clear your sample project, and go to "Example Smith home: Composer Views method."

- If you understand what occurred in the previous procedure and you are ready to create your own project, go the *Composer Pro Getting Started* for planning and design steps.

Example home project: Composer views method

The following sample project sections step you through the creation of a Control4 project using the Composer Pro views. Alternatively, you can create a new project using the Interviewer wizard in Composer Pro.

To use Composer Pro views:

1   Start Composer and connect to a Director.

2   Click **System Design**.

Example: Design and create the project

There are two ways you can design and create a project. Use the Control4 Composer Pro views or Interviewer wizard in Composer Pro to design and create a project.

Interviewer Wizard
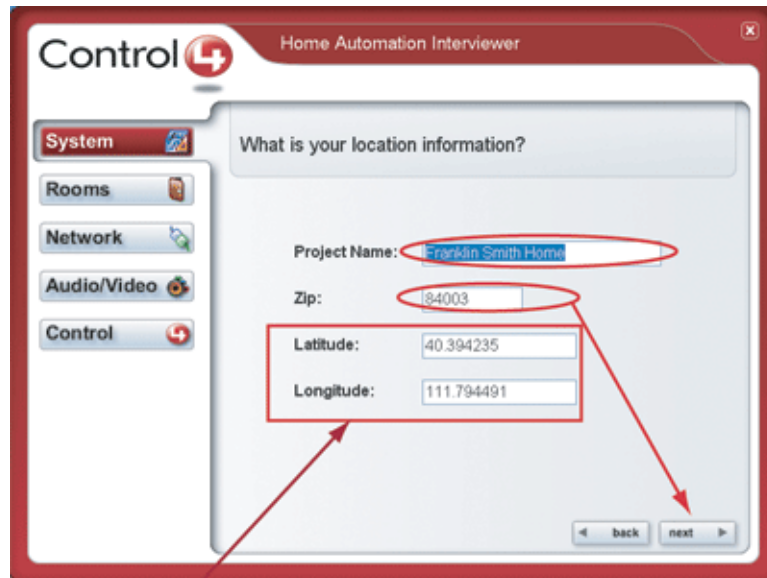
You begin the Interview with the System section. In this section, Interviewer asks you questions regarding the entire system, including types of devices and the rooms that contain devices.

To define system information:

1   Start Interviewer.

2   Type the Project Name: **Franklin Smith Home**.

3   Type a valid Zip Code to automatically populate the appropriate latitude and longitude coordinates, and then click **next**. These coordinates are editable if necessary. The Control4 system uses these coordinates to identify the local sunrise and sunset times (to be used in future programming calculations).

Example: *Enter Zip Code: 84003*

Editable fields that are automatically populated from zipcode.

4   Check the boxes to indicate which types of devices you are adding to the system.

Example: *Check AV Components, Multi-Room Audio, Lighting, Motorization, Temperature Control, and Sensors.*

5   Click **next**.

Tip: Temperature control is not fully implemented in Interviewer. If you have a thermostat, you need to add it and identify it to the system outside of Interviewer. For instructions on how to do this, see "Configuring HVAC Systems" for more information.

6 Add rooms by double-clicking a room or selecting a room, and clicking the **double-arrow** button.

Example: Add Theater, Bedroom, and Front.

7 When you've added the rooms, click **next**.

8 Select the method that distributes multi-room audio. Multi-room audio choices include:

- **Digitally**—Set up a multi-room audio system utilizing the network as an audio distribution system with digital-end points.
- **Audio Switch** —Install and set up a multi-room audio system, utilizing a traditional analog audio switch and amplifiers.
- **Receivers**—Install and set up a multi-room audio system, utilizing a receiver in each room to distribute audio.

*Example: Audio is streamed (through Ethernet) to the touch screen to the Bedroom, so you would select **Digitally**.*

9 You have just completed your system setup. Click **next** to continue to the next section to complete Rooms setup.

Composer views

In this view, you create the foundation of the Control4 system by building the project tree.

To design the Smith Home project:

1 Start Composer and connect to a Director on a local network.

2 Enter the Project Properties for the Smith home.

- **Name**—Franklin Smith Home.
- **Zip Code**—84003 or enter a latitude and longitude manually.
- **Date & Time**—Use the drop-down menu to change these as desired.
- **Time Zone**—Use the drop-down menu to select the appropriate zone.

3 Add rooms to the project tree.

    a In the Locations tab, double-click on a **room** to add it to the project tree.

    b Continue to add **rooms** until you have included all rooms you want in the house (rooms that will have automated devices). You can also drag these items to an object in the project tree.

       Example: *Add three (3) rooms.*

- Theater
- Bedroom
- Front

Tips: *To build the system design, define the project configuration in the project tree. You do not have to add all the items in the project tree manually, such as Site > Building > Floor > Room because Composer Pro automatically adds the required infrastructure.*

Also, you can rename the objects as desired; for example, Franklin Smith Home > Home > House > Main >Theater. For more information, see *Composer Pro Getting Started.*
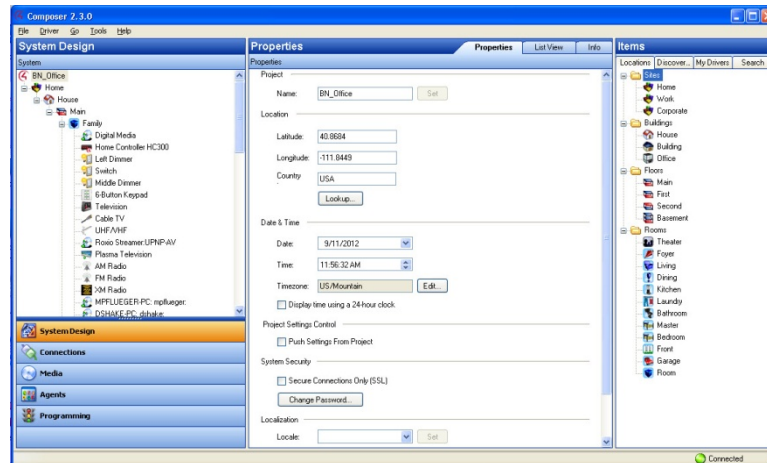
To add the devices:

1 Add the **controller** to a **room** in the project tree.

    a When setting up a system, first add the controller driver to the list. In the project tree, select the room where you want the controller to reside. In the **Items** pane > **My Drivers** tab, double-click a **controller** to move it to the room. See the example below.

       Note: *If you installed this version of Composer Pro on a computer with an older version of Composer Pro, right-click in the* ***My Driver*** *tab, and select* ***Restore Default List***. *This will update the My Driver list.*

       Example: *Add a controller to the Theater Room:*

b   From the project tree, select **Theater**. In the **Items** pane > **My Drivers** tab under Controllers, double-click **Controller** or drag it to the room where it resides—in this case, Theater. The controller and Digital Audio appear in the project tree. The Digital Audio object resides on the controller, but shows up as a separate object in the project tree. The Digital Audio provides the functionality to play media.
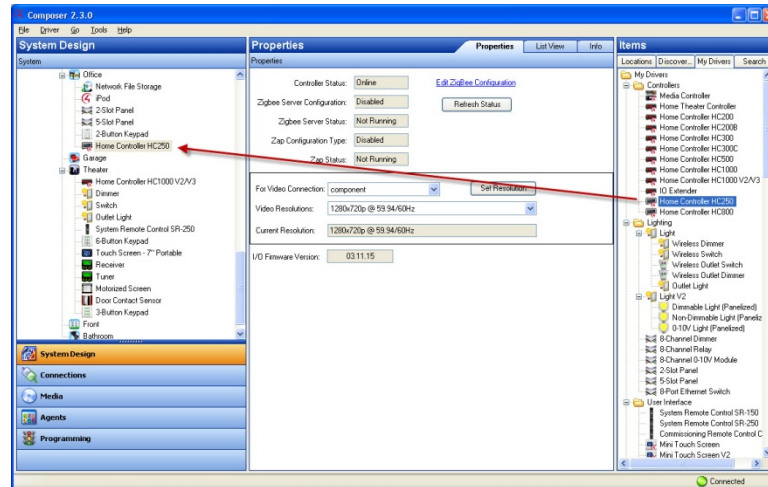
2   Add the **Lighting** and **Navigators** to the applicable **rooms**. The example below shows some devices you can add.

*Example: Select **Theater** in the project tree. In the **My Drivers** tab, do the following:*

a   In Lighting > Light, double-click **Wireless Dimmer**, and then rename to **Dimmer**.

b   In Lighting > Light, double-click **Wireless Switch,** and then rename to **Light Switch**.

c   In Lighting > Light, double-click **Wireless Outlet Switch**, and then rename to **Television Outlet Switch**.

d   In User Interface, double-click **System Remote Control**.

e   In User Interface, double-click **6-Button Keypad**.

*Tip: Use a descriptive name. When adding devices to the home, right-click and select **Rename** to rename them with a descriptive name. For example, if you have two (1) dimmers in a room, give them a descriptive name such as "Wall Dimmer" or "East Dimmer." This helps you identify the specific dimmer later when identifying connections. If there's only one dimmer or switch in a room, however, you can keep the generic title "Dimmer" or "Switch."*

3   Add a **Receiver** to the applicable **room**.

*Example: Add a **Receiver** to the **Theater**. To add, select **Theater** in the project tree. From the **My Drivers** tab, do the following:*

a   In Audio/Video, double-click **Receiver**.

b In the dialog box that appears, select **Online Database**, select the manufacturer **Harmon Kardon**, and then double-click **AVR146[IR]** to add the receiver to the project tree.
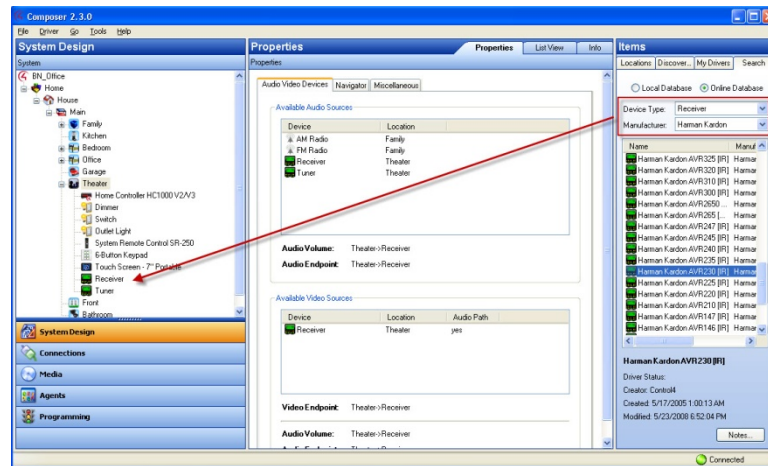
4 Add a **Television** to the applicable **room**. This will probably be the same room where the controller is.

*Example: Add the television to the **Theater**. To add, select **Theater** in the project tree. From the **My Drivers** tab, do the following:*

a In Audio/Video, double-click **Television**.

b In the dialog box that appears, select **Online Database**, select the manufacturer **Samsung**, and then double-click **HC-J655W[IR]**.

The UHF/VHF object may be added to enable you to scan for UHF/VHF broadcast channels.
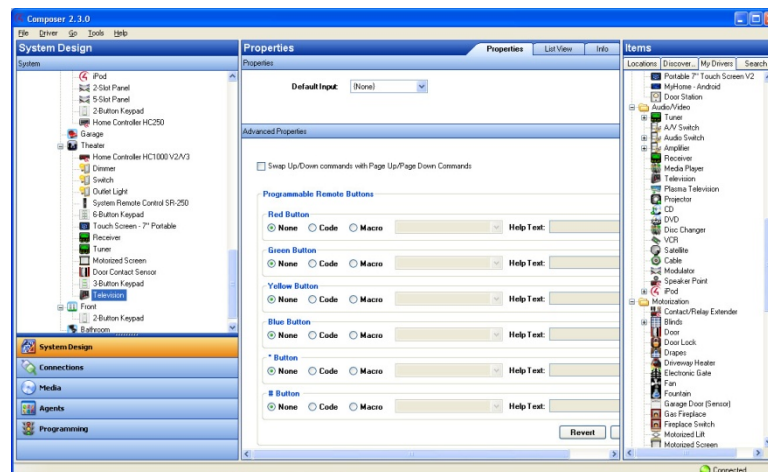
5 Add additional **Audio/Video** devices to the **room**.

*Example: Add the DVD player to the **Theater**. To add, select **Theater** in the project tree. From the **My Drivers** tab, do the following:*

a In Audio/Video, double-click **DVD**.

b In the dialog box that appears, select **Online Database**, select the manufacturer **Samsung**, and then double-click **DVD HD841[IR]**.

Note: If you can access a wireless touch screen, add it now to your project. If you previously had a wireless touch screen on your system prior to Release 1.3, follow the special update instructions in "Information about older releases."

6   Add a **motorized** device or **sensor** to the applicable room.

*Example: From the My Drivers tab, add a motorized screen and a door contact sensor to the Theater room from the online database. To add, select **Theater** in the project tree. In the **My Drivers** tab, do the following:*

a   In **Motorization**, double-click **Motorized Screen**.

b   In **Sensors**, double-click **Door Contact Sensor**.

7   Repeat Steps 2 through 6 as needed to add more devices to the applicable rooms.

*Example: To finish creating the project tree for the example project, add devices to the **Bedroom** and **Front Room** as follows.*

Bedroom:

a   Select **Bedroom** in the project tree. In the My Drivers tab, do the following:

- In Lighting > Light, double-click **Wireless Dimmer**, and then rename it to **Bedroom Dimmer**.
- In **User Interface**, double-click **Touch Screen**.
- In **Motorization**, double-click **Gas Fireplace**.

Front Room:

b   Select **Front Room** in the project tree. In the My Drivers tab, do the following:

- In **User Interface**, double-click **3-Button Keypad**.
- In **Motorization**, double-click **Electronic Gate**.
- In **Motorization**, double-click **Sprinklers**.
- In **Sensors**, double-click **Doorbell**.
- In **Sensors**, double-click **Motion Sensor**.
- In **HVAC**, double-click **Wireless Thermostat**.

Example: Make and verify the connections

This section discusses using Control4 Composer Pro views to make and verify the connections.

Note: This process follows Example: Design and create the project.

In the Connections view, you can:

- Identify Control4 devices to establish a network connection
- Check all network connections
- Define AV connections
- Define control connections

Note: When only one appropriate connection is available in a room for a given connection type, Composer Pro assumes the connection (example: if a TV is the only Audio Output device in a room, the system assumes that the Audio Output connection is routed to the TV). This feature adds value to Composer Pro, but increases the need to verify every connection.

*Note: To remove a connection, right-click on the connection and select **Disconnect**.*

To make connections:

1   In Composer Pro, click the **Connections** view.

2   Identify the Control4 devices that connect to the controller through the network. Go to each physical device and press the button indicated on the Composer Pro screen.

a   Click the **Network** tab > **IP Network**.

Notice the devices that do not have an address listed under the Address column.
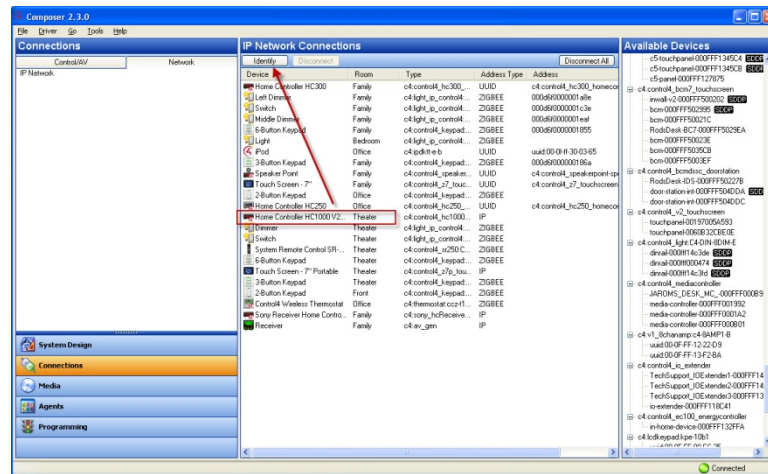
b   Select the **controller**, and then click **Identify**. The screen to identify the controller appears (in this example, the HC1000).

c   At the physical controller, press the **Identification** button. This identifies the controller with a unique address in the system. When the address appears on the screen, click **Next**.
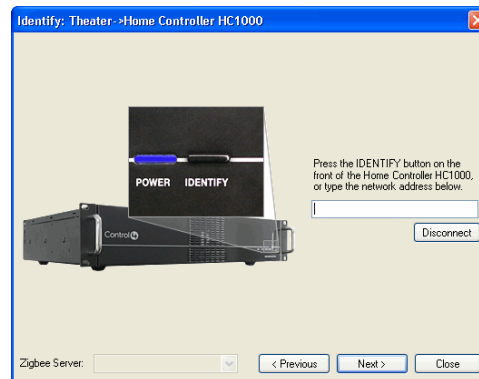
d   Select **Dimmer**, and then click **Identify**. The screen to identify the dimmer appears. Press the top dimmer button **four** (4) times. This identifies this specific dimmer with a distinctive address to the system. When the address appears, click **Next**.

e   When the Light Switch identification screen appears, press the **top** button four (4) times. When the address appears, click **Next**.

f   When the system remote control identification screen appears, holding the physical system remote control press the red **4** button once. When the address appears in the box, click **Next** to continue.

g   If you have a touch screen in your project, press the **Enter** button on the front of the touch screen. When the address appears in the box, click **Next** to continue.

h   When the Outlet Switch identification screen appears, press the **button** on the module **four** (4) times.

i   When the 6-Button Keypad identification screen appears, press the **top** left button four (4) times. When the address appears, click **Next**.

j   When the Dimmer identification screen appears, press the **top** button four (4) times. When the address appears, click **Next**.

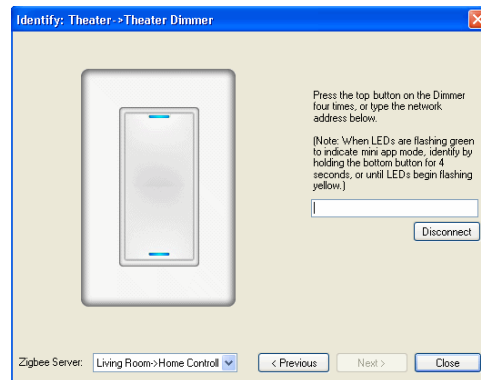**k**   When the touch screen identify screen appears, press the indicated button as shown. When the address appears, click **Next**.

l   When the 3-Button Keypad identification screen appears, press the **top** button **four** (4) times. When the address appears in the box, click **Next**.

m   When the Control4 Wireless Thermostat identification screen appears, press the **middle** button four (4) times. When the address appears in the box, click **Close** to exit Identify mode.

n   When you finish identifying the devices, notice that the Address column now has an address for every network device.
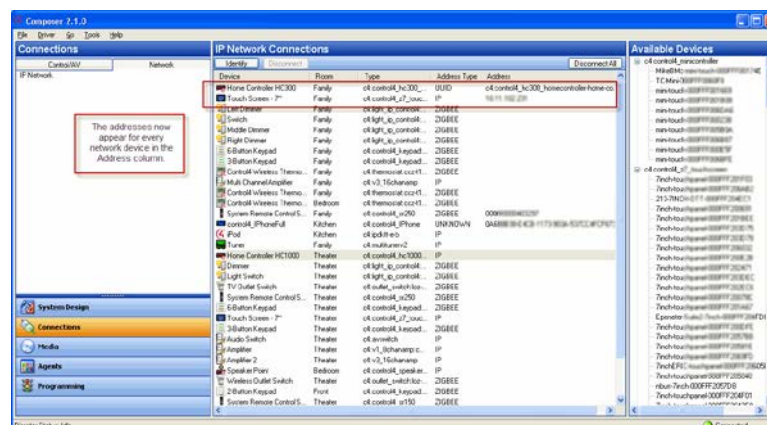
3   Define the AV and Control connections.

Control and AV connections for a device are visible when you click the **Connections** view >
Control/AV tab, and then select the device. To make a connection between inputs and
outputs, from the top pane drag a device's input (or output) to the output (or input) in the
bottom pane.

For each device, define the following when applicable:

- Video connections (path of video signals)
- Audio connections (path of audio signals)
- Control connections (how the controller communicates with the device)
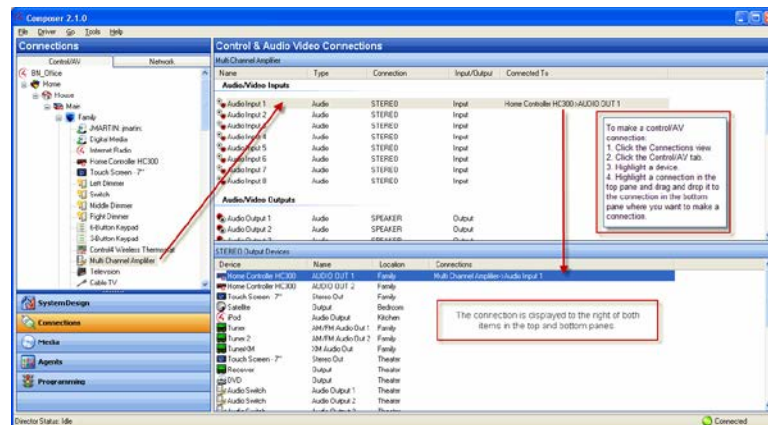
a   Define the **AV** connections for the **Receiver**.

*Example: In the Connections view under Theater, click **Receiver**. The right top pane
displays all the inputs and output on the back of the Receiver. For Receiver, from the
top pane in Audio Video Inputs, make the following connections:*

- Click INPUT DVD (Video-COMPOSITE), and drag it to DVD (Output-Theater) in the
  bottom pane.
- Click INPUT VIDEO 1 (Video-COMPOSITE), and drag it to Home Controller HC300
  (Video Out 1- Family) in the bottom pane. This connects the Receiver Video 1 input
  to the Controller Video 1 output.
- Click INPUT DVD (Audio-STEREO), and drag to DVD (Output-Theater) in the
  bottom pane.
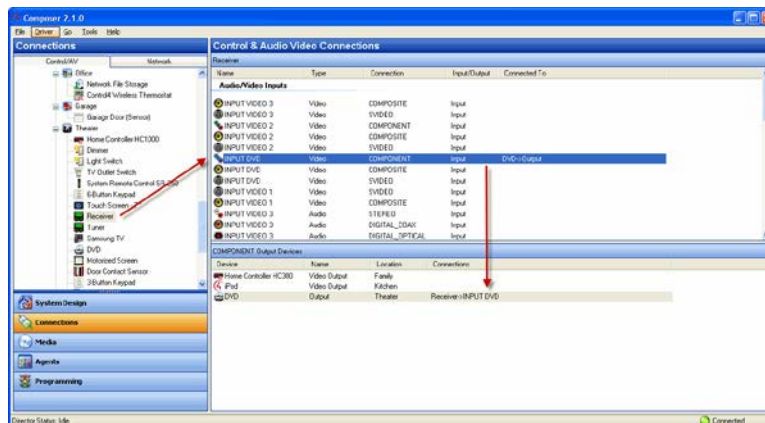
b   Define the **Control** connection for the **Receiver** to the **Controller**.

*Example: In the Connections view under Theater, click **Receiver**. The right top pane displays all the inputs and output on the back of the Receiver.*

For Receiver, from the top pane under Control Inputs, make the following connections:

- Click **IR** Sensor (Control-IR_OUT), and drag it to Controller (IR Output 2-Theater) in the bottom pane.

c   Define **AV** and **Control** connections for the **Television**.

*Example: In the Connections view under Theater, click **Television**. The right top pane displays all the inputs and outputs on the back of the Television. For Television, from the top pane do the following:*

In Audio Video Inputs:

- Click AV (Video-COMPOSITE), and drag it to Receiver (Output-Theater) in the bottom pane.
- Click AV (Audio-STEREO), and drag it to Receiver (Output -Theater) in the bottom pane.

In Control Inputs, click **IR Sensor (Control-IR_OUT)**, and drag it to **Controller (IR Output 1—Family)** in the bottom pane.
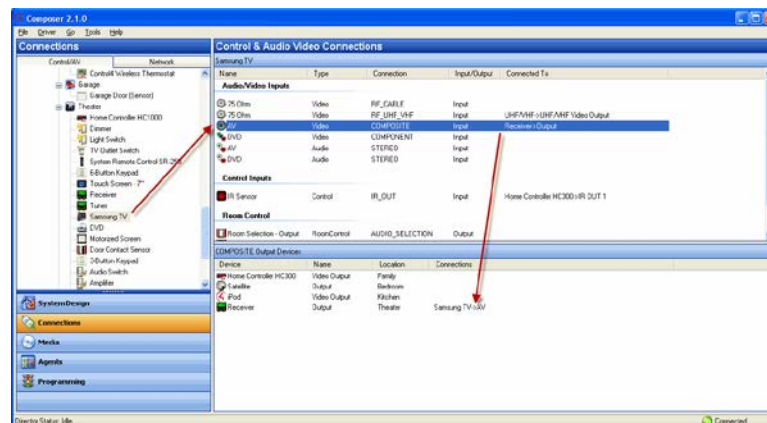
d   Define the **Control** connections for the **DVD playe**r to the **Controller**.

*Example: In the Connections view under Theater, click **DVD**. The right top pane displays all the inputs and outputs on the back of the DVD. From the top pane, do the following:*

In Control Inputs, click **IR Sensor (Control-IR_OUT)** and drag it to **Controller (IR Output 3-Family)** in the bottom pane.
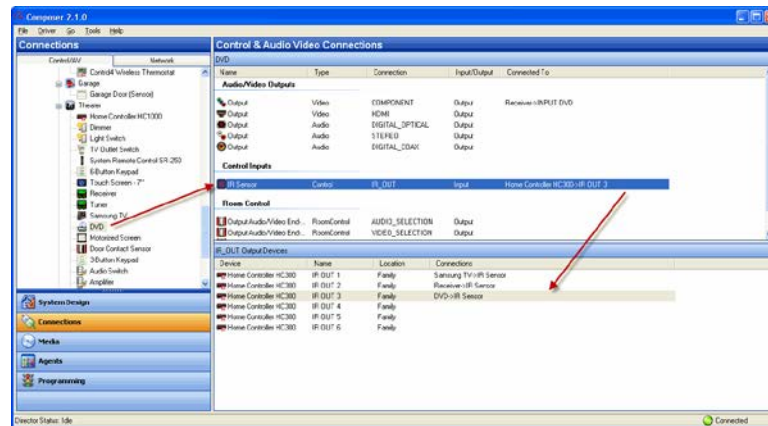
Tip: If you prefer to set up a video sense loop instead of using a macro, see "Changing Power Management Options." After you add a video sense loop connection to the DVD player driver, add a control connection between the controller and the DVD player.

e   Define the **Control** connections for the **Motorized Screen** to the **Controller**.

*Example: In the Connections view under Theater, click **Motorized Screen**. The top right pane displays all the inputs and outputs on for the screen.*

In the top pane under Control Inputs, click **Relay (Control-RELAY)**, and drag to **Controller (Relay Port 3-Family)** in the bottom pane.
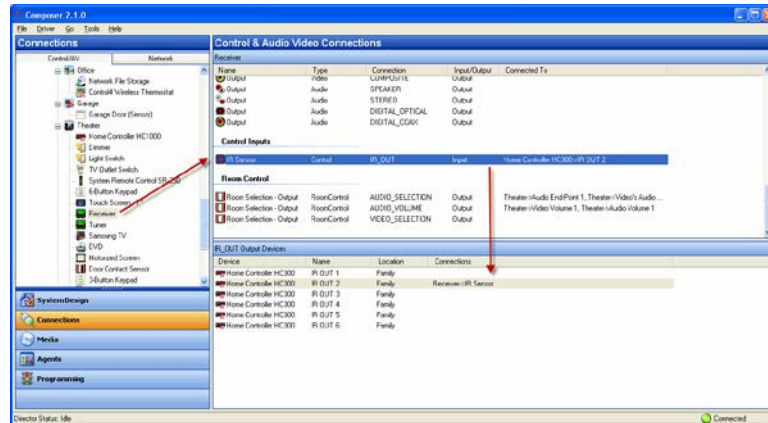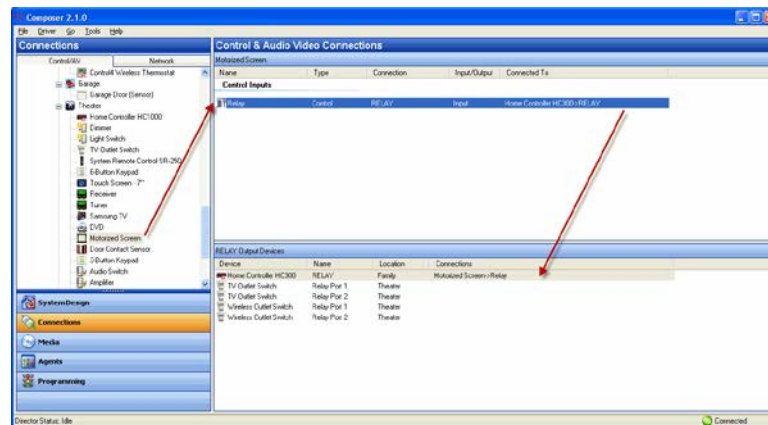

f   Define the **Control** connections for the **Door Contact Sensor** to the **Controller**.

*Example: In the Connections view under Theater, click **Door Contact Sensor**. The top right pane displays all the inputs and outputs for the Door Contact Sensor.*

In the top pane under Control Inputs, click **Contact Sensor (Control-CONTACT_SENSOR)**, and drag it to **Controller (Contact Port 1-Family)** in the bottom pane.

g   Define the **Control** connections for the **Gas Fireplace** to the **Controller**.

*Example: In the Connections view under Bedroom, click **Gas Fireplace**. The top right pane displays all the inputs and outputs for the Gas Fireplace.*

In the top pane under Control Inputs, click **Relay (Control-RELAY)**, and drag it to **Controller (Relay Port 1-Family)** in the bottom pane.

h   Define the **Control** connections for the **Electronic Gate** to the **Controller**.

*Example: In the Connections view under Front, click **Electronic Gate**. The top right pane displays all the inputs and outputs for the Electronic Gate.*

In the top pane under Control Inputs, click **Relay (Control-RELAY)**, and drag it to **Controller (Relay Port 4-Theater)** in the bottom pane.

i   Define the **Control** connections for the **Sprinklers** to the **Controller**.

*Example: In the Connections view under Front, click **Sprinklers**. The top right pane displays all the inputs and outputs for the Sprinklers.*

In the top pane under Control Inputs, click **Relay (Control-RELAY)**, and drag it to **Controller (Relay Port 2-Theater)** in the bottom pane.

j   Define the **Control** connections for the **Contact Sensor** to the **Controller**.

*Example: In the Connections view under Front, click **Doorbell**. The top right pane displays all the inputs and outputs for the Doorbell.*

In the top pane under Control Inputs, click **Contact Sensor (Control-CONTACT_SENSOR)**, and drag it to **Controller (Contact Sensor 2-Theater)** in the bottom pane.

k   Define the **Control** connections for the **Motion Sensor** to the **Controller**.

*Example: In the Connections view under Front, click **Motion Sensor**. The top right pane displays all the inputs and outputs for the Motion Sensor.*

In the top pane under Control Inputs, click **Motion Sensor (Control-CONTACT_SENSOR)**, and drag it to **Controller (Contact Sensor 1-Theater)** in the bottom pane.

4   Go to the next section, "Example: Verify the network connections."

Example: Verify the network connections

This section discusses using Control4 Composer Pro views to verify the network connections.

Note: This process follows "Example: Make and verify the connections."

There are two places to verify network connections:

- The Network tab (shown below)
- The Tools menu
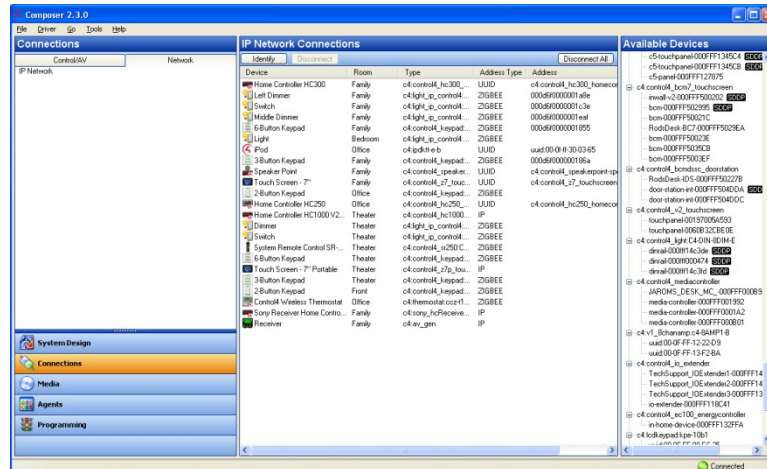
Follow the instructions below to check your connections in both locations.

To check your connections from both locations:

1 From the Connections view > **Network** tab, verify that every device that communicates to the controller using TCP/IP, WiFi, and/or ZigBee has a network address. If a device doesn't have a network address, the device needs to be identified.

2 To identify a device from this location, **right-click** on the **device** and select **Identify** (or click the **Identify** button). Follow the on-screen instructions provided for each device, such as those listed in the following table.

After identifying the network connection, the device's address appears in the list.

Device	Instructions to Identify a Device to the Control4 System
Controllers	Press the **Identification** button on the controller.
Lights and keypads	Press **top** button **4** times (6-Button Keypad — press top left button). For Release 1.8 and later, press any button 4 times. MiniApp mode: press bottom left or bottom button 4 times.
System remote controls	Press the red **4** button on the remote control.
Speaker point	Press button **1** time.
Multi-tuners	Press button **1** time.
16-channel amps	Press button **1** time.
Thermostats	Press center button **4** times.
Wireless outlet *switch*es	Press button **4** times.
Wireless touch screens	Press the **Enter** button on the front of the touch screen **1** time.
Black & Decker Kwikset locks	Press the **Top Left** button on the top of the board (remove the lock's cover first) **4** times. To disconnect, press the **Top Right** button on the top circuit board **9** times.

Device	Instructions to Identify a Device to the Control4 System
1-button products	Release 1.8 and later, press **4** times.
IO extenders	Press the Link button on the back of the IO extender.
Media players	Press the Link LED button on the front of the Media Player.
Touch screens	Press the button indicated on the diagram of the device in Composer Pro.

Using the Network tab

To ensure all devices have been identified from the Network tab:

1 Click **Connections** > **Network** tab > **IP Network**.

2 In the Address column, make sure there is an address for every line item.
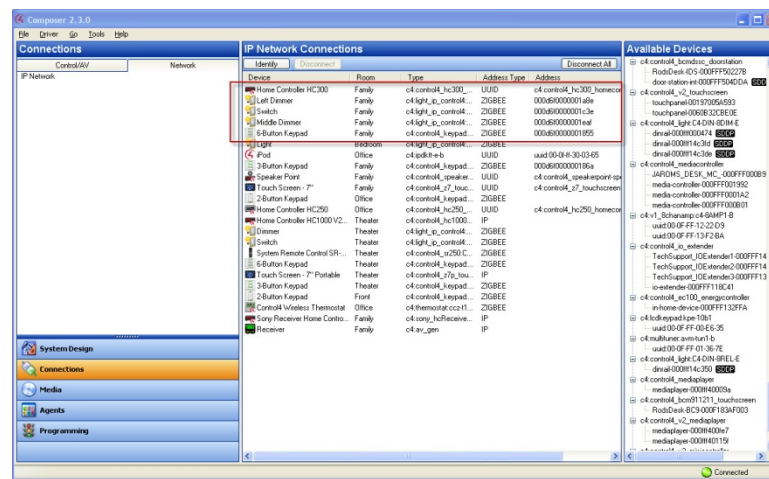
Using Network Tools

To ensure all network connections exist and are active from Network Tools:

1 From the Tools menu, select **Network Tools**.

2 Check both the **IP Network** and **Zigbee Network** tabs for Green, Yellow, and Red connection icons. The colors indicate the following:

- **Green**—An address is identified, and the device is online (communicating).

  Example: The dimmer is identified and communicating to the system.

- **Yellow**—An address is identified, and the device is offline (not communicating).

  Example: If the system remote control goes to sleep, the status turns Yellow. This indicates that the system remote control has been identified, but is offline (not communicating). Make the device active so it can communicate to the system.

- **Red**—A device is not identified. Go to the **Connections** view > **Network** tab, and identify the device to the system or see "Example: Make and Verify the Connections."

3 If you find yellow or red icons, do the following:

- **Yellow Icons**—Go to the device, and activate it according to its documentation.

- **Red icons**—Go to the Connections view > Network tab, and identify the device to the system.

> *Example:* *At this point in your example project, the system remote control should be yellow (or the only device not green). The system remote control turns green as soon as you wake up the system remote control. To wake up the system remote control, press the red Control4 **4** button.*

Example: Define the control and audio/video connections

This section discusses using Control4 Composer Pro views to define AV connections.

Note: *This process follows "Verifying the network connections."*

Control/AV connections are visible when you select the **Control/AV** tab in the Connections view. The Control/AV tab lets you define the physical connections between the controller or other devices, including AV signals, IRs, relays, contacts, and/or serial connections.
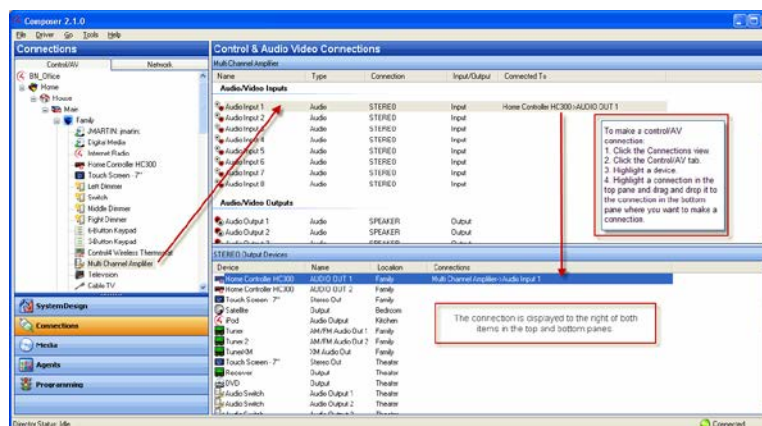
Tip: *If connections do not appear as needed, edit the driver to create the needed connections. See "Editing a Driver Using the Driver Wizard."*

The following steps are described in the next sections:

"Verify that all control and AV connections use room properties"

"Disconnect/Remove control/AV connections"

"Re-assign control/AV connections"

"Update connections in the project if you change locations"

Verify that all control and AV connections use room properties

To verify all Control and AV connections by checking room properties:

1　Click the **System Design** view.

2　Select a **room**.

3　On the default tab Audio Video Devices, see if your **AV** devices are accessible in the room. If an AV device is not there, see "Make and Verify Connections."

Disconnect/Remove control/AV connections

To disconnect or remove a control/A/V connection:

1   Click the **Connections** view.

2   Select the **Control/AV** tab.

3   In the Control/AV project tree, select a **device** for the device's control and AV connections to appear.

4   In the Control and AV Connections pane, right-click an **input** (or output) connection and click **Disconnect**.

Re-assign control/AV connections

To reassign Control/AV connections:

1   Click the **Connections** view > **Control/AV** tab.

2   In the project tree, select a **device** for the device's control and AV connections to appear.

3   In the Control and AV Connections pane, **drag** an input from the top pane to a different output on the bottom pane. The connection is moved to the specified output.

Update connections in the project if you change locations

If you use the same project but you change locations, you have to update all of the connection information.

To update the connection information in an existing project:

1   Click the **Connections** view.

2   Click the **Control/AV** tab, and **review** your connections to ensure that they are updated in the current control and AV topology.

3   Click the **Network** tab and **disconnect** all connections by **right-clicking** and selecting **Disconnect**.

Example: Configuring the Intercom agent

Use the Control4 Composer Pro Agents and Programming views to program this agent. To better illustrate the process, this procedure uses an example setup.

The Intercom agent lets you set up 5" or 7" In-Wall Touch Screens (supports audio intercom only) or the 7" Portable Touch Screen with Camera (C4-TSMC7), 7" In-Wall Touch Screen with Camera, or Door Station (supports audio and video intercom) so that the Control4 system acknowledges the intercom system on those touch screens.

Tip: For an example of setting up an Intercom macro, see the Programming chapter.

Notes: (1) Only the touch screens mentioned above are capable of intercom functionality. (2) This agent also lets you configure third-party PBX systems for multi-dwelling units (MDUs) using the SIP Proxy tab (for a future release). See "SIP Proxy Tab" below for more information.

CAUTION! The SIP Proxy tab is for advanced users only; or those who understand how to set up and use SIP and a PBX system. See your SIP specialist and PBX administrator for details.

With the Intercom agent you can send a broadcast, monitor a room, and other controls.

Example: If you have an elderly parent living in their own home, you can create a macro and assign it to a keypad button. If your family member is in stress, they simply press the keypad button to notify you that something is wrong. Another example is a "Good Night" setting where all touch screens in the house can be set to "Do Not Disturb" when it's time to go to sleep. Or you can monitor your kids' room after they've gone to bed to ensure that they're settling down when they should.

Example: This example demonstrates how to send a 'test' announcement to a touch screen in the Master Bedroom that says "You are being monitored." The Master Bedroom is then monitored.

Tip: Many of the steps below (creating or removing groups, adjusting settings, etc.) can be performed on the supported touch screens. See the [Control4 System User Guide](#) for details.

Notes: (1) Broadcasting does not work in a room that's being monitored if that room is in Monitor Mode. When in Monitor Mode, you will not want the person in that room to be disturbed, for example, a sleeping child. (2) Before you use broadcasting, make sure your WiFi router is set to allow multicasting. Some routers do not allow multicasting. Check with your dealer or Control4 Technical Support for details.

Prerequisites

The example below uses the following items in the project:

- Controller
- 7" In-Wall Touch Screens (two or more)
- Intercom license
- Intercom agent (see below)
- Kitchen
- Master Bedroom
- Macro agent

Note: As of June 1, 2013, the HC-800 (C4-HC800-BL-1) and HC-250 (C4-HC250-BL-1) ship with included support for Intercom and MyHome. For controllers shipped before that time, you must purchase an Intercom and MyHome license for consumers who want this feature. In either case, the license must be assigned and active on the consumer's account for the Intercom or MyHome to function. See [Managing Dealer Accounts on My.Control4.Com](#) in the Control4 Knowledgebase for details.

To set up an Intercom agent:

1 Start Composer Pro and connect to a Director.

2 Click **Agents**.

3 (First time only) Click **Add** to add the Intercom agent to the project.

4   Select **Intercom**, and then click **OK** to add Intercom to the agent types list in the project.
     The next time you want to configure the intercom function, just select the Intercom item in
     the Agents pane.
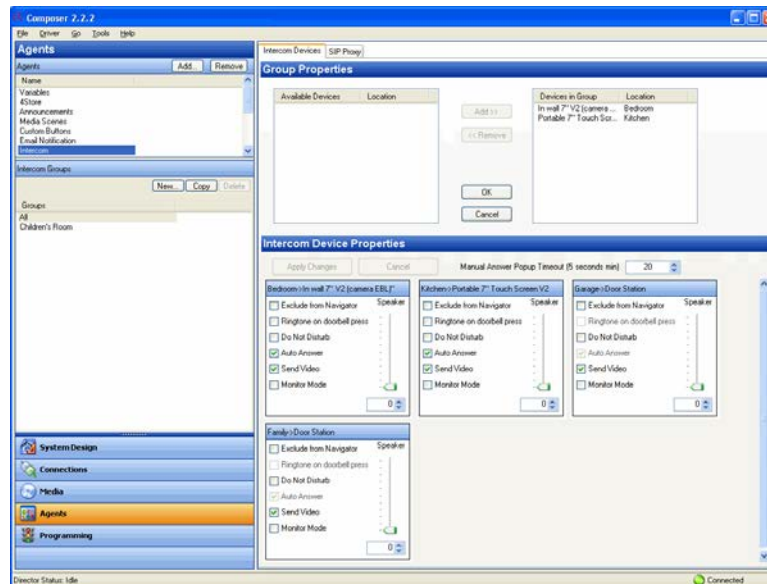
Add new Intercom group

An Intercom group is a set of Intercom-supported touch screens that can be identified by a
specific group name. This saves time when you want to send a broadcast to a group of people.
Example: You can create a group (John's Group) and then send a broadcast to that group.

**You can create Intercom groups (groups of touch screens) and send broadcast messages
them.**

1   Select **Intercom** in the left pane, and click **New**.
2   Name the Intercom group, and click **Add***. Example:* John's Group.
3   Add the devices to the new group (see "Intercom Devices Tab" below).
4   Adjust the settings for each touch screen (see "Intercom Devices Tab" below).

Intercom Devices tab

Group properties

You can add devices to an existing group of 5" or 7" In-Wall Touch Screens, 7" Portable Touch
Screen with Camera, or 7" In-Wall Touch Screen with Camera. This lets the broadcaster from
one touch screen send out broadcasts to the group of devices.

To add or remove devices in a group:
•   **Add**—Select the device in the Intercom Devices tab, and then click **Add**. Click **OK**.
•   **Remove**—Select the device in the right box of the Intercom Devices tab, click **Remove**,
     then click **OK**.

Intercom Devices properties

To add or remove settings for each touch screen:

1 Use the Intercom Devices tab to change the settings on each supported touch screen.

IMPORTANT! Make sure you review all of the customer's intercom settings for the new touch screens with and without cameras in OS 2.2 or later before you finish the upgrade. For example, if Auto Answer was disabled in Intercom V1, the settings do not transfer when you upgrade a system to Intercom V2 in OS 2.2. Auto Answer is ON by default for Intercom V2 in OS 2.2. If your customer wants Auto Answer disabled, the best method is to disable Auto Answer on all touch screens using the Intercom agent under Intercom Device Properties. Otherwise, you or the customer will have to go to the settings in each touch screen and disable it manually.

- **Manual Answer Popup Timeout (seconds)**—Use the **up** or **down** arrow keys or type how much time is allowed to answer an incoming call.

You can set the following options for each touch screen in the Intercom Device Properties pane:

- **Exclude from Navigator**—Select if you do not want these options enabled. This option is useful when you want to broadcast messages to the touch screens.
- **Do Not Disturb**—Select to enable. When a broadcast or call tries to connect to another touch screen (for example, John's Room), the message or call is blocked, and the caller's touch screen displays a 'Do Not Disturb' or 'Station Busy' message from the 'John's Room' touch screen. On the caller's touch screen, tap **Close** to close the message.
- **Auto Answer**—Select to enable. When a call comes in from another touch screen, that touch screen rings and the caller's voice is heard (and video if activated). John, for example, (or whoever is in John's Room) can then speak to the caller from his or her touch screen.
- **Send Video**— (not supported on 5" In-Wall Touch Screens or 7" In-Wall Touch Screens without a camera). Select to enable. When a call comes in from another touch screen, the touch screen rings and the caller's voice and video appear (if activated) on the caller's touch screen. John, for example, (or whoever is in John's Room) can speak into his or her touch screen and the caller can see them on the screen. See the Control4 *System User Guide* for more details and examples.
- **Monitor Mode**—Select to enable. This monitors a room through the touch screen in that room. This option sends audio and/or video to the touch screen that is monitoring another room, for example, John's Room. See "Monitor a Room" in the Control4 *System User Guide* for more details.

2 Click **Apply Changes** when you're finished.

SIP Proxy tab

The columns used in this tab are for SIP (session initiation protocol) and an external PBX service. To enable SIP for an MDU, see your SIP specialist.

Configure—The Domain and TSL Port columns use the default. These are populated by Director.

CAUTION! Do not change these values unless under extreme circumstances, and you know exactly what you are doing.

Routes—To add values to the URI, Method, Event, Destination, and Order columns, see a SIP specialist.

Users—The user@domain, Name, and E-Mail columns are used for troubleshooting purposes. See your SIP specialist. These are intercom-supported Control4 devices.

Registrations—The AOR, Contact, Instance ID, Reg ID, and Expires in (sec) columns are used for troubleshooting purposes. See your SIP specialist. These are users who are registered via Director.

Tip: Your PBX administrator may benefit by going to these sites:

- http://www.reciprocate.org/using repro. Explains how URI works.
- http://www.regular-expressions.info/tutorial.html. Explains how regular expressions work.

Programming Intercom with a macro

Example: The steps below use an example where a macro is set up to monitor the Master Bedroom from the Kitchen using the intercom on both 7" In-Wall Touch Screens.

To set up a program that monitors a room using the Intercom agent:

1. If the Macro agent hasn't been added to the project, add it (**Agents** view > **Add** > **Macros**).
2. Create a new macro called **Monitor Master Bedroom**.
3. In the Programming view, create programming for the "Monitor Master Bedroom" macro event (**Programming** > **Macros** in the Device Events pane, and then select the macro **Monitor Master Bedroom**).
4. Add the programming to start monitoring the Master Bedroom (**Programming** > **Actions** > **Intercom** in the Device Actions pane).
   a. In the Commands tab, select the device that will be doing the monitoring: **7" In-Wall Touch Screen in the Kitchen**.
   b. Select the Session Action: **Monitor**.
   c. Select the Target Intercom Device that will be monitored (**Master Bedroom**).
   d. Drag the **green** arrow to the Script pane.
5. Test the Programming by clicking **Execute**.

Tip: You can add the macro to a Custom Home page on the Navigator; another option is to program this same action against a button press on a keypad.

Example: Manage apps with the 4Store agent

Use the Control4 Composer Agents view to manage 4Store apps and themes.

Note: Currently, you cannot perform any programming functions with this agent.

The 4Store agent provides these functions:

- Centralized logins—Manage 4Store logins from a central location.
- Update purchased 4Store apps—Allows you to update the list of purchased apps to be from Composer Pro.
- Manage themes—Allows you to update the list of purchased themes from Composer Pro.
- Manage storage—Purchased apps and themes can be stored on other storage devices.

Note: The Control4 system allows up to 5 MB of files for the 4Store apps and themes. Obviously, this is not enough space for very many apps or themes. Options are available in this agent to allow additional storage. If you run out of space, an error message appears.

Prerequisites

- Ensure that you have a valid 4Store account for the system. You'll have to go to the 4Store web site to purchase apps and themes.
- Ensure that the storage devices you will use (e.g., Network File Storage and controller) have been added and identified in the system.

To use the 4Store agent:

1   Start Composer Pro and connect to a Director.

2   Click **Agents**.

3   (First time only) Click **Add** to add the 4Store agent to the project

4   Enter the 4Store login and password, and then click **Save**. The login information appears in the 4Store Accounts list. Use this list to add, locate and log in to your customer's 4Store accounts. After you've logged in, you can update their account and keep track of which apps and themes they've purchased.
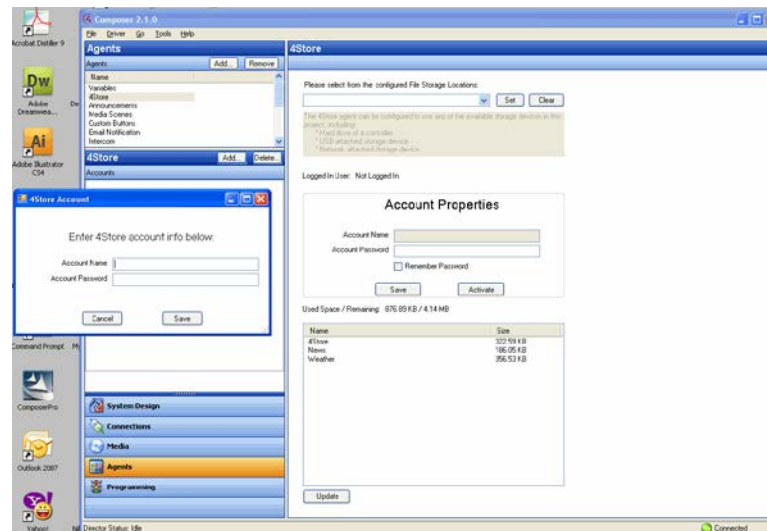
5   Select an account in the list to log in to 4Store. The Account Properties pane is populated with the information you added when you saved it. Click **Activate** to log in to that account.
Note: When you log in to an account from Composer Pro, all of the Navigators are logged into 4Store.

To select the storage:

1   Use the File Storage Locations drop-down list and select what to store your apps and themes to: Network File Storage or a controller (see next figure). After you select the storage device, click **Update** to transfer the apps or themes to the new location.

2   Click **Set**.
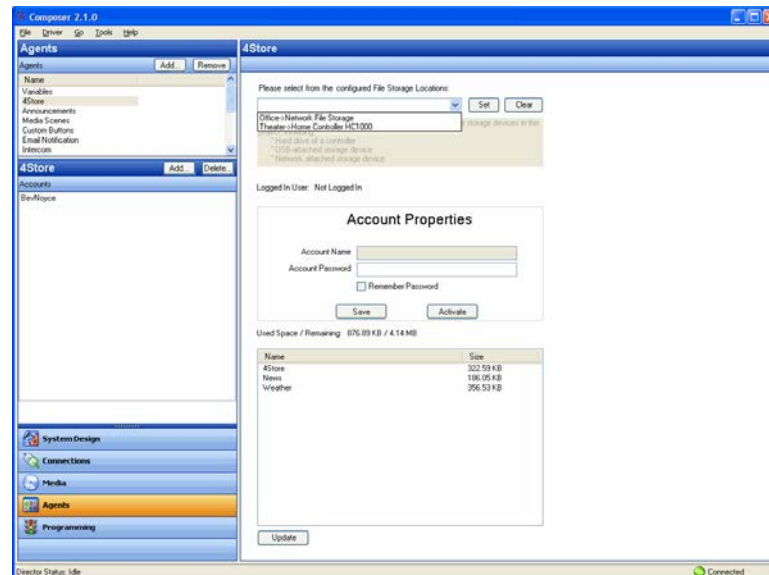
To update the apps and themes purchased for an account:

1   Click **Update** at the bottom of the page. This not only updates the list, but also all of the Navigators attached to this Control4 system. When you update, the list populates with the account's apps and themes and their size.

Example: Use the Access agent

Use the Control4 Composer Agents view to allow or deny access. The Access agent is ideal for commercial applications including hotels, bars, or board rooms where settings need to be locked or hidden to restrict their use by unauthorized personnel. By adding this agent to a project, an access code is required to gain access to selected functions of the Status Bar or the More and Settings modules. When enabled, the Access agent settings apply to all touch screens and on-screen Navigators in the system.

Status Bar Buttons
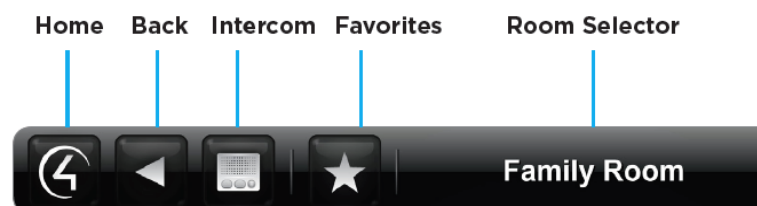
The Access agent provides these key features:

- **Access Code**—The programmer can establish a four-digit access code to restrict access to the Status Bar, More and Settings buttons globally.
- **Status Bar Lock**—Lock the Control4 Home, Back, Favorites, Room Selector and Intercom buttons available on the Status Bar so that a user must first enter the Access Code to use these features.
- **Status Bar Hide**—Hide the Favorites and Room Selector functions from users.
- **More and Settings Button Lock**—Lock the More button on the Control4 Home Screen and Settings button in More.
- **Localization**—For English-speaking locales, the Access agent keypad user interface includes Latin characters for users that use a mnemonic to remember their Access Code. Non-English speaking locales display only the numerals.

Prerequisites

- Figure out which Status Bar or More button functionality you want to restrict or hide from unauthorized users. For example, do you want to lock the Room Selector? Keep others from getting into Settings? Hide the Favorites button?
- Establish an access code.

To use the Access agent:

1 Start Composer Pro and connect to a Director.
2 Click **Agents**.
3 (First time only) Click **Add** to add the Access agent to the project.
4 Select **Access** and click **OK**.
5 Enter a four-digit access code on the numeric keypad.
6 Click **Set Access Code**. The new access code appears in 'Current Access Code' window.
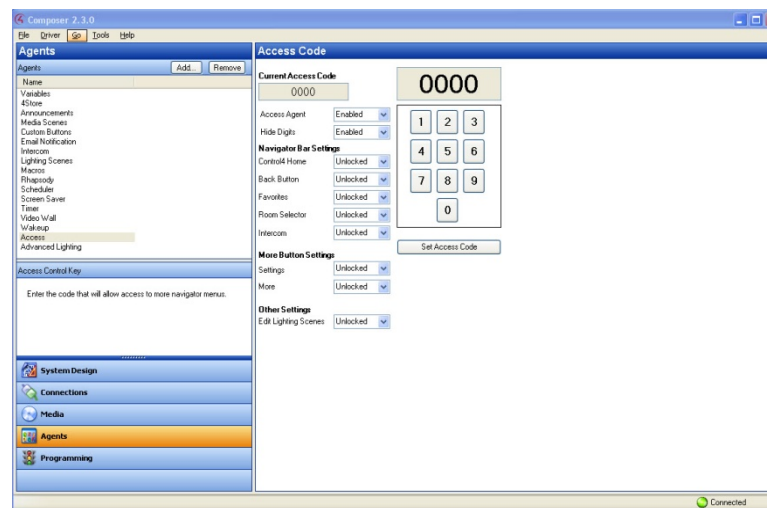
The following settings are available to the programmer as indicated by the names next to the drop-down selectors:

- **Access Agent**—To enable or disable the Access agent, use the arrow drop-down list, and then select **Enabled** or **Disabled**. Disabling the Access agent enables the programmer to keep all the current Access agent settings, but disable its use while testing Flash Navigator functionality.

- **Hide Digits**—To hide or display the access code digits when entered on the Flash Navigators, use the arrow drop-down list, and then select **Enabled** or **Disabled**. By enabling Hide Digits, an asterisk symbol (*) will appear in place of each digit as it is entered.
- **Control4 Home**—To lock or unlock the **Control4 Home** button on the Status Bar, use the arrow drop-down list, and then select **Unlocked** or **Locked**. If locked, enter the access code after pressing this button before returning to the Control4 Home screen. On the on-screen Navigator, the Control4 Home button is accessed using the Control4 SR-250 or SR-150 remote controls. By locking this feature, you must enter the access code after pressing the **Control4** button on the remote control.
- **Back Button**—To lock or unlock the **Back** button on the Status Bar, use the arrow drop-down list, and then select **Unlocked** or **Locked**. If locked, you must enter the access code after pressing this button before returning to the previous screen.
- **Favorites**—To lock, unlock or hide the **Favorites** button on the Status Bar, use the arrow drop-down list, and then select **Unlocked** or **Locked** or **Hide**. If locked, you must enter the access code after pressing this button before accessing the Favorites functionality. If hidden, the Favorites button is not displayed.
- **Room Selector**—To lock, unlock or hide the **Room Selector** functionality on the Status Bar, use the arrow drop-down list, and then select **Unlocked** or **Locked** or **Hide**. If locked, you must enter the access code after pressing this button before accessing the Room Selector functionality. If hidden, the current room is displayed and the user cannot change rooms from the Flash Navigators.
- **Intercom**—To lock or unlock the **Intercom** button on the Status Bar, use the arrow drop-down list, and then select **Unlocked** or **Locked**. If locked, you must enter the access code after pressing this button before accessing the intercom functionality.
- **Settings**—To lock or unlock the Settings button within the **More** screen, use the arrow drop-down list, and then select **Unlocked** or **Locked**. If locked, you must enter the access code after pressing this button before accessing the Settings functionality.
- **More**—To lock or unlock the **More** button on the Home Screen, use the arrow drop-down list, and then select **Unlocked** or **Locked**. If locked, you must enter the access code after pressing this button before accessing the More functionality.
- **Edit Lighting Scenes**—To lock, unlock or hide the **Edit Lighting Scenes** functionality from within the Lighting screens (available with OS 2.3.0 or later), use the arrow drop-down list, and then select **Unlocked** or **Locked** or **Hide**. If locked, you must enter the access code after pressing this button to access the Edit Lighting Scenes functionality. If hidden, the Edit Lighting Scenes functionality will not be accessible to users.

As a reminder, the current implementation of Access agent enables the programmer to globally restrict certain features and settings from all users on touch screens and on-screen Navigators. Any changes to Access Codes or these settings can only be made using Composer Pro. If the Access Code is lost or forgotten, it can be recovered only using Composer Pro.

Keypad user interface and localization

When you enable the Access agent, the user will be presented with an Access agent keypad on their touch screens and on-screen Navigators based on the settings described above. A picture of this new user interface component is shown below. When entering the access code, the user can cancel the process or delete an incorrect digit from their current entry.

Access agent keypad for English locales
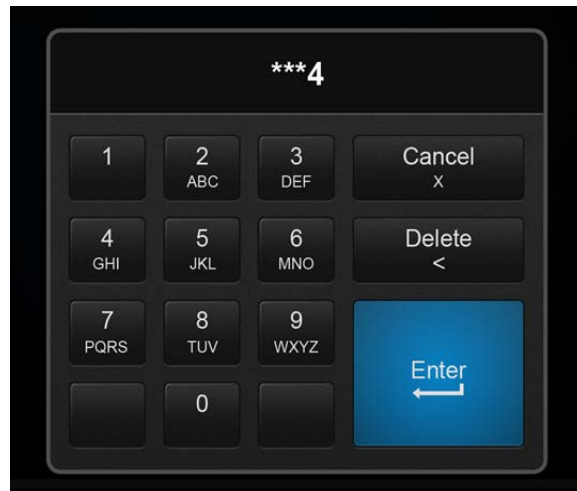
Access agent keypad for all other locales

Note: Cancel, Delete, and Enter will be translated into locale language where available.

Example: Use the Advanced Lighting agent

Use the Control4 Composer Pro Agents and Programming views to program this agent. (For OS 2.3.0 or later, this agent supports the Panelized Lighting product line with full functionality. Older lighting products are also supported, but with limited functionality.) This agent provides more advanced features than the Lighting Scenes agent. See also "Example: Program Using the Lighting Scenes Agent" in this document.

The Advanced Lighting (Scenes) agent provides these features:

- LED tracking for Lighting Scenes
- Toggle Lighting Scenes
- Ramp and fade Lighting Scenes
- Set delays within Lighting Scenes
- Scene sequencing
- Flash lights in Lighting Scenes

**To use the Advanced Lighting agent:**

1 Start Composer Pro and connect to a Director.

2 Click **Agents**.

3 (First time only) Click **Add** to add the Advanced Lighting agent to the project. **Note**: You must add the Advanced Lighting agent to the project before your customers can edit Lighting Scenes on a Navigator.

4 Select **Advanced Lighting**, and then click **OK**.

5 In the Agents pane, select **Advanced Lighting** and then click **New**.

6 Enter a name on the dialog that appears (for example, **Party Lights**).

7 Click **Create**. Notice that you have more options than if you were using the Lighting Scenes agent. *Note:* You can click the **Rename** button to rename a scene.

8 Adjust the scene as desired.

- **Show flash option**—Select this option to add a Flash checkmark in the list of lighting devices below. When Flash is checked, lights can flash on and off at set intervals. Use this option with the Delay option. For example, this option works well in a situation where you want to alert someone so you can set a porch light to flash in case of an emergency or to get someone's attention. *Note:* For older lighting devices (earlier than OS 2.3.0), flashing is not supported.

- **Activate Scene**—Click this button to activate the scene immediately. *Note:* The Execute On and Execute Off buttons do not appear in the Advanced Lighting agent. Use the **Activate Scene** button.

- **Sync This Scene**—Click this button to synchronize this scene with other scenes. This option isn't really needed for Panelized Lighting unless there seems to be a problem.

- **Sync All Scenes**—Click this button to synchronize this scene with all scenes created. This option isn't really needed for Panelized Lighting unless there seems to be a problem.

- **Colors**—This is the keypad color. Click the **Active** or **Inactive** colored boxes to select another color.

- **Tracking**—Click **All Loads** to track a dimmer or switch by name, tracking status, delay, rate, level %; and all loads must match their tracking condition before the scene will be considered active. Click **Any Load** and only a single load needs to match their tracking condition before the scene will be considered active.

- **Hold Rates (sec)** —Use the **up** or **down** arrows to select the **Up** hold ramp rate or **Down** hold ramp rate. At the keypad, press and hold for a set period of time in seconds. This action behaves the same as hold rates for dimmers.

- **Toggle Scene**—This pull-down allows you to select which scene to activate when the current scene is prompted to deactivate. This applies to all scenes except for the current one selected. Here, you can toggle scenes on or off.
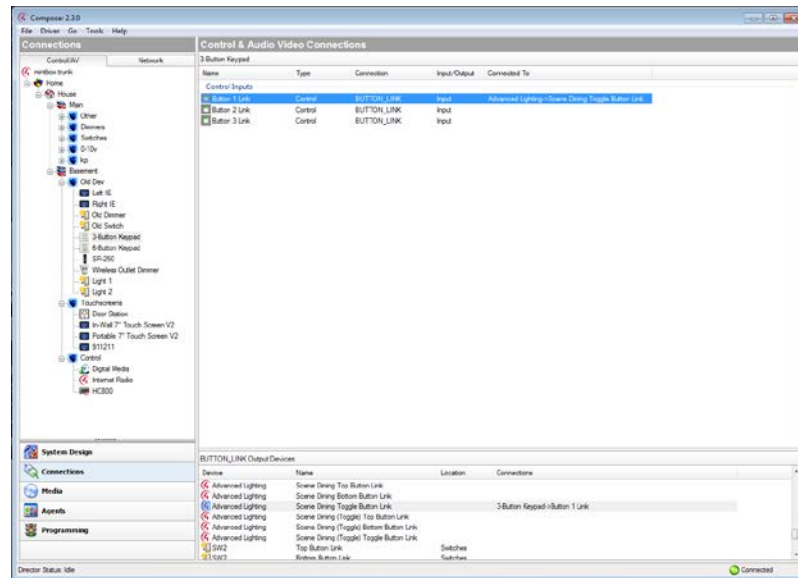
  Example: *Create an Advanced Lighting Scene called "Dining." Notice the number of switches and dimmers in the Advanced Lighting pane and their values.*
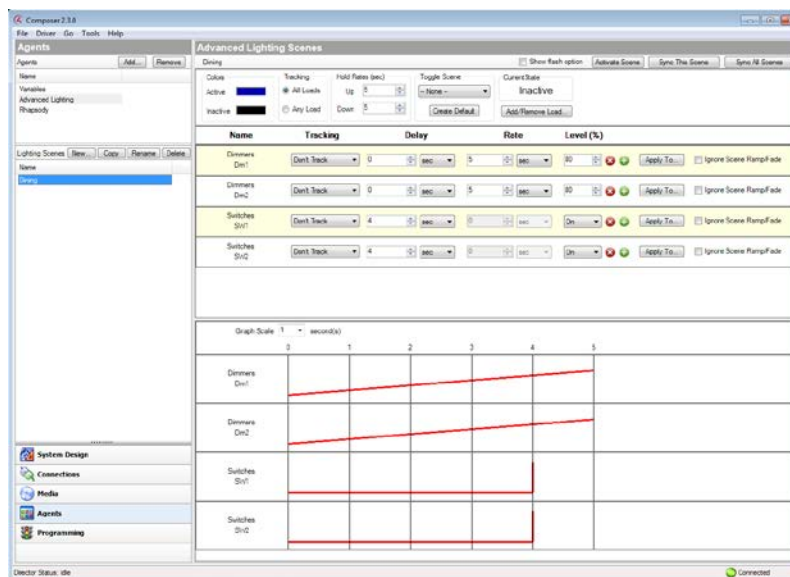
a   Create a Dining 'Toggle' scene. Notice the difference in switches and dimmers and their values from the previous screen.
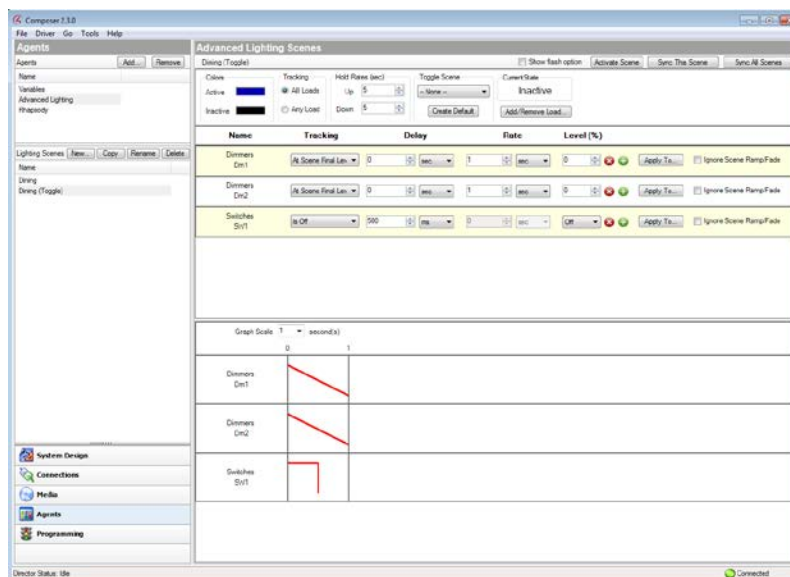
b   Now click the **Connections** view to connect the keypad bindings on a 3-Button Keypad.

When you toggle the 3-Button Keypad in the Dining room, various lights go on or off at various levels. For more information about connections, see "Connecting and Verifying Devices."

Now go back to the **Agents** view.

- **Toggle Scene/Create Default**—Click **Create Default** to create a toggle scene as a copy of the selected scene. From the copied scene, you can rename the new scene and adjust the values on some of the dimmers or switches in that scene.
- **Current State**—Shows 'Active' when the conditions are met to consider the scene Active or Inactive if the conditions have not been met.
- **Add/Remove Load**—Click to add or remove specific dimmers or switches to the scene. Check the lighting loads that you want to add, and then click **OK**. This can be a single light, a single room, all lighting loads in an entire house, or any combination of these options.

9   Assign the settings for each load:

- **Dimmer and Switch Options**:
    - **Name**—The top line is the room, and the bottom line is the name you assigned to the dimmer or switch.
    - **Tracking—**This lets you track the lights in the system. Use the **down** arrow to select one of these options.
        - **Don't Track**—Tracking is ignored.
    - **Is Off**—Track when the dimmer or switch is off.
    - **Is On (Any Level)**—The text displays only if the light is a dimmer. Switches just indicate 'Is On.'.
    - **On At Level (%)**—Track when the dimmer is on at a specific level.
    - **At Scene Final Level**—Track at the final level of the last sequence. For example, if someone changes the level on a Navigator, this might be the final level.
- **Delay**—Use the **up** or **down** arrows or type the delay value in seconds.

    Tip: If you have several dimmers in a long hall, and you want to set up sequencing, you can use this option with the green + buttons and increase the delay of each dimmer in a row by two (2) seconds.

- **Rate**—Lets you set the ramp rate, which is the speed the load ramps to for the specified lighting level. Use the **up** or **down** arrows to set the milliseconds (**ms**), seconds (**sec**), or minutes (**min**) of the ramp rate. Then set the amount of time the device takes to change the level.

  *Example: Set the time to **1** second for both the Bedroom Dimmer and the Theater Dimmer.*

- **Level (%)**—Lets you set a target lighting level as appropriate by using the pull-down menu, for example, **50** percent for the Bedroom Dimmer and **20** percent for the Theater Dimmer. The green + gives you the ability to add 'paths' to a scene. Each row in the path uses single delay/rate/level settings. Use the green + to add another step, click the red **x** to delete a step, or you don't need to have any steps. *Note:* Older lighting devices (prior to OS 2.3.0) only allow 0 or 1 steps.
- **Apply To**—Click this option to allow other lights to use the same scene.
- **Ignore Scene Ramp/Fade**—Check this option to have the light ignore commands to ramp or fade a scene.
- **Graph**—Shows in graphical form (red lines) the settings for each dimmer or switch. Dimmers will show ramp rates, delays, and levels as angled, horizontal, or vertical lines.

10 Now click **Programming**. To program a scene, follow the basic steps in "Programming Basics for Control4 Systems."

Note: In the Programming view, the Advanced Lighting Scene has variables, conditionals, and loops that do not exist in the Lighting Scenes agent. This agent also has 'read-only' variables for the length of each scene.

Example: Note the screens below. The Events and Actions panes use different options than the Lighting Scenes agent (Activate, Deactivate, etc.).

Event: (Is Invoked, Becomes Active, Becomes Inactive)

- **Is invoked**—This event fires when the scene has been explicitly told to activate. If the scene is already activated, and it is told to activate again, this event will still fire.
- **Becomes Active**—This event fires when the scene transitions from the Inactive state to the Active state.
- **Becomes Inactive**—This event fires when the scene transitions from the Active state to the Inactive state.
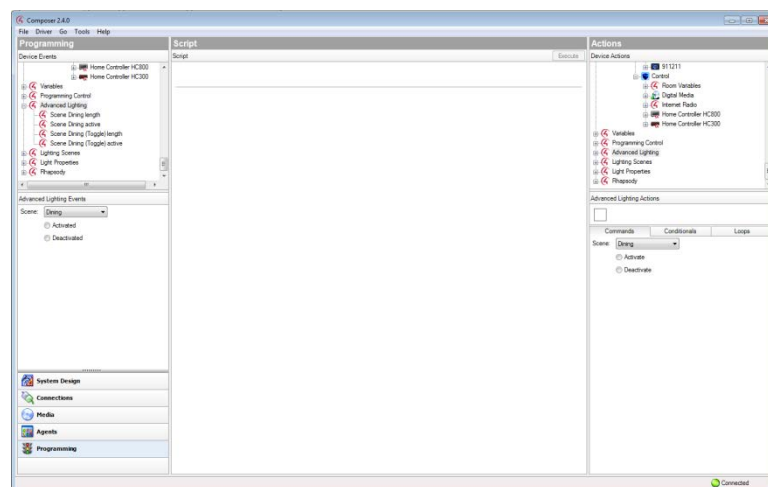
- **Actions**— (Activate, Deactivate)
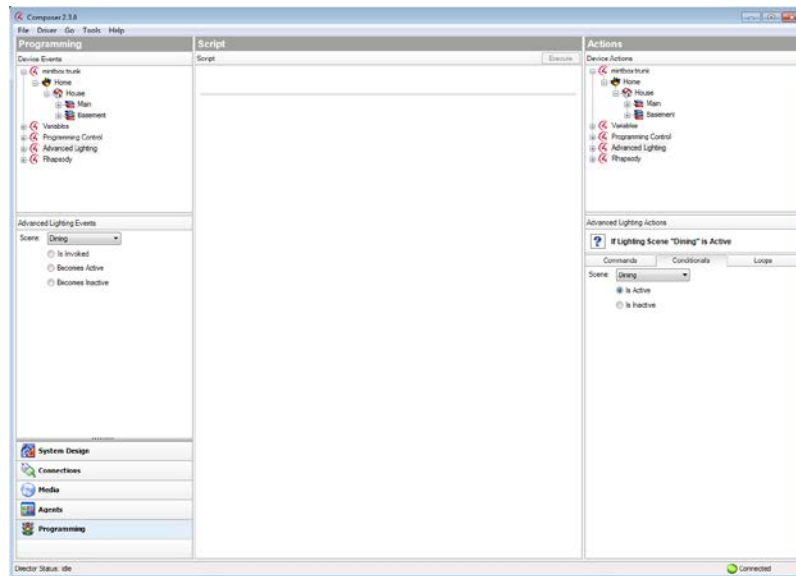
A programming example for use with the Advanced Lighting agent might be where, if the front door opens and it's past 9 PM at night, all the lights turn on in the home at various levels.

Example: Use the Rhapsody agent

Use the Control4 Composer Pro Agents view to activate or disable a Rhapsody agent. After you add this agent, refresh the Navigators for the Rhapsody icon to appear.

Note: Rhapsody is a subscription-based music service that gives you unlimited access to a catalog of millions of full-length, CD-quality tracks. You can listen to whatever you want whenever you want, in any room of your house through the Control4 system.
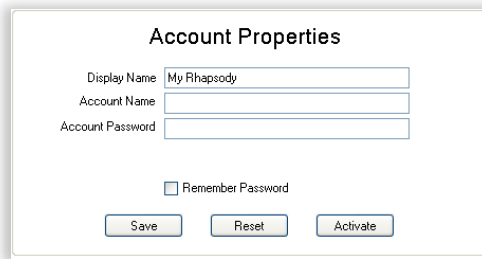
Prerequisites

- Ensure that a Rhapsody account has been set up. See "Register Your System" in *Composer Pro Getting Started*.
- Ensure that the devices you want to use for Rhapsody output are added and identified to the system.

To activate a Rhapsody agent:

1 Start Composer Pro and connect to a Director.
2 Click **Agents**.
3 (First time only) Click **Add** to add the Rhapsody agent to the project.
4 Select **Rhapsody**, and then click **OK**.

5　With Rhapsody selected in the left pane, click **New**. The following dialog box appears in the right pane.

6　Enter your Rhapsody account name and password.

7　Click **Save**.

8　Click **Activate**.

To disable Rhapsody:

1　Start Composer Pro and connect to a **Director**.

2　Click **Agents**.

3　Select **Rhapsody** from the agents list.

4　Select **Disable Rhapsody**.

Example: Use the SNMP Configuration agent

Use the Control4 Composer Pro Agents view to:

- Add devices using the SNMP Configuration agent
- Manage an SNMP device
- Change SNMP system and user variables

Prerequisites

To use SNMP in a Control4 system, you need:

- An **NMS console** or an installed **MIB browser** and the three (3) Control4 MIBs (installed by default in Composer 2.2 and later): CONTROL4-DIRECTOR-MIB, CONTROL4-GLOBAL-REG, and CONTROL4-TEST-MIB. These MIBs are located in Program>Files>Control4>Composer 2.2>SNMP>MIBs/ on the computer with Composer Pro.
- **SNMP MIBs**. Make sure the NMS console you use has the following SNMP MIBs: SNMPV2-SMI, SNMPV2-TC, SNMPV2-CONF, and INET-ADDRESS-MIB. The Control4 MIBs reference these MIBs.
- **SNMP Configuration Agent**. To configure SNMP in a Control4 system, you must add the SNMP Configuration agent in the Composer Pro Agents view (see below).

Procedure

To set up the SNMP Configuration agent:

1　Start Composer Pro and connect to a Director.

2　Click **Agents**.

3   (First time only) Click **Add** to add the SNMP Configuration agent to the project.

4   Select **SNMP Configuration** in the Agents pane, and then click **OK**.
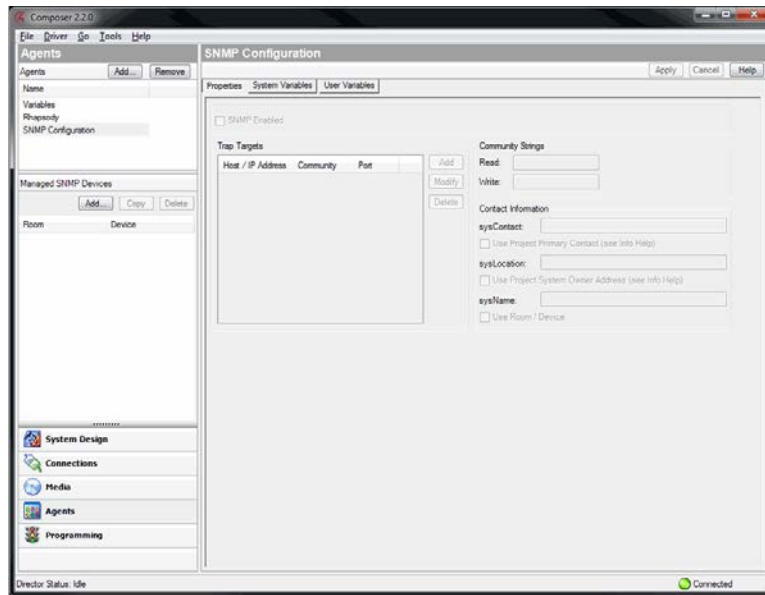
- To add, copy, or delete devices; add trap targets; or configure the SNMP Configuration agent see "Configuring the SNMP Agent" in *Composer Pro Getting Started* or "SNMP Configuration agent properties" next.

- To set up system or user variables, see "SNMP Configuration agent system variables" or "SNMP Configuration agent user variables" below.

- To install the Control4 MIBs, see "Installing the Control4 MIBs" in *Composer Pro Getting Started*.

SNMP Configuration agent properties

To configure SNMP settings:

1   In the SNMP Configuration pane, click **Properties**.

2   If they are SNMP-enabled, all of your controllers, IO Extender, and touch screens in the project will appear in the Managed SNMP Devices pane. If you've updated the system to OS 2.2, those devices appear automatically.

3   Use the Properties pane to disable SNMP from the project, add traps, set community strings, and change contact information.

- **SNMP Enabled**—By default SNMP is enabled if controllers, IO Extender, and touch screens have been updated to OS 2.2. Uncheck to disable a selected device.

- **Trap Targets**. Use to add the IP address for the NMS console or MIB browser to send SNMP traps to. See "To add trap targets" below.

- **Community Strings**—The default is Read: Public, Write: Private. Use the MIB browser and this Properties tab to change these settings for Get and Set commands. The strings must match in the MIB browser and in this page. *Example:* Read: Public must be the same in the MIB and in the Properties tab.
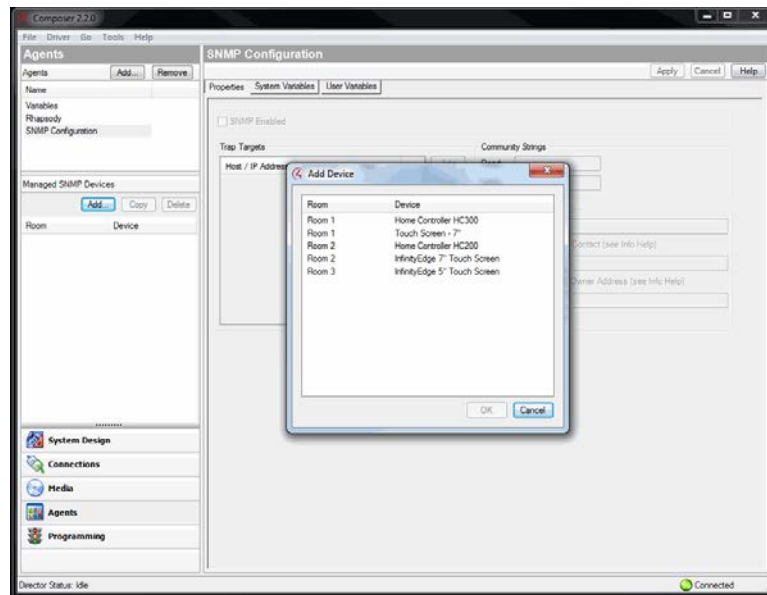
- **Contact Information.**
  - **sysContact**. Check **Use Project Primary Contact** to populate this text box with information from the Info tab in the System Design view, or uncheck and type a contact name here.
  - **sysLocation**. Check **Use Project System Owner Address** to populate this text box with information from the Info tab in the System Design view, or uncheck and type the owner's address and city here.
  - **sysName**. Check **Use Room** to populate this text box with information from the room name that the device is in (appears automatically), or uncheck and type another value, for example, a hotel room number.

To add one or more devices:

Add devices that you want to manage using SNMP.

1. In the Managed SNMP Devices pane, click **Add** or right click, and select **Add Device** to add the agent to the project.
2. In Add Device, select the device to add. To add several devices use **CTRL** or **SHIFT** and select the devices.
3. Click **OK**. The device(s) appear in the Managed SNMP Devices pane.

Note: If you select multiple devices and their properties are different, a red warning message appears, and Composer Pro attempts to notify you of the conflict.

Tip: You can configure one device and then copy it to other devices to save the properties you've defined. See the next steps for details.

To copy a device:
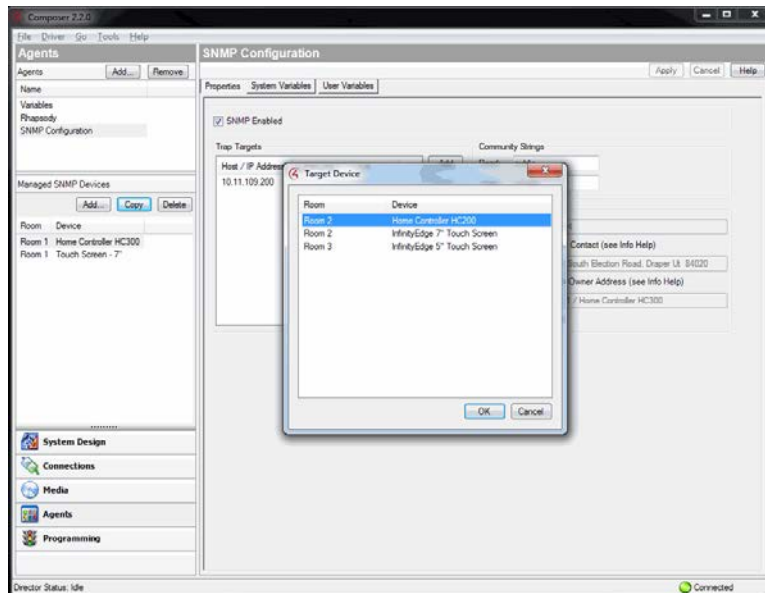
Copy a device to other devices if you want to use the device's properties.

Note: You cannot copy a device to another device that's already been identified in Composer Pro.

1. In the Managed SNMP Devices pane, click **Copy** or right click, and select **Copy Device**.
2. In Target Device, select the device to copy.
3. Click **OK**. The device appears in the Managed SNMP Devices pane.

4   In the Managed SNMP Devices pane, select the devices to copy to.

To delete a device:

Remove a device from the managed list.

1   In the Managed SNMP Devices pane, click **Delete** or right click, and select **Delete Device**.
2   In Target Device, select the device to delete. To delete several devices use **CTRL** or **SHIFT** and select the devices.
3   Click **OK**. The device(s) disappear from the Managed SNMP Devices pane.

Notes: (1) Deleting a device removes it from the list, but the properties are saved. (2) You can add the device back into the project with the last saved SNMP settings.

To add trap targets:

Add the IP address or host name of the NMS console to send trap targets to.

1   In the Managed SNMP Devices pane, select the device to manage.
2   In the Trap Targets pane, click **Add**.
3   In Add Trap Target, type the following:

• **Target**. IP address of the console that will receive the traps.
• **Community**. (Optional) Information will be taken from the Community Strings boxes.
• **Port**. (Optional) The default is 162.

4   Click **OK**. The information will be added to the Trap Targets pane.
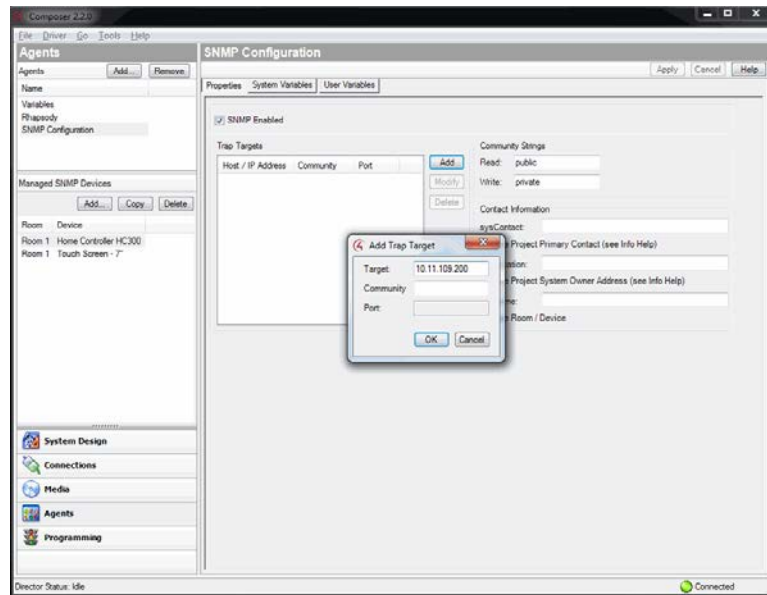
Tip: *If you click the **System Variables** tab, and check **SNMP Trap Enabled**, the traps will be enabled for the selected variable.*

Note: *You may have conflicts if the Trap Enabled values in System Variables are different (some True, some False).*

SNMP Configuration agent system variables

Change the 'Trap Enabled' status in the System Variables pane when you want traps sent to the NMS console you set up (see the previous steps) for the selected variable(s) agents or in programming.

Example: *You can set a 'Trap Enabled' status to 'True' for the CURRENT_SELECTED_DEVICE variable in Room 100.*

1   In the SNMP Configuration agent, click the **System Variables** tab.

2   Select the variables to change. Select all that apply.

3　Check or uncheck **SNMP Trap Enabled** or right click and select **Enable Trap** or **Disable Trap** in System Variables. The 'Trap Enabled' column changes from 'False' to 'True' or vice versa for those selections.
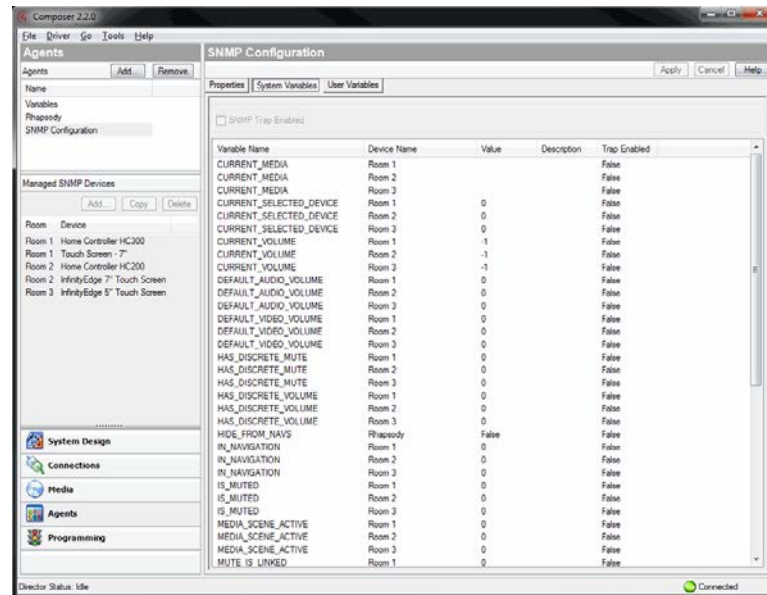

SNMP Configuration agent user variables

Change the 'Trap Enabled' status in the User Variables pane when you want traps sent to the NMS console you set up (see the previous steps) for the selected variable(s) agents or in programming. *Example:* You can set a 'Trap Enabled' status to 'True' for 'Boolean Var.'

1　In the SNMP Configuration agent, click the **User Variables** tab.

2　Select the variables to change. Select all that apply.

3　Check or uncheck **SNMP Trap Enabled** or right click and select **Enable Trap** or **Disable Trap** in System Variables. The 'Trap Enabled' column changes from False to True or True to False for those selections.

Setting Up Media

Use this chapter to learn how to:

- Scan your network for media files
- Access media from disc changers
- Play AV from television stations
- Play audio from radio stations
- Add a switch
- Create a playlist
- Test a media connection
- Edit media information

Media types

To take full advantage of media lookup services by Gracenote, your customers must be registered in 4Sight. See *Composer Pro Getting Started* for details.

To add and scan songs and albums for playlists, they must be available in MP3, M4A/AAC, or FLAC format on a PC, controller, or network share.

To add Internet radio stations, the Internet radio driver must be bound to the controller. See "Setting Up Internet Radio Stations" in this document.

Tip: In OS 2.4 and later, you can use the TuneIn app to stream radio, news, sports and more from Internet stations worldwide. See the *TuneIn Setup Guide* or *TuneIn User Guide* for details.

You can set up your customer's audio and video media in a Control4 system for:

- Controllers
- Disc changers
- Media players
- Dock for iPod (iPods, iPhones, etc.)
- iPod, iPhone, iPad, Android, PCs, tablets, or MACs (using MyHome or TuneIn apps)
- Television broadcast channels
- Radio broadcast stations
- Internet radio

- Satellite broadcast channels or music stations
- Other external storage devices: USB flash drives and shared network drives

You can also:

- Add CDs and DVDs
- Add individual songs
- Add cover art, titles, albums, etc.
- Create playlists
- Use the auto-scan feature to scan movies or music
- Add and scan supported files from third-party media managers, for example, iTunes
- Edit media information for DVDs, CDs, etc.
- Test media control

To view and select the media from the Navigators, including wireless touch screens, on-screen, MyHome or TuneIn apps, and System Remote Control devices, you first need to add and scan or set up the media to the Control4 controller (for example, Home Controller HC-1000).

For the MP3, M4A/AAC, or FLAC files that you add and scan, you can create playlists saved to the Control4 controller's hard drive in the media database.

Note: Speaker Point does not support M4P/AAC. Play songs through Speaker Point using MP3. However, for example, an HC-300 connected to an amplifier will play MP4/AAC.

Note: Internet radio ONLY supports MP3 streaming radio stations.

Tip: The Control4 system must be functioning correctly before performing any of the tasks mentioned in this section. For example, if a disc changer does not appear in the project tree and is identified and connected to the system, media cannot be added to it.

Overview of media management

Media configuration and media management are controlled in the Control4 Composer (Pro, HE, and ME) software. The primary controller that runs Director always runs Media Manager and the media database (SQLite 3.1).

- **Media Database**—Migrating from pre-OS 2.0 to OS 2.0 and later requires a media database conversion and schema changes; consequently, the media databases in OS 2.0 are smaller.
- **Media Manager**—All scans are performed by the Media Manager running Director on the primary controller. **Note**: Composer Pro configures scanning only, and does not scan the media.
- **Media Lookup Service**—This service now runs either in Composer Pro or Media Manager.
  - **Composer New/Edit – Search**—For media metadata lookup when media has not been scanned properly. The information retrieved can be edited and written to the media database, and/or the metadata can be written to the tags.
  - **Media Manager**—Uses online media lookup. *IMPORTANT!* Controller registration is required on my.control4.com to use this service for versions later than Release 1.6.

Note: The AMG c4lookup service used in previous releases has been changed to Gracenote. The Sony 777 Disc Changer uses Gracenote, but the Media Controller can no longer access album, title, or artist information from AMG. CDs, however, can be imported and will show up in the Media database with a date and time stamp.

Other Media Managers: You can use other media managers, for example, iTunes, Windows Media player, and Media Monkey to create MP3s. You can still use Composer Pro, Composer ME and Composer HE to configure media files for a Control4 system.

Media Manager

New scans

- Id3 tags are in the file.
- The title, album and artist names are extracted from the file system folder and filenames.
- The metadata lookup based on title searches comes from Gracenote.
- In OS 2.0 and later, scans are now much faster.
- Press **F5** to refresh after new scans.
- Scans can be tied to events, button presses, etc.

Scans where content is in the media database

- Id3 tags are in the file, or you can synchronize the media database based on the configuration.
- If no metadata is in the media database, the metadata lookup is based on title searches from Gracenote.

Other Media Manager considerations

- Media Manager scans only one device at a time. If several devices are configured and are in the queue, they will be scanned sequentially.
- Composer Pro does NOT need to be connected when Media Manager is performing a scan.
- Scans can be performed manually in Composer Pro as an event or in an automated schedule.
- If the path becomes disconnected, the metadata will not be deleted.
- If devices are modified, the tags will update.
- If you are using a third-party Media Manager, synchronization will occur if set.

Media storage

Audio and video files can be stored on one or more of the following devices:

- **Home Controller disk space**—Home controllers with disk space can host audio and video content. *Note:* Dealers must provide their own backup solution or use a NAS with mirror/recovery capabilities.
- **USB-attached storage**—Both audio and video can be stored on these devices, although Control4 does not recommend doing so due to poor performance.
- **Network-attached storage** (Samba-mounted)—Control4 recommends this solution for audio and video files due to better performance and backup/recovery capabilities.

As with previous releases, all media storage devices must be added and configured in the Composer Pro project. Composer Pro does not automatically discover new media storage devices. The storage locations are not available in the Navigators until the device is scanned.

Media lookup service

- Control4 uses Gracenote for its lookup services.
- Media lookup is optional. See the Media view in *Composer Pro Getting Started* to disable lookup (set to **Never** in scheduling).
- Media lookup requires that the controller be registered at my.control4.com.

Configure video scanning of network storage

Use the Control4 Composer Pro System Design view to set up scanning of video devices, such as disc changers or media players, to play video files from network-attached storage. Scanning can occur for devices or extensions.

Prerequisites

- Ensure that the video device is installed as directed in the Control4 Installation and Setup Guide for the device.
- Ensure that the Network File Storage driver is added to the room in the Composer Pro project.

To configure video scanning:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   In the project tree, select **Network File Storage**.

4   (Optional) To access the files in the storage, if you have password protection enter your user name, password, and workgroup in the Properties pane. If you do not have password protection, go to Step 6. Click the **browse** button to locate the path if you don't know it.

5   Click the **Search** button to locate the storage.

6   Click **Connect**.
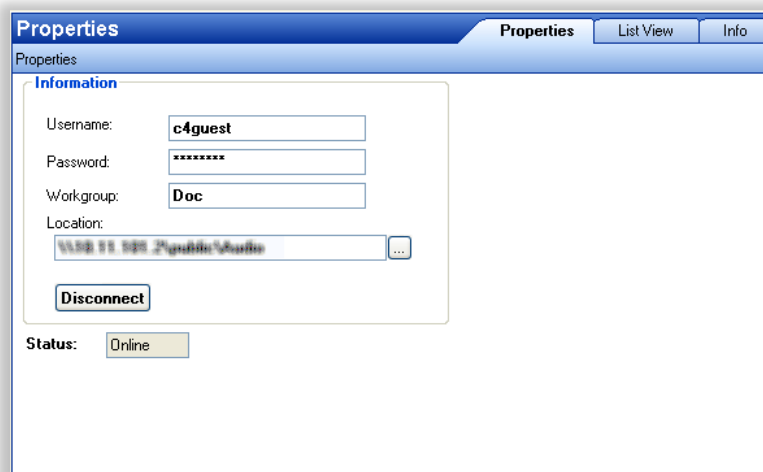
7   Click the **Media** view.

8   In the tree, select **Media Scanning Options** to set up a schedule for scanning. To set up to scan the media now, click **Scan Now**, skip Step 9, and then read the Scanning Schedule in Step 10.

9   Set up the scanning schedule and the files to scan.
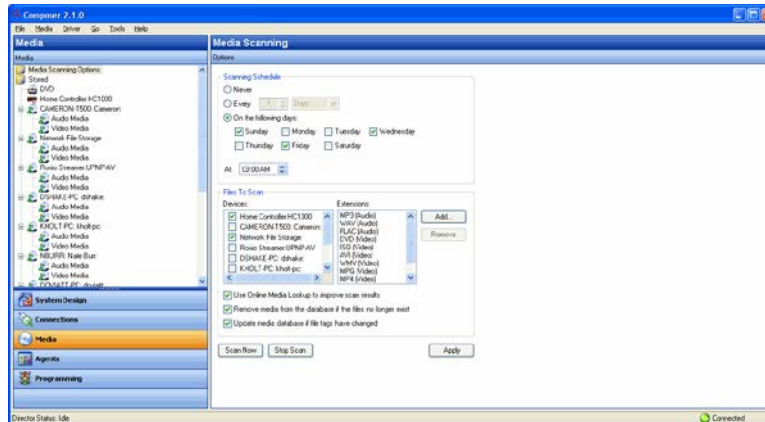
10   Set the schedule as follows:

- **Scanning Schedule**—Select one.
  - **Never**—Select if you never want to schedule an automatic scan.
  - **Every *x* Days or Weeks** (up to 10) —Select the frequency to scan.
  - On the following days—Select Sunday through Saturday.
  - **At <time>**—Use the **up** and **down** arrows to select the time. Highlight **AM** or **PM** and type the value: AM or PM.
- **Files To Scan**—Select a device and extension.
  - **Network File Storage**—Select if you have a NAS you want to scan.
  - **USB Drive**—The manufacturer's USB drive appears here. Select if you have a USB drive you want to scan.
  - **Extensions**—Use the **up** and **down** arrows to select the format to add or remove from the list. To add a format if it doesn't appear in the list, use the **down** arrow to select the extension, select **Video**, and then click **Add**. Click **Remove** to remove that format from the list. *Note:* The list only allows format types that are supported in the Control4 system.
  - **Use Online Media Lookup to improve scan results**—Check if you don't want the search to access the Internet for every format lookup, for example, a specific title or cover art. **Tip**: Properly tagged files will result in must faster access.
  - **Remove media from the database if the files no longer exist**—Check to remove database information when a media file has been deleted. Be careful, however, because if, for example, you disconnect a USB drive with media on it, the database files will delete them if checked, and you may not want to delete them if you use the drive again.
  - **Update media database if file tags have changed**—Check to have the database updated if the metadata changes.

11   Click **Apply**.

12   Click **Scan Now** to start the scan immediately or **Stop Scan** if you've started the scan and want to stop it.

Setting up media auto-scan

Use the Control4 auto-scan feature in Composer Pro to scan media automatically. This section applies to disc changers, media players, network-attached storage, and USB drives.

Note: Composer Pro does not need to be open to scan media. This lets you use other media managers (iTunes, Windows Media Player, etc.). Also, scheduled scans can run automatically or be started through programming.

Prerequisites

- Ensure that the video device is installed as directed in the Control4 Installation and Setup Guide for the device.
- Ensure that the Network File Storage driver is added to the room in the Composer Pro project.

Media Player

Note: The Media Player uses the Network File Storage option in the Media view. Anytime you add new content, scan the files.

For information about scanning files for the media player, see the *Media Player Installation and Setup Guide, Media Player User Guide,* or the Documentation tab in the Media Player's Properties pane.

Disc changer

This section applies to a Sony CX777ES Disc Changer. The benefits of running a disc changer with bidirectional communications (RS-232), such as the Sony CX777ES, is that you can scan your DVDs/CDs stored in the disc changer to identify and index media, and automatically apply cover art and information about the media.

You can configure your system in Composer Pro to scan media on the associated disc changer either automatically or manually when the **Auto Scan** option is selected in the System Design Properties pane for the disc changer. The default is to scan media manually (Auto Scan: Off).

When the **Auto Scan Enabled** option is checked on the Disc Changer Properties page, the Auto Scan feature automatically detects when a disc is added to an empty slot or when a disc is removed. The Navigators are automatically updated with the change. The Auto-scan feature does not detect when a disc is replaced or swapped.

Note: If a DVD/CD is scanned and the media is not recognized, it is titled 'unknown.' You can edit the information about the DVD/CD, and manually provide this information from either Composer Pro or the Navigators. If this DVD/CD is then moved to a different slot, the system applies this same information.

To auto-scan added media to a disc changer:

1 Start Composer Pro and connect to a Director.
2 Click **System Design**.
3 In the project tree, select the device, for example, **Disc Changer** with a serial connection (RS-232) to the controller, for example, the Sony CX 777ES Disc Changer.

4   In the device's Properties pane, ensure that the **Auto Scan Enabled** option is checked.
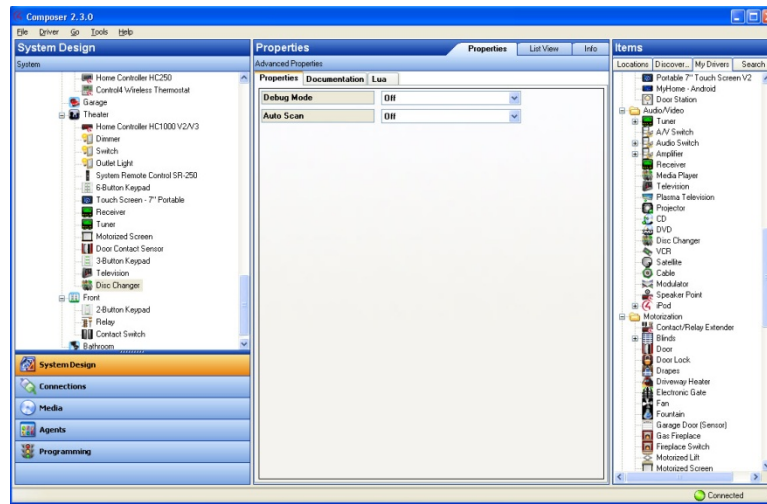
5   Open the disc changer drive, and **add** or **remove** the DVD/CD.

6   Close the drive to begin the auto-scan. The information for the added DVD/CD is automatically made available on the Navigators. See also "Setting Up Media Stored on a Disc Changer."

Setting up media stored on a controller

If you set up media on a Control4 controller with storage space for that media (not all controllers have media storage), the controller has a built-in digital audio player. Digital Audio is the segment of the controller that provides the digital audio streaming. Each source device that can provide an audio stream, whether it is a CD changer plugged into the analog inputs on a Control4 Speaker Point or a Control4 controller, it can provide audio to the digital audio servers. Each must have a connection to the digital audio components.

When configuring these types of connections in the Connections view, there is always an open connection to the digital audio components for each digital audio server or digital audio client. You can see many connections to the digital audio components depending on the hardware configured in the project.

Prerequisites

- Ensure that a controller is added to your project and identified to the network.
- Ensure that your controller has storage space for media.

To add and scan available media on a controller:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   Click **Connections**.

4   In the Network tab, ensure that the controller has an address. If it does not, you must go back and identify the controller to the network.

5   Click **Media**.

6   Select the **Controller** with the media you want to add, and click **Add**.
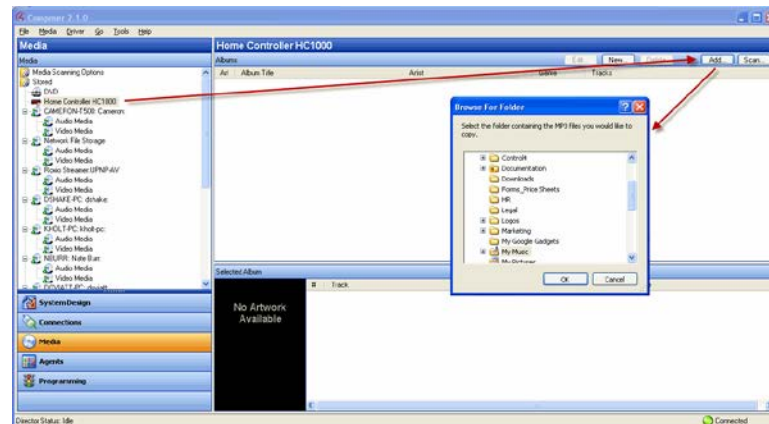
*Tip: If a dialog box displays and states that you cannot add the media, make sure you identify the controller in the **Connections** view > **Network** tab.*

7   Browse to the directory of music files to be added to the controller. After you add the files, the scan automatically starts. After a few moments, the media is scanned, and a list of albums appears. You may see the on-screen Navigator update during this process.

*Tip: Another way to add files from a network share to a controller is to go to the Windows **Start** menu, and select **Run**. Type //<**Controller's IP Address**>/media/audio/music/<**Artists**>/<**Albums**> and copy the files there.*

8   From the **File** menu, select **Refresh Navigators** to make the new media is accessible through the Navigators in the Control4 system.

Setting up media stored on a disc changer

Use the Control4 Composer Pro Media view to add and scan media according to the options available on your disc changer. Adding and scanning DVDs and CDs loaded in the disc changer populates the media information in the media database. This permits users to view the media from their Navigators.

This section covers how to:

- Add media to a disc changer
- Scan media in a disc changer

Prerequisites
- The system must be registered at my.control4.com before using the online Media Services. To register the system, see 'Registering the System' (*Composer Pro Getting Started*).
- Ensure that a controller is added to the project tree and identified to the network.
- Ensure that a disc changer is added to the project tree and identified to the network.

To add media to a disc changer:
1   Start Composer Pro and connect to a Director.
2   Click **Media**.
3   Select **Disc Changer** in the Media project tree. If any of the following options are available for the selected disc changer, the buttons will be active (not grayed out):

Scan—Lets you scan all media located on the disc changer to add to the media database (recommended if available).

Note: Because media scanning has been moved to the background, the scanning status is only available through Director status messages. To do this, you can either watch the Director status line or re-select the media to view the content that has been scanned.
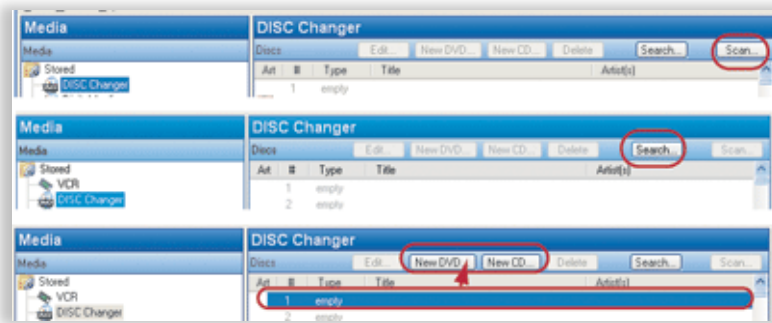
Search—Lets you search for media titles located on the disc changer to scan and add them to the media database.

Edit—Lets you edit your entries (artist, album, title, etc.).

New DVD or New CD—Lets you add new DVDs and CDs to the media database.

4   Always use **File** > **Refresh Navigators** to make the new media accessible through the Navigators in the Control4 system.

Note: Control4 has not implemented a UI for browsing CDs stored in a disc changer. Use a Legacy Navigator (prior to OS 2.0) that supports this functionality if this is an important consideration.

Scanning media in a disc changer

The following sections describe how to add media to the media database using the options listed above.

To scan media loaded in a disc changer to add it to the media database:

1   Click **Connections**.

2   Ensure the disc changer is connected to a serial port on the controller.

*Example: From the Control/AV tab, select **Sony CX777ES Disc Changer**; ensure that the **Serial RS-232** is connected to the correct serial port (1 or 2).*

3   From the **Network** tab, ensure that the controller has an address.

4   Click **Media**.

5   Select **Disc Changer**.

6   In the Disc Changer pane, click **Scan** > **OK to Scan all**.
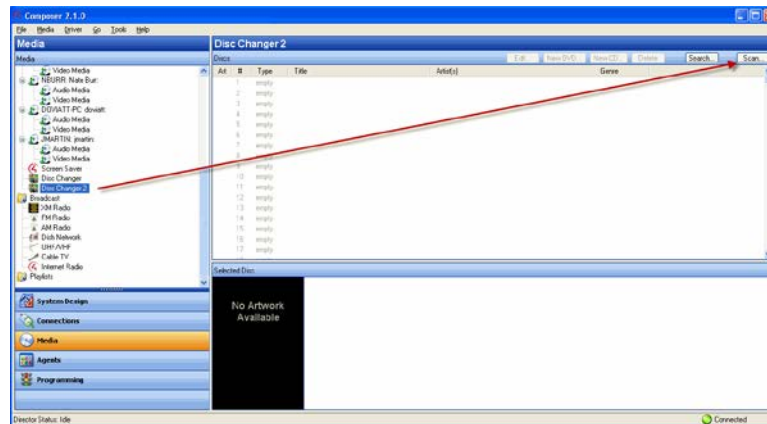
Note: *If the following error message displays, "Your system has not been registered on my.control4.com," you can click* **Yes** *to continue scanning music without registering, but the music scans based only on the current metadata stored in the music files. You will need to enter any missing information manually for each disc.*

Example: *If no cover art is found in the file's metadata, then no cover art is associated with the music unless the system is registered in 4Sight, and you can go to the online media lookup (Media view > Edit > Name > Search > Select > Next) to obtain the cover art for the music. See "Registering the System in Composer" in* [Composer Pro Getting Started](#) *for instructions.*

Automatically scan media

The following steps use the Sony CX777ES Disc Changer as an example.

To auto-scan added media:

1   From the project tree, click the **Sony CX 777ES Disc Changer**. The device Properties pane appears for this device.

2   Ensure that the **Auto Scan Enabled** box is checked.

When you select the **Auto Scan Enabled** option from the device's Properties page in Composer Pro, an automatic scan of the disc(s) is available if you add a new disc to an empty slot, or if a disc is removed. In those cases, the disc changer automatically recognizes the change, and the Navigators automatically update the changes. The disc changer recognizes the changes in its slot when its door closes to perform the auto-scan. The Auto-scan feature does not detect when a disc is replaced or swapped.

Note: *Control4 recommends that you check the* **Ignore Unexpected Play, Stop, or Pause** *option. This option should be checked if you are configuring a system with lighting, for example, when the movie starts playing, and the lights in the room dim. Normally, you can use the Play, Stop and Pause functions on the disc changer during the course of a movie being played. By checking the option, these functions are ignored by the system.*

3   Open the disc changer drive's bay, and change the existing DVD or CD.

4   Close the bay.

5   The auto-scan begins automatically when the disc changer door closes, and the information for the new DVD or CD is available in the Navigators.

Searching media in a disc changer

**To search media loaded in the disc changer to add it to the media database:**

1   Click **Media**.

2   Select the **Controller** in the project tree.

3   In the Disc Changer pane, click **Search**.
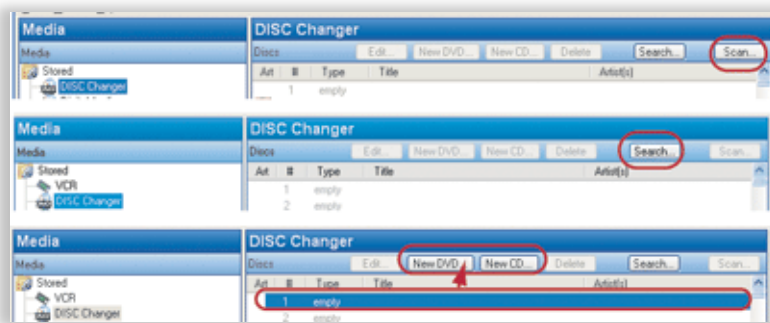
4   Type the **DVD** name in the blank box. The possible DVD titles from the Web database appear in the Search Results window. Use the **scrollbar** to find the appropriate DVD title

Example: *"A Beautiful Mind"*

Select the appropriate DVD title, drag it over the empty line item, and then select it again.
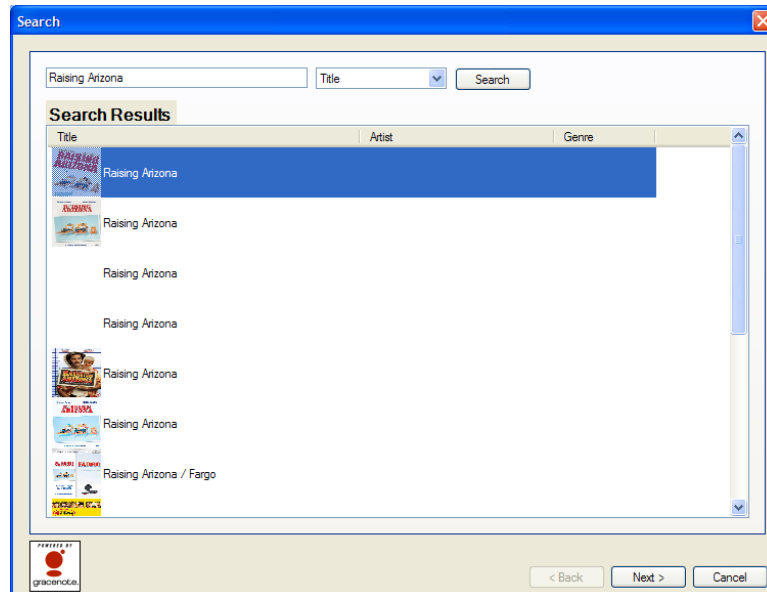
5   Repeat the previous steps for each of the DVDs/CDs in the disc changer you want to add to the media database.

6   Click **Finished**.

# Edit CD or DVD information

To edit a scanned DVD or CD:

1 Select the **CD** or **DVD** to edit.

2 Click **Edit**.

3 Change the Title, Director or Artist, Album or Movie, Studio, Genre, etc. You can also change the location, locate the cover art (Find Art File), and so on.

4 Click **OK**.
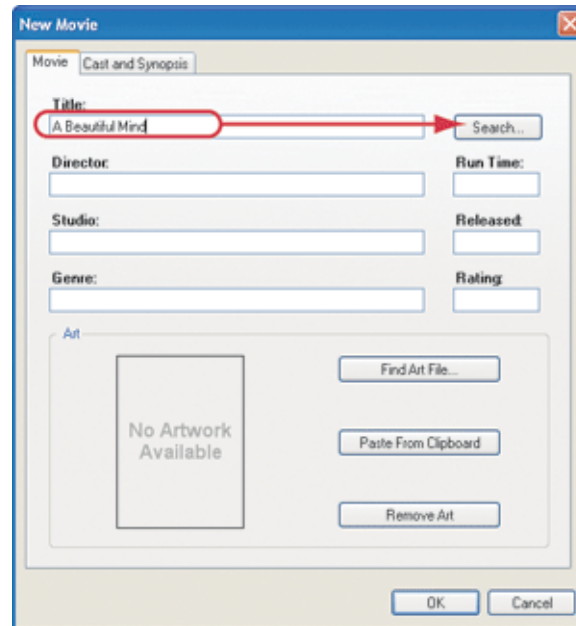

Adding a DVD or CD

To add a DVD or CD:

1 Click **Media**.

2 Select **Disc Changer** in the Media pane.

3 Select the empty box for the **New DVD** and **New CD** buttons to appear.
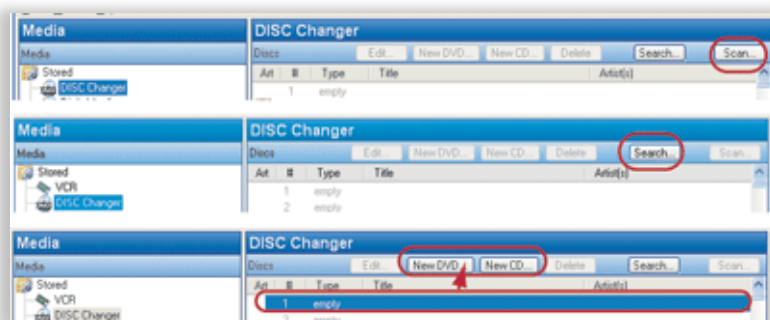
4　Click either **New DVD** or **New CD** as appropriate. The New Movie or New Album dialog appears.

5　In the Title box, enter the DVD you want to play.

　　Example: *"A Beautiful Mind"*

6　Click **Search**.

7　When the Search dialog appears, use the **scrollbar** to find the appropriate cover art, and select it.

8　Change the search criteria, and search again if needed. The possible matches from the web database appear in the Search Results window.

9　Click **Next**.

10 (Optional) Customize the DVD/CD information before adding it to the media database by editing the text in the box.

11 Click **Finished**.

12 Click **OK**.

Setting up videos for a Media Player

Use the Control4 Composer Pro **Media** view to identify the videos that you want the Media Player to play.

Prerequisites

- Ensure that the Media Player is installed and added to Composer Pro as directed in the *Control4 Media Player Installation and Setup Guide* and *Control4 Media Player User Guide*.
- Ensure that the network-attached storage contains the videos that will play on the Media Player, and that the NAS is added to your Composer Pro project.
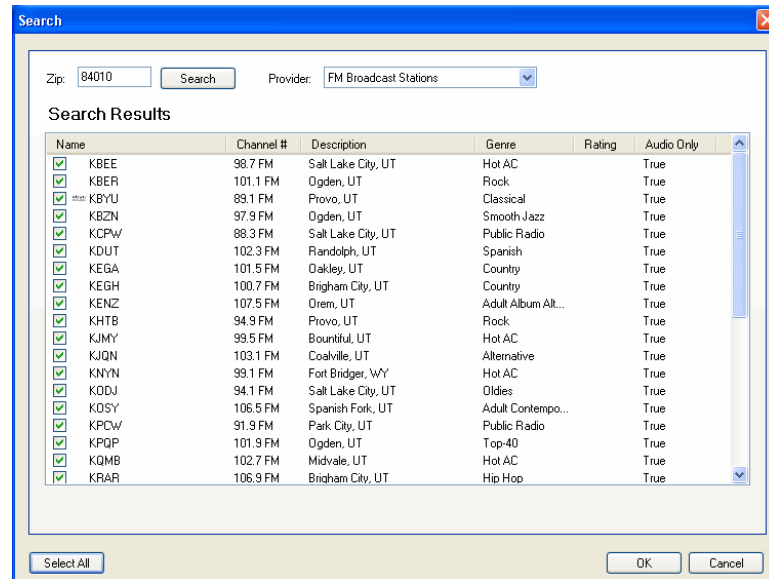
Setting up media for radio stations

Use the Control4 Composer Pro Media view to set up radio stations for a Control4 system.

To set up media for radio broadcast stations:

1 Start Composer Pro and connect to a Director.

2 Click **Media**.

3 Select the broadcast media type (XM Radio, AM Radio, Dish Network, etc.).

4 Click **Search**.

5 In the **Zip** box, type the ZIP Code of where the Control4 system is located.

6   Click **Search**, and use the pull-down menu to select the listings. The available stations are populated in the Search Results window.

7   Check the individual boxes of stations that you want to make available in the Navigators; or click **Select All**, and then click **OK**.

The selected stations populate the media source channel list (such as the FM Radio list shown next).

8   Repeat the previous steps for each additional media source, e.g., cable, satellite, XM radio, or AM radio. (Each of these services must be set up separately.)

Setting up media for television stations

Use the Control4 Composer Pro Media view to set up television channels for the Control4 system.
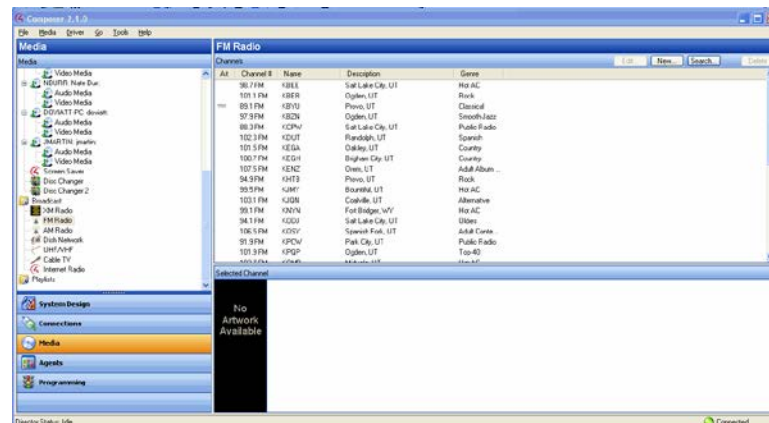
To set up media for television broadcast channels:

1   Start Composer Pro and connect to a Director.
2   Click **Media**.
3   Select the broadcast media type (UHF/VHF, satellite, cable, etc.).
4   Click **Search**. When the dialog appears, type the ZIP Code for the Control4 system's location in the box.
5   Click **Search**, and use the pull-down menu to select **Local Broadcast Listings**. The available channels are populated in the Search Results window.
6   Check the individual boxes of channels that you want to make available in the Navigators, or click **Select All**, and then click **OK**.
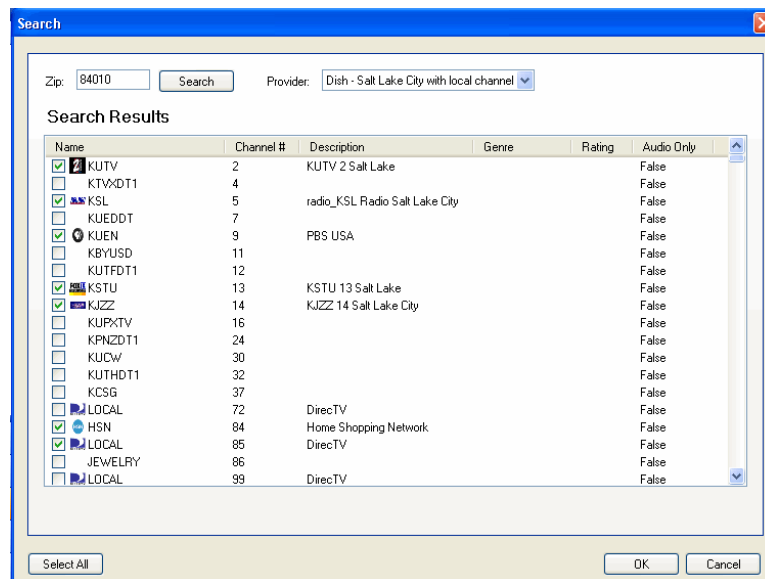
The selected channels populate the media source channel list (such as the UHF/VHF channel list shown next).
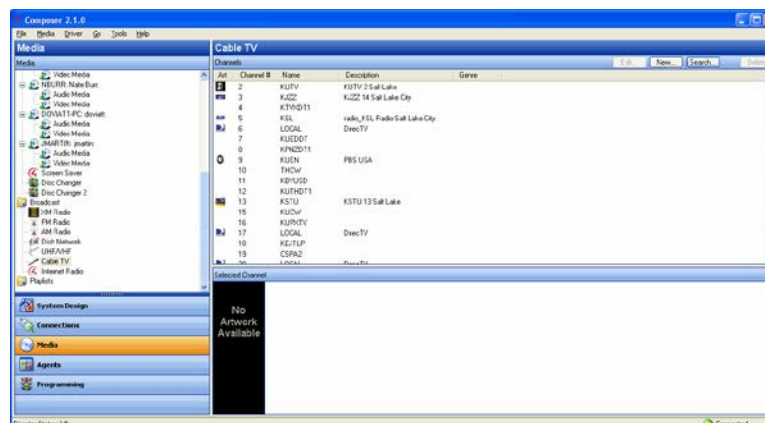
7   Repeat the previous steps for each additional media source, e.g., cable, satellite, XM radio, AM radio, or FM radio. (Each of these services must be set up separately.)

Setting up Internet radio stations

Use the Control4 Composer Media view to add Internet radio stations that you can play from touch screens, MyHome apps, or on-screen Navigators.

Prerequisites

- Ensure that the controller is installed and identified as directed in the controller's installation guide.
- Ensure that the Internet radio stations you add are in MP3 format. You'll need to create a new form for each station you add.

To configure Internet radio:

1   Start Composer Pro and connect to a Director.

2   Click the **Media** view.

3   From the media list, click **Internet Radio**.

4   In the Internet Radio pane, click **New**.
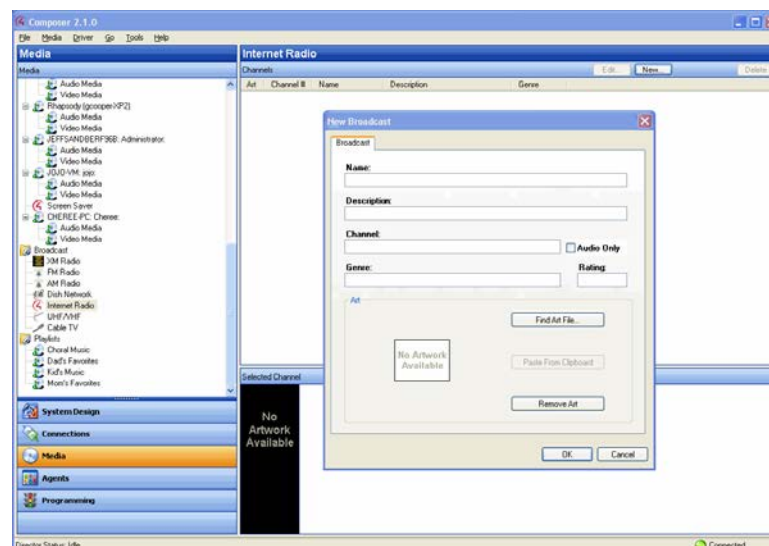
5   Fill out the form:

a   **Name**—Add the name of the station.

b   **Description**—Add a description that's meaningful.

c   **Channel**—Add the URL for the channel. **Note**: Locate the URL of the MP3 stream that starts with **http://**... **Note**: Ensure that **Audio Only** is checked.

d   **Genre**—Add a genre if appropriate.

e   Check **Audio Only** for listening.

f   **Cover Art**—If you'd like, you can copy the radio station art to your list. In a browser, go to the link and click **Images**. Click **Find Art File** to locate an image, copy it to your clipboard and then click **Paste from Clipboard**.

g   Click **OK**.
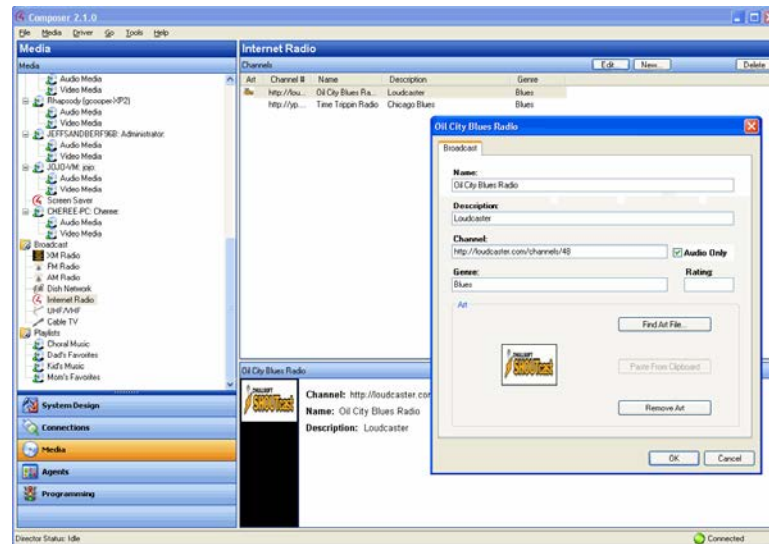
6   Go to the touch screen, MyHome app, or on-screen Navigator and select the **Listen** > **Station**. *Note:* If you have several sources, Internet Radio appears under Sources.

Importing a DVD list from a file

Use the Control4 Composer Pro Media view to populate DVD metadata stored on a disc changer.

To import a DVD list:

1   Start Composer Pro and connect to a Director.

2   Click **Media** view.

3   Right-click on the **Disc Changer,** and select **Import DVD List from File**. Composer Pro automatically populates the slots of the disc changer with the DVDs stored in each slot as listed in the file that is imported.

The imported file must be a CSV (comma-separated value) file listing the slots and the titles of the DVDs, one per line. You can create this file using a simple text editor or spreadsheet program by exporting a spreadsheet file in a CSV formatted file. This new feature provides a simple and easy way to quickly configure all of the DVDs in any manufacturer's disc changer.

Example formatting for CSV file:

- 1, Toy Story
- 2, The Incredibles
- 3, The Perfect Storm

Using external storage devices

You can access digital music from an external storage *device* in your Control4 system. External storage devices include USB flash drives, USB external hard drives, or a shared network storage area (for example, a computer's hard drive).

The following applies when setting up an external storage device:

- USB flash drives or USB external hard drives must be formatted as FAT32 devices.
- Shared drives on a Windows system cannot contain a space in the directory/pathname.

Set up the external storage device or networked file storage as described in this section.

Note: When you disconnect the external drive (USB, network, etc.) from the system, the music is no longer available. Reconnecting the external drive makes the media available again.

Attach and scan external storage devices

To attach and scan external storage devices using a USB *connection*:

Note: External storage devices must have media stored in unprotected MP3 format.

1 Power up the external storage device.
2 As appropriate, use the documentation provided with your Control4 controller to attach the external hard drive using the USB port.
3 Start Composer Pro and connect to a Director.
4 Click **Media**.
5 In the project tree, select the external device.
6 Click **Scan** in the device's pane.

You can add media from the external storage device when it is connected to the controller. However, it is recommended that you connect your external drive directly to the PC where you want to copy the media. When scanning, the media appears on the device.

Access and scan network storage devices

To access and scan network storage devices:

Note: The network location must be an open share location (no password required).

1 As appropriate, use the documentation provided with your operating system to create a shared network drive.

    *Example: Using Windows XP to make a local C:/ Drive directory available on the network, right-click the folder and select **Sharing and Security**. Click the **Share this folder** button.*

2 Click **System Design**.
3 From the My Drivers tab, double-click **Network File Storage** to add it to the project tree.

4 Highlight **Network File Storage** in the project tree, and configure the username, password, and workgroup (or domain) for the network file share, and then browse to its network location.
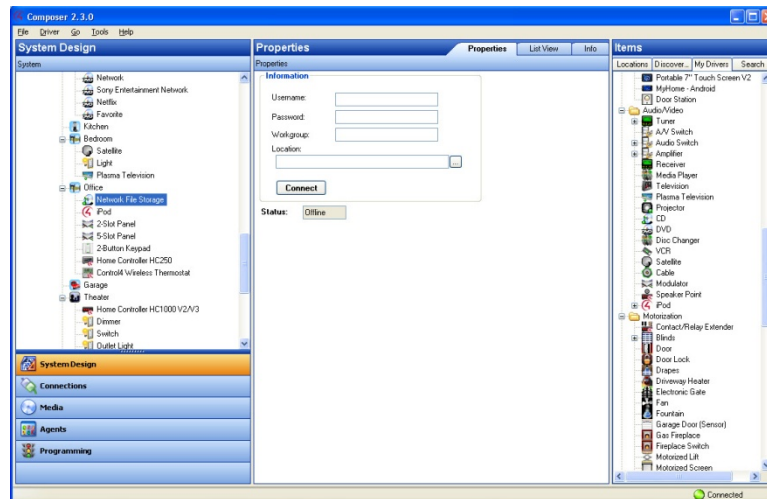
This information varies between types. Contact your System Administrator or Control4 Technical Support if you need help with this information.

5 Click **Media**.

6 In Network File Storage, notice the options: Audio Media and Video Media.
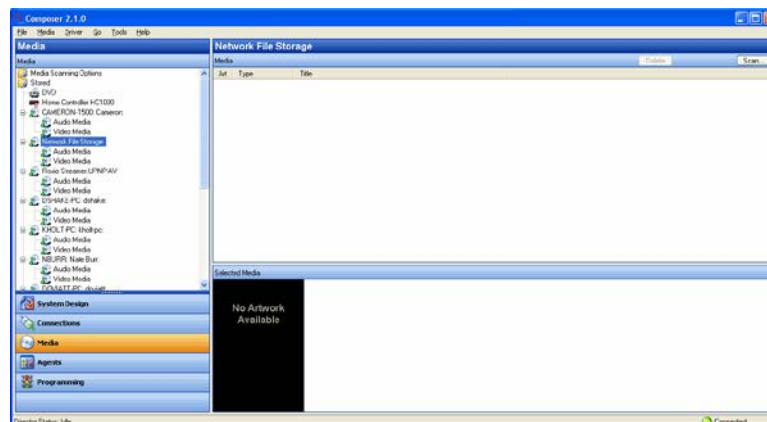
7 To add or scan audio files, in the media list select **Audio Media**, and then click **New** or **Scan**.

Notes:
- *When adding music to Network File Storage from the desktop, the music folder must reside in My Network Places so components can access the music files. A mapped network drive is not applicable in this situation.*
- *Audio files must be in one of the following formats to be scanned and played by the Control4 system: MP3 or FLAC. If you connect an iPod or another audio device, the Control4 system can play back the files supported on that device; but only MP3 files can be decoded.*

8 To scan video files, in the media list select **Video Media**, and then click **Scan**.

Notes:

- *Video files must be in one of the following formats to be scanned by the Control4 system: .avi,* DVD*, .iso, .m4a, mpeg, .mpg, or .wmv. These video files can only be played using a Media Player device.*
- *Video is not supported from a USB drive, so the Video Media option is not displayed in the list under a USB drive.*

Adding an audio or audio/video switch

Use Control4 Composer Pro to add audio or audio and video switches to a Control4 system.

Prerequisites

Set up the audio or audio/video switch and any associated hardware to the Control4 system.

To add an audio switch or audio/video switch:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   In System Design, from the Search tab add the audio switch or audio/video switch to your project.

4   Using the Local or Online Database, select the device type: **Audio Switch** or *AV* **Switch**, and select **All manufacturers**.

   Example: *To add the applicable Knox AV switch (RS-232) driver, use the Search tab, and select the Device Type: AV Switch > Manufacturer: All manufacturers.*

5   When the AV Switch object is added to the project tree, select the object to view the device properties and change the configuration if applicable.

   Example: *The Knox AV Switch has no properties to modify, but other switches have properties, such as the Control4 Audio Switch.*

6   Connect the network or control/AV devices as necessary for your configuration.

7   Modify any room connections as needed for your configuration.

Creating a playlist

Use Control4 Composer Pro to create a playlist from streaming media, for example Rhapsody.

You can create playlists from the touch screens, MyHome apps, or on-screen Navigators also. See the *Control4 System User Guide* for details.

To create a playlist:

1   Start Composer Pro and connect to a Director.

2   Click **Media**.

3   In the Media view, go to the Media menu, and select **New Playlist**.

4   **Name** the playlist.

   Tip: *You can rename it any time by right-clicking the playlist, selecting **Rename Playlist**, and then typing a new name.*

5   Select the controller or other media on which the songs are stored, and ensure that you have scanned the media from the storage to make the media known to the controller.

6 Drag the list of songs to the playlist.

These playlists are designed exclusively for streaming media in digital audio. If the customer subscribes to the Rhapsody Music Service, then Rhapsody playlists can be created using a Navigator (see the *Control4 System User Guide* for details). In OS 2.0 and later, playlists can include CDs/DVDs, broadcast channels or stations, but they are a separate playlist from those in Rhapsody.

Note: *To set up a Rhapsody subscription on behalf of the user or yourself, obtain a Rhapsody account at http://www.control4.com/rhapsody, and then refer to the information about Rhapsody in the Control4 System User Guide.*

**7** Drag every album or song you want to add to the playlist onto the playlist name.
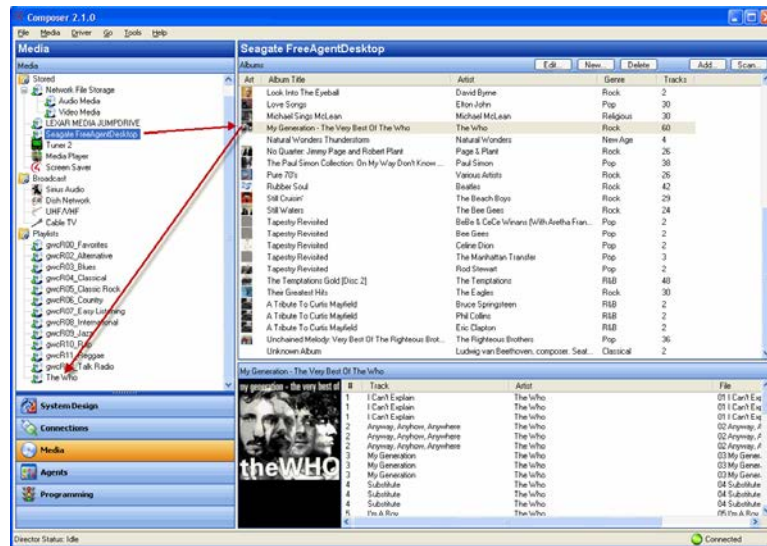
8 After adding at least one (1) album or song, select the playlist to view the contents.
9 (Optional) Remove songs:

- To remove a song, right-click and select **Delete**.
- To remove multiple songs, press and hold the **Shift** key. Select the songs, right-click anywhere in the selected list, and select **Delete**.

- To remove selected songs, press and hold the **Ctrl** key. Select the songs to delete, and select **Delete**.
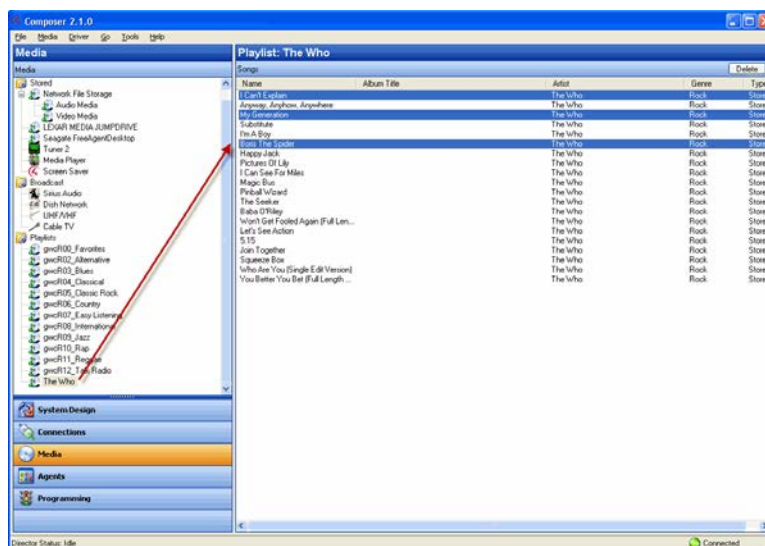
The playlist can now be played from or edited in the Navigators.

Testing the media connection

To test control of media through the Control4 Navigators (System Remote Control, on-screen Navigator, or any of the other Navigators or touch screens), use the steps outlined in the *Control4 System User Guide*.

Suggested test items:

- Play an album
- Add an album or track to the Now Playing queue
- Play a playlist created in Composer Pro
- Create a playlist on a touch screen or on-screen Navigator
- Play multiple streams of music (play different music in different rooms)
- Play a movie on the television

Editing media information

Use the Control4 Composer Pro Media view to edit the media information for 'unknown' DVDs or CDs. You can edit the media information in the Navigators: on-screen, touch screen, or MyHome app.

Editing CD information

Use the Control4 Composer Pro Media view to edit CD album names, artists, genre, or cover art for a Control4 system.

To edit information about a CD:

1   Start Composer Pro and connect to a Director.

2   Click **Media**.

3   In the project tree, double-click the **CD storage device** on which you want to edit CD information; for example, CD, disc changer, or controller.

4   Select an album and click the **Edit** button, or double-click the **album title**.

5   In the Album tab, edit the Album Name, Artist, Label, Genre, or Art. Make text changes as applicable.

6   Click **OK**, or use the additional features outlined below.
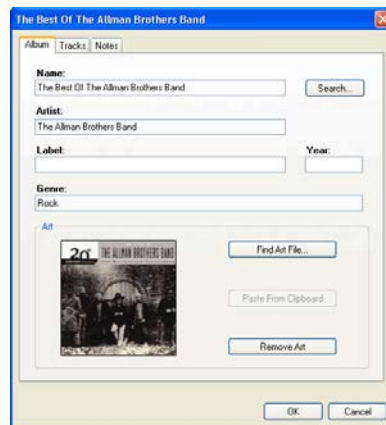
7   Search on a **Name** or **Artist** to search the database for similar entries.
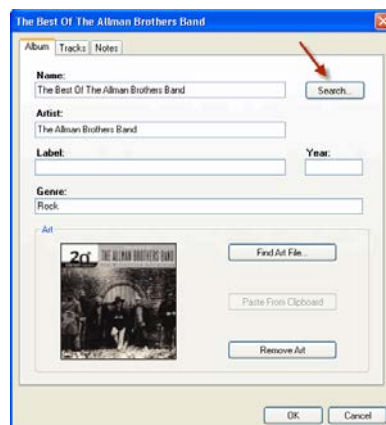
8   Select a search result. Double-click to select an album title, and click **Next**.
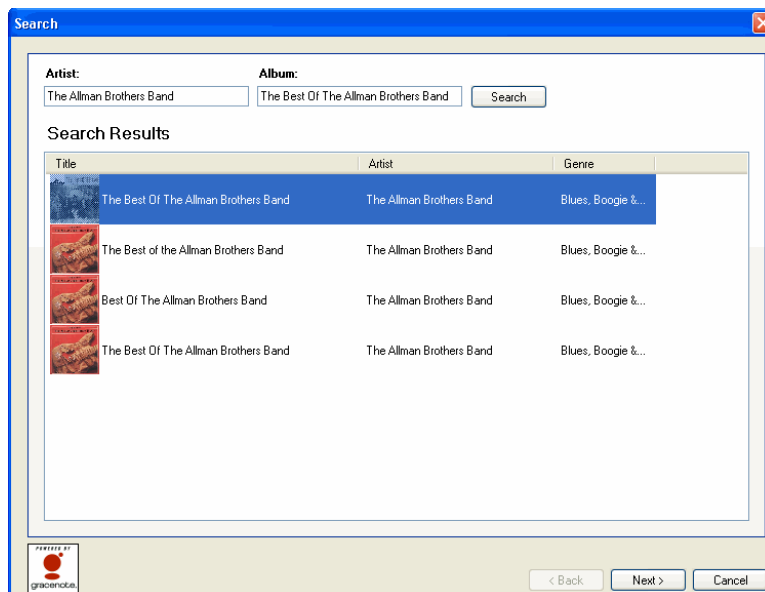
9   View or edit the information about the album: Name, Artist/Composer, Label, Genre, Year, Art, and Notes.

10   Change the information as needed, and then click **Finished** to save your changes.
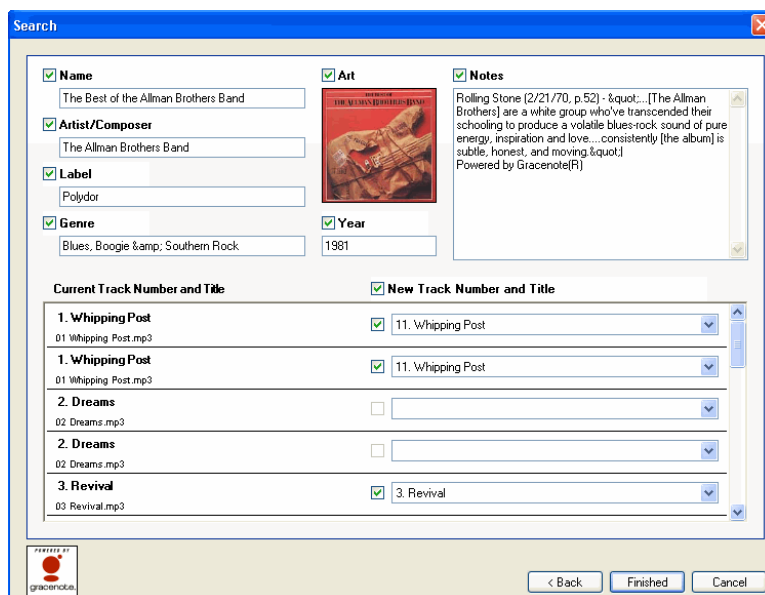
11   Select the **Track** tab, and edit or remove tracks as needed.

12   Select the **Notes** tab, and edit as needed for future reference.

Editing DVD information

Use the Control4 Composer Pro Media view to edit DVD title, director, studio, genre, runtime, release date or rating in a Control4 system.

Tip: New in OS 2.0 and later, you can edit DVD and video titles on the touch screens and on-screen Navigators.

To edit information about a DVD:

1   Start Composer Pro and connect to a Director.

2   Click **Media**.

3   In the project tree, double-click the **Disc Changer** or **DVD**.

4   Select a movie and click the **Edit** button, or double-click under **Discs**.

5   In the Movie dialog under the Movie tab, edit the DVD title, director, studio, genre, runtime, release date or rating information as needed.

6   Click **OK**, or use the additional features outlined below.
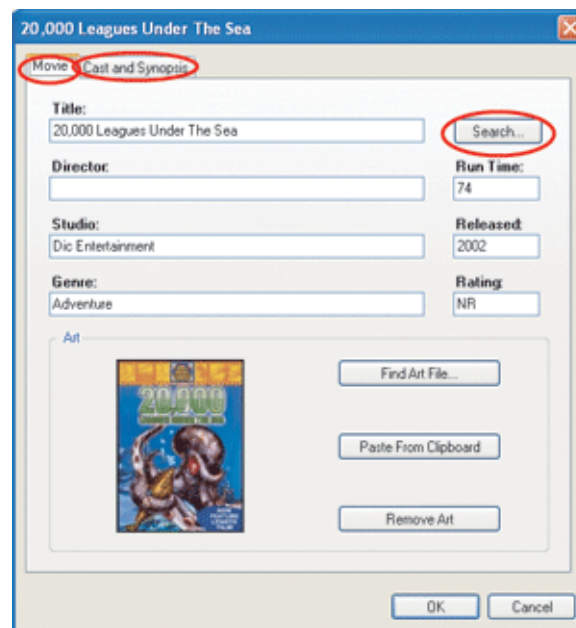
7   Click **Search** to present similar entries.

8   In the results list, double-click a **DVD**.

9 Edit the DVD information.

10 Replace the cover art using one of the options provided.

11 Click the **Cast** and **Synopsis** tab to edit text displays as needed.

12 Click **Finished** to save your changes.

Programming

Use the Control4® Composer Pro Programming view to program the Control4 system. This section assumes that you have a general understanding about how to use Composer Pro to add and identify devices, and that you are now familiar with the Composer Pro interface. If not, read "The Basics" sections or refer to *Composer Pro Getting Started*.

Use this chapter to learn:

- Programming basics
- Programming with commands
- Programming with conditionals
- Programming using rooms
- Programming using variables
- Programming with agents
- And more

Programming basics

Use the Control4 Composer Pro Programming view to program events and other actions that affect Control4 system devices.

*Tip: A useful tool is available in OS 2.0 and later that can help you keep track of your programming scripts. The tool is called Programming Detective which is part of the Detective Suite, in **Tools** > **Detective Suite**. See the Composer Pro Getting Started guide for details.*

To get to the Programming view:
1 Start Composer Pro and connect to a Director.
2 Click **Programming**. In the Programming view, you can perform basic programming task.

Event-driven programming

Programming is based on events. When an event is triggered, other actions can take place.

Example: If you program to lower the projector screen in the Theater by pressing a keypad button. You can program the receiver, DVD player, and projector to power up and start playing a DVD also. Programming the system is where the true value of Composer Pro becomes a reality.

To program the system using Composer Pro, you drag and drop Events and Actions that you create for corresponding devices to a programming Script pane. The sections below show these panes.

Events (Programming pane)

Select an event (left side of the window):
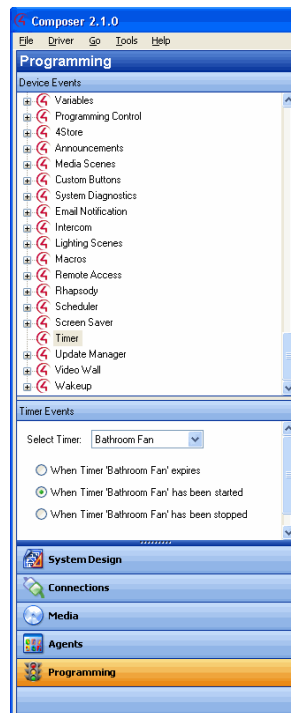
Actions (Actions pane)

Select the action(s) (right side of the window):

Script (Script pane)

Drag the Events and Actions commands to the Script pane (middle pane):

The next table describes events, actions, and the script.

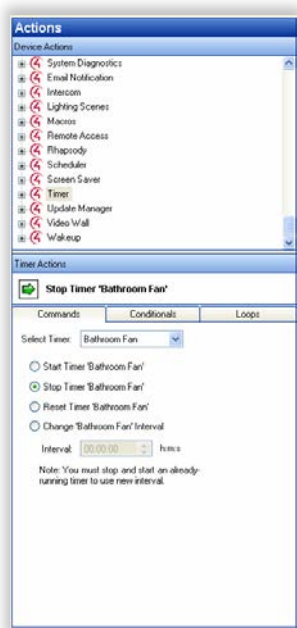| Programming Item	Description
Events	Events All programming begins with events. An event is a "when" statement. An event is the trigger report that something happened that results in an automation. Events happen instantaneously. On a keypad, pushing a button is one event. Actions all occur under Events. Examples of events include: • When the door opens • When it is 7:00 AM • When it is sunrise
Actions	After the event identifies to the system that something occurred, it sends actions. The following are the methods that are used by the system to define actions: • Commands. The Commands tab displays all available commands for a selected item in the Action Device Tree. A command is a "do" statement. Commands are actions the Director tells the device to do. Examples of commands include: Light: on, off VCR device: play, stop, pause CD Changer device: go to disk Security device: arm, disarm TV device: Power on/off, change channel • Conditionals. The Conditionals tab displays all available conditionals for a selected item in the Action Device tree. A conditional is an "if" statement. An "if" statement asks a true/false question to the device. Examples of conditionals include: If door is open If after 5 PM If light is greater than 50 percent • Loops. The Loops tab displays all available loops for a selected item in the Action Device tree. A loop is another type of conditional. A conditional loop is a "while" statement. It is something that is ongoing. Examples of conditional loops: While the sprinklers are on While the motion detector detects movement While a doorbell switch is being pressed ***Warning:*** Using loops (*WHILE* statements) can potentially overwhelm the controller's CPU. Use loops sparingly. • Delays. A delay stalls a program from running to ensure actions that occur at the right time. Script the linking of events and actions is defined on the script.
Script	The linking of events and actions is defined in the script.

Tip: *To configure or program devices, you can use properties, agents and variables also. These are considered advanced configuration and programming tasks. See "Programming with agents" or "Programming with variables."*

Programming elements

Basic programming consists of two (2) parts:

1   Define a device's events that trigger actions.

2   Define a device's actions to trigger when an event fires.

The following steps introduce the basic programming flow and script creation:

1   Define the device's event (Events pane) and select the event. Notice that it appears in the Script pane.
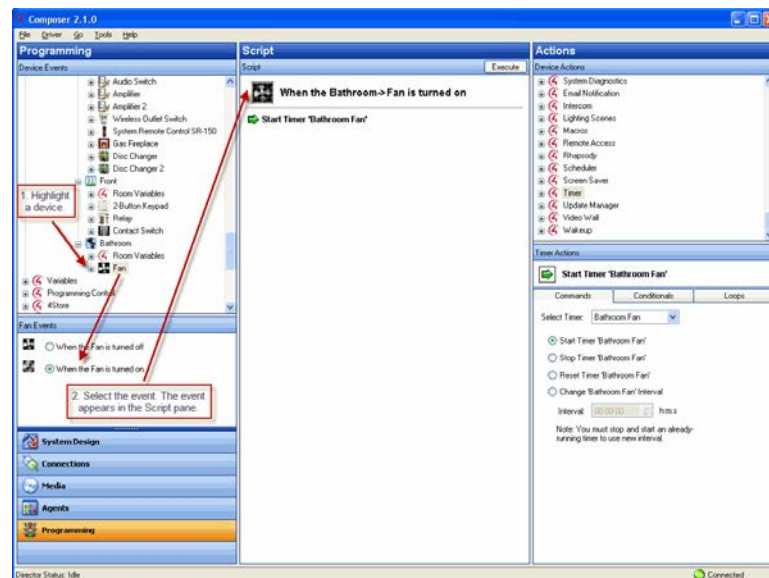
2   Define the device's actions (Actions pane): commands, conditionals, or loops.
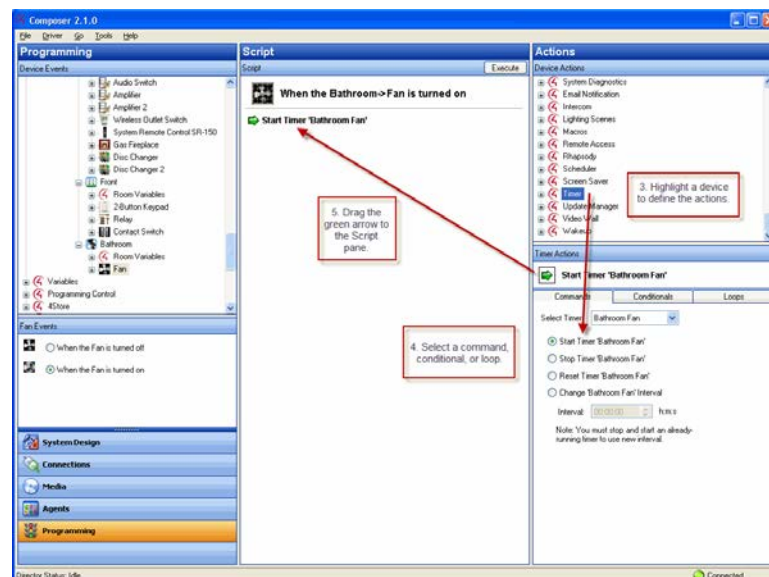
3   Drag the actions to the script (Script pane).

4   In the Script pane, click **Execute**.

   *Note: Programming can make use of agents also, where you can include pre-programmed system functionality, such as scheduling, delays, or setting up Lighting Scenes. **Example:** To program around sunrise and sunset, use the Scheduler agent.*

See "Programming with agents" for more information about using agents in programming.

See the next section or *Composer Pro Getting Started* for example programs you can create.

Programming with commands

A Command for a Control4 system is a "do" statement. Commands are actions that tell a device what to do.

Example: *The example in this section shows you how to program a **3-Button Keypad** to turn on the **sprinkler system** using **Relay 2** for control.*

To program a 3-Button Keypad to toggle sprinklers on and off:

1   Start Composer Pro and connect to a Director.
2   Click **System Design**.
3   The following devices need to be added and identified in the project:
   • Controller
   • 3 Button Keypad
   • Sprinklers
4   Click **Connections**.
5   Make sure the sprinklers are connected to the correct relay port.
   a   Click the **Control/AV** tab.
   b   Select **Sprinkler System** from the project tree.
   c   In the Control & Audio Video Connections pane, ensure **Sprinklers** is connected to **Relay 2**.
6   Click the **Network** tab.
7   From the Network tab, ensure that the controller and 3-Button Keypad have an address in the IP Network Connections pane.
8   Click **Programming**.
9   In the Device Events pane project tree, select **3-Button Keypad**.

10 In the 3-Button Keypad Events pane, click the button that you want to program—**Button 1** (default). This automatically identifies the Press event for programming Button 1 on the keypad. The event appears at the top of the Script pane.
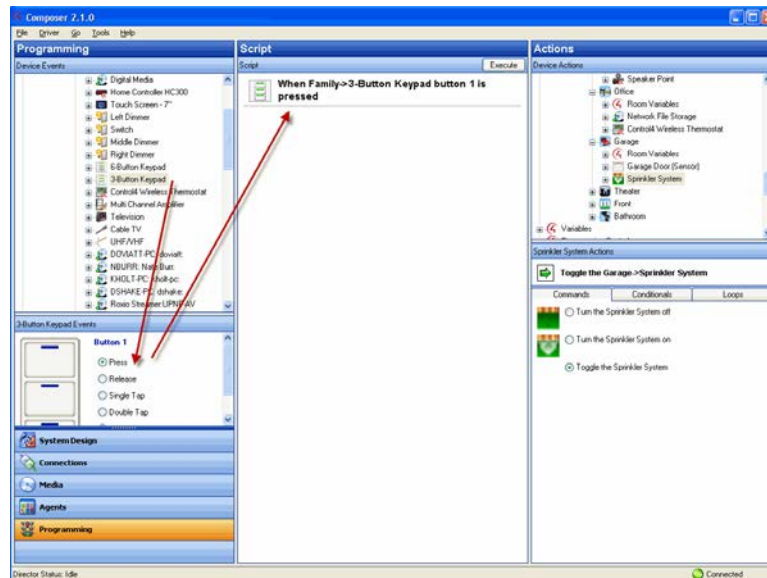
11 In the Actions pane, click **Sprinkler System**.

12 Click the **Commands** tab, and select **Toggle the Sprinkler System**. The command you chose is displayed in the Sprinkler System Actions pane with a green arrow.

Note: The title of this pane varies depending on the device you select.

13 Click the **green arrow**, and drag it to the **Script** pane (center pane).
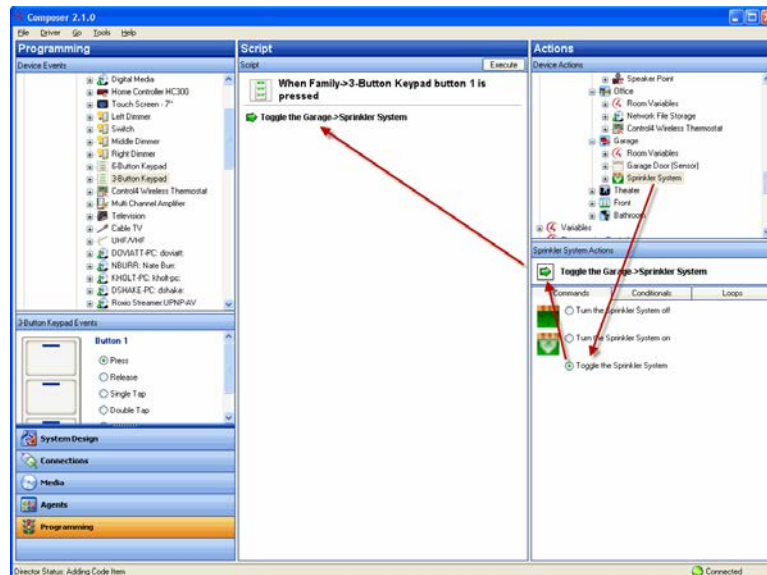
14 Click **Execute** in the Script pane to turn on the sprinklers.

15 Click **Execute** again to turn off the sprinklers.

Results: The top button of the 3-Button Keypad now toggles the Sprinklers on and off.

Programming with Delay, Stop, and Break commands

Control4 Composer Pro programming provides a Delay command in response to an event that waits for a specified amount of time before executing the next command in a code sequence. See "Programming with a While Statement" for one example; another example is listed below.

When programming a device, you always have the following options:

- **Delay**—Lets you delay an action from taking place.
- **Stop**—Lets you stop all programming.
- **Break**—Lets you break out of a 'While' or loop or 'If' statement when a specified condition is met and returns to the programming outside of the loop.

Note: Break commands do not break out of a conditional. See "Programming with Conditionals" for details.

Delay command

To use the Delay command during programming, see this example using a Motorized Screen and a DVD player:

1 Start Composer Pro and connect to a Director.
2 Click **Programming**.
3 Select the **Motorized Screen** in the project tree.
4 Select the event **When the Motorized Screen is put down**. Notice the string that appears in the Script pane.
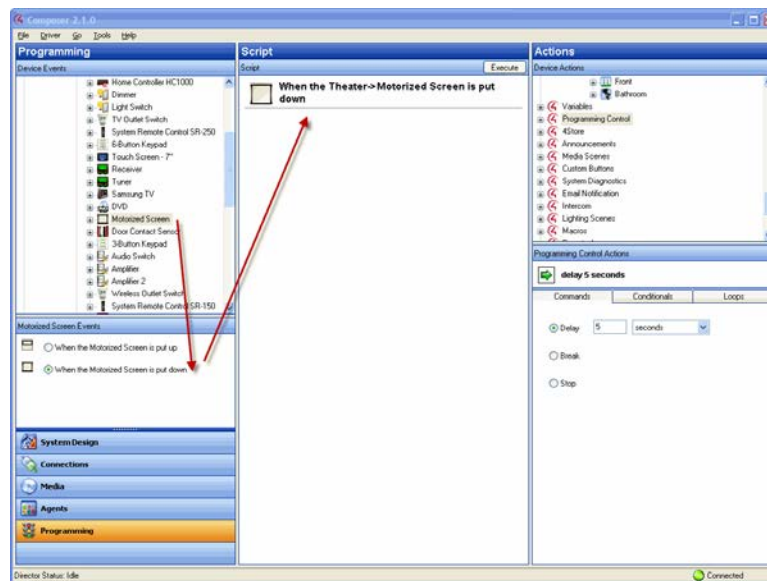
5 To use the Delay command, in the Device Actions pane click **Programming Control**. Scroll to the bottom of the tree to find it.
6 In the Programming Control Actions pane, click the **Commands** tab.
7 Select **Delay** and type **5**, then use the drop-down menu and select **seconds** (default).

8 Drag the **green arrow** Delay command to the Script pane. This ensures that there is a five-second delay after the projector powers up.
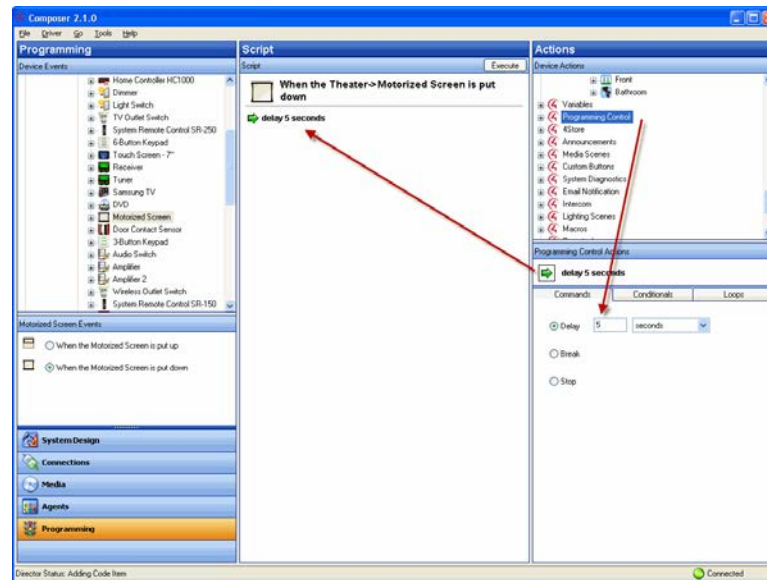
9 Scroll up and select **DVD** in the project tree.

10 Click the **Commands** tab, and click **Power** > **On**.

11 Drag the **green arrow** 'Turn on the <room's> DVD' to the Script pane.

Stop command

To use the Stop command during programming, see this example using a Motorized Screen and a DVD player:

1 In the DVD Events pane, select the **DVD** and click **Power On**. 'When <room>-> DVD Turns On' appears at the top of the Script pane. This assumes that the device is on before turning it off and using the Stop command.

2 Go to the Device Actions pane, and click **Programming Control**.

3 Click the **Commands** tab, and select **Delay** and **5 seconds** (default).

4 In the Programming Control Actions pane, click the **green arrow** 'delay 5 seconds,' and drag it to the Script pane.

5 Click the **DVD** in the Device Actions pane project tree.

6 In the DVD Actions pane, click the **Conditionals** tab, and then click **On**.

7 Click the **blue question mark** next to 'If the <room>'s->DVD is On,' and drag it to the Script pane.

8 Click the **Commands** tab, and click **Off**.

9 Drag the **green arrow** 'Turn Off the <room's>-> DVD' over the **blue question mark** in the Script pane to nest it below 'If the <room's>->DVD is On.'

10 Click **Programming Control**, and click the **Commands** tab.

11 Click **Stop**, and drag the **green arrow** 'Stop' over the **blue question mark** in the Script pane to nest it below 'Turn off the <room's>->DVD.'

12 Add other conditionals and commands as desired. In this case, the conditional 'If the <room's>->Motorized Screen is down' and nested command 'Put the <room's>->Motorized Screen up' are added, along with another conditional and command.

13 In the Device Actions pane, click **Motorized Screen** in the project tree, and click the **Conditionals** tab.

14 Select **the Motorized Screen is down**, and then drag the **blue question mark** '**If the <room's>->Motorized Screen is down**' to the Script pane.

15 Click the **Commands** tab, and select **Put the** <*room's*>->**Motorized Screen up**.

16 Drag the **green arrow** '**Put the** <room's>->**Motorized Screen up**' on top of the blue question mark '**If the <room's>->Motorized Screen is down**.'
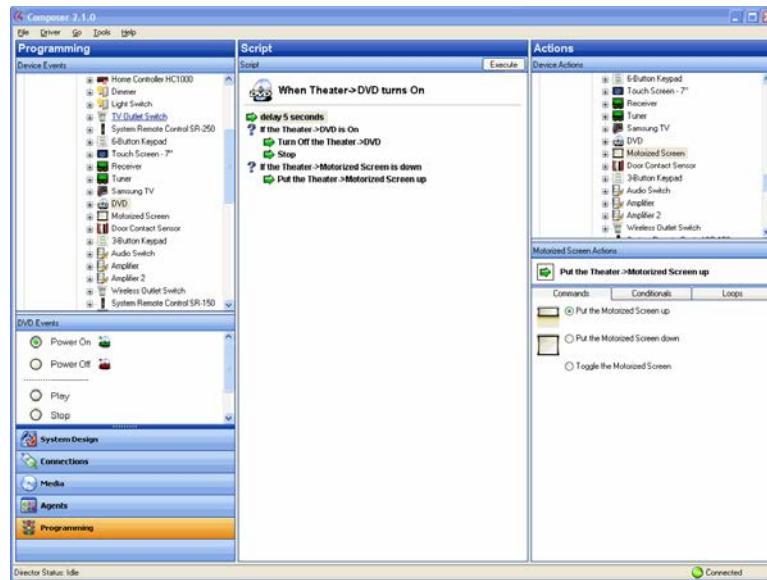
Break command

Here are some rules about using the Break command (see example script below).

- A break in a 'While' loop jumps to the *first* statement after the While statement.
- A break in an 'If' statement (nested in a 'While' statement) jumps to the *first* statement after the 'If.'
- A break not in a 'While' or an 'If' statement should behave like a Stop command (jumps to the *first* statement after the function).

Note the 'Break' command in the statement below. If the 'While' statement above the 'Break' command (in an 'If' statement) is met (True), then the program continues to the next 'While' statement. Otherwise it skips to the next command (green arrow) statements at the bottom of the script.
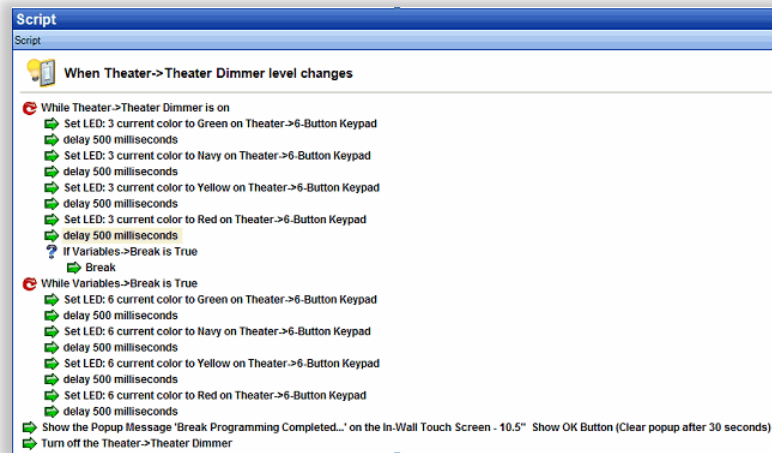
See "Programming with a While Statement" or "Programming with Conditionals" for details.

Programming with a While statement

A 'While' statement runs continuously in a loop until the evaluation is shown to be False (Boolean value). 'While' statements can be repeating 'if' statements also.

Caution: *When programming with WHILE statements, the script* *must* *incorporate delays, or the script will run so fast that it will consume all available CPU resources and decrease system performance.*

To program a While statement, follow this example:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   Ensure that you have the following devices in your project:

- Controller
- Door Contact Sensor
- Theater Dimmers

4   Click **Connections**.

5   Make sure the devices are connected to the correct Relay port.

6   Click the **Control/AV** tab. Select **Door Contact Sensor** in the project tree, and ensure it is connected to **Contact Sensor** in the Control & Audio Video Connections pane.

7   Click the **Network** tab, and ensure that the controller and Bedroom Dimmer have an address.

8   Click **Programming**.

9   Before programming the 'While' statement, program a way to turn off the 'While' statement by doing the following (when the door closes, the Bedroom Dimmer turns off):

   a   Click **Programming**, and select **Door Contact Sensor** to trigger an event in the Door Contact Sensor Events pane.

   b   Select the **When the Door Contact Sensor closes** event. The selected event appears at the top of the Script pane.
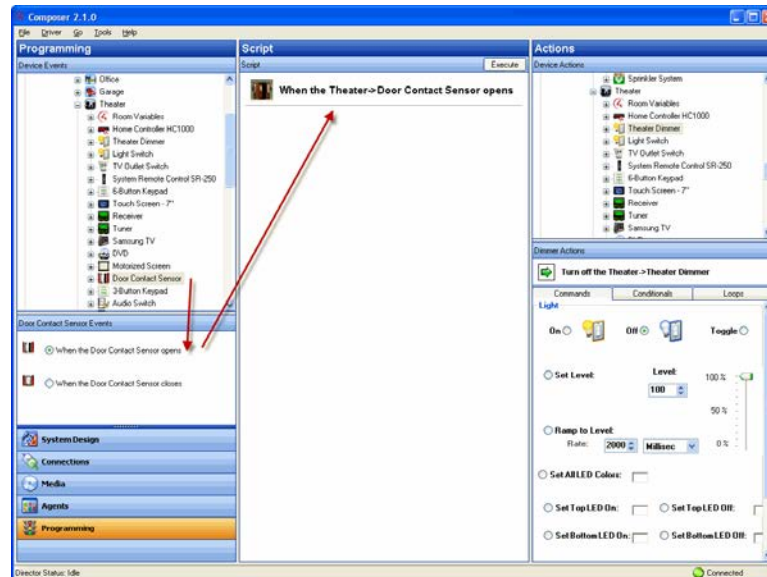
   c   In the Actions pane, select **Theater Dimmer**.

   d   Click the **Commands** tab below, and select **Off**. The action appears in the right middle Actions pane.

   e   Drag the **green arrow** to the **Script** pane. This turns off a blinking light when the door closes.
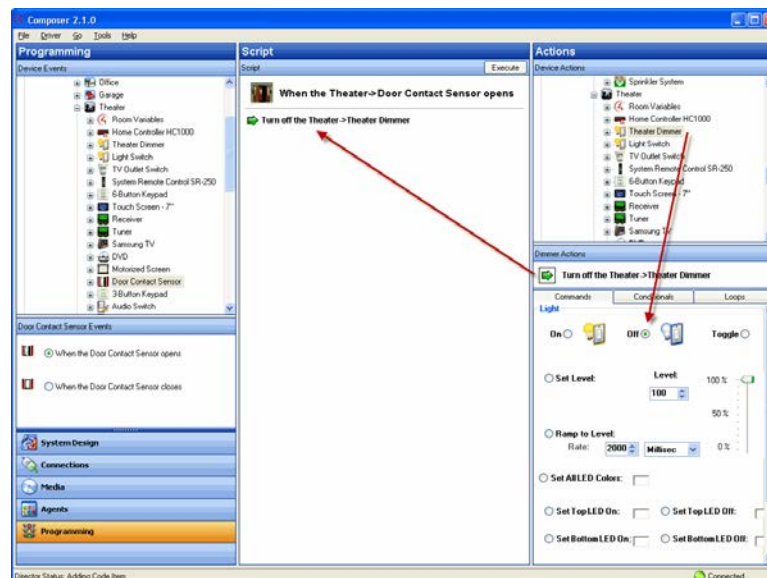
10 Program the While statement (when the Door opens, and while it is open, turn the Theater Dimmer on):

   a   In the project tree, select **Door Contact Sensor** to trigger an event.

   b   Select the **When the Door Contact Sensor opens** event. The event appears at the top of the Script pane.
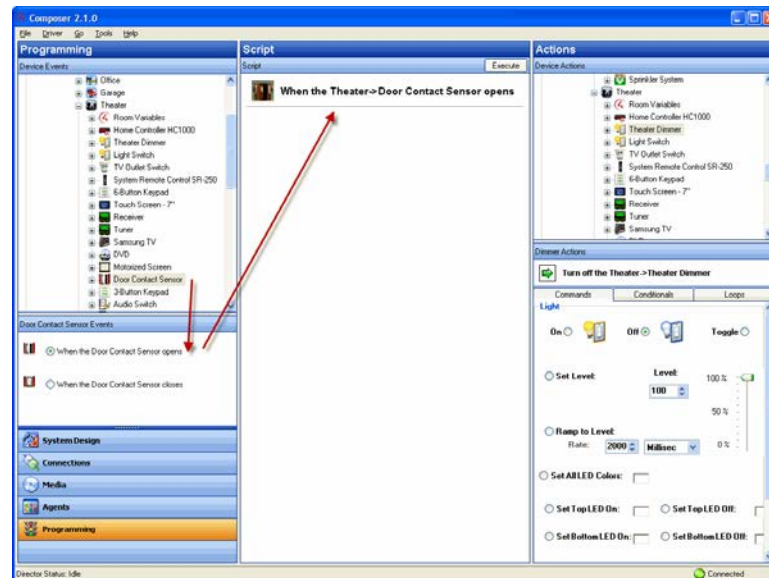
   c   In the Actions pane, select **Door Contact Sensor** to trigger an action.

   d   Click the **Loops** tab, and select the While Loop option: **the Door Contact Sensor is Open**.

   e   The While loop **While the Living Room > Door Contact Sensor is open** appears in the Actions pane next to a red circle arrow.

   f   Drag the **red circle arrow** to the Script pane.
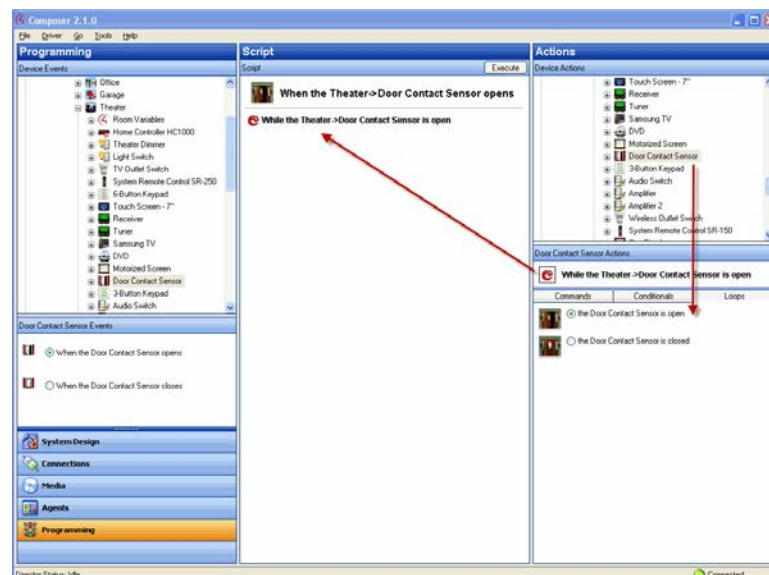
   g   In the Actions pane, select **Theater Dimmer**.

h   Click the **Commands** tab, and select **On**.

i   Drag the **green arrow** icon **Turn on the Theater > Theater Dimmer** on top of the **red circle arrow** icon in the Script pane to nest it under the loop statement.
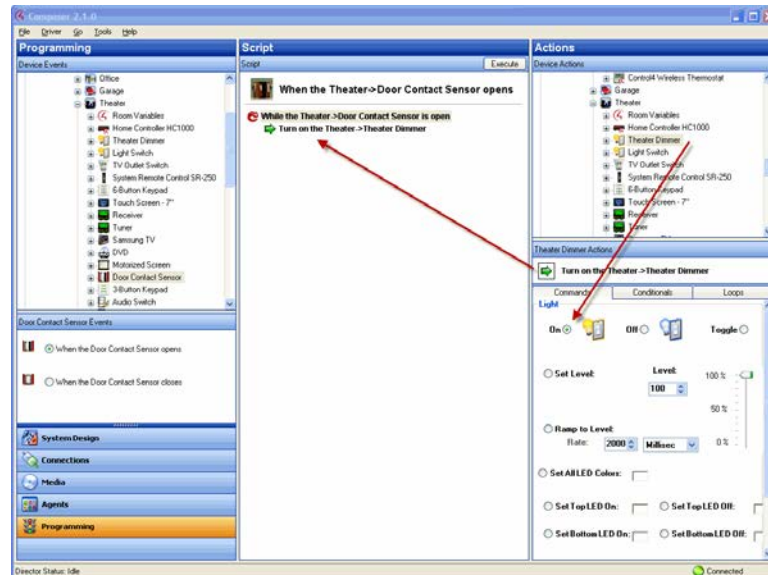
j   Delay the action 5 seconds. In the Actions pane, scroll down to select the **Programming Control Delay** agent.

k   Click the **Commands** tab, and set the **Delay** time to **5 seconds**.

l   Drag the **green arrow** on top of the **red circle arrow** in the Script pane to place the delay action below the previous action.
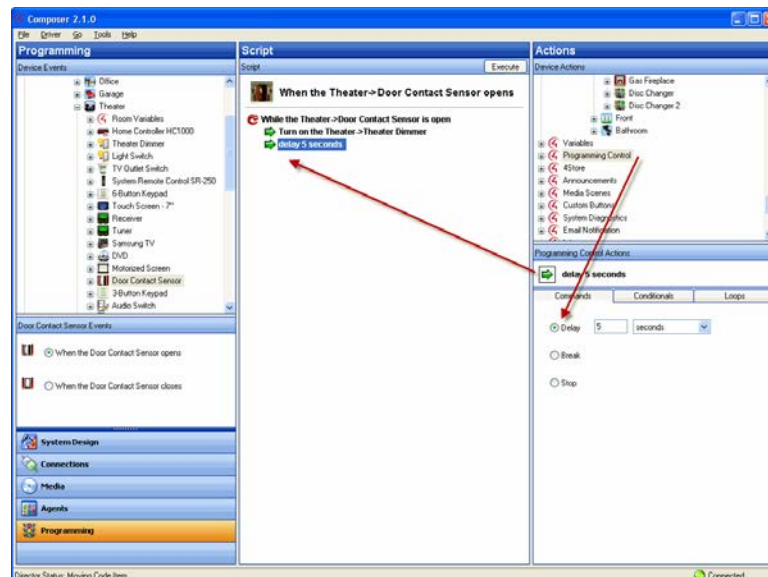
m   Turn the **Theater Dimmer** off. In the Actions pane, select **Theater Dimmer** again.

n   Click the **Commands** tab, and select the **Off** command.

o   Drag the **green arrow** icon on top of the **red circle arrow** icon in the Script pane to place the command below the previous action.
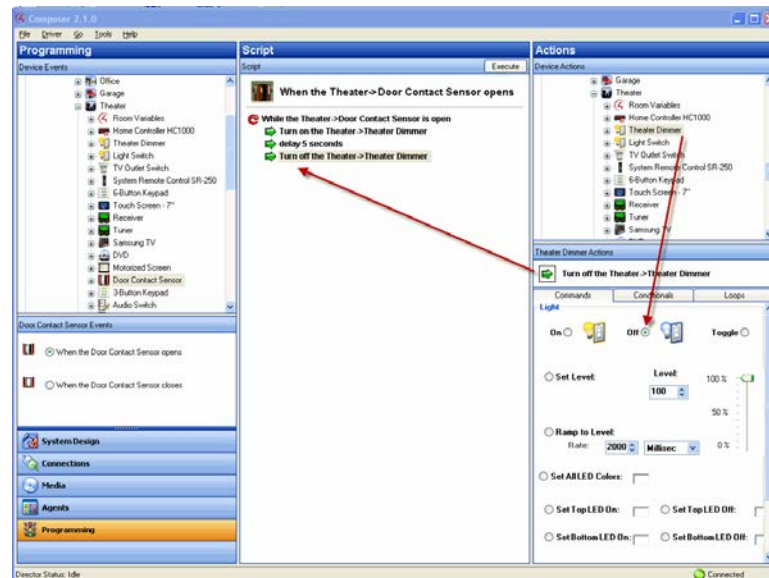
p   Click **Execute**.

q   Test the While statement by opening the actual door. The light should blink on and off while the door is open.

r   Close the door. The light should turn off when the door is closed.

s   Select the **When the Door Contact Sensor opens** event.

Programming with Favorites (bookmarks)

Use the Control4 Composer Pro Programming view to add a bookmark page created in a touch screen or on-screen Navigator to a programming script.

Prerequisites

- Ensure that the touch screens, My Home apps, or on-screen Navigators that contain the bookmarks have been added to the system.

- Ensure that the bookmark you want to use in the script has been created on a touch screen or on-screen Navigator. See *Control4 System User Guide* for information about how to create a bookmark (Favorite). *Note:* If you use the Access agent, **Favorites** on the touch screens are hidden.

To add a bookmark to a programming script:

1   Start Composer Pro and connect to a Director.

2   Click **Programming**.

3   Ensure that the following devices are in this example project:
    - 3 Button Keypad
    - 7" Touch Screen
    - Access to 4Store

4   In the Device Events pane, select the device to program (for example, **3-Button Keypad**).

5   In the 3-Button Keypad Events pane, select the button (for example, **Button 2**).

6   In the Device Actions pane, select the touch screen that contains the bookmark you created.

7   In the Touch Screen - 7" Actions pane, select the **Commands** tab.

8   Scroll to the bottom of the tab, and locate the **Bookmarks** options. There should be a list of favorites from which to select (see the screen below for details). Select the bookmark to use; for example, **My Apps**.
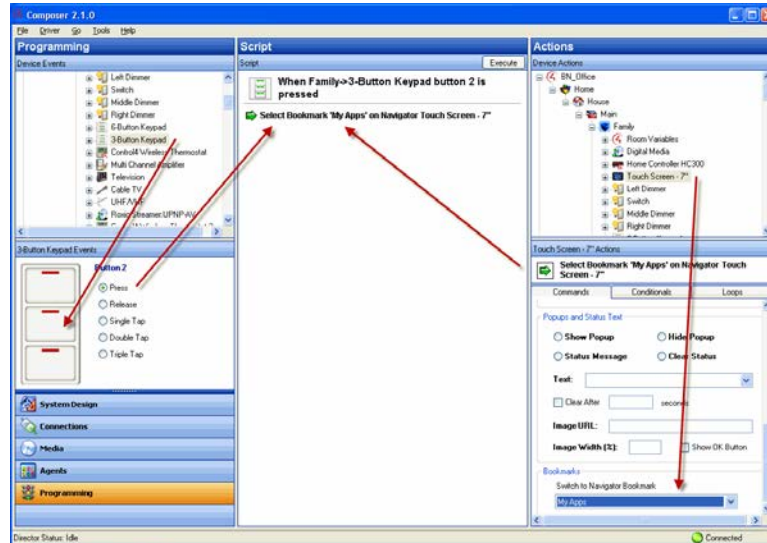
9   When you press **Button 2** on your 3-Button Keypad, the touch screen displays the My Apps page.

Programming with conditionals

A Control4 conditional is an 'If' statement in *Composer* Pro that asks a true or false question to the device.

- A 'Break' command used in an 'If' statement should jump to the *first* statement after the 'If'. See "Programming with Delay, Stop and Break Commands" for details. **Note:** A 'Break' command in an 'If' statement won't behave as a 'Stop' command, but will move to the next level in the script.

- A break *not* in a 'While' or 'If' statement should behave like a 'Stop' command (jumps to the *first* statement after the function).

Example: *The example in this section shows how to use conditionals in programming. If a light is off when the doorbell is pressed, the light is programmed to turn on. Conditionals also use When statements (events). When the doorbell is pressed, if the light is off, program the light to turn on.*

To program a conditional that turns on the light when the doorbell is pressed and the light is off:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   Ensure that the following devices are in the project:

- Controller
- Doorbell
- Theater Switch

4   Click **Connections**.

5 Make sure the control or network connection is made.

    a Click the **Control/AV** tab.

    b Select the **Doorbell** in the project tree.

    c In the Control & Audio Video Connections pane, select **Doorbell**. Ensure it is connected to the **Contact Sensor**.

6 Click the **Network** tab.

7 In the IP Network Connection pane, ensure that Controller and Theater Switch have an address.

8 Click **Programming**.

9 In the Device Events pane project tree, select the **Doorbell**.

10 Select the **When the Doorbell is pressed** event. The event appears at the top of the Script pane.
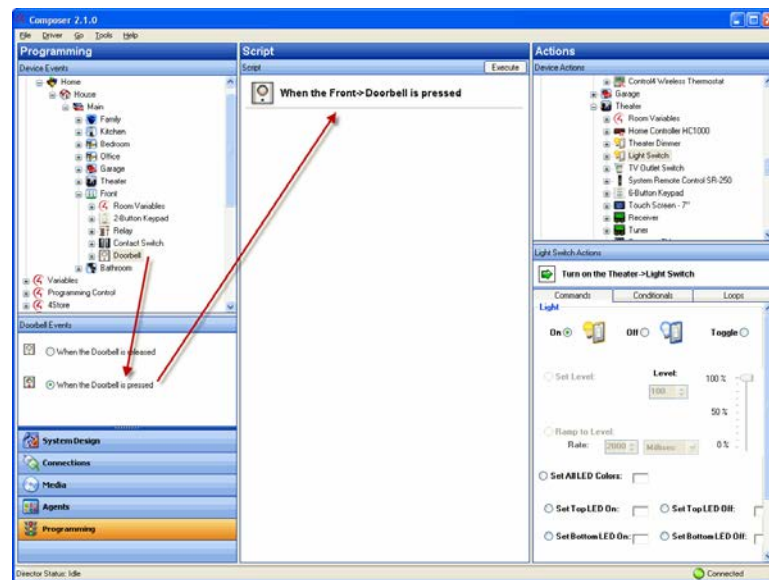
11 In the Actions pane, select the **Light Switch**. Notice that the light switch actions that can be programmed for this device appear in the Light Switch Actions pane below the Device Actions project tree.

12 Click the **Conditionals** tab, and select **Is Off**. Composer Pro displays the conditional you chose in the Theater Switch Actions pane: **? If <room>'s Light Switch is off**.

13 Drag the **blue question mark** icon to the **Script** pane.
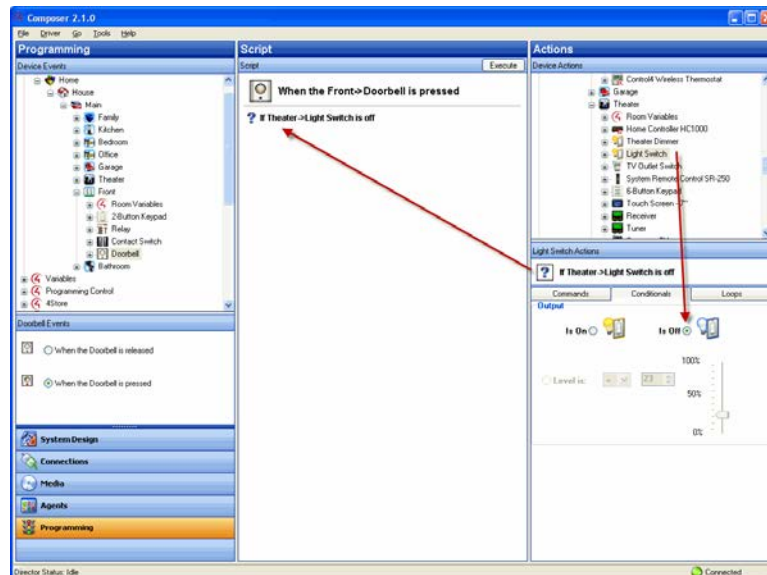
14 Click the **Commands** tab, and select **On**. The command you chose displays in the Theater Switch Actions pane.

15 Drag the **green arrow** to the **blue question mark** in the Script pane to make it a child under the "When..." statement.

Tip: *If you drag the action to the text, or you drag the action under the text to the open space, it places the action as an equal above the conditional.*

If you drag the action to the question mark, it becomes a subset of the conditional. Notice the direction of the arrow to place the action as a peer or a subset under the statement.
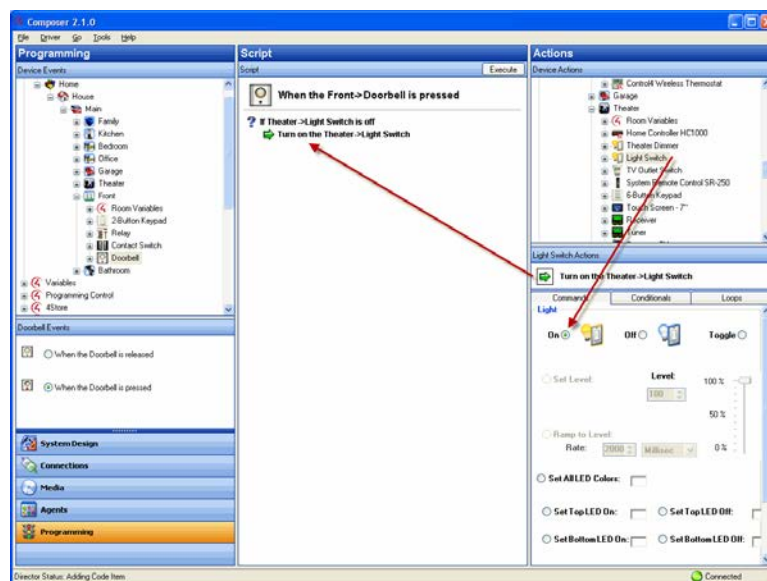
16 Click **Execute**. With the Theater Switch light off, press the doorbell; the light should come on.

Programming using digital audio and rooms

You can program a Control4 system using the Digital Audio and Room objects in Composer Pro. You can use digital audio events when a session starts or stops. A session is when a song or playlist begins and ends. A list of songs can be compiled into a playlist. You can compile the list by songwriter, album, song type, or any combination. Room events include turning the room off and on, when media sessions begin and end, etc.

Program a button to play media or a playlist

Use the Control4 Composer Pro Programming view to program a button on a keypad to play an album or playlist.

Example: *The example in this section uses a 6-Button Keypad for the Theater room. When you press Button 1, music or a movie plays in the Theater room.*

Prerequisites

- Ensure that a 2, 3, or 6-Button Keypad is installed as directed in the *Control4 2, 3, or 6 Button Keypad Installation Guide*.
- Ensure that your project has an audio end point, such as Speaker Point, added and identified on the network.

To program a button on a 6-Button Keypad to play music:

1 Start Composer Pro and connect to a Director.
2 Click **Programming**.
3 In Programming in the Device Events pane, select the **6-Button Keypad**.
4 In the 6-Button Keypad Events pane, press **Button 1**, and select the **Press** radio button.
5 In the Device Actions pane, select the **Theater** room.
6 Click the **Commands** tab, and press the **Select Media** radio button.
7 In the new window, select the media type to play, such as **Playlist**.
8 Select the movie, playlist, etc.
9 Click **OK**.
10 In the Actions pane, drag the **green arrow** to the Script pane.

11 Click **Execute** in the Script pane.

Program a button to turn up the volume

Use the Control4 Composer Pro Programming view to let you use a keypad button to turn up the volume in a room.

Example: *The example in this section uses a 6-Button Keypad for the Theater room. When you press Button 2 the volume increases in the Theater room.*

Prerequisites

- Ensure that a 2, 3, or 6-Button Keypad is installed as directed in the *Control4 2, 3, or 6 Button Keypad Installation Guide*.
- Ensure that your project has an audio end point, such as a Speaker Point, added and identified on the network.

To program a button to turn up the volume:

1 Start Composer Pro and connect to a Director.

2 Click **Programming**.

3 In Programming on the Device Events pane, select the **6-Button Keypad**.

4 In the 6-Button Keypad Events pane, press **Button 2**, and then select the **Press** radio button.

5 In the Device Actions pane, select the **Receiver**.

6 Click the **Commands** tab. In Sound, select **Volume** > **Start** > **Up**.

7 Drag the **green arrow** in the Receiver Actions pane to the Script pane.

8 Click **Execute**.

Program a button to add a room to another room's music session

Use the Control4 Composer Pro Programming view to use a keypad button to play music in additional rooms.

Example: The example in this section uses a 6-Button Keypad for the Theater room. When you press Button 3, music starts playing in the Bedroom as well as the Theater room.

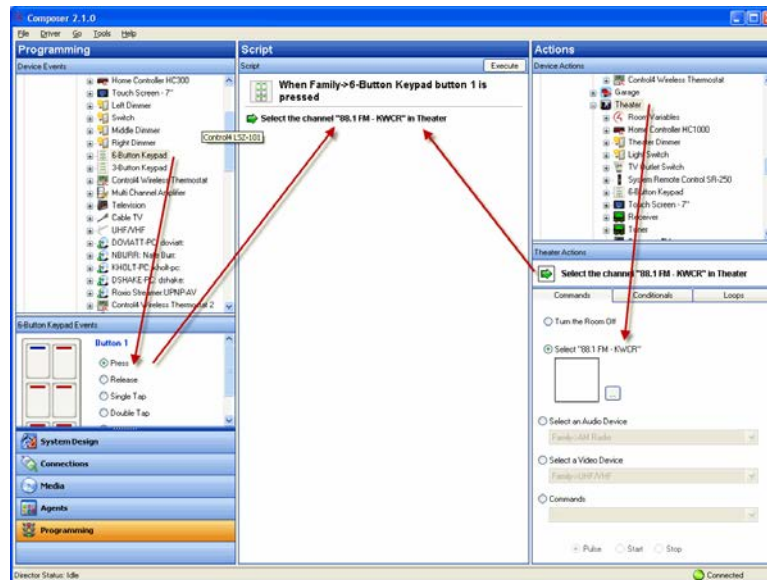### Prerequisites

- Ensure that a 2, 3, or 6-Button Keypad is installed as directed in the *Control4 2, 3, or 6 Button Keypad Installation Guide*.
- Ensure that your project has an audio end point, such as Speaker Point, added and identified on the network.

To program a button to add another room's music session:

1   Start Composer Pro and connect to a Director.
2   Click **Programming**.
3   In Programming on the Device Events pane, select the **6-Button Keypad**.
4   In the 6-Button Keypad Events pane, press **Button 3**, and then select the **Press** radio button.
5   In the Device Actions pane, select **Digital Media**.
6   Click the **Commands** tab.
7   Use the pull-down menu to select the **Theater** room as the Selected Room. Select the **Add Rooms** radio button.
8   Check the box next to **Bedroom** to indicate that this is the room that is going to join the music session.
9   Drag the **green arrow** in the Digital Audio Actions pane to the **Script** pane.
10   Click **Execute**.

Set the default for a room's music volume

Use the Control4 Composer Pro System Design view to set the default music or media volume for a room.

Example: The example in this section uses the Theater room. When you set the default, the volume stays at a certain level for the Theater room until you change it. You can change the volume for every room that uses music or media.

Prerequisites

- Ensure that the controller is added and identified on the network..
- Ensure that your project has an audio end point, such as Speaker Point, added and identified on the network.

To set the default volume for a room:

1   Start Composer Pro and connect to a Director.
2   Click **System Design**.
3   In the project tree, click a **room**.
4   In the Properties pane, click the **Miscellaneous** tab.

5   In the Miscellaneous tab, check the **Enable Default Volume** box. Adjust the Audio Volume and Video Volume as desired for the room. The default volumes are enabled immediately. Repeat these steps for each room in the Control4 system.

Program a button using room programming

Use the Control4 Composer Pro Programming view to use a keypad button to add another room to a program, for example, music.

Refer to "Program a Button to Add a Room to Another's Room's Music." The steps are the same, except that the example in that section refers to adding a music session.

Examples: programming with variables

Use the Control4 Composer Pro Programming view to program the Control4 system using configuration, properties, variables, delays and agents.

Variables provide other programming options not available using commands, conditionals or loops.

There are three (3) types of variables you can use:

- **Room Variables**—Provide you with additional programming options not available in the Room object programming. Use Room object programming as a preference to room variables whenever possible. See "Example: Using Room Variables."
- **Custom Variables**—Let you define additional programming options using:
  - **Boolean**—Provides a True/False option. For example, the light is on or off. If the light is on, it is True; if the light is off, it is False.
  - **Device**—Provides a list of device options.
  - **Number**—Provides a value option. For example, the light level is 70 percent.
  - **String**—Provides the option to enter a string.

  To program using a custom variable, in the Agent view select **Variable** and click **New** to set up a new variable.

  Example: *Use one keypad button to toggle between turning on the Theater Dimmer and the Theater Switch.*

- **Container Variables**—Provides the ability to connect two (2) or more devices together by using the device variables. A variable is a representation of information about the controlled devices, for example, a power state or current level of the device. It works much like a Media Scenes agent (see "Programming with Agents" for details). Container variables are available in the Agent view by selecting Variables.

  Note: *Container variables are provided only for backward capability in Release 1.3 and later. Issues with various implementations have been found. The use of Container variables for future implementations is not recommended. Where possible, replace existing implementations with alternate programming.*

The sections below provide examples you can follow when you use variables.

Example: Using room variables

Control4 room variables provide greater flexibility in programming, letting you program using events and actions at the room level.

Note: Most of the functions in Room Variables are available by selecting the Room object which is the recommended method for programming the room. Whenever possible, use the Room object rather than Room Variables.

To use room variables:

1   Start Composer Pro and connect to a Director.

2   Click **Programming**. In this view listed under every room in the project tree is a Room Variables object.

3   Click to expand the **Room Variables** options. Room variables are available as events and actions.
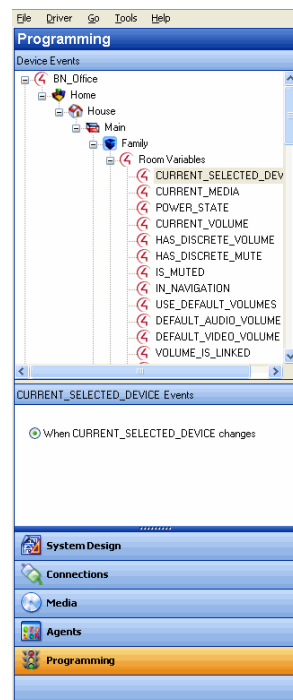
The room variables are described in the following table:

Events/Actions	Description
CURRENT_SELECTED_DEVICE	Lets you do programming when any device changes in the room.
CURRENT_MEDIA	Lets you do programming when any media changes in the room.
POWER_STATE	Lets you do programming when any device's power state changes from True to False in the room (read only). A device in the room is required to detect the power state.
CURRENT_VOLUME	Lets you do programming when the volume of the currently selected audio path changes in the room (requires discrete volume). Use conditional programming.

Events/Actions	Description
HAS DISCRETE_VOLUME	Lets you do programming when any devices changes in the room (requires discrete volume). Use command programming.
HAS_DISCRETE_MUTE	Lets you do programming when Mute state is known (MUTE_ON or MUTE_OFF).
IS_MUTED	Lets you do programming when in Mute state (MUTE_ON).
IN_NAVIGATION	Lets you do programming when On-screen is available.
USE_DEFAULT_VOLUMES	Lets you do programming any time a selection changes to reset the default volume. For example, when changing from viewing a DVD to listening to music, the volume is reset to the default discrete set volume.
DEFAULT_AUDIO_VOLUME	Lets you program the default Audio volume.
DEFAULT_VIDEO_VOLUME	Lets you program the default Video Audio volume.
VOLUME_IS_LINKED	Lets you set programming not to affect already linked volume.
MUTE_IS_LINKED	Lets you set programming not to affect already linked mute state.
ROOMOFF_IS_LINKED	Lets you set programming not to affect already linked room off state.
SELECTIONS_LINKED	Lets you set programming not to affect already linked selections.
ROOM_HIDDEN	Lets you set programming to hide rooms from appearing on the navigation device.
MEDIA_SCENE_ACTIVE	Lets you set programming to set a media scene as active.

Variable handling

In programming, variables are easier to define than conditional loops.

Note: It is important to type the variable names precisely. A typographical error causes the program to fail.

Variable handling enhancements:

- **Preserve user-defined variables**—Preserves the user-defined variable values (for example, the current dimmer light level) across a normal system restart. It may not preserve them if the system shuts down abnormally.
- **Program a system startup event** —Initializes variables or performs other programming at system startup with a system startup event (in Programming, select the **root** of the project, and then select the event **When the project is loaded**).
- **Define one variable to equal another**—Defines one variable to equal another variable. This can be used to save and restore variable values.

  Example: The level of a light or the volume of music in a room.

  After this value is saved to the variable, you can restore the system variable to the value stored in the user variable. The system can then compare the two variables and determine if it needs to reset one of them.

- **Create the event "When a System reboots"**—Sends an email notification to the Control4 dealer that a customer's system rebooted, helping the dealer monitor the system's performance.

Example: Using custom boolean variables in an agent

Use the Control4 Composer Pro Programming view to create custom variables in an agent using a Boolean value.

In this example, when someone is at the door:

- Program to activate the Media Scene 'Someone is at the door,' and turn on the porch light.
- Program to play a song in the Bedroom and the Theater.
- When the Motion Sensor stops sensing motion at the door, program to turn the music and porch light off.

Prerequisites

The following devices are added and identified in the project:

- Controller
- Porch Light Switch
- Bedroom music
- Theater music
- Motion Sensor

To program using a custom Boolean variable in an agent:

1   Start Composer Pro and connect to a Director.
2   Click **System Design**.
3   Click **Connections**. Make sure the connections are correct.

   Note: Ensure that the Front Light is connected to the correct Contact Sensor on the controller.

4   Click the **Network** tab, and ensure that the controller and Porch Light have a network address.

Create a new variable

5   Click **Agents**.
6   Select **Variable**. The Variables view appears.
7   Click **New**.
8   On the dialog that appears, do the following:
   d   Click **New Variable**.
   e   In the drop-down menu, select **Boolean**.

f   Name the Variable Power State and click **OK**. The default value is false.
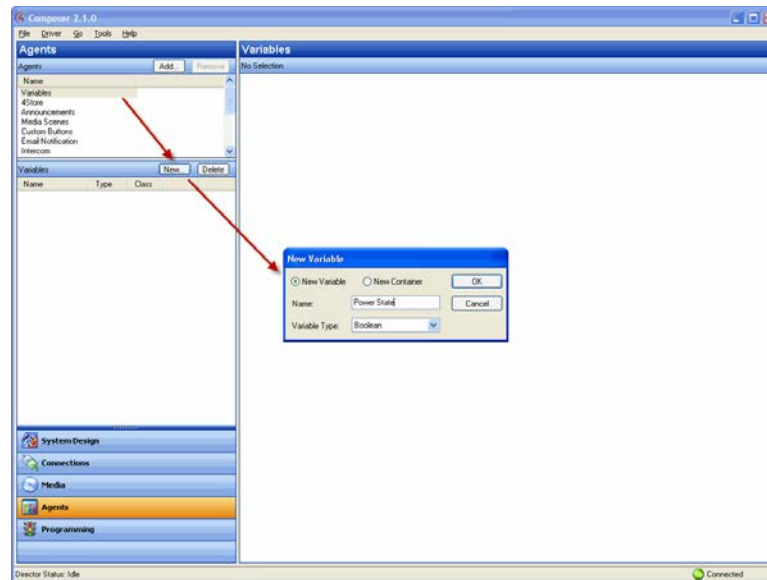
Create a media scene 'Someone is at the door'

9   Select **Media Scenes**, and click **New**.

10   Name the Media Scene **Someone is at the door**. Click **OK**.
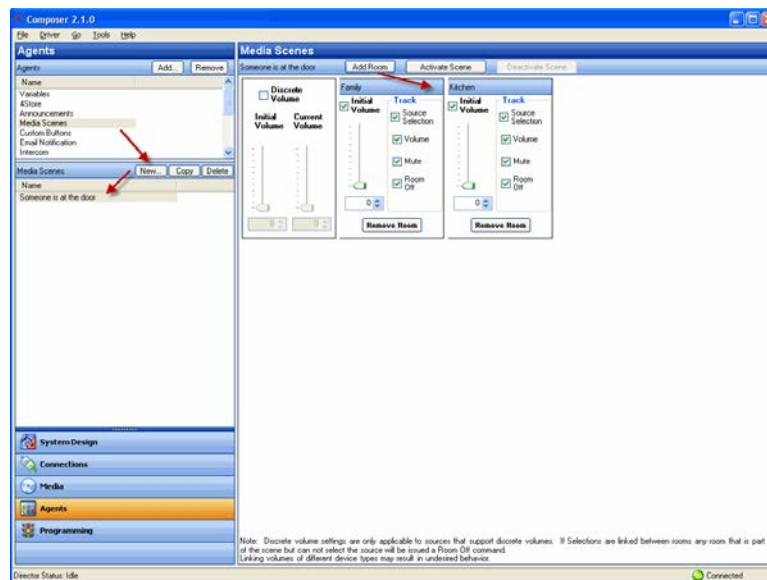
Add the bedroom and theater room

11   Click **Add Room**, and add the **Theater** and the **Bedroom** (see above).
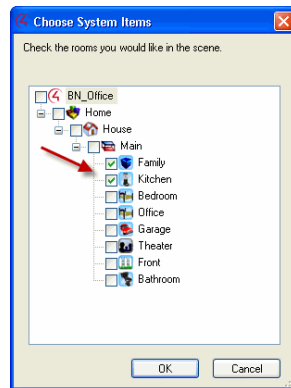
12   Set the volume in the Bedroom to **50**, and the volume in the Theater to **75**.
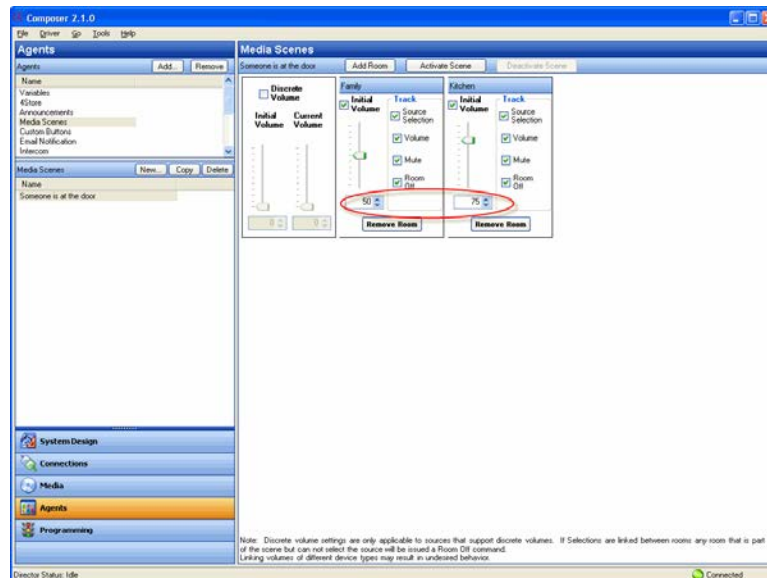
13   Click **Programming**.

14   In the project tree and the Device Events pane, click to expand Variables, and select **Power State**.

15   In the project tree and in the Device Actions pane, click to expand Variables, and select **Power State**.

Add the conditionals and commands

16   Follow the previous programming steps to create a script with Conditionals.

17   Click the **Conditionals** tab.

18   In the Conditionals tab, click **Is False**, and drag the **blue question mark** to the **Script** pane.
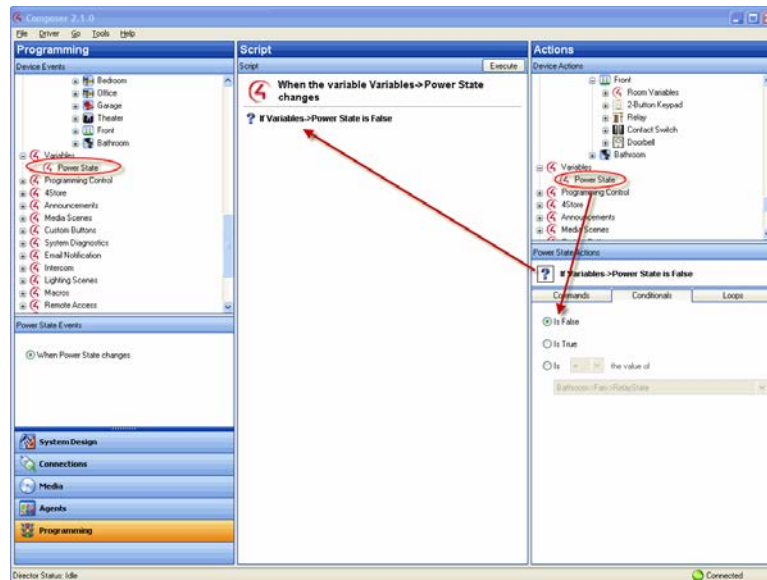
19   Click the **Commands** tab.

20   In the Commands tab, click **Set to True**, and drag the **green arrow** on top of the **blue question mark** in the **Script** pane to make it the first subset item of the first *conditional*.

21   In the Device Actions pane, select **Light Switch**.

22   Click the **Commands** tab.

23   In the Commands tab, click **On**, and drag the **green arrow** on top of the **blue question mark** in the **Script** pane to make it the *second* subset item of the *first* conditional.
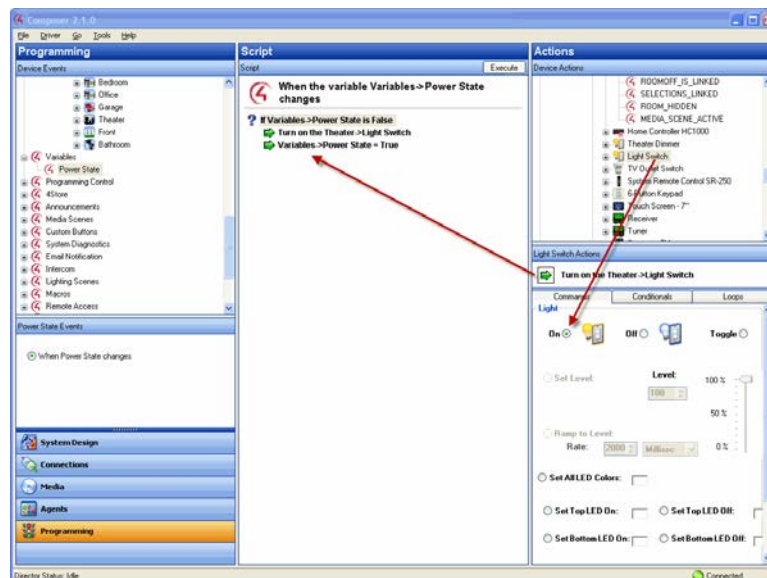
24   In the project tree and in the Device Actions pane, select **Media Scenes**.

25   Click the **Commands** tab.

26   Click **Activate** in the Commands tab, and drag the **green arrow** on top of the **blue question mark** in the **Script** pane to make it *third* subset item of the *first* conditional.

27 In the project tree and in the Device Actions pane under Variables, select **Power State**.

28 Click the **Conditionals** tab.

29 In the Conditionals tab, click **Is True**, and drag the **blue question mark** to the **Script** pane.

30 Click the **Commands** tab.

31 In the Commands tab, click **Set to False**, and drag the **green arrow** on top of the **blue question mark** in the **Script** pane to make it the *first* subset item of the *second* conditional.

32 In the project tree and in the Device Actions pane, select **Light Switch**.

33 Click the **Commands** tab.

34 In the Commands tab, click **Off**, and drag the **green arrow** on top of the **blue question mark** in the **Script** pane to make it the *second* subset item of the *second* conditional.

35 In the project tree and in the Device Actions pane, select **Media Scenes**.

36 In the Commands tab, click **Deactivate**, and drag the **green arrow** on top of the **blue question mark** in the **Script** pane to make it the *third* subset item of the *second* conditional.
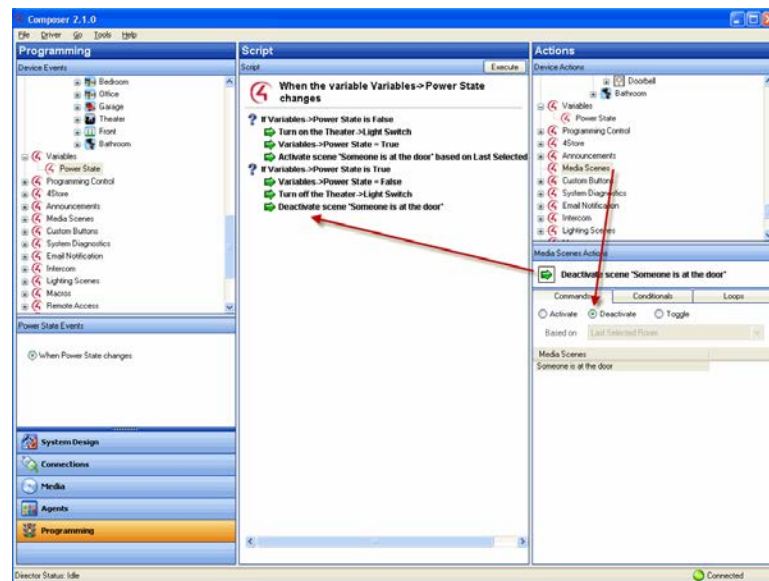
37 In the project tree and in the Device Events pane, select **Media Scenes** and select the event **Someone is at the Door**.

38 In the project tree and in the Device Actions pane, select the **Bedroom** object. (Repeat the next four steps for the Theater.)

39 Click the **Commands** tab.

40   In the Commands tab, click **Select Media**.
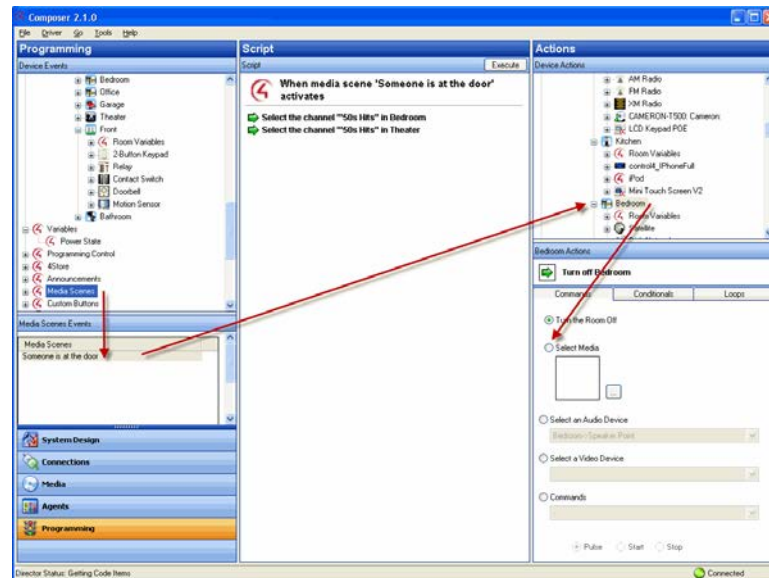
41   In the dialogue that appears, select the album and song that you want to play when **Someone is at the Door** executes. In this example, Rhapsody's '50s Hits' is used. Click **OK**.

42   Drag the **green arrow** to the **Script** pane.

43   Repeat steps 37-41 for the **Theater**.

44   In the project tree and in the Device Events pane, select **Motion Sensor** under **Front**, and select the event **When the Motion Sensor senses motion**.

Add the Boolean Values

45   In the project tree and in the Device Actions pane, click to expand Variables, and select **Power State**.

**46**   In the Conditionals tab, click **Is False**, and drag the **blue question mark** to the **Script** pane (this is the *third* conditional).

47   In the Commands tab, click **Set to True**, and drag the **green arrow** on top of the **blue question mark** to make it the *first* subset of the *third* conditional.

48   In the project tree and in the Device Events pane, select the event **When the Motion Sensor stops sensing motion**.

49   In the project tree and in the Device Actions pane, click to expand Variables, and select **Power State**.

50   In the Conditionals tab, click **Is True**, and drag the **blue question mark** to the **Script** pane.

51   In the Commands tab, click **Set to False**, and drag the **green arrow** on top of the **blue question mark** to make it the *second* subset of the *third* conditional.

52   Click **Execute**.

Results: The porch light turns on and plays a song in the bedroom and theater whenever the motion sensor senses motion at the front door.

Example: Using a custom number variable in an agent

Use the Control4 Composer Pro Programming view to create custom variables in an agent using a numeric value.

In this example, program one keypad button to toggle between turning on the Theater Dimmer and the Theater Switch.

Prerequisites

The following devices are added and identified in the project:

- Controller
- Dimmer (Theater)
- Light Switch (Theater)
- 6-Button Keypad

To program using a custom variable agent number:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**. Make sure the project has the correct devices and rooms.

3   Click **Connections**. Make sure the connections are correct.

Note: In the Network tab, ensure that the controller, dimmer (Theater), switch (Theater), and 6-Button Keypad have a network address.

Add a new variable

4   Click **Agents**.

5   Select **Variables**. The Variable Agents view appears.

6   Click **New**.

7   On the dialog that appears, do the following:

    a   Select **New Variable**.

    b   Name the variable **Keypad releases**.

    c   Use the **Variable Type** pull-down and select **Number**.

    d   Click **OK**.
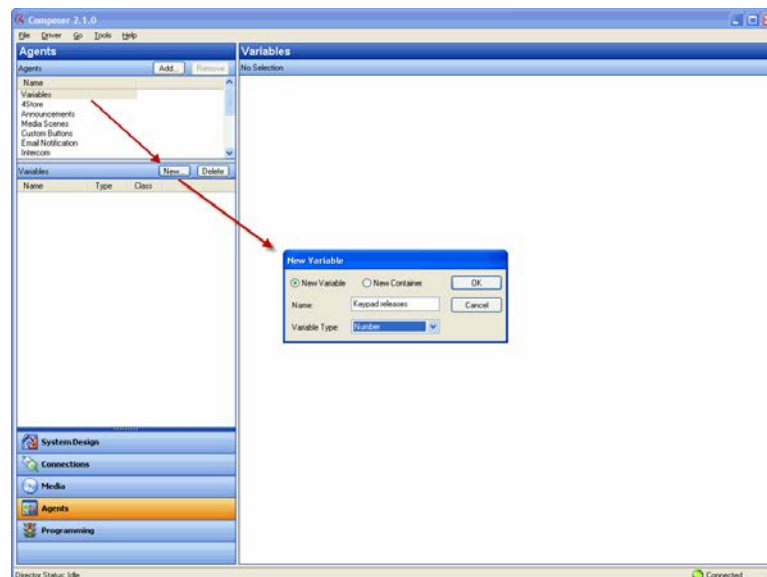
8   In the Variables pane, select the variable **Keypad_releases**. The available variables for your devices appear in the right pane.

9   Enter the value as **0** (zero).

Create an event

10 Click **Programming**.

11 In the project tree and in the Device Events pane, select **6 Button Keypad**.

12 Click **Button 1** on the 6 Button Keypad.

13 Select **Press** for the event. The event appears at the top of the Script pane.

Create the actions

14 In the Actions pane, scroll down to view the agents.

15 Click to expand **Variables**.

16 Select **Keypad_releases**.

17 In the Commands tab, select the following to add 1 to the present value:

   a   Select the radio button by the plus (**+**) sign.

   b   Ensure the plus sign is selected.

   c   Select **1** (one).

   The action appears in the Actions pane.

18 Drag the **green arrow** icon to the **Script** pane.

Create the conditionals

19 Click the **Conditionals** tab.

   a   Select the **Is** radio button option.

   b   Select the equals (**=**) sign.

   c   Select **1** (one).

20 Drag the **blue question mark** below the previous command in the **Script** pane. This places the conditional Action parallel to the previous Action command.

21 In the Actions pane, select **Theater Dimmer**.

22 In the Command tab, select **On**. The action command appears in the Actions pane.

23 Drag the **green arrow** to the **blue question mark** in the **Script** pane to make it a subset of this conditional item.

24 In the Actions pane, scroll down to Variables and select **Keypad_presses**.

25 Click the **Conditional** tab.

   a   Select the **Is** radio button option.

   b   Select equals (**=**) sign.

   c   Select **2** (two).

26 Drag the **blue question mark** to the blank space under the previous Action command. This places the conditional Action parallel to the previous Action conditional.

27 In the Actions pane, select **Light Switch**.

28 In the Command tab, select **On**. The action command appears in the Actions pane.

29 Drag the **green arrow** to the **blue question mark** in the **Script** pane to make it a subset of the conditional item.
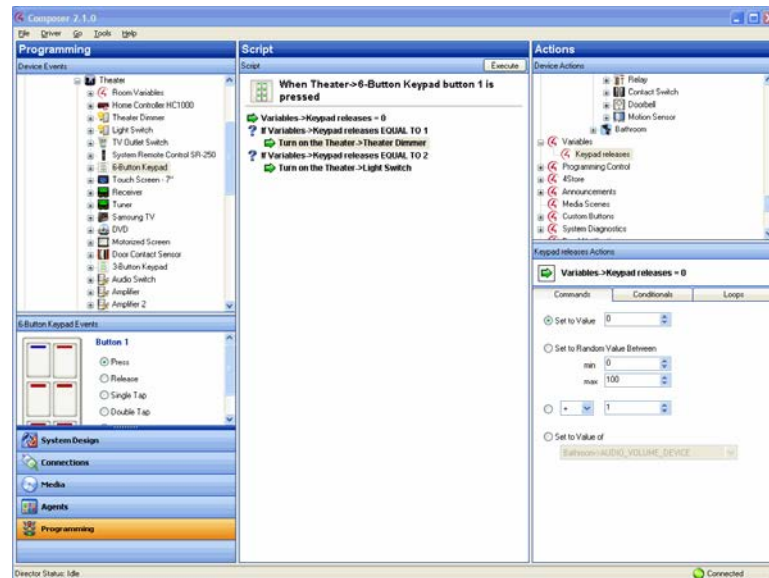
30 In the Actions pane, scroll down to the agents.

31 In the Variable agent, select the **Keypad_presses** variable.

32 In the Commands tab, select the following:

    a Select the **Set to Value** radio button.

    b Set the value to **0** (zero). The Action command appears in the Actions pane.

33 Drag the **green arrow** icon to the **blue question mark** icon in the **Script** pane to make it a *second* subset of the conditional.

34 Click **Execute**.

Results: Press **Button 1** on the 6-Button Keypad to toggle between turning on the Theater dimmer and the light switch.

Example: Using a custom string variable in an agent

Use the Control4 Composer Pro Programming view to create custom variables in an agent using a numeric value. The steps in this section are for more advanced users of Composer Pro.

In this example, program Button 4 on a Keypad to toggle through four (4) playlists.

Note: This procedure is relatively complicated to create. Review the steps first to understand how the conditionals work.

Prerequisites

The following items are added and identified in the project:

- Controller
- 6-Button Keypad
- 4 Playlists: Mom's Favorites, Dad's Favorites, Choral Music, and Kid's Music

To program using a custom variable agent string:

1 Start Composer Pro and connect to a Director.

2 Click **System Design**. Make sure the project has the correct devices and rooms.

3 Click **Connections**. Make sure the connections are correct.

   Note: In the Network tab, ensure that the controller and the 6-Button Keypad have an address.

Add a new variable

4 Click **Agents**.

5 Select **Variables**. The Variables agent list appears.

6 Click **New**.

7 On the dialog that appears, do the following:

   c Select **New Variable**, and name the variable **My Playlists**.

   d In Variable Type, use the pull-down menu to select **String**, and click **OK**.
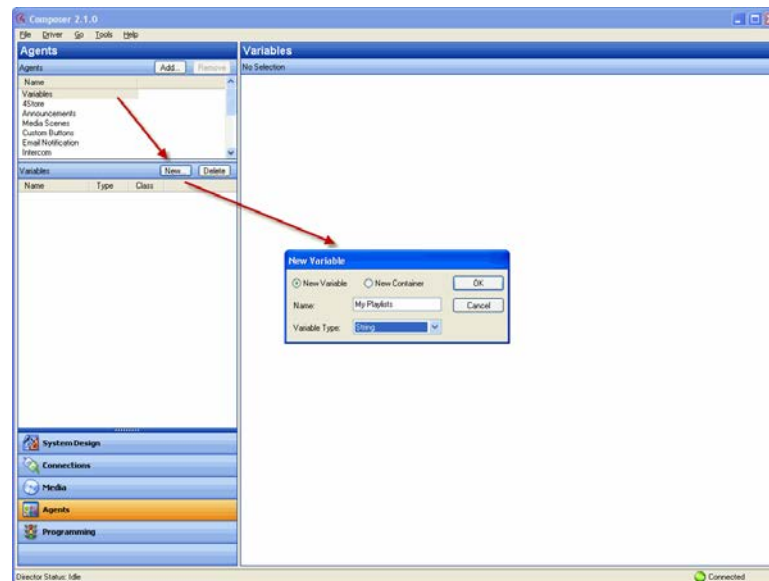
Set up a 'Mom's Favorites' playlist in the theater

8 Click **Programming**.

9 In Programming select the **6 Button Keypad** in the **Theater** from the *Device* Events pane.

10 In 6-Button Keypad Events, click **Button 4** on the Keypad.

11 In the Device Actions pane, scroll down and click to expand **Variables**.

12 Select **My Playlists**.

13 In the My Playlists Actions pane, click the **Conditionals** tab, and enter the name of a playlist; for example, **Mom's Favorites**.

14 Drag the first blue question mark to the **Script** pane.
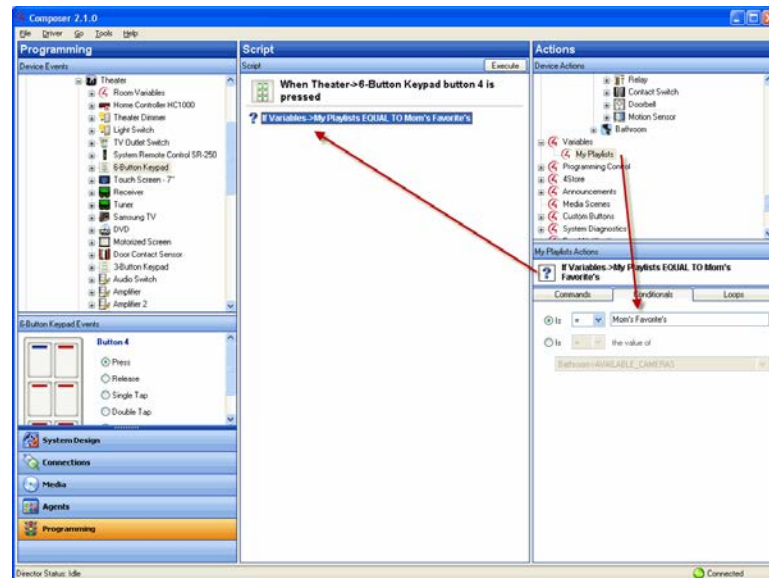
15 In Device Actions, select the **Theater** room object.

16 In Theater Actions, select **Select Media**.

17 In the window that pops up, select **Playlists**, **Mom's Favorites**, and then click **OK**.

18 Drag the **green arrow** icon on top of the first blue question mark in the **Script** pane to make it the first subset of the first conditional.
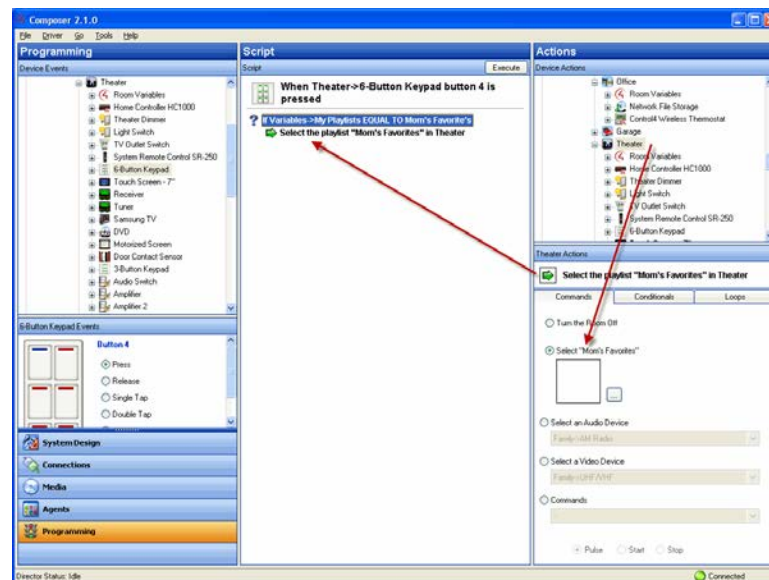
19 In Device Actions, select **Variables** > **My Playlists**.

20 In the Commands tab under My Playlists, enter the name of the next playlist that you'd like to play; for example, **Dad's Favorites**.

21 Drag the **green arrow** on top of the first blue question mark to the **Script** pane to make it a second subset of the first conditional.

The next time the button on the keypad is pressed, the value of the variable will be **Dad's Favorites**, and will then cue that playlist in the **Theater**.

22 In Device Actions, scroll up and select the **6 Button Keypad** in the **Theater**.

23 In 6 Button Keypad Actions, click **Button 4**.

24 Under Color Settings select **LED On**.

25 Click the **square of color** to select the color you want Button 4's LED to be when Mom's Favorites plays. Select the color in the menu that pops up (in this example: green), and click **OK**.
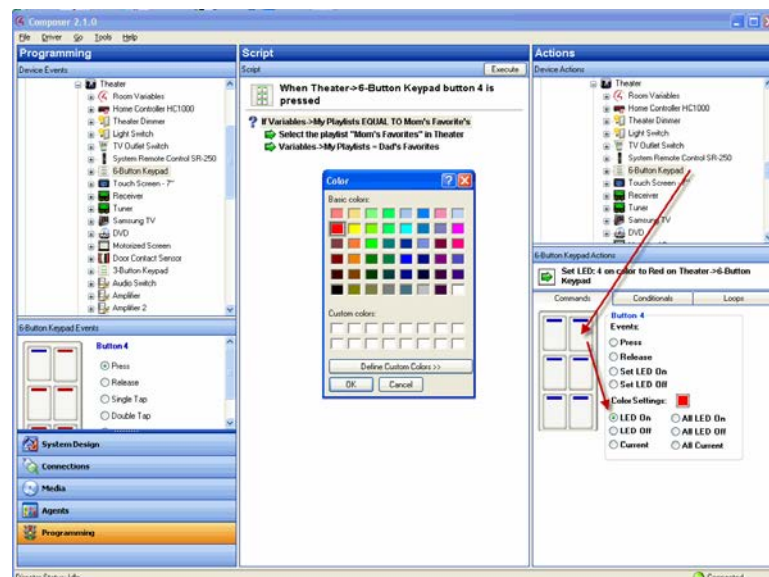
26 Drag the **green arrow** on top of the first blue question mark in the **Script** pane to make it a third subset of the first conditional.
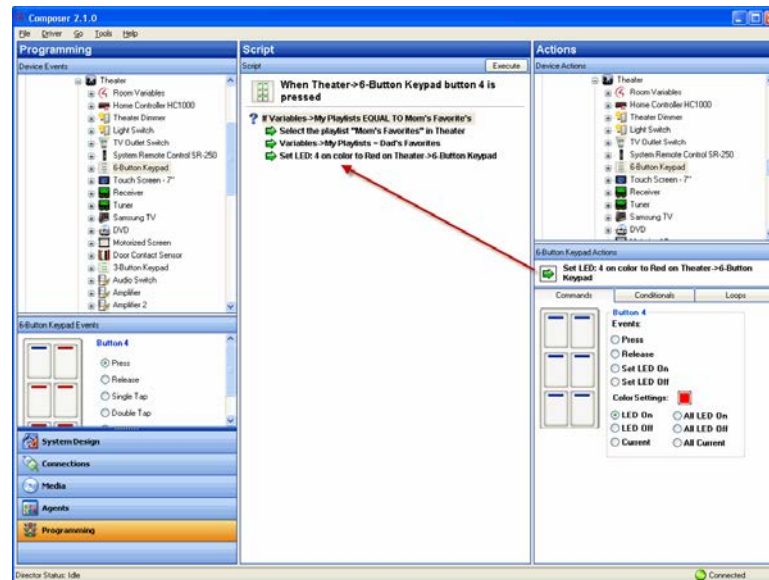
27 In Device Actions, scroll down and select **Programming Control**.

28 In the Programming Control Actions, select the **Stop** radio button.

29 Drag the **green arrow** on top of the first blue question mark in the **Script** pane to make it a fourth subset of the first conditional.

*Note: It is important to add a **Stop** command here so that when the conditional is fulfilled, the programming will not continue. Because of the way this programming is set up when it's finished, without the stop, the button on the Keypad will always select the last playlist in the script.*

Set up a 'Dad's Favorites' playlist

30 In Device Actions, select **My Playlists** again.

31 In the Conditionals tab, next to 'Is' enter **Dad's Favorites** in the text box.

32 Drag the second blue question mark to the **Script** pane.

33 In Device Actions, select the **Theater**.

34 In Theater Actions, select **Select Media**.

35 In the window that pops up, select **Playlists**, **Dad's Favorites**, and then click **OK**.

36 Drag the **green arrow** on top of the second blue question mark in the **Script** pane to make it the first subset of the second conditional.

Set up a 'Kid's Room' playlist

37 In Device Actions, select **My Playlists**.

38 In the Commands tab under My Playlist Actions, enter the name of the next playlist that you'd like to play; for example, **Kid's Music**.

39 Drag the **green arrow** on top of the second blue question mark in the **Script** pane to make it a second subset of the second conditional.

40 In Device Actions, select the **6 Button Keypad** in the **Theater**.

41 In 6 Button Keypad Actions, click on **Button 4**. Click the **square of color** to select the color you want **Button 4's** LED to be when Kid's Music plays. Select the color in the menu that pops up (in this example: purple), and click **OK**.

42 Drag the **green arrow** on top of the second blue question mark in the **Script** pane to make it a third subset of the second conditional.

43 In Device Actions, select **Programming Control**.

44 In the Programming Control Actions pane, select **Stop**.

45 Drag the **green arrow** on top of the second blue question mark to make it a fourth subset of the second conditional.

46 In Device Actions, select **My Playlists** again.

47 In the Conditionals tab, enter **Kid's Music**.

48 Drag the blue question mark to the **Script** pane to make it the third conditional.
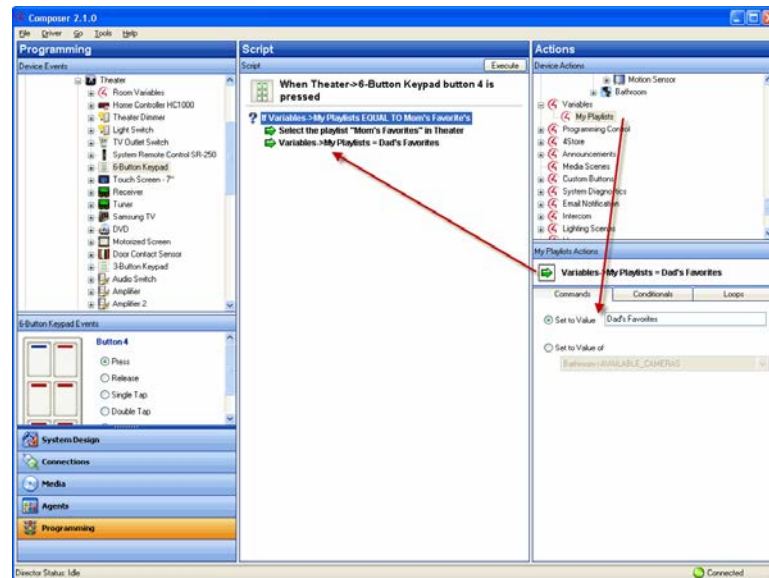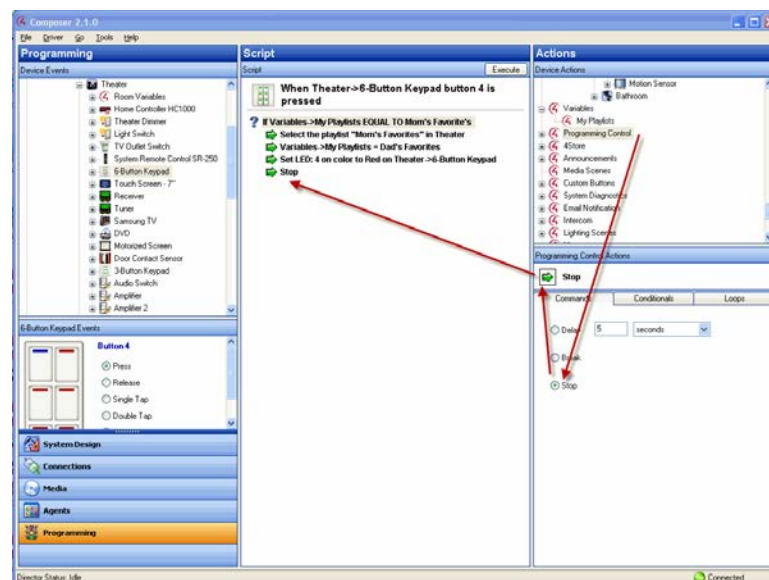
49 In Device Actions, select the **Theater** room object.

50 In Theater Actions, select **Select Media**.

51 In the window that pops up, select **Playlists**, **Kid's Music**, and then click **OK**.

52 Drag the **green arrow** on top of the third blue question mark in the **Script** pane to make it the first subset of the third conditional.

Set up a 'Choral Music' playlist

53 In Device Actions, select **My Playlists**.

54 In the Commands tab under My Playlists, enter the name of the next playlist that you'd like to play; for example, **Choral Music**.

55 Drag the **green arrow** on top of the third blue question mark to make it a second subset item of the third conditional.

56 In Device Actions, select the **6 Button Keypad** in the **Theater**.

57 In 6 Button Keypad Actions, click on **Button 4**. Click the square of color to select the color you want button 4's LED to be when Kid's Music plays. Select the color in the menu that pops up (in this example: red), and click **OK**.

58 Drag the **green arrow** on top of the third blue question mark in the **Script** pane to make it the third subset of the third conditional.

59 In Device Actions, select **Programming Control**.

60 In the Programming Control Actions, select the **Stop** radio button.

61 Drag the **green arrow** on top of the third blue question mark in the **Script** pane to make it a fourth subset of the third conditional.

62 In Device Actions, select **My Playlists** again.

63 In the Conditionals tab, enter **Choral Music**.

64 Drag the fourth blue question mark to the **Script** pane.

65 In Device Actions, select the **Theater** room object.

66 In Theater Actions, select the **Select Media** radio button.

67 In the window that pops up, select **Playlists**, **Choral Music**, and then click **OK**.

68 Drag the **green arrow** on top of the fourth blue question mark in the **Script** pane to make it the first subset of the fourth conditional.

69 In Device Actions, select **My Playlists**.

70 In the Commands tab under My Playlists, enter the name of the next playlist that you'd like to play; for example, **Mom's Favorites**.

71 Drag the **green arrow** on top of the fourth blue question mark in the **Script** pane to make it a second subset of the fourth conditional.

72 In Device Actions, select the **6 Button Keypad** in the **Theater**.

73 In 6 Button Keypad Actions, click on **Button 4**.

74 Click the **square of color** to select the color you want Button 4's LED to be when **Choral Music** plays. Select the color in the menu that pops up (in this example: yellow), and click **OK**.

75 Drag the **green arrow** on top of the fourth blue question mark to make it a third subset of the fourth conditional.

76 In Device Actions, select **Programming Control**.

77 In the Programming Control Actions, select the **Stop** radio button.

78 Drag the **green arrow** on top of the fourth blue question mark to make it a fourth subset of the fourth conditional.

79 In Device Actions, select the **Theater** room.

80 In Theater Actions, select **Media**.

81 In the window that pops up, select **Playlists**, **Mom's Favorites**, and then click **OK**.

Note: You do this is because the first time the button on the Keypad is pushed, the string variable does not have a value, and nothing happens. This last command is created when none of the conditionals are fulfilled, something will play; each time the button is pushed thereafter, a conditional is fulfilled.

82 Drag the **green arrow** below the previous **Stop** command in the **Script** pane. It is not a subset of the previous conditionals, but a command on its own.

83 In Device Actions, select **My Playlists**.

84 In the Commands tab under My Playlists, enter the name of the next playlist that you'd like to play; for example, **Dad's Favorites**.

85 Drag the **green arrow** below the previous command in the **Script** pane.

86 In Device Actions, select the **6 Button Keypad** in the **Theater**.

87 In 6 Button Keypad Actions, click on **Button 4**. Click the **square of color** to select the color you want Button 4's LED to be when **Mom's Favorites** plays. Select the color in the menu that pops up (in this example: green), and click **OK**.

88 Drag the **green arrow** below the previous command in the **Script** pane. You do not need a stop at this point, because the programming automatically stops at the end of the script.

Results: Press Button 4 on a 6-Button Keypad repeatedly to toggle through four (4) playlists.

Examples: Programming with agents

Use the Control4 Composer Pro agents and Programming views to program agents.

Major steps

When you program with agents, you typically use these general steps:

1   In Agents, define an instance of a type of agent.

2   In Programming, use the instance of the agent to program event actions.

Example: *In the Agent view, you can create an instance of a Custom Button where you identify all the buttons you want to program. In Programming, you program the Custom Buttons.*

Note: *Agents vary greatly in functionality and flexibility.*

Agent types

- **Advanced Lighting Scenes**—Lets you change the lighting state, toggle lights, ramp/fade lights, delay on/off, use scene sequencing, flash lights, and so on. In OS 2.3.0, this agent supports the Panelized Lighting products with some limitations for older lighting devices.
- **Announcements**—Plays a pre-recorded .WAV file, or displays a text message whenever a given event occurs. You can play an audio announcement on any audio output *device* with a supporting text message that displays on selected Navigators.

  Example: *A doorbell announcement plays a .WAV file that sounds like chimes and displays the following text on a touch screen: "Someone is at the door" each time a doorbell is pressed. See "Example: Program using the Announcement agent."*

- **Custom Buttons**—Lets you make user interface buttons for specialized devices on the Navigators. See "Example: Program using the custom buttons agent."
- **E-mail Notification**—Lets you send an email message to your email address when specified events occur as defined in programming. See "Example: Program using the E-Mail Notification agent."

  Notes: *(1) Remote Access is required to use the E-mail Notification agent. See the* ***Composer Pro Getting Started*** *for details about Remote Access.(2) Avoid setting up email notifications for events that occur frequently (e.g., when a Motion Sensor detects motion). If the email notification trigger event occurs too often, it will cause the system to become sluggish.*

- **Intercom**—Sets up the intercom audio function for 5" or 7" In-Wall Touch Screens (for OS 2.0.2 and later); 7" In-Wall Touch Screens for OS 2.0.6 and later, 5" In-Wall Touch Screens); audio and video intercom for the 7" Portable Touch Screen (C4-TSMC7) for OS 2.2 and later; and the 7" In-Wall Touch Screen with Camera (C4-TW7CO) or Door Station – Exterior (C4-DSC-EN for OS 2.2.1 and later). It also lets you set up SIP for multi-dwelling units (MDUs). See "Example: Program using the Intercom agent."
- **Lighting Scenes**—Sets up a Lighting Scene.

  Example: *By pressing one button on a keypad, you can turn on assigned lights to specified ramp levels. See "Example: Program using the Lighting Scenes agent."*

- **Macros**—Macros agents associate programming with events.

  Example: *You can create one macro to use in several different programming events or to use on a touch screen when creating Favorites. See "Example: Program using the Macros agent."*

- **Media Scenes**—Creates a media scene that plays music in selected rooms on your system. See "Example: Program using the Media Scenes agent."
- **Rhapsody**—Lets you activate or disable a Rhapsody account. See "Example: Program using the Rhapsody agent."
- **Scheduler**—Defines conditionals of time to the system, and adds the ability to have scheduled events. See "Example: Program using the scheduler agent."
- **Screen Saver**—Lets you set up a Screen Saver agent so you can create various Screen Savers. See "Example: Program using the Screen Saver agent."
- **SNMP Configuration**—Lets you set up and configure devices to monitor via SNMP. Requires knowledge of SNMP and network management. See Example: Program using the SNMP Configuration agent.
- **Timer**—Starts, stops, or repeats a timer based on a given event and action.

  Example: If a Motion Sensor in the system turns on a light when it detects motion, you can use a timer to turn off the light after 15 minutes. Alternatively, you can set a timer to repeat an action whenever the timer expires. See "Example: Program using the Timer agent."

- **Variables**—Create Boolean, string, and number variables. Review "Programming with Variables" for information about creating Variable agents.
- **Wakeup**—Initiates a pre-specified wakeup time in the Navigators. This agent lets you play music, turn on lights, and change temperatures. See "Example: Program using the Wakeup agent."

The agent examples listed in the following sections will guide you through the programming steps for each agent type.

Example: Program using the Announcements agent

Use the Control4 Composer Pro Agents and Programming views to program this agent.

You can create announcements that:

- Display a text-message or Web page on any of the Navigators (on-screen Navigator or touch screens)
- Play a WAV-formatted audio announcement through any audio end point
- Combine the two mentioned above

Note: The Control4 system allows up to 10 MB of files for the Announcement agent, and plays a maximum of 15 seconds per announcement.

Example: This example demonstrates how to create a 'Dinner is Ready' announcement that is activated when the family chef (or dad) presses a custom-programmed button. When the button is pressed, the text message, 'Come to Dinner!,' displays on all of the Navigators in the home, and an audio file of a dinner bell ringing plays.

Prerequisites

The following devices are added and identified (with a network address) in the project:

- Controller
- Audio output device (television or connected speakers)
- Navigator with a screen (touch screen or television)
- Any device involved in the triggering event (doorbell contact, 3-Button Keypad, etc.)

To set up an Announcements agent:

1   Start Composer Pro and connect to a Director.

2   Click **Agents**.

3   (First time only) Click **Add** to add the Announcements agent to the project.

4   Select **Announcements**, and then click **OK** to add Announcements to the agent types list in the project. The next time you want to create an announcement, just select the **Announcements** item in the Agents pane and click **New**.

5   With Announcements selected in the left pane, click **New**.

6   Name the **new announcement**, and click **Create**. *Example:* Come to Dinner!

7   Set up the Navigator text message you want to display.
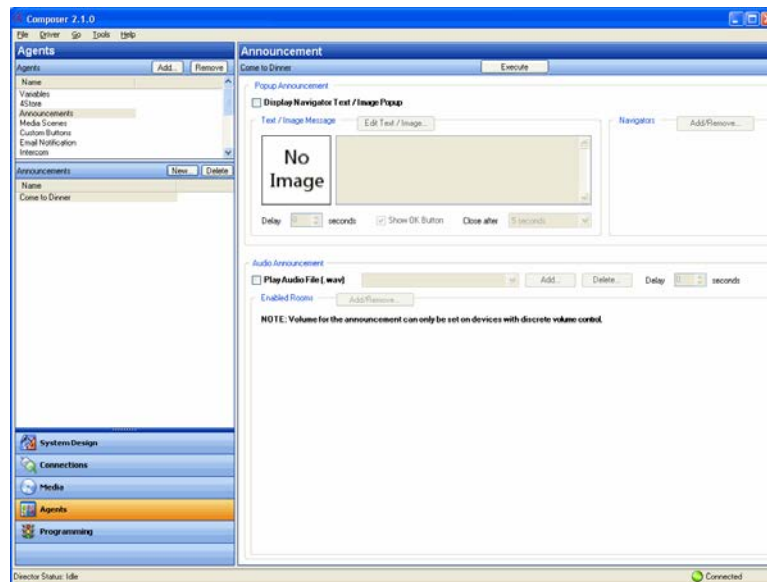
a   Check the Display Navigator Text/Image Popup box.

b   Click **Edit Text/Image**.

c   Type a text message, a URL, or browse to an image (JPG, GIF, or PNG) to display.

The text box accepts any HTML code. While certain links and scripts won't be handled, when the announcement is triggered, for example, if you put this text in an announcement, it will show up just as if it were a web page. For example, the following HTML text will display the latest snapshot of a web page:

<HTML><BODY><IMG
SRC="http://tbn0.google.com/images?q=tbn:1uOhCnlc3zbQgM:http://www.inkycircus.c
om/jargon/images/mountain.jpg" ALT="pumpkin"><a
href="http://www.w3schools.com/">Visit W3Schools!</BODY></HTML>

Note: A static image file (JPG, GIF, or PNG) only has to be added to your project once because it is copied to the controller. When added, it is available in the Text Message drop-down menu for use in any additional announcements created.

d   Select the **time** you want the text message to display using the **Close after** drop-down menu (supported display times are from five (5) seconds to 10 minutes).

e   Click **Add/Remove** and check the Navigators that will display the message. Click **OK**.

8   **Audio file**—Add a **WAV** audio file, and set up the audio file to be played.

a   Check the **Play Audio File** box.

**b**   (One time per audio file) Click **Add** and browse to the WAV audio file to add it to the drop-down menu.

> **Note:** *An audio file only has to be added to your project one time because it is copied to the controller. When added, it is available in the Audio File drop-down menu for use in any additional announcements created.*

  c   Select the WAV file from the drop-down menu.

  d   Click **Add/Remove Rooms** and check the **rooms** where the audio file will play. Click **OK**.

  e   Set the volume of the audio play for each room.

> **Note:** *The volume for an announcement only can be set on devices with discrete volume control.*
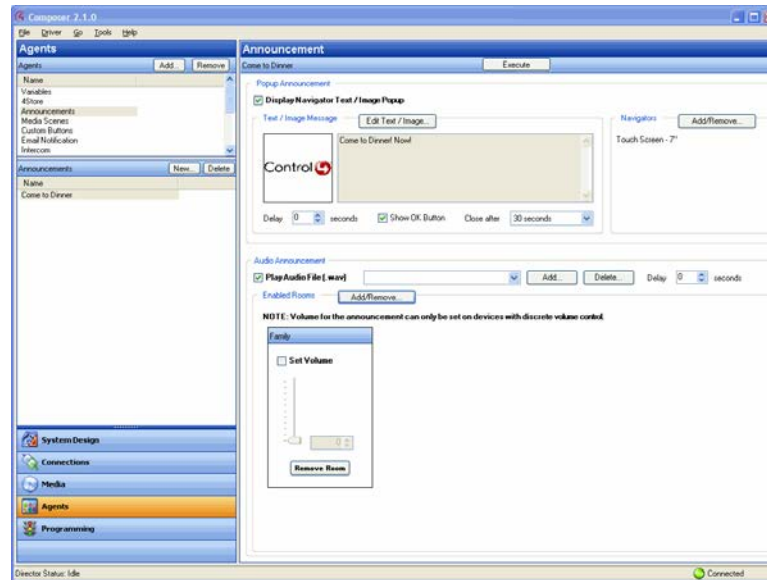
9   Click **Programming**.

10 Verify that the new Announcements agent displays in the Actions list (bottom of list).

  a   Select **Announcements**.

  b   Make sure the 'Come to Dinner!' message displays in the Announcement Actions pane and that the command is there (green arrow).

11 Program the announcement to play or display with a triggering event.

> **Example:** *Program a button-press event (left pane) to trigger the Announcements agent to run 'Come to Dinner!' (right pane).*

Example: Program using the Custom Buttons agent

Use the Control4 Composer Pro Custom Buttons agent to create up to four (4) custom screens to display on the Navigators (including touch screens, MyHome apps, and on-screen).

Example: *If you have a heated driveway or some other specialty device, you can set up a screen with custom buttons to operate the heated driveway from the Navigators.*

Guidelines

- You can access each screen on the Navigators from the Control4 main menu or for a room from four (4) available tabs. *Example:* The heated driveway screen is accessed from a custom tab on the main menu. You can configure the tab to be viewed system-wide on all screens, or to view in one room only.
- The Navigators allow up to four (4) tabs per room to access custom screens with custom buttons. Each screen can provide up to six (6) custom buttons for a total of 24 custom buttons. The four (4) tabs in each room can be allocated as either room or as global tabs.
- On the Navigators, you can set up a room or global tabs. The example shows the creation of custom tabs that appear in the Front Room and access a custom screen.

Note: *If you want to create a Custom tab to appear globally, check the Global box next to the Screen Name. Because only four (4) screens are available for each room, if a Global button is added and another room already has four (4) screens, the Global button replaces the first screen in that room.*

Prerequisites

The following devices are added and identified (with a network address) in the project:

- Controller
- Electronic Gate (In the Control & Audio Video Connections tab, ensure that the Electronic Gate is connected to controller relay Port 4.)

To set up a Custom Buttons agent:

1　　Start Composer Pro and connect to a Director.

2　　Click **Agents**.

3　　(First time only) Click **Add** to add the Custom Buttons agent to the project.

4　　When the dialog appears, from the list, select **Custom Buttons**.

5   Click **OK**.
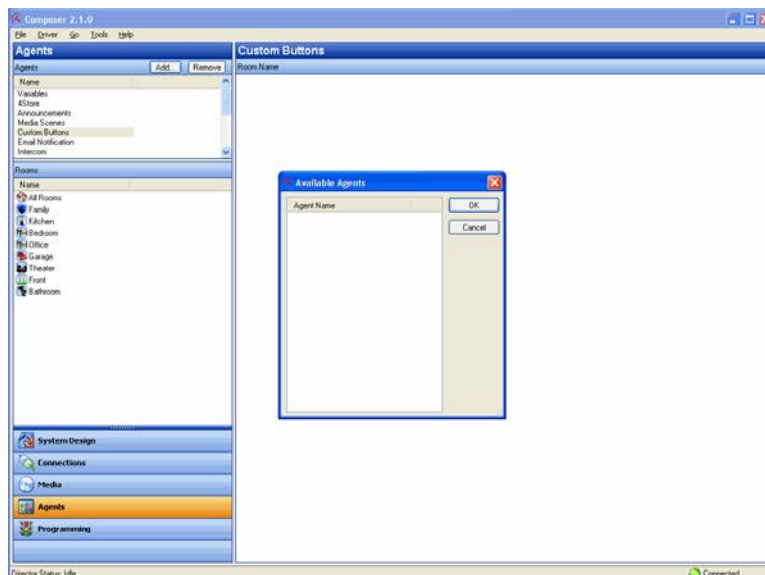
6   Select the **Custom Buttons** agent.

7   From the list that appears in the left pane, select the room for the custom button; for example, select **Family**.

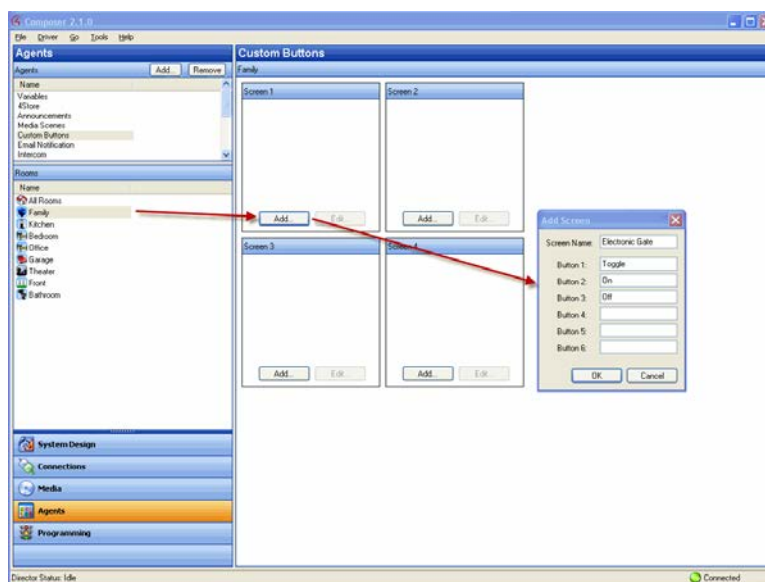**8**   When the Custom Buttons interface appears, in the Screen 1 area, click **Add**. *Note:* In the Navigator, Screen 1 appears in the top left corner; Screen 2 appears in the lower left corner, Screen 3 appears in the top right corner, and Screen 4 appears in the lower right corner.

9   Enter the name of the buttons to appear on the Navigator screen.

10 Enter the relevant information for the device.

The Screen Name is the name that appears on the access tab to enter the custom screen. The buttons are the names that appear on the custom buttons.

Example: For the Garage Door, enter the following:

- Screen Name: **Garage Door**
- Button 1: **Toggle**

11 Click **OK**.
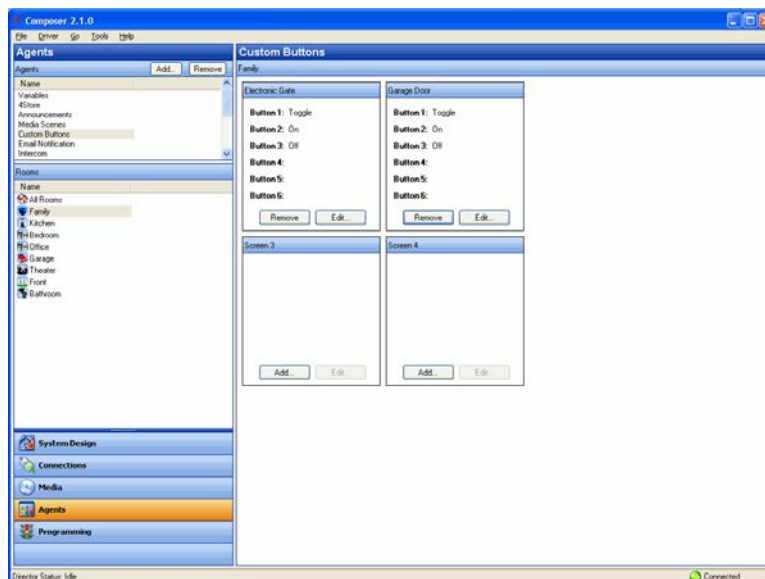
12 Click the **Programming** view to program your Custom Buttons.

13 In the Device Events pane, scroll down to the agents and select the **Custom Buttons** agent.

14 In the Custom Buttons Events pane, ensure that **Family-Garage Door** is selected under the Event Screen next to Toggle, and then select the **Press** radio button. When custom button 'Toggle' on screen 'Garage Door' in Family is pressed, it appears at the top of the Script pane.
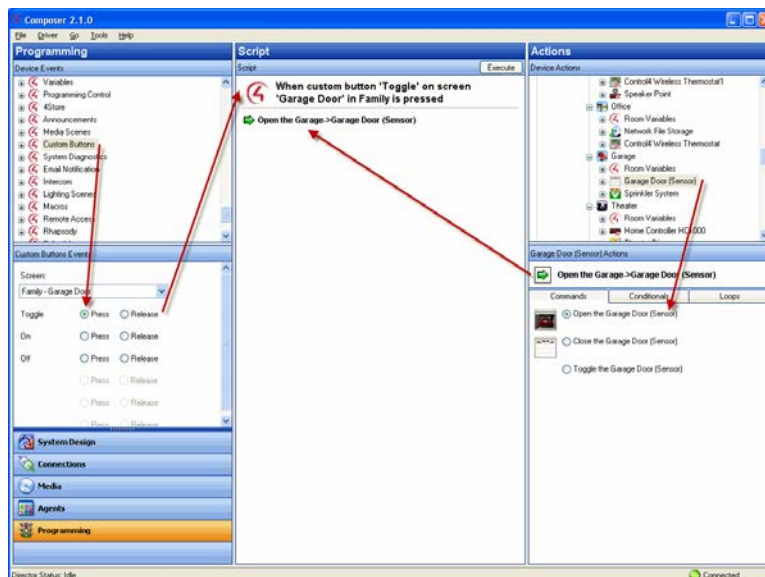
15 In the Actions pane, select **Garage Door**.

16 From the Command tab, select the **Toggle the Garage Door** radio button. The action command appears in the Actions pane.

17 Drag the **green arrow** to the **Script** pane.

18 Select **File** > **Refresh Navigators**.

Example: Program using the E-Mail Notification agent

IMPORTANT! *An active 4Sight Internet Service subscription is required for Email Notification to work. See Composer Pro Getting Started or the Control4 System User Guide.*

Use the Control4 Composer Pro E-Mail Notification agent to have an email sent to an email address automatically when specific events occur as defined in programming.

Example: *If you want to know when the basement door opens, you can set up an E-mail Notification agent to send an email to your email application's Inbox when the Basement door opens.*

- The E-mail Notification is a Control4 service. To use E-mail Notification agent, remote *access* is required to facilitate a secure connection between the controller and the Control4 service.

- The E-mail Notification agent uses templates to enhance usability. You can use a template to define a To, Subject, or Body for use when creating instances of the Email Notification agent. See "Connecting to a Director Using Remote Access" in *Composer Pro Getting Started*.

- Use the Programming view to define the individual instance that triggers an email and completes the definition.

Example: *A security threat to the house notified you of broken windows, doors opening, and motion detected in Away mode. In the template, you define Subject: Security Alert and To: fsmith@myemail.com. In the Programming view, you might define the zone. Examples of other incidents to use E-mail Notification include: Basement Door Opened, Front Gate Opened, Water Sensor detection, Carbon Monoxide Sensor detection, Motion Sensor detection, Sprinklers On/Off, etc.*

Tip: *When setting up an E-mail Notification agent, note the frequency that an event can happen; because if it is too frequent, it can slow down the system. For example, if an email is sent when a Motion Sensor detects motion, the frequent email messages could cause sluggishness.*

Prerequisites

The following example devices are added and identified (with a network address) in the project:

- Controller
- Door Contact Sensor

To set up an E-Mail Notification agent:

1 Start Composer Pro and connect to a Director.

2 Click **Agents**.

3 (First time only) In the Agents view, click **Add** to add the E-mail Notification agent to the project.

4 When the dialog appears, select **Email Notification**.

5 Click **OK**.

6 Select **Email Notification**, and click **Add** in the pane that follows. The New Template Name dialog appears.

   Tip: *Control4 now includes Control4 system and user-defined variables in the templates created using this agent. To use this function, you can create or modify email templates using Composer Pro > Agents > E-Mail Notification, and then use the **Add Variable** option.*

7 Enter a name on the dialog that appears, for example, 'Security Alert.'

8 Click **Create**.

9 In Email Notification Template Name, select **Security Alert** for the Composer Pro email screen to appear.

10 Fill out the information for the email you want sent to you when an event occurs.

   Example:

   To: **fsmith@myemail.com**

   Subject: **Security Alert**

   Body: **The security of the Franklin Smith House may have been compromised.**
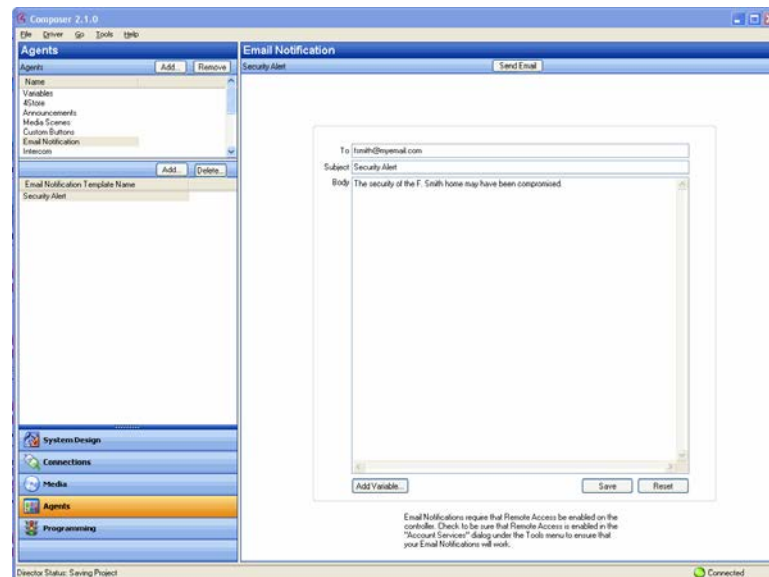
11 Do the following as needed:

   a Click **Send Email** to test and see if you receive and email to your email address.

   b Click **Add Variable** if you've created a variable agent. Scroll down the list to locate the variable, and then click **OK**.

   c Click **Save** to exit and go to the Programming view to set up the programming.

   d Click **Reset** to clear the To, Subject, and Body of the email to start again.

12 With the Agent template created, you can create one instance of the Security Alert for each security zone (or object). When you've saved the template, click **Programming**.

13 In Programming under Theater, select **Door Contact Sensor**.

14 In Door Contact Sensor Events, select **When Door Contact Sensor opens**.

15 In the Actions pane, scroll down and select **Email Notification**.

16 Make any changes to the email as necessary.

17 Drag the **green arrow** to the **Script** pane.

18 In the File menu, click **Refresh**.

19 Test the Email Notification agent by going to the door and opening it. An email is sent to your Inbox with the Security Alert as a subject.

Example: Programming Intercom with a macro

Example: *The steps below use an example where a macro is set up to monitor the Master Bedroom from the Kitchen using the intercom on both 7" In-Wall Touch Screens.*

To set up a program that monitors a room using the Intercom agent:

1   If the Macro agent hasn't been added to the project, add it (**Agents** view > **Add** > **Macros**).

2   Create a new macro called **Monitor Master Bedroom**.

3   In the Programming view, create programming for the "Monitor Master Bedroom" macro event (**Programming** > **Macros** in the Device Events pane, and then select the macro **Monitor Master Bedroom**).

4   Add the programming to start monitoring the Master Bedroom (**Programming** > **Actions** > **Intercom** in the Device Actions pane).

    a   In the Commands tab, select the device that will be doing the monitoring: **7" In-Wall Touch Screen in the Kitchen**.

    b   Select the Session Action: **Monitor**.

    c   Select the Target Intercom Device that will be monitored (**Master Bedroom**).

    d   Drag the **green** arrow to the Script pane.

5   Test the Programming by clicking **Execute**.

Tip: *You can add the macro to a Custom Home page on the Navigator; another option is to program this same action against a button press on a keypad.*

Example: Program using the Light Properties agent

Use the Control4 Composer Agents and System Design views to add and configure dimmable, non-dimmable, and 0-10V lights for Panelized Lighting devices.

Use this agent to make it easy to set up load and wattage information in the Panelized Lighting Properties pages for a project.

To use the Light Properties agent:

1   Start Composer Pro and connect to a Director.

2   Click **Agents**.

3   (First time only) Click **Add** to add the Light Properties agent to the project.

4   Select **Light Properties**, and then click **OK**.

In the Light Properties pane, change the columns for each light in the Panelized Lighting system.

Note: *Ensure that the Panelized Lighting module is added and identified to the system. After you do, the name of the device will display in this agent's Light Properties pane. See the Panelized Lighting Quick Start Guide for details.*

These options are editable.

- **Name**—The name of the module you identified in the system.
- **Load Number**—Assign a load number for each module in the system.
- **Watts**—Assign the wattage for each module in the system.

Example: Program using the Lighting Scenes agent

Use the Control4 Composer Pro Agents and Programming views to program this agent. Lighting Scenes let you set up lights in a home at a pre-determined setting and ramp rate. See also "Example: Program using the Advanced Lighting agent" in this document to set up more advanced features. Both agents will communicate with each other.

Notes: (1) The Off state in Lighting Scenes is available only in programming and is not in the OS 2.0 Flash Navigators. Use specific Off scenes where needed for the Navigators. (2) You must add the Advanced Lighting agent to the project before your customers can edit Lighting Scenes on a Navigator.

Example: Set up the Bedroom Dimmer and Theater Dimmer at a pre-determined level and ramp rate when turned on. Turn the switch off and on. Assign the Lighting Scene to Button 1 on a 6-button keypad.

Prerequisites

The following devices are added and identified (with a network address) in the project:

- Controller
- Theater Dimmer
- Theater Switch
- Bedroom Dimmer
- 6-Button Keypad

To set up a Lighting Scenes agent:

1   Start Composer Pro and connect to a Director.
2   Click **Agents**.
3   (First time only) Click **Add** to add the Lighting Scenes agent to the project, and then click **OK**.
4   In the Agents pane, select **Lighting Scenes** and then click **New**.
5   Enter a name on the dialog that appears (for example, **Evening Lights**).
6   Click **Create**.
7   The instance of the agent you created appears below the Agents pane. Select the instance you just created, and click **Add/Remove Load** to continue.
8   Check the lighting loads that you want to add, and then click **OK**. This can be a single light, a single room, all lighting loads in an entire house, or any combination of these options.
9   Set the specific settings for each load:
    - **Dimmer Options**:
        - **Level**—Lets you set a lighting level as appropriate by using the bar or Level pull-down menu, for example, **50** percent for the Bedroom Dimmer and **20** percent for the Theater Dimmer.
        - **Ramp Rate**—Lets you set the Ramp Rate, which is the speed the load ramps to the specified lighting level. Use the pull-down menu to set the **Milliseconds**, **Seconds**, or **Minutes** of the ramp rate. Then set the amount of time you want the level to change. *Example:* Set the time to **1** second for both the Bedroom Dimmer and the Theater Dimmer.
        - **Remove Load**—Lets you remove this particular load by clicking **Remove Load**.

- **Switch Options**—You can turn the light On or Off for the Theater Switch. *Example:* Lighting Scene, select **Off**.
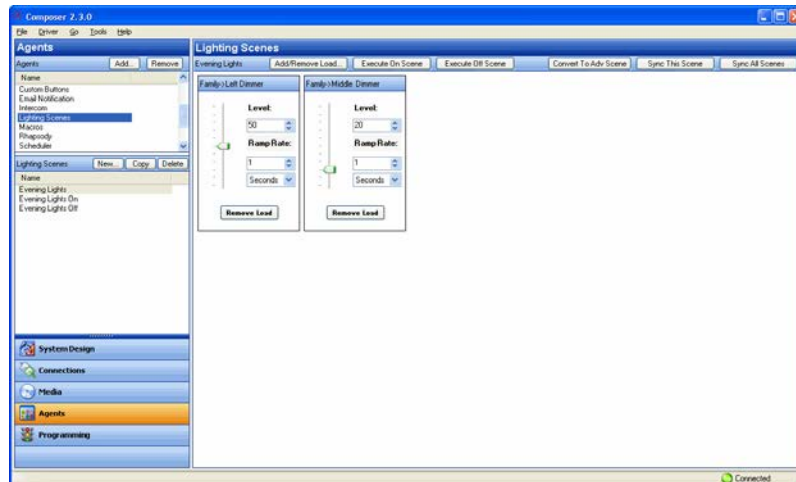

10 When the settings are configured for each load in this Lighting Scene, click **Execute On Scene**. *Note:* Other buttons may apply as needed:

- **Add/Remove Load**—Click to add or remove dimmers or switches. Select the dimmer or switch from the project tree and click **OK**.
- **Execute On Scene**—Click to have all dimmers and switches in this scene turn on when executed.
- **Execute Off Scene**—Click to have all dimmers and switches in this scene turn off when executed. Can combine with other scenes to turn off.
- **Convert to Adv Scene**. Click to convert this scene to an Advanced Lighting agent. The scene will show up in the Advanced Lighting agent if it has been added to the project.
- **Sync This Scene**—Click to synchronize the behavior of the devices in this scene. Used mostly for updates and testing.
- **Sync All Scenes**—Click to synchronize the behavior of all devices in all scenes. Used mostly for updates and testing.

11 A dialog appears that the scene is executed. Click **OK**.

12 Click **Programming**.

13 In the project tree, select the device to program. *Example:* 6-Button Keypad.

14 In the Events pane, click an event. For example, if you chose the 6-Button Keypad, click **Button 4**.

15 Select **Press** at the event to trigger programming. The event appears at the top of the Script pane.
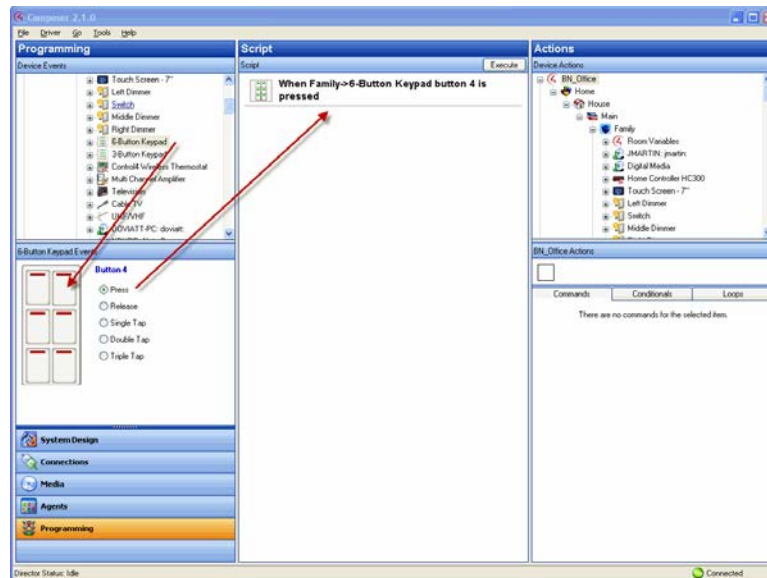
16 From the Actions pane, scroll down to view the available agents in the project tree.

17 Select the agents that you want to use in programming. ***Example:*** "Lighting Scenes" and 'Evening Lights.' The available commands appear in the Lighting Scenes Device Actions pane and Commands tab in Lighting Scenes Actions.
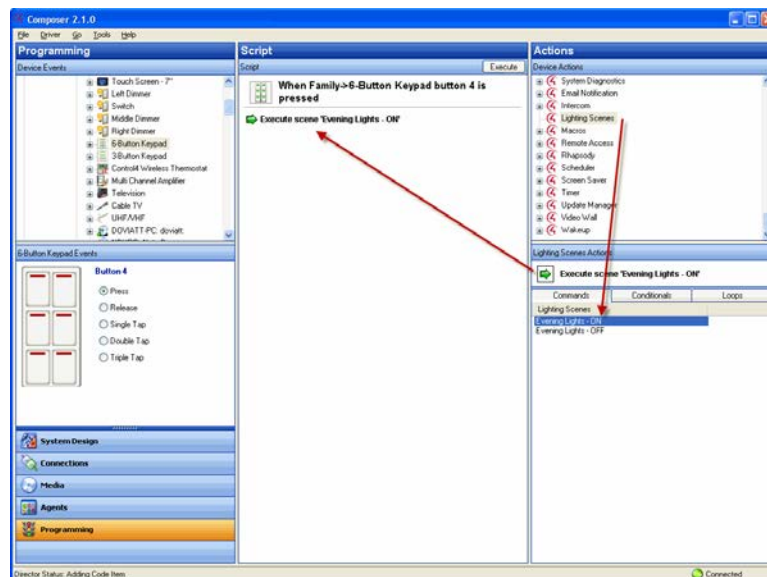
18 In the Commands tab, select the command to view it, for example, 'Evening Lights - ON.'

19 Drag the **green arrow** to the **Script** pane.

20 Press **Button 4** on the 6-button keypad, or click **Execute** in the Script pane to test the Lighting Scene.

Example: Program using the Macros agent

Use the Control4 Composer Pro Agents and Programming views to program this agent. Macros agents are routines that associate programming with event*s*. **Examples:** You can create and name a macro to use in several different programming events. The macro can be called from a particular program in the Programming Actions pane or you can create a Favorite on your touch screens or on-screen Navigator to call a Macros agent.

You can create Macros agents:

- To use in various programmed events
- To use in Custom pages
- To embed directly into the Navigators
- To create shortcuts (Favorites)

Prerequisites

The following devices are added and identified (with a network address) in the project:

- Controller
- Light Switch
- Navigator with a screen (touch screen, MyHome app, TV screen, etc.)
- Any device involved in the triggering event (doorbell contact, 3-Button Keypad, etc.)

To set up a Macros agent:

1   Start Composer Pro and connect to a Director.
2   Click **Agents**.
3   (First time only) Click **Add** to add the Macros agent to the project.
4   Select **Macros**, and then click **OK**.

To create a new Macros agent:

1   Select **Macros** in the Agents pane, and click **New**.
2   Name the new macro, for example, **Bob**, and then click **Create**.

To add the agent's programming script:

In this example script, you will select the **Family Room Switch** which is on, and then turn off everything in the Living Room.

1   Click the **Programming** view.
2   In the Device Events pane, scroll down to Macros and select **Bob**. "When Bob is executed" appears in the Script pane.
3   In the Device Actions pane, select **Family Room** and the **Switch**.
4   Under Light, select **On**.
5   Drag the green arrow 'Turn on the Family > Switch' to the Script pane.
6   Under Light, select **Off**.

7   Drag the green arrow 'Turn off the Family > Switch' to the Script pane.
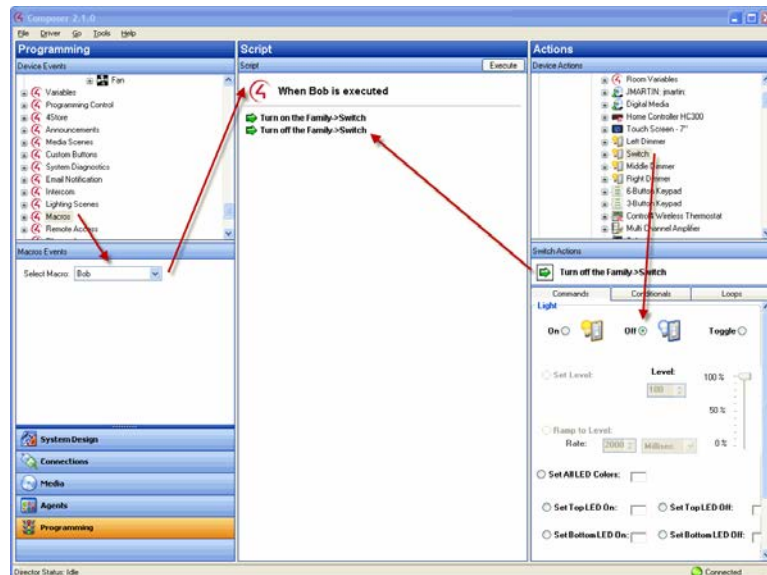
8   You can add the Macros agent to many programs that you create if you want to perform similar tasks, or you can program the agent for a specific device. For example, you can assign this agent to **Button 1** on a 3-Button Keypad to run the program when executed.

Note: *A unique Macros agent cannot be edited or copied; only created or deleted. If you want to create a new Macros agent based on another one, you must create a new one.*

Example: Program using the Media Scenes agent

Use the Control4 Composer Pro Media Scenes *agent* to allow simpler multi-zone audio control. Media Scenes link source, volume, and room-off commands. With Media Scenes, you can configure one or more rooms in a system to play the same music at the same volume.

Example: *A Media Scene for the entire house can include all the rooms in the Control4 system. Another Media Scene can include only the Master Bedroom and Bath. You can create any number of Media Scenes containing any number of rooms.*

Guidelines

- To successfully activate a Media Scene (with the rooms being controlled simultaneously), activate the Media Scenes agent before starting any music playback.
- Media scenes are persistent; when activated, a Media Scene remains active until deactivated or until the controller is powered down. If a Media Scene is deactivated while music is playing, the music continues to play in the associated rooms, but the rooms are no longer controlled in unison. Therefore, music can be stopped in one room while it continues to play in another room.
- You can set up a Media Scene one time, and activate it when desired. Then play the music.

To create a Media Scenes agent:

**1**   Start Composer Pro and connect to a Director.

2   (First time only) In the Agents view, click **Add** to add the Media Scenes agent to the project.

3   On the dialog that appears, click **Media Scenes**, and then click **OK**.

4	In the Agents pane, select **Media Scenes**, and click **New**.

5	Enter a name for your new Media Scene. *Example:* **Party Music**.

**6**	In the Agents pane, select **Party Music**, and then click **Add Room** in the Media Scenes pane.
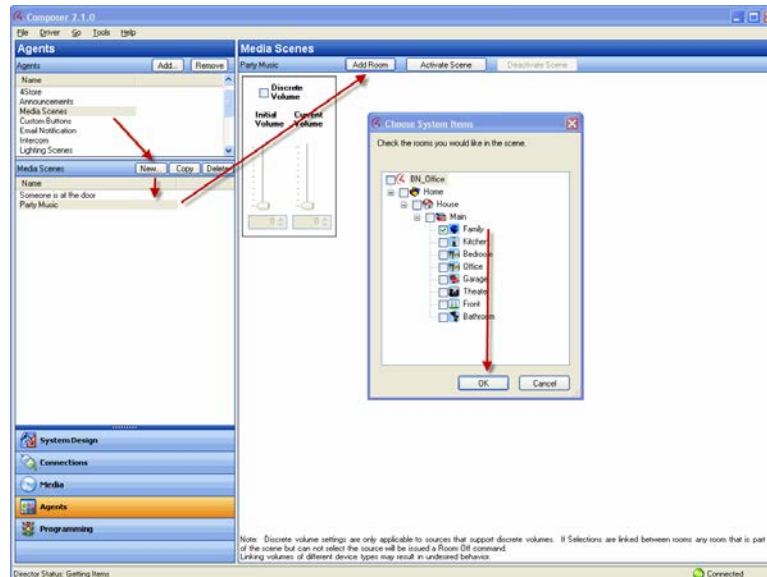
7	In the dialog box is a list of rooms in your system. Check the **rooms** where you want to play your Party Music, and then click **OK**. *Example:* **Theater** and **Family**.

*Tips: To remove a room from a scene, click **Remove Room**. To create another Media Scene, return to Step 1.*
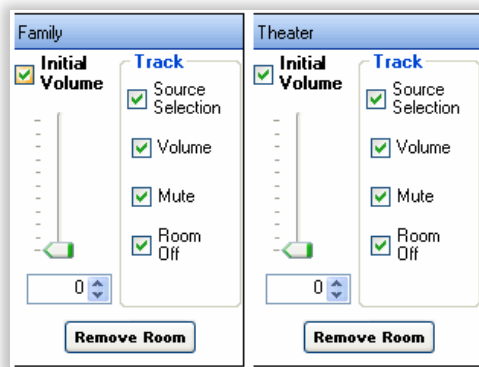
*Tip: You can add all rooms on a floor by clicking, for example, **Main**. This automatically selects all other rooms in that category. You can also include all rooms in your entire system in the Media Scene by clicking **House**.*

The rooms you selected appear in the new Media scene 'Party Music.'
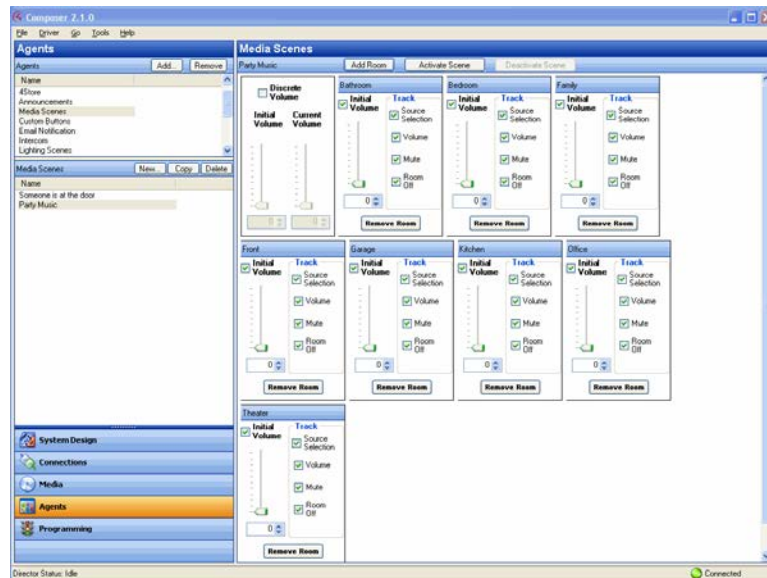
8   To activate the scene, click **Activate Scene** at the top of the screen.

9   To deactivate, click the **Deactivate Scene** button.

10 You can program a button for your Media Scene. Do this by creating a new Custom Button.

    a   In the Agents view, click **Custom Buttons**, and then below, click a **room**. In the Custom Buttons pane, click **Add**.

    b   In the Add Screen dialog that appears, enter the name of the Custom Button, and then click **OK**.

    *Example: Click **Theater** and call the Screen name **Media Scene**. Name Button 1: **On/Off** and click **OK**.*

    The custom button name appears in the pane.

11 Click the **Programming** View.

12 In the Device Events pane, scroll down and click **Custom Buttons**. In the pane below, Custom Button Events, select the screen you want to program, and then select the **Press** radio button.

    *Example: Select the screen **Kitchen - Media Scene**, and select the **Press** radio button.*

13 In the Actions pane, select **Kitchen**.

14 In the Kitchen Actions pane under Conditionals, press the **Media Scene Active** button which also selects True.

15 Drag the blue question mark to the **Script** pane.

16 In the Actions pane, scroll down and select **Media Scenes**.

17 In the Media Scenes Actions pane under Commands, press the **Deactivate** button, and then select **Party Music**.

18 Drag the **green arrow** on top of the blue question mark in the **Script** pane.

19 In the Actions pane, scroll up and select **Kitchen**. In the Kitchen Actions pane and in Conditionals, press the **Media Scene Active** button, and then the **False** button.

20 Drag the **blue question** mark to the **Script** pane.

21 In the Actions pane, scroll down and select **Media Scenes**. In the Media Scenes Actions pane and in Commands, press the **Activate** button, and then select **Party Music**.

22 Drag the **green arrow** icon on top of the blue question mark in the **Script** pane.
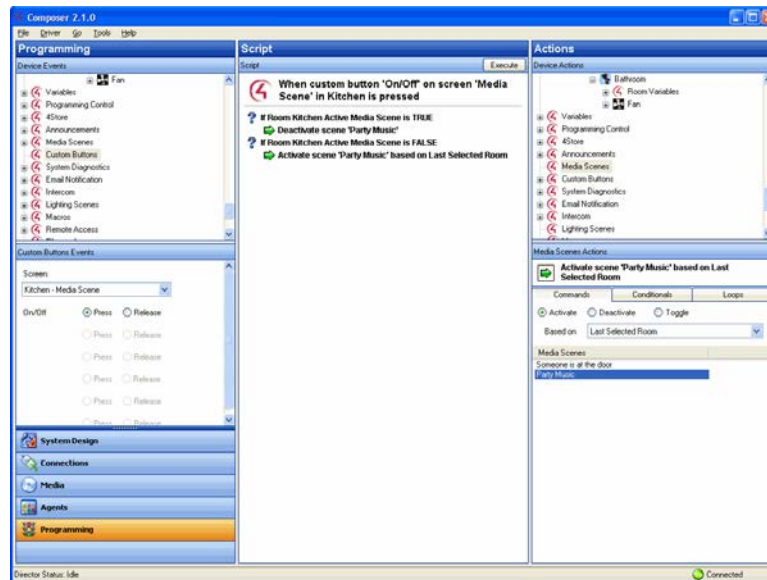
The Script pane now reads, 'When custom button 'On/Off' on screen 'Media Scene' in Kitchen is pressed...Activate scene 'Party Music.''

23 To execute the scene, click **Execute**.

Example: Program using the Scheduler agent

Use the Control4 Composer Pro Agents and Programming views to program this agent. The Scheduler agent lets you schedule time on the Control4 system to trigger specific events to occur. You can program a specific one-time event or multiple events to re-occur daily, weekly, monthly, yearly, etc.

Example: *Schedule an event to play dad's favorite song at 7:30 AM on his birthday.*

Prerequisites

The following devices are added and identified (with a network address) in the project:

- Controller
- 3-Button Keypad

To set up a Scheduler agent:

1 Start Composer Pro and connect to a Director.

2 Click **Agents**.

3 (First time only) In the Agents pane, click **Add** to add the Scheduler agent to the project.

4 Select **Scheduler** in the Agents list, and click **OK**.

5   In the Agents pane, select **Scheduler**. The Scheduler panes appear.
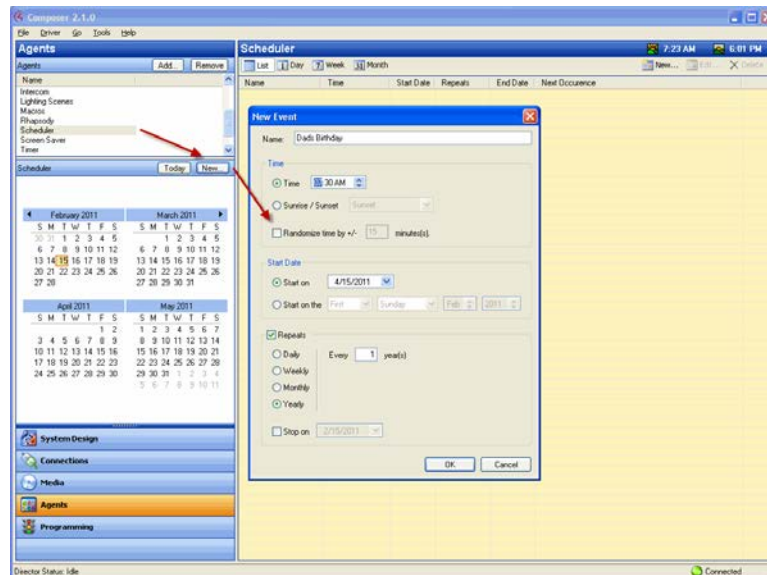
6   In the Scheduler pane, click **New**.

7   In the New Event dialog, enter the relevant information for this Scheduler instance:

     a   In Name: type **Dads Birthday**.

     b   In Time, add the following:

- Select the **Time** radio button.
- Highlight the hour: **07**, minutes: **30**, and **AM**. Use the drop-down menu to select each time separately, or
- Select **Sunrise/Sunset**, and select **Sunrise** from the drop-down menu.

     c   In Randomize time by +/-, keep the default of 15 minutes. This executes the Scheduler either 15 minutes before or 15 minutes after the actual time you assigned. This is useful when you go on vacation and you want your lights to go on at different times so outsiders think someone is home.

     d   In Start Date, select one of the following:

- Select the **Start** on radio button. Use the drop-down menu and select today's date.
- Select the **Start** on the radio button to select an exact day, month, and year. Use the drop-down menus to make your selections.

     e   Select **Repeats**.

- Select **Yearly**.

    Example: You want dad's favorite song to play at 7:30 AM. This dialog lets you schedule one-time events and recurring events.

- Select **Stop on**, and use the drop-down menu to select a month and year to stop this agent.

     f   Click **OK**. The event is now added to the list of events.

     g   To delete an event, select the event in the list, and click **Delete**.

8   Click **Programming**.

9   In the Device Events pane, select the **Scheduler** object at the bottom of the list.

10   In Scheduler Events, click **Dads Birthday** event. The Script pane shows Dads Birthday event.

11   Select the device actions to initiate in the Actions panes.

12 Drag the actions to the Script pane. These scripted actions execute when the Dad's Birthday event executes.

13 You can use the Scheduler agent in programming also to add conditionals or loops to your scripts.

14 In the project tree, select **3 Button Keypad**.

    a In the Actions pane, scroll down and select the **Scheduler** agent.

    b Click the **Conditionals** tab, select **Time**, and **Within 5 minute(s) Before Sunset**.

    c Drag the **blue question** mark to the Script pane.

    d In the project tree, select the light.

    e In the **Commands** tab, select **turn the room on**, and drag the **green arrow** on top of the **blue question** mark in the Script pane.

Results: When the top button on the 3-Button Keypad is pressed, if it is within five (5) minutes before sunrise, the light comes on. The Scheduler agent lets you define one-time events and recurring events.

# Example: Program using the Screen Saver agent

Use the Control4 Composer Pro Agents view to set up a Screen Saver agent.

Prerequisites

Ensure that the devices you will use to set up a screen saver and store your photos (for example, a network-attached storage device) are attached to the Control4 system are attached to the primary controller. If you use a USB device, ensure that it is formatted to FAT 32.

To set up a Screen Saver agent:

1 Start Composer Pro and connect to a Director.

2 Click **Agents**.

3 (First time only) Click **Add** to add the Screen Saver agent to the project.

4 Select **Screen Saver**, and then click **OK**. The next time you want to create a Screen Saver, click the **Screen Saver** item in the Agents pane, and then click **New**.

5 From the drop-down menu, select the **File Storage Location**.
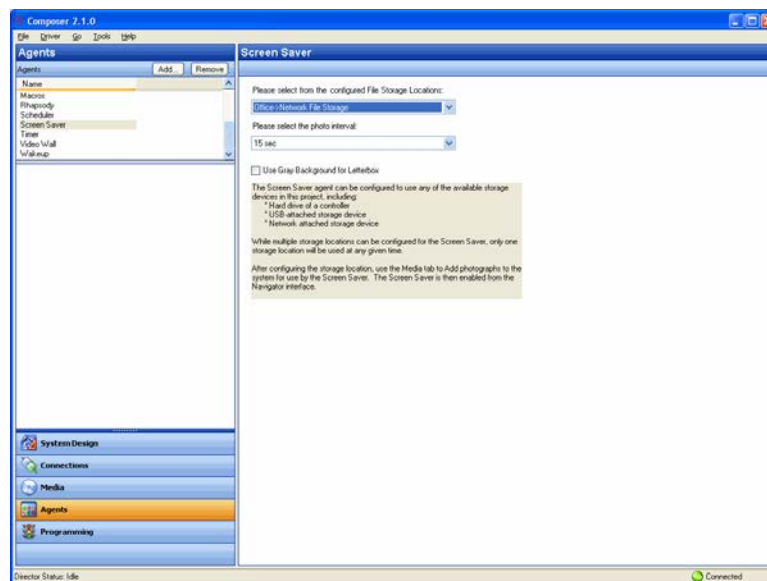
6   Click the **Media** view.

7   Click **Screen Saver** in the Media pane.

8   Click **Add** to scan and add new photos to the Screen Saver pane from the device you selected in the Network Storage Location box.

9   To set up a custom screen saver on the Navigators, see also:

- "Setting Up the Photo Screen Saver Option"
- "Setting Up Custom Screen Saver"
- *Control4 System User Guide*

Example: Program using the Timer agent

Use the Control4 Composer Pro Agents and Programming views to program this agent. The Timer agent lets you start, stop, or repeat a timer based on a given event and action.

Example: *A Motion Sensor turns on a light when it detects motion; use a timer to turn off the light after 15 minutes. Alternatively, you can set a timer to repeat an action whenever the timer expires, such as a Bathroom fan that restarts each time the Bathroom light turns on.*

Prerequisites

The following devices are added and identified (with a network address) in the project:

- Controller
- Any device involved in the triggering event (for example, a Motion Sensor)

To set up a Timer agent:

1   Start Composer Pro and connect to a Director.

2   Click **Agents**.

3   (First time only) Click **Add to** add the Timer agent to the project.

4   Select **Timer**, and then click **New**.

5   Type the name of the new timer (for example, Bathroom Fan), and click **Create**.

6   In Interval, use the drop-down menu to set the timer **in seconds**, **minutes**, or **hours** (hh:mm:ss), and click **OK**.

7   Click **Start** to start the timer.

8   Click **Programming**.

9   Select the **Timer Action** in the Actions pane, and ensure the new timer options display in the Commands tab (Start, Stop, Reset, and Change).

10   Start, Stop, Restart, or Change the timer as needed.

The following table outlines how the timer behaves depending on the state of the timer when a command is executed.

Command Executed is...	Time is...	Then Event	Effect on Timer
Start	Running	None	Restarts
Reset		Stop and Start	Restarts
Stop		Stop	Stops
Start	Not Running	Start	Starts
Reset		Start	Starts
Stop		Stop	Stops

- When you program to execute a Start command on a timer when a timer is running, no event is fired and the time is restarted.
- When you program to execute a Start command on a timer when the timer is not running, the Start event is fired and the timer starts.
- When you program to execute a Reset command on a timer when a timer is running, the Stop and Start events are fired and the time is restarted.
- When you program to execute a Reset command on a timer when a timer is not running, the Start event is fired and the time is restarted.
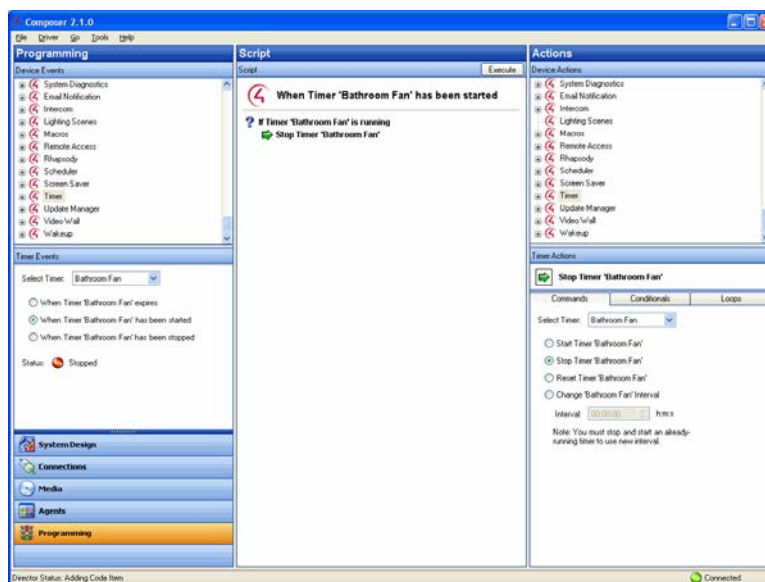
11 Program to connect the timer to an event and action, and choose to **Start**, **Restart**, or **Stop** the timer.

See the example programming screens that follow. Notice how the timer is first used as an action, and then as an event.

Event screen:
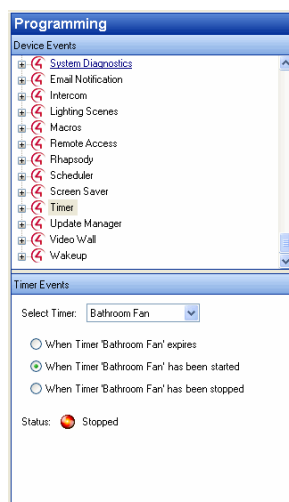
Action screen:

Example: Program using the Variables agent

Use the Control4 Composer Pro Agents view to set up a Variables agent. Ensure that the devices you want to use for variables are added and identified to the system.

These sections provide information about how to create the type of variable that you want to use in programming.

- "Example: Using room variables"
- "Example: Using a custom variable agent number"
- "Example: Using a custom string variable in an agent"
- "Example: Using custom Boolean variables in an agent"

Example: Program using the Wakeup agent

Use the Control4 Composer Pro Agents and Programming views to program this agent. The Wakeup agent lets you set wakeup times, lighting, music, and so on.

Note: Wakeup times set in Composer Pro synchronize with the Navigators. Likewise, wakeup times changed on the Navigators will synchronize with Composer.

*Example: At a user-specified time in the Navigators, start playing music from a CD in the Bedroom, and move the light progressively from **10** to **70** percent light level in 15 minutes. Thirty (30) minutes before wakeup starts, adjust the temperature in the room to **72** degrees. After 15 minutes of playing music, turn on the TV and broadcast the Local News.*

Prerequisites

The following devices are added and identified (with a network address) in the project:

- Controller
- Digital Audio (ensure that you can play music in the project)
- Bedroom Dimmer
- Gas Fireplace

The following agents need to be added:

- Wakeup Scene 1 and 2
- Scheduler for 'Bedroom Wakeup'

To set up a Wakeup agent:

1　Start Composer Pro and connect to a Director.
2　Click **Connections**.
3　Make sure the connections are correct. *Example:* From the Control & Audio Video Connections tab, ensure that the **Gas Fireplace** is connected to **Relay Port 1**.
4　Schedule a Wakeup time (see "Example: Program using the Scheduler agent").
5　Click **Agents**.
6　(First time only) Click **Add** to add the agent to the project.
7　Select **Wakeup**, and then click **OK**.
8　In the Agents pane, select **Wakeup**. The Wakeup interface panes appear.
9　In the Wakeups pane, click **New**.
10　On the dialog that appears, enter a name. *Example:* Bedroom Wakeup.

11 Click **Create**.
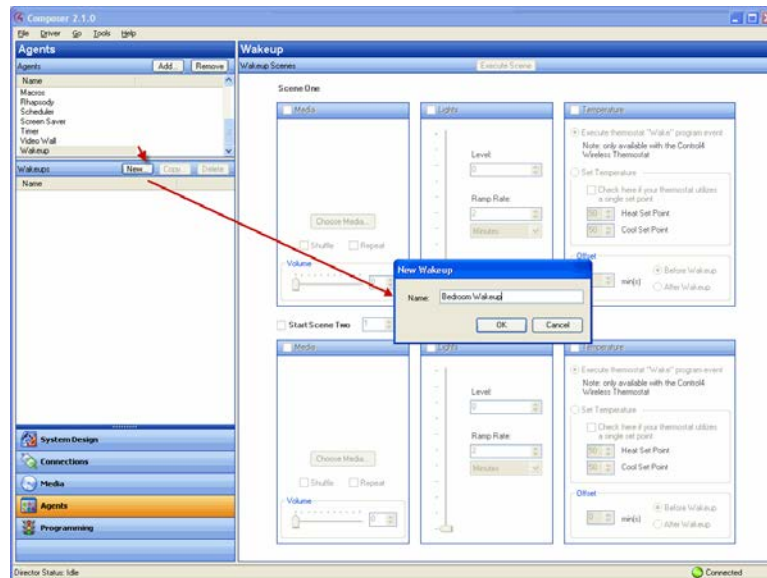
12 Enter **Wakeup Scene 1** information.

- **Media**—Click **Choose Media** (default). Use the drop-down menu to select **Playlists**, and then click a particular album and song you want to play when the Wakeup starts, such as 'Choral Music.' Set the desired volume using the scrollbar or the drop-down menu. Select **Shuffle** or **Repeat**.

- **Lights**—Use the scrollbar or enter the Light Level to **70**; use the drop-down menu to set the Ramp Rate to **15** minutes.

- **Temperature**—Set the temperature to **72** degrees F to come on 30 minutes before wakeup starts.
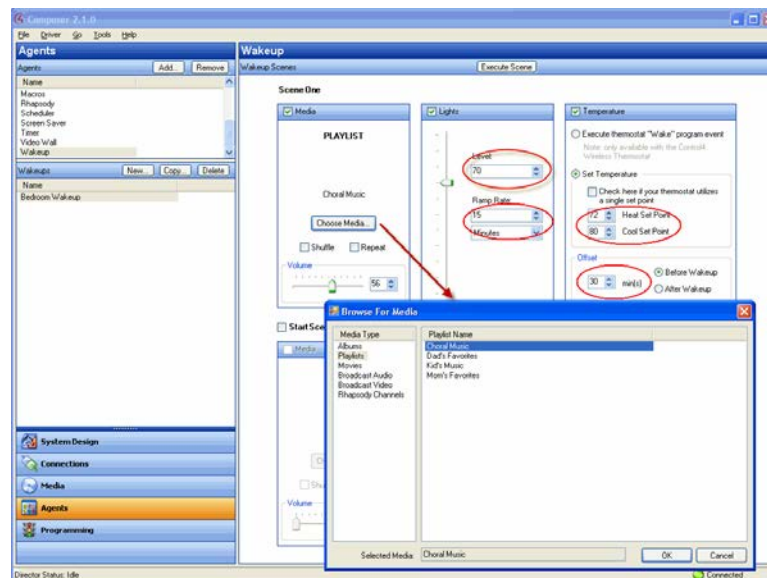
13 Enter **Wakeup Scene 2** information.

14 **Scene 2**—Check **Wakeup Scene 2** and set the Start time to **15** minutes after Wakeup Scene 1. Set the desired volume for Scene 2 using the scroll bar or drop-down menu.

- **Media**—Click **Choose Media** and use the drop-down menu to select **Broadcast Video**. Then, select a local channel, such as **4-KTVX** and click **OK**. Select Volume at **70**.
- **Lights**—Uncheck the box to make no changes for **Wakeup Scene 2**.
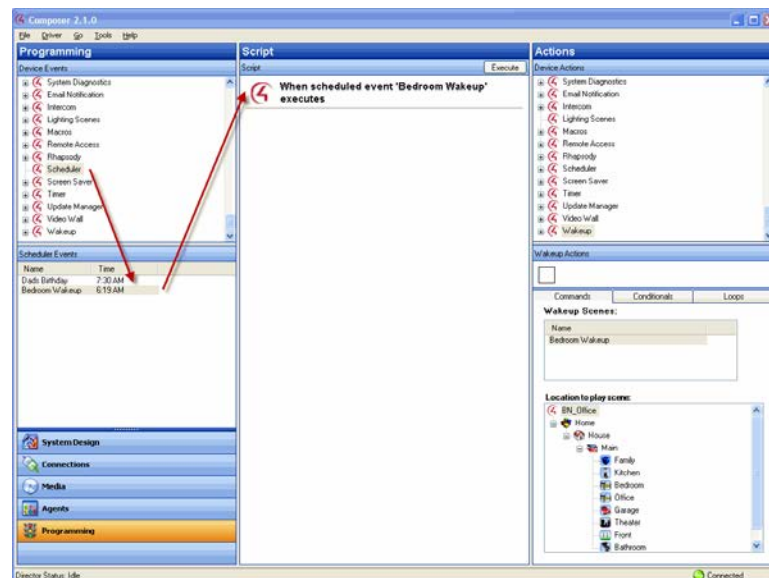- **Temperature**—Uncheck the box to make no changes for **Wakeup Scene 2**.
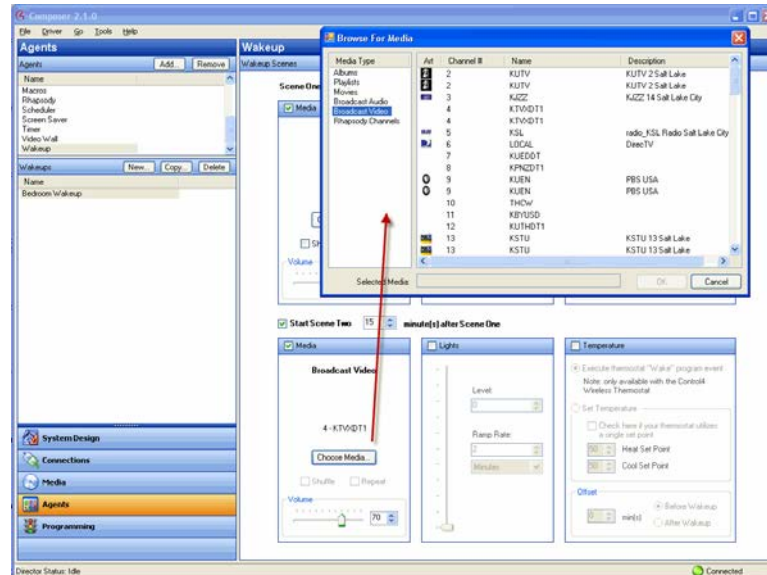
15   Click the **Programming** view.

*Note: Your scene saves automatically even when you leave the Agent view.*

16   In the Device Events pane, scroll down to view the available agents.

17   Select the Scheduler agent and Scheduled Event.

The agent event appears at the top of the Script pane.

In the Actions pane, scroll to the bottom to see the available agents.

18 Select the **Wakeup** agent. The available commands appear.
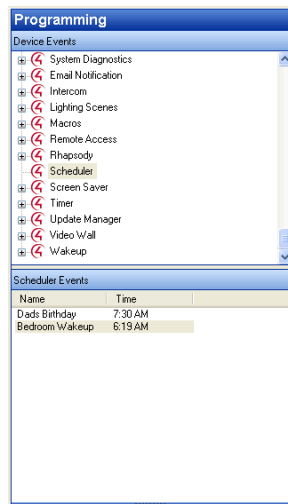
19 In the Commands tab, do the following:

   a In the Wakeup Actions pane, select the **Wakeup** scene you want to use, such as **Bedroom Wakeup**.

   b In 'Location to play scene,' select the location to play the scene, such as **Bedroom**.

20 Drag the **green arrow** to the Script pane.

21 When you are finished, click **Execute** in the Script pane.
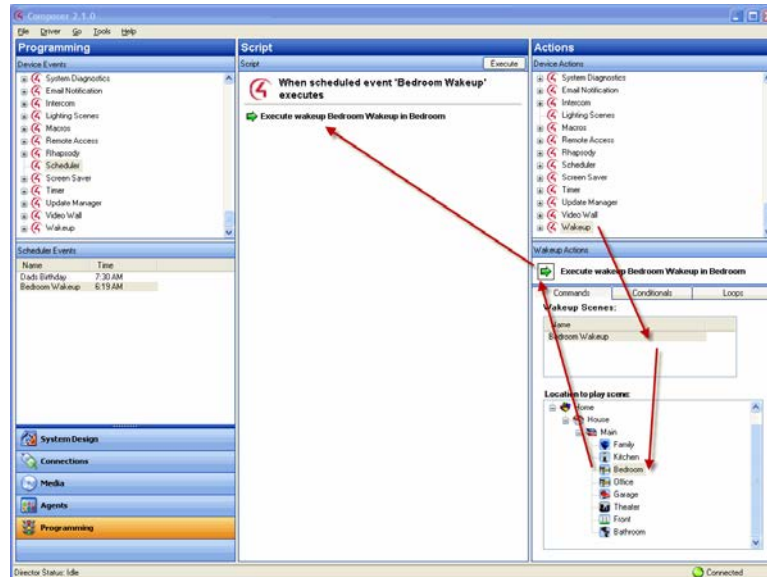
To add a device to the Wakeup scene:

1 In the project tree > Device Events pane include additional devices in your wakeup. Scroll to the bottom of the project tree to the devices, rooms and other information about the project.

2 Select the **Wakeup** agent again.

3 In Wakeup Events, select the **Bedroom Wakeup**. The Wakeup event appears at the top of the Script pane.

4   In the Device Actions pane, select the **device** to trigger actions when the Wakeup event occurs. For example, select **Fireplace**.

5   In the Command tab, select the **On** radio button. The action appears in the Actions pane.

6   Drag the **green arrow** to the Script pane.

7   Click **Execute** to execute the command.

Bedroom Wakeup Example

At a user-specified time in the Navigators:

- Thirty minutes prior to wakeup time, the temperature rises to 72 degrees.
- The playlist starts playing at 6:19 AM.
- Lights should start ramping up to 70 percent light level by 6:34 AM.
- The fireplace turns on.
- In 15 minutes, Wakeup Scene 2 begins.
- The local news turns on at 6:49 AM.
- The Wakeup is complete.

Note: Users can schedule the wakeup time from their Navigators: touch screens, *TV screen, or MyHome app. See the product documentation or the* Control4 System User Guide *for more information about how to schedule the wakeup time from the Navigators.*

Tip: Some homeowners may want a Wakeup agent executed Monday through Friday, but not on the weekends. To turn off Wakeup for weekends, turn it off as a programmable event not to execute on weekends.

Other programming tasks

## Programming using Find and Replace

The Control4 Composer Pro Find and Replace programming feature lets you find one *device* already programmed and replace it with another.

*Example: You want **Button 1** on your **6-Button Keypad** to turn on all the dimmers in your Control4 system. Currently, Button 1 is programmed to turn on all the lights in your system. Use the **Find** and **Replace** programming option to replace the lights with dimmers in your programming.*
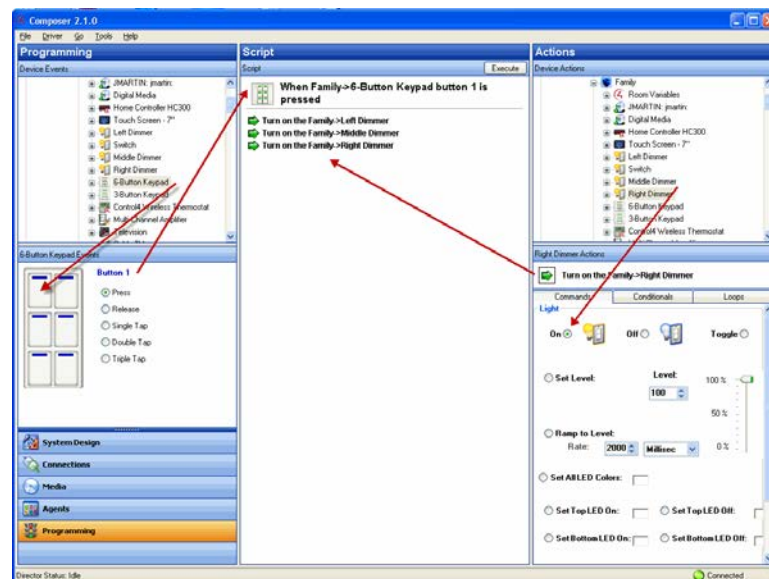
To program using the Find and Replace feature:

1 Start Composer Pro and connect to a Director.

2 Click **Programming**.

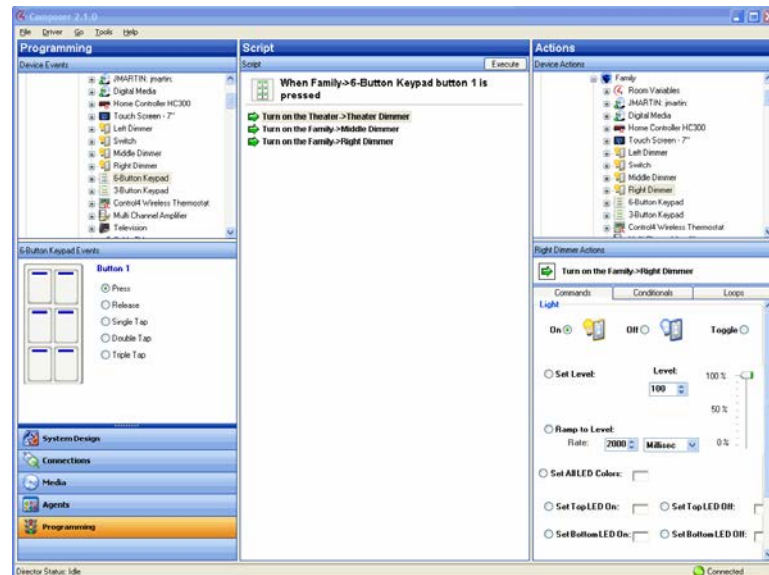**3** In the Script pane, right-click and select **Find and Replace**. A Find and Replace dialog appears.
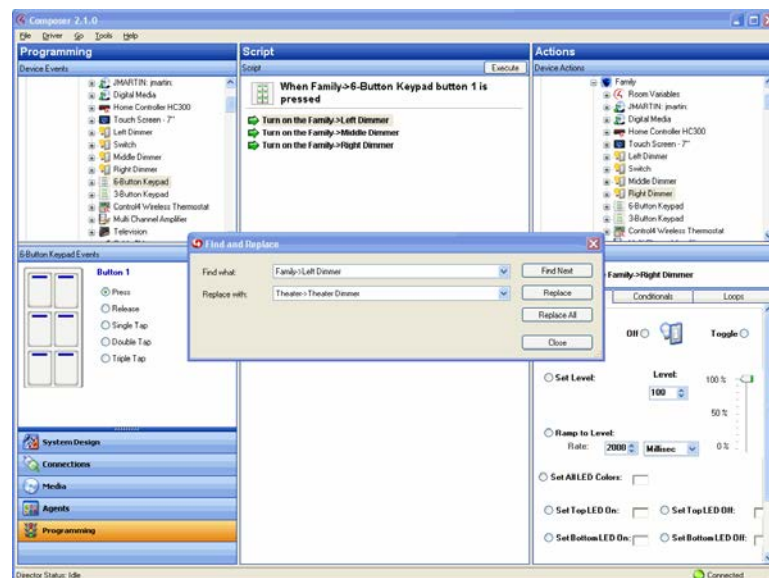
4 Replace the programming device object with the one you want.

Find: **Family** > **Left Dimmer**

Replace with: **Theater** > **Theater Dimmer**

5   Click **Replace**. The statement in the Script pane changes to the replacement script.


6   Repeat for each line in the Script pane.

Find: **Family** > **Middle Dimmer**

Replace with: **Bedroom** > **Bedroom Dimmer**

Find: **Family** > **Right Dimmer**

Replace with: **Front** > **Front Dimmer**

When you complete this process, the script reflects that you have changed all the lights in your Control4 system to dimmers.
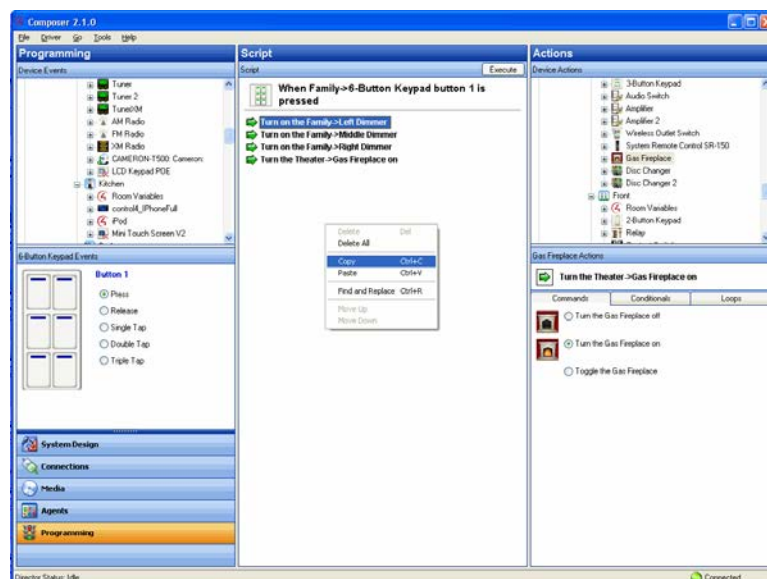
Programming using Copy and Paste

The Control4 Composer Pro copy and paste programming feature lets you copy the programming you configure from one *device* and paste it to another device. By creating the same command, loop, or conditional for a device, you can copy it for use in another programming script.

Example: *You want all of the lights in the Control4 system and the fireplace to turn on by pressing **Button 1** on the **6-button keypad**. When you press **Button 4**, you want to turn all the lights on in the system except in the **Bedroom**. In this example, you can copy the first set of actions into the second set and not include the Master Bedroom.*

Turns on all lights and fireplace.

Turns on all lights and fireplace, but leaves Master Bedroom light off.
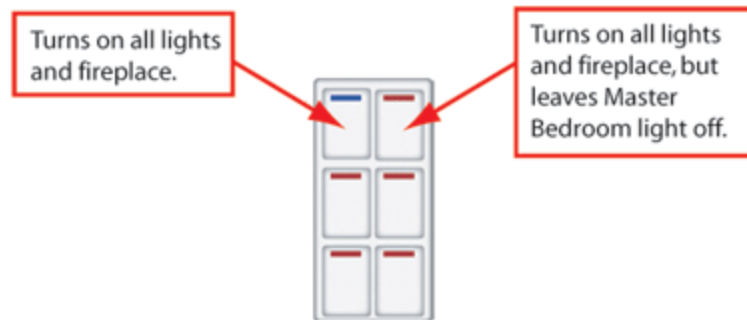
To program the 6-button keypad:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   Ensure that you have the following devices added and connected to the Control4 system:

- Controller
- Gas Fireplace
- Bedroom Dimmer
- 6-Button Keypad

4   Click **Programming**.

5   Select **6-Button Keypad** in the project tree of the Device Events pane.

6   In 6-Button Keypad Events, push **Button 1**, and select the **Press** radio button.

7   In the Device Actions pane, scroll down and select **Dimmer**.

8   In the Dimmer Actions pane, click the **Commands** tab, and click the **On** radio button.

9   Drag the Dimmer Action **green arrow** to the Script pane.

10   Repeat Steps 1 through 9 for all the lights in your system and your fireplace. This includes the Light Switch and Dimmer in the Theater, and the Dimmer and the Gas Fireplace in the Bedroom.

11   Move to the Script pane, right-click, then select **Copy** from the options. This automatically copies all arrow statements in the pane.

12 Click **Button 4** in the 6-Button Keypad Events pane, and then select the **Press** radio button.

13 Right-click in the Script pane, and select **Paste**. The programming of the lights shows up in the Script pane for Button 4.
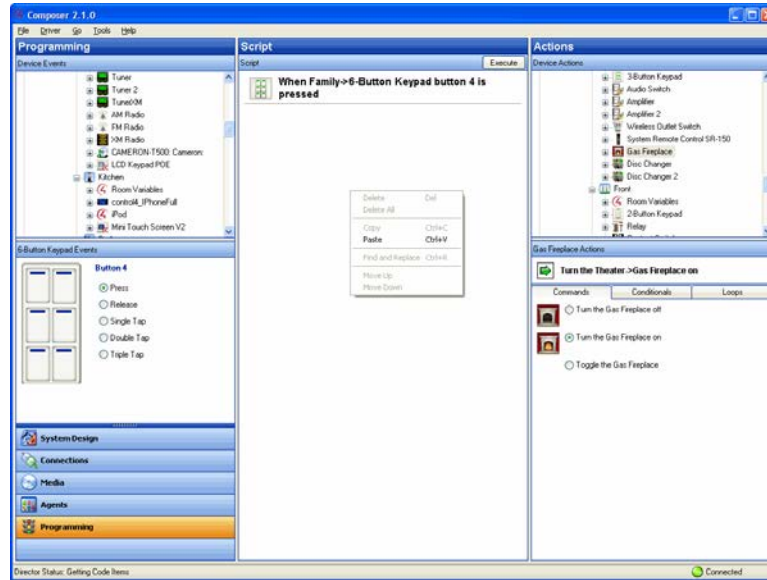
You have completed Copy and Paste Programming. Now you can edit the Button 4 Script as needed.

Example: *You can remove the Bedroom Dimmer from the Button 4 Script, so when you push Button 1 all the lights in the system come on; and when you push Button 4, all the lights come on except for the dimmer in the bedroom.*

Tip: *This feature is very useful when programming complex loops and conditionals.*

Programming using IR inputs with third-party remotes

Some popular programmable remote controls are available on the market, such as the Phillips Pronto, Harmony Remote, or MX3000 that consumers of home theater and home control systems enjoy. These and any other programmable remotes are supported in the Control4 system.

Guidelines

- **Supported controllers.** The controllers that support IR input are Media Controller, HTC, HC-200, and HC-300.
- **Published list of Control4 IR Input codes**. To use one of these programmable remote controls with the Control4 system, Control4 has a list of Control4 IR Input codes on the Control4 system. See the table, 'IR Input Values and Commands,' at the end of this section for a list of supported IR custom commands and their values. The Control4 IR Input codes are available online at http://kb.control4.com/. From this list, you can copy and paste the codes for your programmable remote control.

- **The Control4 system is based on rooms**. This comprehensive Control4 IR Input code list provides all currently supported device codes included in the Control4 system. The Control4 system's Navigators are room based. For example, a touch screen is configured to change control of devices in a particular room. Other Control4 Navigators include System Remote Control, wireless touch screen (10.5"), on-screen Navigator (viewable on a television), etc. Each Navigator is configured to exist in the context of a room in a Composer Pro-created project. The Navigator's codes are then sent to the Control4 system in the context of the room while using the same set of IR Input codes.

- **Sets of commands for rooms 1 through 15**. The Control4 IR Input codes contain one complete set of command codes for every room (rooms 1 through 15 supported). You can program up to 15 rooms. Each set of codes includes a mask code that associates the remote to a particular room. *Example:* You can program a remote for use in a Living Room using mask code 1. Then you assign Mask 1 to the Living Room. This lets you use the particular remote in the Living Room.

- **Set of commands for global use**. A global mask is available (mask 0 or None) that overrides the mask code (1 through 15) in any room. *Example:* You can use a remote programmed with mask 0 in any room where remotes are programmed to one of the masks (1 through 15). Remotes programmed using masks 1 through 15 are only for use in the assigned room.

- **Assign a mask number for each room**. When setting up the remote, assign the mask number for that room in the Room Properties. Access Room Properties in the System Design view by right-clicking a room, selecting the **Miscellaneous** tab, and in Multi-Room Shared IR Settings.

- **IR receiver requirement for each room with a third-party remote control**. Place an IR receiver in the room where you plan to use the third-party remote. The controller both have IR receiver windows built into the front panel. You can also purchase third-party IR receivers which attach to the four (4) IR Input ports on the back of the controller. You can connect up to 15 IR Receivers into one (1) IR import controller port.

- **Configure each IR receiver as an IR receiver for a specific room**. The room is assigned to an IR mask on the Properties page for that room which automatically assigns it to the device in the room that handles IR receiving, such as a controller or third- party IR receiver.

- **Various configurations and implementations supported**. The IR code sets allow various configurations. The controller has four (4) ports on the back that can potentially support up to 15 rooms. This means that one (1) controller can support 60 rooms from the back four (4) ports, and one (1) room from the front IR receiving window. If needed, you can stack the controllers to support additional rooms as necessary.

To use Control4 IR Input codes for programming third-party remote control devices:

1 Plan where remote controls will be used in the house or site. Each room is assigned a mask number. You can program the rooms using a different mask number for up to 15 rooms.

   Example:

   Master Bedroom - Mask 0

   Theater Room - Mask 1

   Family Room - Mask 2

   Bedroom 1 - Mask 3

   Bedroom 2 - Mask 4

   Bedroom 4 - Mask 5

2 Using the IR Input codes provided at http://www.control4.com in an XML file, program the third-party remote by copying and pasting the codes. *Note:* The room mask is included in the individual codes in each set.

Example:

Program Remote Controls using the codes associated with the mask:

Master Bedroom (Global Remote) - Mask 0
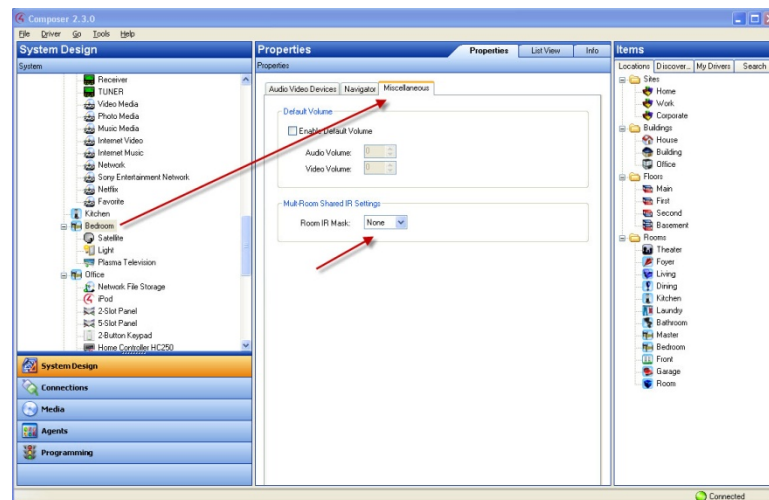
Theater Room (Remote 1) - Mask 1

Family Room (Remote 2) - Mask 2

Bedroom 1 (Remote 3) - Mask 3

Bedroom 2 (Remote 4) - Mask 4

Bedroom 4 (Remote 5) - Mask 5

3 In the Composer Pro project and the System Design view, select a room and click the **Miscellaneous** tab under Properties.

4 In Multi-Room Shared IR Settings, use the pull-down menu to select the IR Room Mask number (None through 15).

0	Not Defined	39	Not Defined	78	HOUSE	117	Not Defined
1	PLAY	40	Not Defined	79	MYINFO	118	PAGE_UP
2	STOP	41	Not Defined	80	CONTROL4	119	PAGE_DOWN
3	PAUSE	42	Not Defined	81	Not Defined	120	INFO
4	SKIP_FWD	43	Not Defined	82	Not Defined	121	CANCEL
5	SKIP_REV	44	Not Defined	83	Not Defined	122	RECALL
6	SCAN_FWD	45	Not Defined	84	Not Defined	123	PVR
7	SCAN_REV	46	Not Defined	85	Not Defined	124	GUIDE
8	RECORD	47	Not Defined	86	Not Defined	125	Not Defined
9	Not Defined	48	Not Defined	87	Not Defined	126	Not Defined
10	NUMBER_0	49	Not Defined	88	Not Defined	127	Not Defined
11	NUMBER_1	50	Not Defined	89	Not Defined	128	PULSE_SUR_UP
12	NUMBER_2	51	Not Defined	90	Not Defined	129	Not Defined
13	NUMBER_3	52	Not Defined	91	Not Defined	130	Not Defined
14	NUMBER_4	53	Not Defined	92	Not Defined	131	TUNE_UP
15	NUMBER_5	54	Not Defined	93	Not Defined	132	TUNE_DOWN

16	NUMBER_6	55	Not Defined	94	Not Defined	133	SEARCH_UP
17	NUMBER_7	56	Not Defined	95	Not Defined	134	SEARCH_DOWN
18	NUMBER_8	57	Not Defined	96	Not Defined	135	PRESET_UP
19	NUMBER_9	58	Not Defined	97	Not Defined	136	PRESET_DOWN
20	Not Defined	59	Not Defined	98	Not Defined	137	MUTE_ON
21	Not Defined	60	Not Defined	99	Not Defined	138	MUTE_OFF
22	STAR	61	Not Defined	100	Not Defined	139	MUTE_TOGGLE
23	POUND	62	Not Defined	101	Not Defined	140	Not Defined
24	HYPHEN	63	Not Defined	102	ROOM_OFF	141	Not Defined
25	DASH	64	Not Defined	103	Not Defined	142	Not Defined
26	ON	65	Not Defined	104	CH_UP	143	BASS_UP
27	OFF	66	Not Defined	105	CH_DOWN	144	BASS_DOWN
28	Not Defined	67	Not Defined	106	VOL_UP	145	TREBLE_UP
29	Not Defined	68	Not Defined	107	VOL_DOWN	146	TREBLE_DOWN
30	PULSE_INPUT	69	Not Defined	108	MENU	147	BALANCE_UP
31	Not Defined	70	Not Defined	109	BACK	148	BALANCE_DOWN
32	Not Defined	71	Not Defined	110	Not Defined	149	LOUDNESS_ON
33	Not Defined	72	RADIO	111	ENTER	150	LOUDNESS_OFF
34	Not Defined	73	MUSIC	112	TV_VIDEO	151	LOUDNESS_TOGGLE
35	Not Defined	74	TV	113	UP	152	PULSE_ASPECT_RATIO
36	Not Defined	75	VIDEOS	114	DOWN	153	PIP
37	Not Defined	76	PICTURES	115	LEFT	154	
38	Not Defined	77	LIGHTS	116	RIGHT	155	

Customizing Navigators

Use this chapter to learn how to:

- Set up screen savers
- Hide & view device availability

Overview

Use the Control4® system *Navigator* interface on your Navigator to make adjustments to the Navigator you're using.

Tip: *You or your customer can customize pages in the touch screens, MyHome apps, or on-screen Navigators also. See the [Control4 System User Guide](#) for information.*

Setting up screen savers

Setting up the photo screen saver

Use the Control4 Composer Pro Agent and Media views to set up a photo Screen Saver agent to view photos from the touch screens, MyHome apps, or on-screen Navigators. In OS 2.1 and later, you can use a single photo to display on all of your Navigators. If you change the interval on one Navigator, it will change all of them.

Prerequisites

Have one of the following storage types available before you copy the photos. You will need to set up one or more of them later when you add your photos.

Note: *In some cases, the Control4 system may take a few minutes to recognize the device.*

- **Controller**—If the controller has no storage, add and connect a device that contains storage for your photos; for example a USB drive or Network File Share (see Step 6 in the next section).
- **USB Drive**—Ensure that the USB drive is attached to the controller. When you insert the USB drive, it will appear in the project tree in the same room as the controller.
- **Network File Share**—Ensure that the Network File Share object is added to the project tree and connected (see the steps to do this later in this procedure). Ensure that you have access to the Network File Share, that you have a valid Username, Password, and Workgroup, and that you can identify the network location (you will need to add the path).

To display photos as screen savers on the Navigators:

1 Start Composer Pro and connect to a Director.

2 Click **Agents**.

3 (First time only.) From the Agents view > Agents pane, click **Add** to add the agent to the project.

4 From the Available Agents dialog, select the **Screen Saver** agent, and click **OK**.

   Note: If Screen Saver already appears in the Agents pane, it has already been added. Go to the next step. If not, see "Example: Program Using the Screen Saver Agent."

5 In the Agents pane, select **Screen Saver**.

6 From the storage location list, use the drop-down menu to select the location where you will save your photos for use on the Navigators (controller, CBM Flash Disk: USB drive, or Network File Storage, etc.).

   Notes:

   - *If the storage option that you want does not appear in the list, disconnect from Director and reconnect.*
   - *At any given time, only one storage location can be set as the photo Screen Saver source.*
   - **Controller**—If you have a controller with disk space (for example, home controller HC-500 or HC-1000), an option appears in the list (for example, home controller HC1000).
   - **CBM Flash Disk** (USB drive)—If you inserted the USB drive in the controller earlier, the CBM Flash Disk option appears in the list.
   - **Network File Storage**—If you select **Network File Storage**, specify where the Control4 system needs to go to copy the files. Click **System Design** and select the **Network File Storage** icon in the project tree (you will have to add it from the Items pane). In the Properties pane, type the **Username**, **Password**, and **Workgroup**, and then browse to the network location. Click **Connect**.

7 Click the **Media** view, and select **Screen Saver**.

8 Click **Configure** in the Screen Saver pane, set the location to copy the files to (for display in the Navigators), and click **OK**.

   *Note: If you didn't select a storage location in Step 6, an error message appears. Click **OK**, and then click **Configure** to set the location.*

9 In the Screen Saver pane, click **Add**. In the My Pictures dialog, **browse** to the photos you want to copy to the storage location, select them, and click **Open**. The files will be copied to the storage location you specified in Step 8, and a folder may be created for you using the Control4 name (**Example**: Control4 pictures).

Note: When media is added (copied) to the storage device, it is pre-scaled to the resolution for all of the Navigators. Control4 preserves the aspect ratio of the original image, and boxes the extra space with bars for any given screen size.
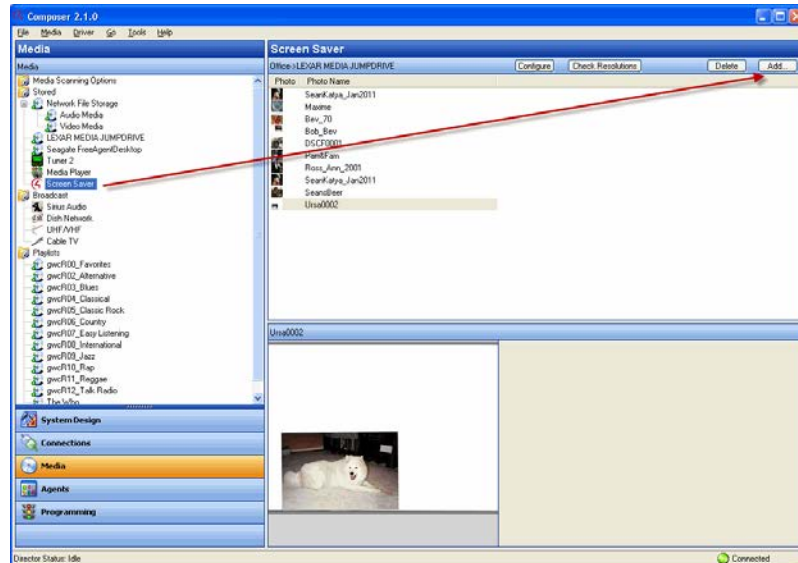
10 In Composer Pro, click **Tools** > **Refresh the Navigators** to display the copied photos.
11 To activate the Screen Saver in each Navigator (on-screen, touch screen, or MyHome app), do the following:
  a Go to Info > Config > Screen Saver (on the system remote control) or More > Settings > Screen Saver.
  b Enable the **Custom** option, and then select the **Photo Screen Saver** option along with any other screen saver option you want to include. For photos only, check the **Photo** option. See "Setting up a custom screen saver" to display the photos on the Navigator or see the *Control4 System User Guide*.

Setting up a custom screen saver

Use the Control4 Navigator to create a custom screen saver to view on touch screens, MyHome apps, or on-screen Navigators.

Note: This task must be completed on a Navigator. Either the Installer or homeowner can set this up. The Custom Screen Saver option lets users mix and match available screen saver options, including the option to use stored photos.

Prerequisites

Before setting up a custom screen saver, photos must be available for viewing from the Navigator. See "Setting Up the Photo Screen Saver Option."

To set up a custom screen saver:

1 From the main menu on an on-screen Navigator, MyHome app, or touch screen press **More** > **Settings** > **Screen Saver** or **Info** > **Config** > **Screen Saver** on a system remote control.

2 In Screen Saver, press the drop-down arrow, and press **Custom**.

3 In **Turn on**, press the drop-down arrow, and press an option to enable the screen saver.

4 Press **Settings**.

5 Press to select one or more of the following options:

- Media
- Time
- Date
- Temp
- Photo
- Shuffle

6 Press **Done**.

7 (Optional) Press **Preview** to test the settings.

To set up a custom screen saver in the touch screens, MyHome apps, or on-screen Navigators for OS 2.0 and later, see the *Control4 System User Guide* for details.

Programming the screen saver sleep mode

Use the Control4 Composer Programming view to schedule a Screen Saver mode change, for example, a 'Go To Bed' mode during sleep hours.

1 In Programming, select **Navigator actions**.

2 Create a **Scheduled Event** (such as 'Go To Bed'). See "Programming with Agents" for details.

3 Add the following script:

"Set the screen saver mode on the [graphical navigator device] to Blank."
"Turn the screen saver on after [time interval] on the [graphical navigator device]."

Changing the time on a Navigator screen saver

Use the Control4 Composer Pro System Design view to change screen saver date, time or time zone.

To change the time on a Navigator screen saver:

1 Start Composer Pro and connect to a Director.

2 Click **System Design**.

3 In System Design, click the **Properties** tab.

4 Use the **Date & Time** drop-down boxes to modify the time and date.

   Date—To change the **Date** (month, date, or year), click the drop-down arrow for a calendar to appear. Click the **left** or **right** arrows to select the month, and then select the day.

Time—To change **Time** (hour, minute, second), click the **up** or **down** arrows to the appropriate time in hours, minutes, or seconds.
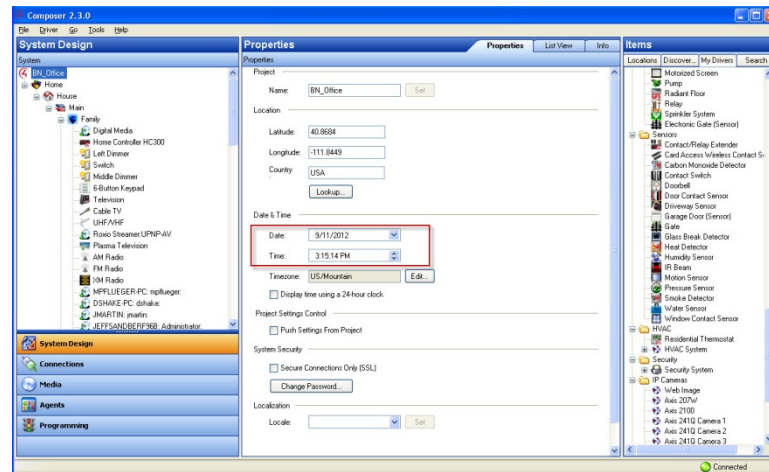
Tip: *An easy way to change the hour, minute, or second is to highlight the hour, minute, or second number, and then type the new number over the old one.*

Time zone—To change the **Time Zone**, at the Timezone box, click **Edit**. Select the time zone from the drop-down menu, and click **OK**.

Hiding device availability

Use the Control4 Composer Pro System Design view to hide a device from view in a Navigator. In OS 2.3.0 or later, you may find the Access agent useful for device availability. See "Examples: Programming with Agents" for details.

Example: *Set availability so that the touch screen in the Bedroom cannot control music in the Theater.*

Prerequisites

Ensure that the following devices are added and identified to the network:

- Controller
- Digital audio
- Navigator

To hide a device so others cannot see it:

1   Start Composer Pro and connect to a Director.

2   Click **System Design**.

3   In System Design and in the project tree, select **Bedroom**.

4   Go to the **Navigator** tab in the Properties tab.

5   Select **Music** in the Menu box, and then click **Modify**.

6   Select **Digital Audio** in the Theater, click **Hide**, and then click **OK**.

Viewing device availability in navigators

Use the Control4 Composer Pro System Design view to change the order of devices to view. This task is useful if you have a lot of media devices, and some are used more frequently than others.

Example: *Change the order of a Tuner to appear in a Navigator before the Receiver.*

Tips: *(1) In OS 2.2 and later, you can use **Shift+Click** or **Ctrl+Click** to add or remove devices. (2) In OS 2.3.0 or later, you may find the Access agent useful for device availability. See "Examples: Programming with Agents" for details.*

Prerequisites

Ensure that the following devices are added and identified to the network:

- Controller
- Digital audio
- Navigator

To enable a device to be viewed in a specific order in a Navigator:

1   Start Composer Pro and connect to a Director.
2   Click **System Design**.
3   In System Design, select **Theater**.
4   Go to the **Navigator** tab in the Properties tab.
5   Select **Radio** under Menu, and then click **Modify**.
6   Click **Tuner**, and then click **Move Up**.
7   Click **OK**.

Creating Drivers

Use this chapter to learn how to:

- Use the DriverEditor
- Use the Driver Wizard
- Create IR controller drivers
- Create serial-controlled drivers
- Configure Composer Pro properties
- Create two-way drivers
- Export a driver

Creating device drivers

To complete device support using Composer Pro® for a Control4 system, every device requires a corresponding driver.

To add a device to the Control4 system that does not have a supporting driver, use the built-in Driver Creation Wizard in Composer Pro or Driver Editor to create the driver prior to adding the device.

Setting up a network configuration

Use the Control4 Composer Pro Tools menu to set up a WiFi network configuration using static IP addresses.

For more information about setting up the network for a Control4 system, refer to the "Basic Networking" training sessions conducted by the Control4 Training team. Training information is available in the Dealer portal on control4.com under 'Training.'

Note: *This example procedure only applies to Speaker Point, touch screens, amplifiers, tuners and audio switch devices.*

To set up the network configuration for Speaker Point or touch screens:

1 Start Composer Pro and connect to a Director.

2 From the Tools menu, select **System Manager**.

3   In the Devices pane, select the **network address** of the Director for the device for which you want to set up the network configuration, and click **Connect**.
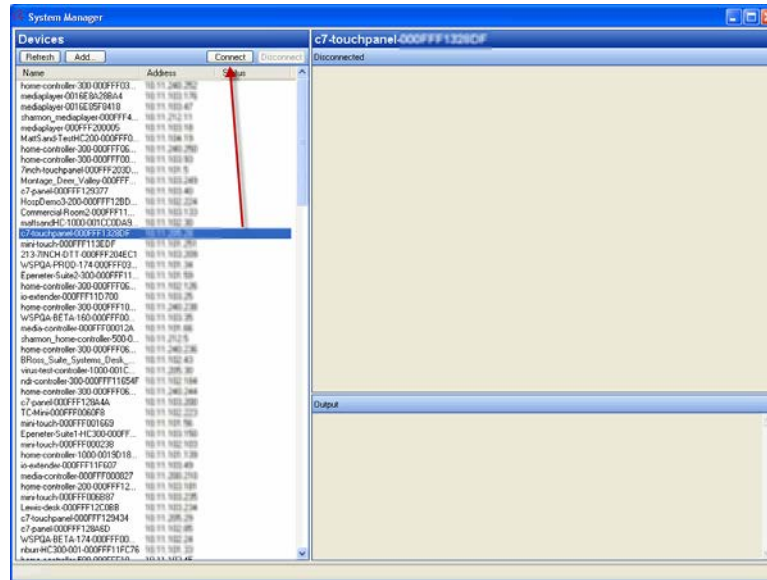
Tip: *If the device's network address is not on this list, click* ***Refresh****. If it still does not appear, click* ***Add*** *to enter it manually. If you do not know the network address, find it at the Tools menu >* ***Network Tools****.*

4   In the Devices pane (double-click the device in "Devices" to open the device pane), click the **Network** tab, and click **Configure**.

5   Click **Next** when a Network Configuration Wizard dialog appears.

6   In the dialog, enter the new name of the device, and click **Next**.

Note: *An error occurs if there are any spaces in the new name text. Do not include spaces in the new name.*

If the device has already been identified on the Control4 system, and you want to change the name, identify the device again because the controller no longer recognizes the name, and it cannot communicate with the device.

7   Select the network you want the device to be a part of, such as an Ethernet or Wireless, and click **Next**.

8   Select the method for obtaining an IP address, such as **DHCP** (first option) or **Status IP** (second option), and click **Next**.

Example: *"Obtain an IP address automatically using DHCP"*

9   Select the method to obtain the DNS server address, such as **DHCP** (first option) and **Static IP** (second option), and click **Next**. Control4 recommends that you obtain the DNS server address automatically.

Example: *"Obtain DNS server address automatically"*

10   Click **Finish** when you come to the "Network Configuration Wizard Complete" screen. Make a note of the settings on the screen.

11   Wait for the controller to check the hard disk and restart the system. Do not disconnect any temporary Ethernet cables or the power cord until the device is finished and it returns to the first Control4 screen.

Overview

Why create a device driver?

A hardware driver is a small piece of software that allows a computer program to communicate with a specific device, for example a controller, in the Control4 system. Every device in the Control4 system requires a driver, and that driver must be added to the project tree in Composer Pro. Some devices do not have existing drivers in the Composer Pro driver database, or the drivers there cannot control a device. In that case, a new device driver needs to be created. Control4 provides the means if anyone wants to develop drivers for their products.

Example: A computer may use a printer driver to send a print order to a printer. Every controllable device uses codes that represent commands on that device. To control the device, you must capture or enter these codes in the driver.

Example: An IR-controlled CD player's commands are Play, Stop, Pause, etc. Using the Driver Wizard and controller hardware along with the manufacturer's remote control supplied with the equipment, you can capture these codes and build a working driver using the codes. Serial-based devices are also supported; you can enter the serial codes to the Driver Wizard manually.

Tip: Each driver consists of a collection of files. One of those files is a configuration file, which is an XML file referred to as a config data file or.c4i file. This file provides specific IR, serial, or connection codes that are pertinent to supporting a device model on the Control4 system. In the default Composer Pro installation, these files are located on your PC at: c:\program files\control4\Composerxxx\drivers\virtual.

Guidelines for creating device drivers

The most important information you need to know before you begin to create your own Control4 device driver is to understand how your devices work. After that, you can use the Driver Wizard and/or the DriverWorks SDK or DriverEditor to create your own drivers. Contact Control4 Technical Support for details.

IMPORTANT! Before you begin, check the manufacturer's documentation to learn about the codes or customized macros required to support your device, and understand the inputs and outputs that your device supports and other details about the device as needed.

For best results, understand the following concepts and guidelines:
- **Supported commands and inputs/outputs of the device**—Prior to starting the Driver Wizard, have a basic understanding of the device.
- ***Discrete* versus *toggle***—In the Driver Wizard, the term 'discrete' indicates a direct setting rather than a toggle option between settings. For example, a receiver might have 'discrete input select,' which lets you select the input directly (DVD) rather than using a toggle button that cycles through all the inputs (DVD, VCR, TV), such as Input Toggle.
- **IR codes versus macros**—In the Driver Wizard, some IR codes complete the needed command; however, to complete the commands, you may need a macro (a sequence of codes).
- **Adding all options for AV connections**—When adding AV connections, select all possible options for the device so all options are available for selection.
- **Power management options**—A variety of supported Power-Management options are available to choose from, but the optimal method depends on the device. When no other option works, use the **Assume the Device is Always On** option, and leave it up to the user to ensure manually that the device is on. See "Guidelines for Defining Power Management."

- **Adding commands and custom commands**—The Driver Wizard supports a set of default commands for each device type, such as Television, VCR, DVD, etc. If a command you need does not appear on the Default Command list, click **Add** and use the pull-down menu to look for the command. You can also add custom commands if necessary.

- **Driver Wizard screens vary for device types**—Because different devices, such as televisions, VCRs, and DVDs have different functionality, the Driver Wizard steps you through different questions as appropriate for that device type, and there are pre-defined generic Device Types that have a common set of commands with varying capabilities that you can use as a base. The Driver Wizard prompts you to select the appropriate commands from these basic commands, as well as identify any additional capabilities that the particular device is able to perform.

  Example: All televisions have Up/Down channel and Up/Down volume commands, so these basic commands are already included in the generic TV device type. However, not all televisions have direct channel selection, where you can select a channel by pressing a sequence of numbered keys.

- **Creating or editing multi-featured device drivers**—You can create only combination types that are listed in the Create New Driver wizard. Control4 recommends that you start with an existing driver in the Online Database, add it to your Local Database, and then edit it as needed to meet the new device-driver need. Be patient. You may need to change IR codes if a code doesn't work with your device.

- **DriverWorks** can be used to create 2-way drivers for AV and non-AV devices. It requires some programming skills, however, but leverages the Lua-embeddable scripting language, a powerful, fast, and light-weight (when compared to other scripting languages). See "Creating 2-Way Serial or TCP/IP-Controller Drivers Using DriverWorks."

  Tip: When a device driver is created, you may want to distribute it to multiple projects on different computers. To do this, copy the driver file from the default install directory: C:\Program Files\Control4\Composerxxx\Drivers\Virtual to the same directory on the other computers.

  This action makes this driver file available to all the projects stored on that computer. Driver files are named by device type, protocol, manufacturer, and model with a**.c4i** extension.

  Example: tv_ir_samsung_tx-p1430.c4i.

- **DriverEditor**—This tool is designed to assist the dealer or driver developer in creating and maintaining their drivers for use with the Control4 system.

Using DriverEditor

The DriverEditor is an advanced tool that allows DriverWorks drivers to be developed. This tool is free and is available at: http://update.control4.com/DriverEditor/DriverEditor_Installer.exe. You can find information about DriverEditor in the Forums under 'DriverWorks.'

Features:

- Edit AV_GEN or DriverWorks drivers from the same tool.
- Switching from AV_GEN to DriverWorks requires only a menu choice.
- No more wondering if the XML portion of the driver is correct. All choices are validated.
- Capture IR codes from Control4 controllers or enters them manually in pronto hex format or by IR code(s).
- Create/maintain all aspects of IR macros.
- Commands/notifications are filtered by proxies in the driver.
- Capabilities are filtered by proxies in the driver.
- DriverWorks editor with API auto-complete for Control4 APIs and Lua script APIs.

- DriverWorks editor with Call tips and syntax highlighting.
- DriverWorks debugging from within DriverEditor. No longer writing in one application and debugging in another.
- Monitor output from up to four (4) different debug windows.
- All DriverWorks documentation is accessible from within DriverEditor with context searching.
- Updating from within DriverEditor.

Using the Driver Wizard

Use the Control4 Driver Wizard in Composer Pro to create device drivers for your devices.

The Driver Wizard is a basic level driver developer tool for IR and one-way serial control. Instructions for using this wizard are detailed in this section.

To start the Driver Wizard from the Driver menu:

1   Select **Create New Driver**. See "Menu Options" in _Composer Pro Getting Started_ for details. The Driver Creation Wizard (or Driver Wizard) lets you add device support to the system, including support for:

- **Infrared (IR)-Controlled** — Devices that are controlled using wireless remotes. Commands are sent via pulses of infrared light to the device.

  **Examples** of IR-controlled devices: receivers, televisions, plasma screens, projectors, DVD⁄CD players, DVD/CD changers, VCRs, satellites, cable boxes, DVRs, tuners, audio/video switches, amplifiers, blinds, and other specialized equipment.

- **Serial-Controlled**—Devices are controlled via a serial connection (RS-232, RS-422, or RS-485) to the controller hardware, for example, a Home Controller HC-300. Serial-controlled devices often control a device at a higher level than IR-controlled devices.

  **Examples** of serial-controlled devices: projectors, multi-disc DVD changers, and other serial-controlled devices.

Limitations of the Driver Wizard

The Control4 Driver Wizard is not designed or intended to create drivers in the following situations:

- **Bi-directional drivers**—Bi-directional drivers provide enhanced support for two-way communication between the device and the controller. Custom bi-directional drivers are available for some devices (check the Online Database). The Driver Wizard does not create bi-directional drivers. If you need to create a custom bi-directional driver, ask your Control4 Sales Representative about the Control4 software development kit (SDK) program.
- **Logical Calculations**—Some devices require logical calculations. The Driver Wizard can provide only limited support for devices that require logical calculations.
- **Relays and Contacts**—The Driver Wizard is not designed to create drivers for relays and contacts. If you cannot find a specific driver for your contact or relay device, use the generic drivers provided in the Online Database.
- **Serial Codes**—To create serial drivers, get the serial codes from the manufacturer's documentation. Control4 collects the serial codes in a database from the manufacturers/dealers that obtain these codes. If you need serial codes, contact Control4 Technical Support or contact the manufacturer directly.

Editing a driver using the Driver Wizard

To make changes to a driver located in your local Control4 driver database that is NOT fully-configured and connected in a project, you can use the Composer Pro **Driver menu** > **Edit Existing Driver** option. This option lets you modify and update the driver options in the Driver Wizard.

To edit a driver using Driver Wizard:

1   Start Composer Pro and connect to a Director.
2   From the Driver menu, select **Edit Existing Driver**.
3   In the next screen, select the driver type, such as **VCR**.
4   Select the **Model** type.
5   Select a section, and click **next** to advance to the screen that you want to edit.
6   Edit the screens or recapture the codes as needed. See "Creating IR-Controlled Drivers" for details.
7   When you've edited the driver, click **finish**, and click **next**.

   IMPORTANT! *If you edit any inputs or outputs of the driver after editing a driver, you must remove the driver from the project, add it to the project again from the Search tab, and then make the connections.*

Verifying the IR codes using the Driver Wizard

Use the Edit Existing Driver menu option to verify your *IR* codes for the Control4 system.

Note: *Make sure the controller is connected to the device via IR, and that all necessary connections are made.*

To verify driver IR codes using the Driver Wizard:

1   Start Composer Pro and connect to a Director.
2   From the Driver menu, select **Edit Existing Driver**.
3   Select the driver type, such as **VCR**.
4   Select the **Codes** section.
5   Click **next** to advance to the screen for the first IR code listed.
6   On the left side, use the scrollbar to select the code you want to test, and click **Emit** to verify the function of the specific IR code.
7   Edit or recapture the codes as necessary.
8   After you've edited the driver, click **finish**.
9   Click **next** to save your changes.

IMPORTANT! *If you edit any inputs or outputs of the driver after editing a driver, you must remove the driver from the project, add it to the project again from the Search tab, and make any necessary connections.*

Tip: *To exit the Driver Wizard without saving your changes, click **x** at the top right of the screen.*

Power management

Guidelines for defining power management

Control4 Power Management options are modifiable using the Driver Wizard in Composer Pro which is accessible through the Driver menu during creation or driver edits.

Editing power management options

If resetting the connections is not required, you can sometimes edit the **Power Management** options from the Composer Pro project tree.

To edit the Power Management options:

1   Right-click the device.

2   Click **Edit Driver**.

   a   If the Edit Driver option does not appear, edit this driver from the Driver menu.

   b   Remove and then add the device to the project tree again.

Options on this screen include:

- **Assume the device is always on**—Select this option if the device is always on, or if the device is turned on and off by pressing the same button. For example, the system has no way to acknowledge if a television is on when the television uses a toggle button (such as buttons labeled 'Power' or 'On/Off') instead of discrete (separate) On and Off buttons.

  Note: Use this option for Power Management of a multi-zoned receiver.

- **Send Toggle Codes**—This option is selected automatically when you check the **Has Power** feedback box. You can select the other available options, such as **Macro**. Click **next** to return to this page and reset the page to this option.

- **Use discrete on/off codes**—Select this option if the device features a separate button for On and Off versus one button used to cycle between On and Off.

- **Use On/Off macros**—Use this option to control power on the device by using a sequence of button presses to determine the power state of the device.

   *Example: You know the state of most DVD players by sending a **Play** command, because Play typically changes the power state to On.*

   You can set up a macro that

   - Sends a Play command.
   - Sends a power toggle command to turn the device off.
   - Sends a power toggle command to turn the device on.

   The system can determine with certainty that the power state is On.

- Has Power Feedback.
    - **Video sense loop—**Check this option if you want the system to determine (using a Composite video connection) whether a device is On or Off based on whether a video signal is present.
    - **Contact sensor (power sensing)—**Check this option if the device is plugged into a wireless outlet *switch* and is configured as a Contact Sensor.
    - **Control power directly (power control)—**Check this option if the device is plugged into a wireless outlet switch and is configured as a relay. With this option, you can set two (2) delays to accommodate special devices.

   For more information, see "Configure a Wireless Outlet Switch."

Configuring assignable inputs and outputs

In a driver, you want to create all possible inputs and outputs on a device. However, a driver can only support the physical inputs and outputs that exist on that device, so don't attempt to create inputs or outputs that do not exist on the device.

Changing power management options

Use the Power Management options in the Composer Pro Driver menu to change power for a Control4 system.

To change the Power Management option of a driver, you can edit the driver to provide a different Power Management option. After editing a driver, you may need to add the driver to the project and set up the necessary connections.

To change Power Management options in a driver:
1 Start Composer Pro and connect to a Director.
2 From the Driver menu, select **Edit Existing Driver**.
3 Select the driver type, such as **VCR**.
4 Select the Manufacturer type, such as **Mitsubishi**.
5 Select the **Model** type.
6 On the Power Management screen, change the **Power Management** option.

   *Example: To change the Power Management option, check **Has power feedback**, and then select the **Video sense loop** option.*

7 After you edit the driver, click **finish**, and click **next**.

   Example: The Video Sense loop requires a Control connection. A control Video Sense connection has been added to the DVD driver.

8 Make any necessary connections to configure the new Power Management option.

Example: With the Video Sense Loop Power Management option, connect the Control connection.

a   From Connections, select **Control/*AV*** > **DVD**.

b   From the top pane in Control Connections, drag the **Video Sensor** connection to a **Video Sense Loop** connection on the controller (e.g., Home Controller HC-1000).

IR controller drivers

Creating IR-controlled drivers

This section provides instructions for creating and testing a driver using the Control4 Driver Wizard in Composer Pro. Depending on the *device* type, the Driver Wizard asks you questions for the driver you are creating. The Driver Wizard varies between device types because different device types have different functions. Follow the Driver Wizard screens until your driver is created.

Prerequisites

For the IR Learning capability to work, you must be connected to a Director and have a controller added to your project.

To use the Driver Wizard:

1   Start Composer Pro and connect to a Director.

2   From the Driver menu, select **Create New Driver**.

3   From the list, select the type of driver you want to create, and click **ok**.

4   Enter the Device Information.

    a   Fill out the requested information, such as device's Manufacturer, Model number, and the name of the Driver Creator (whoever is creating the driver), and click **next**.

    b   Check whether the device is IR or Serial controlled, select the appropriate options, and click **next**.

    c   Define the type of power management, audio parameters, and device properties there are, and click **next**.

    d   Identify the relevant commands, add custom commands as necessary, and click **next**.

5   Capture, paste, or enter the device codes using one of the following:

- **IR**—Use the manufacturer's remote and the controller's IR Learning capability for capturing IR commands.
- **Serial**—Enter the codes.

6   Create and identify the input and output connection options for the device, and click **next**.

7   Create macros if necessary.

8   Find your driver, add it to the project, and test it. See *Composer Pro Getting Started* for details about how to do this.

Guidelines for capturing IR codes

For best results when capturing IR codes for a Control4 system, follow the on-screen prompts in the Driver Wizard.

Follow these guidelines:

- **Point your manufacturer's remote control** directly at the IR window located just below the dial on the front panel of your controller hardware (e.g., Home Controller HC-1000). Avoid aiming the beam at an angle, and keep the beam in the same axis as the IR window.
- **While capturing the first few codes**, the controller begins to recognize the frequency. Note that a message about 'an alternate frequency' might display. This is normal, and it means that the controller is adjusting to the remote frequency.

To help ensure a successful capture:

1   **Hold the manufacturer's remote** at a distance of approximately 6" away from the controller hardware, and then press the button requested.
2   **When prompted, press the button again** to confirm the code captured. You are prompted a third, fourth, and possibly a fifth time to press each of the first few buttons.
3   **If another device in the room emits IR**, such as a bi-directional IR device, block the IR so it does not interfere with IR capture.
4   **The process of capturing IR codes is very sensitive to light**, such as sunlight and fluorescent lights. If it is not working properly, turn off the lights, close the drapes or blinds, or cover the physical hardware so that the light cannot interrupt the capturing of codes.
5   When capturing IR codes, press and release the remote button in one (1) second.

    Note: Do not press and hold for long periods (longer than three (3) seconds). Doing so increases repeat counts. Typical repeat counts are between three (3) and five (5) seconds.

6   **When capturing IR codes, look for a green light to turn on and off** on the controller hardware. Also, watch the Driver Wizard screen; it changes the steps to indicate that codes are captured.
7   **Avoid IR interference** from your laptop by disabling or powering off the IR devices.

After successfully capturing a few codes:

1   **Hold the manufacturer's remote** at a distance approximately 8" - 12" (about 20 – 30 cm), and then press the next button requested.
2   **When prompted, press the button again** to confirm the code captured. Most buttons are confirmed with the second button press. You may be prompted repeatedly to confirm the code captured, including:

    If the remote uses alternative codes—Some manufacturers provide alternate codes or a second code to differentiate between two (2) distinct button presses, such as '1' and then '1' again for Channel '11.' Some remotes have a different code for each '1.'

    If an incorrect button was pressed, or if there was interference during the IR capture— If you press the wrong button for a code or there was some interference during IR capture, the system may sense this and ask for a different code or request the same code again. If you test the code, and it doesn't work, try to capture it again.

    If you pressed a button longer than three (3) seconds.

To disable the devices from the laptop's Control Panel:

1   Select **Wireless Link**.
2   Click the **Hardware** tab, and click **Properties**.
3   Ensure that any IR devices are disabled.
4   After capturing the codes, enable the IR devices again.

When the system has finished capturing codes for a device, the Driver Wizard moves to the Input/Output category.

Creating an IR television driver

This section provides an example for creating an *IR* television driver using the Control4 Driver Wizard in Composer Pro. The example uses the Samsung TX-P1430 television; let's create a driver for it.

The major steps are:

1   Create an IR-Controlled Television
2   Select the Volume and Other Properties for IR
3   Indicate How Power Is Handled for IR
4   Identify the Commands that the Device Supports
5   Capture the Device Codes for IR
6   Identify the Input/Output Connections
7   Define the RF/Antenna and Connection Type
8   Define the Set Channel Macro
9   See "Add the IR Driver to the Project Tree."
10 See "Connect the Devices for IR Control."

Conditions

- The Samsung TV is using IR for device control as an example.
- There is not a discrete power on/off option, so you cannot control the power; the control system needs to assume this device is always on.
- As with most TVs, there is Discrete Channel Selection; and the TV can provide audio output.
- The TV does not have discrete volume control, but it does have mute toggle capability.

To create an IR-controlled television using the Samsung TXP1430:

1   Start Composer Pro and connect to a Director.
2   Ensure that you add a controller to your project (e.g., Home Controller HC-1000). This should be the first device added.
3   To add a controller:
    a   Select the **room** (such as Theater) where the controller is installed.
    b   Click the **My Drivers** tab.
    c   Under Controllers, double-click a **Controller** (e.g., Home Controller HC-1000). This adds the controller and the Digital Audio object that resides on the controller to the project tree.

d   In the Connections view, **identify** the controller you just added.
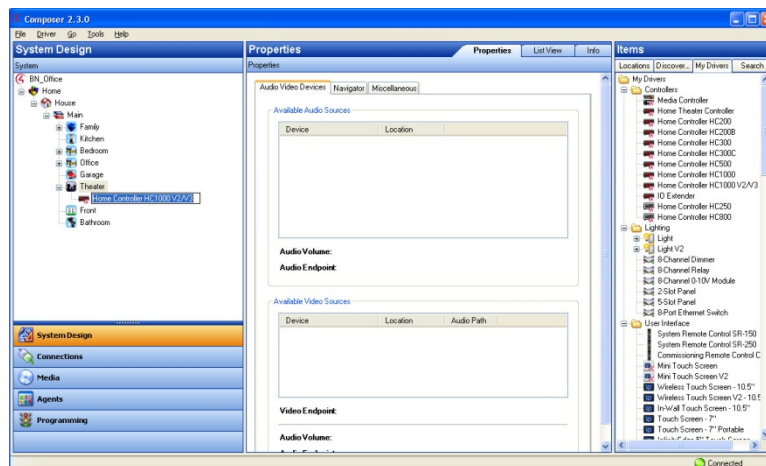
4   Start the Driver Wizard. From the Driver menu, select **Create New Driver**.
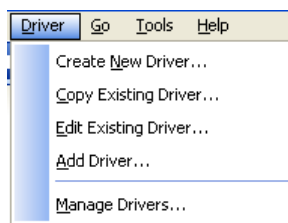
5   Select the device driver you want to create, and click **ok**.
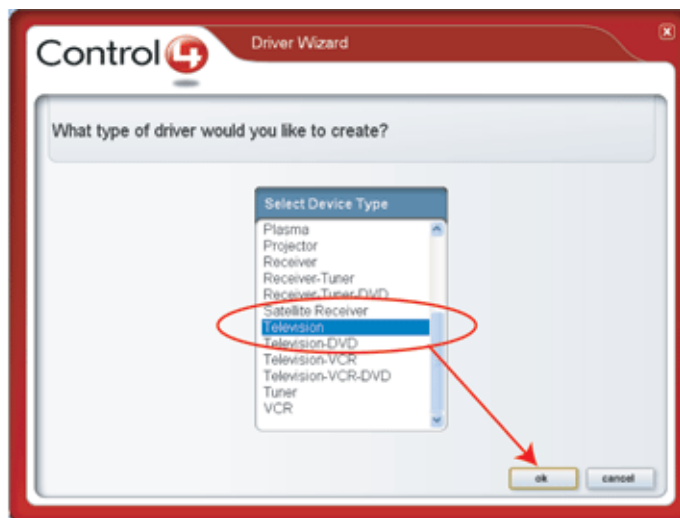
6   Enter the information for the driver you are creating, such as device's Manufacturer, Model number, and name of Driver Creator, and then click **next**.

The Created, Modified, and Copyright information is automatically generated.

- **Manufacturer**: Samsung.
- **Model**: TX-P1430.
- **Device Creator**: ACME Integrators.

7 Under **How is this device controlled?** select the **IR** radio button to indicate that this television is controlled with an IR device, check **Direct Connect** if applicable (if IR codes are running through a direct cable, such as S-link), and then click **next**.

Select the Volume and other properties

8 Under Volume Properties, select the volume properties for this device, and click **next**.

- Select **Audio**.
- Select **Mute**.
- Leave the other options as they are.

9 Select the properties that apply to this device, and then click **next**.

Options for this screen include:

- Select **Discrete Input Selection**—This television has this capability and indicates that a television has the ability to select inputs directly. On the television's remote you can select Video 1, Video 2, or Video 3 using three (3) different buttons rather than one (1) toggle button that toggles to each selection.
- Do not select **Discrete Channel Selection**—This television does not have this capability and indicates that the television has the ability to select channels directly. On the remote you can select a "discrete" channel by clicking **05** rather than toggling through channels by clicking the **Channel Up** and **Channel Down** buttons.

Indicate how power is handled for IR

10 Determine how power is handled for the device:

- For the Samsung TX-P1430 television driver, select **Assume device is always on**.
- For a description of each option, see "Guidelines for Defining Power Management" to help with a selection.

11 Click **next**.

Identify the commands that the device supports

12 De-select the default commands not relevant to the device, add any custom commands (additional buttons) required, and then click **next**.

- Deselect **Cancel**.
- Deselect **Info**.
- Deselect **TV/Video**.

Capture the device codes for IR

13 Capture the device codes using the manufacturer's remote and the controller's IR Learning capability. Follow the guidelines listed in "Guidelines for Capturing IR Codes" and the on-screen instructions.

Use the Samsung TX-P1430 television remote control to capture the codes by pointing the remote directly at the IR window on the Home Controller HC-1000.

When a code has been captured, Composer Pro puts a check next to the captured code in the Codes list, and selects the next code to be captured. When you capture all the codes, Driver Wizard automatically moves you to the next section: 'Input/Output.'

(Optional) After you capture a code, if you want to view the code, click **back**. You can also edit and emit the code from this screen.
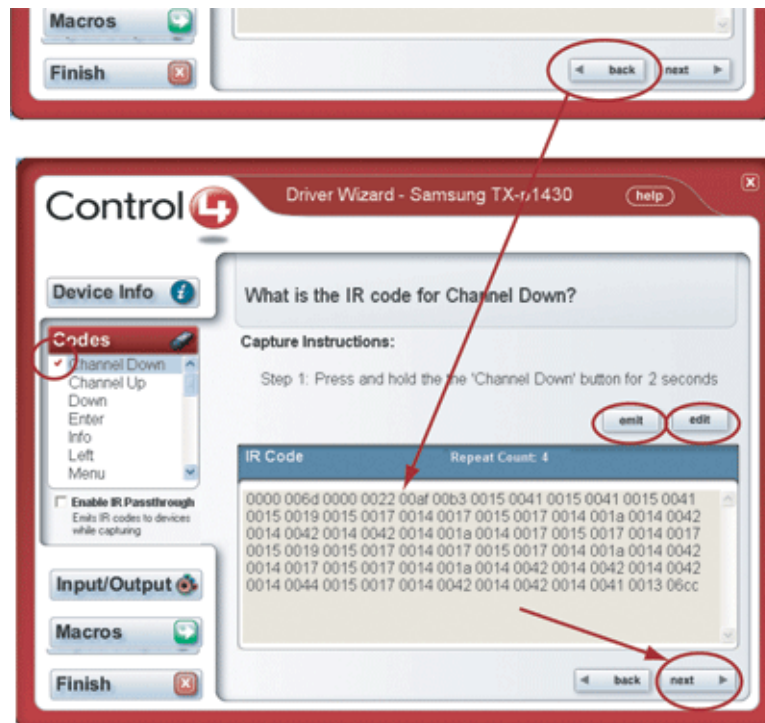
14 When you are finished, click **next**.

> *Note: Sometimes a device can have alternative patterns. In this case, multiple codes show up on the screen.*

15 Read the television manufacturer's documentation to find out the necessary inputs/outputs.

Identify the input/output connections

16 Click **Add** to identify the Input/Output connections on the television, and then click **ok**.

17 For the Samsung TX-P1430 television driver, add the following inputs:

- **Line Input**—Select Input and Line Level type.
- **RF Antenna**—Select Input and RF/Antenna type.
- **Monitor Out**—Select Output and Line Level type.

The inputs appear in the Input/Output Connections window.

18   When the Input/Output Connections list is completed, click **next**.

19   Define the connection types for Inputs/Outputs, and then click **next**.

For the Samsung TX-P1430 television driver, define the Line Input:

- Under Audio Connections, select **Stereo (RCA)**.
- Under Video Connections, select **Composite and S-Video**.

Define the RF antenna and connection type

20   Define the RF/Antenna type on the input RF Antenna, and then click **next**.

For the Samsung TX-P1430 television driver, select the **UHF/VHF** radio button.

21   Define the connection type for output Monitor Out, and then click **next**.
- Under Audio Connections, select **Speaker**.
- Under Video Connections, select **Composite and S-Video**.

Define the Set Channel macro

22 Define a Set Channel macro to set the number of digits required by the TV to change channel so that the system can imitate the behavior of the TV's remote. Some TVs require two (2) numbers and others require three (3).

The Samsung uses a 2-digit channel entry. Select **CHANNEL 3** and use the Minimum Length drop-down menu to change to **2**.

23 Increase the inter-digit delay (delay button code) if necessary for the TV you are adding.

24 Click the blue number sign (**#**) to move the settings into the center pane.

25 Click **next**.
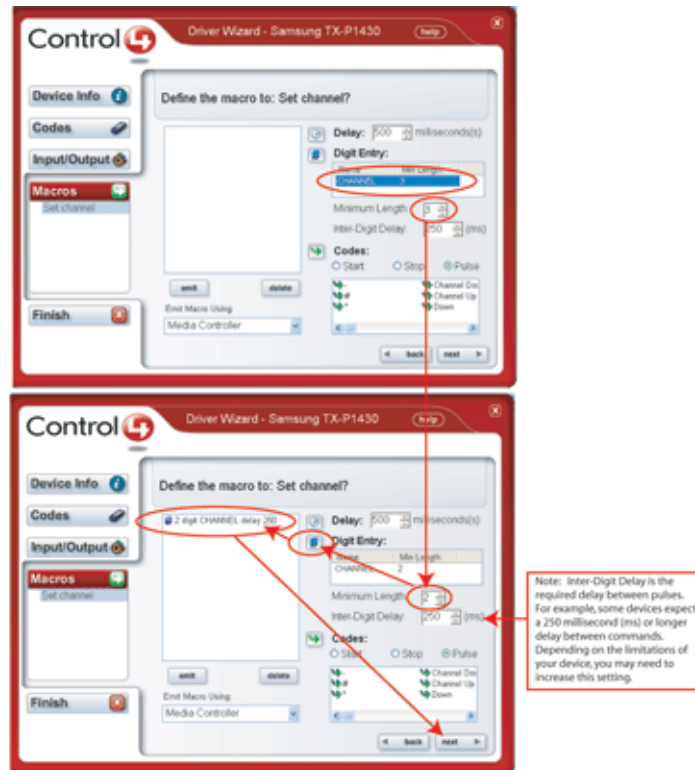
26 You have completed the setup of this driver. You can view the driver you created in the **Search** tab. Click **next**, and then click **ok** to continue.

27 Next, add the new driver to the project tree and connect the device. See "Add an IR Driver to the Project Tree" and "Connect the Devices for IR Control" below.

Add the IR driver to the project tree

After you create an IR driver using the Control4 Composer Pro Driver Wizard, you must add it to the Composer Pro project tree. This section uses the Samsung TXP1430 as an example.

To add the IR driver to the project tree:

1 Start Composer Pro and connect to a Director.

2 Click **System Design**.

3 In the project tree, remove the existing television driver that you previously added to the example project (if it was added).

4   From the **Search** tab, use the drop-down menu to select the **Device Type** and **Manufacturer** of the driver you just created.

Example:

a   At Device Type, select **Television**.

b   At Manufacturer, select **Samsung**.

5   Double-click the new driver to add it to the project tree. *Example:* Samsung TXP1430.

6   Make the connections. See "Connect the Devices for IR Control."

Connect the devices for IR control

After you create an IR driver using the Control4 Composer Pro Driver Wizard, you must add it to the Composer Pro project tree and connect the device. This section uses the Samsung TXP1430 as an example.

To connect the IR device:

1   Start Composer Pro and connect to a Director.

2   Click the **Connections** view to make the appropriate video, audio, and control connections or network connections (if appropriate) for the device.

3   For the Samsung TX-P1430 television driver, select **Television**.

4   Make all the necessary Control and AV connections.

*Example (Television): In Connections under Theater, click **Television**. The right pane displays all of the inputs and outputs on the back of the television. For television, from the top pane:*

Under Audio Video Inputs, drag the object from the top pane to the bottom pane:

a   Click **AV In** (Video—COMPOSITE), and drag it to Receiver (Output—Theater).

b   Click **AV In** (Audio—STEREO), and drag it to Receiver (Output —Theater).

c   Under Control Inputs, click **IR Sensor** (Control—IR_OUT), and drag it to Home **Controller** HC-500 (IR Output 1—Theater).

5   Click **System Design**, and double-click the device on the project tree.

6   Use the Device Control window to test the control of the device. For the Samsung TX-P1430 television driver, double-click **Television**.

Editing an IR-controlled receiver driver

This section takes you through an example of creating a custom IR-controlled receiver driver for a Control4 system by starting with an existing driver with multiple outputs, and then editing it.

*Example: In this example, pick the driver for the **Harman Kardon AVR-230 Receiver**. The Harman Kardon AVR-230 receiver is using IR for device control.*

Conditions

- There is a discrete power on/off option.
- Like most receivers, the device uses Discrete Input Selection and Discrete Surround Selection.
- It does not have Volume Discrete Control, but it does have Mute toggle capability.
- The Harman Kardon AVR-230 Receiver has the capability of Discrete Power on/off.

To edit an existing device driver:

1 Start Composer Pro and connect to a Director.

2 Pick an existing driver in the Online Database to edit.

    a From the Driver menu, select **Manage Drivers**.

    b In the Local Driver Database screen, click **Add** to access the online database.

    c In the Search dialog box, use the drop-down menus to select the **Device Type** and **Manufacturer**, and then click **Search**.

       Example: For the Harman Kardon AVR-230 use the following information:

- Device Type: **Receiver**.
- Manufacturer: **Harman Kardon**.

    d In the Search Results list, select the **Model Number**.

       Example: Select Harman Kardon AVR-230.

    e Click **OK** to add this driver to your local database.

    f Click **Exit**.

3 From the Driver menu, select **Edit Existing Driver** to begin editing the driver in your local database.

Note: If you right-click on the driver in the project tree, you will edit ONLY the driver in the project and not the driver in your local database.

4 Select the **Device Type** (for example, *Receiver*) to view list of manufacturers.

5 Select the **Manufacturer** (for example, *Harmon Kardon*) to view list of model numbers.

6 Select the **Model Number** (for example, *AVR-230*).

7 Click **OK** to open the existing driver (with all of its current settings) in the Driver Wizard.
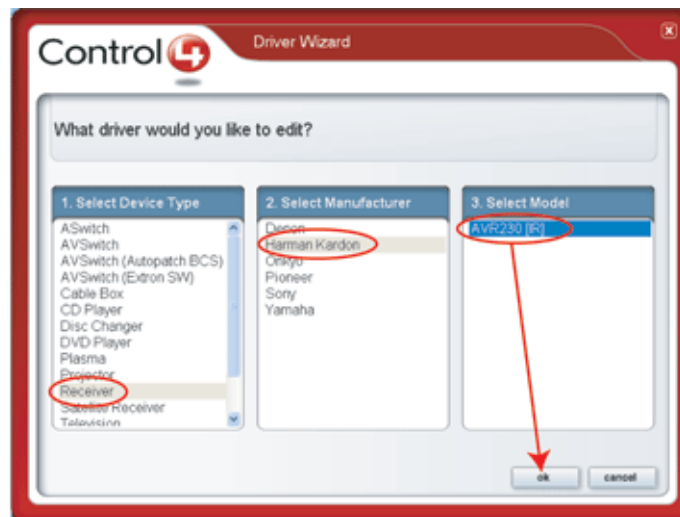
Edit the device information

8 Edit the Device Info form as needed, including Manufacturer, Model number, and Driver Creator. This should reflect how you want this driver to display in your Local Database.

9 For the Harman Kardon AVR-230 use the following information:

- Manufacturer: **Harman Kardon**.
- Model: **AVR-230 [IR] - Edited**.
- Driver Creator: **ACME Integrators**.

10 Click **next**.

Indicate how the device will be controlled

11 Indicate how this device is controlled using IR or Serial. **Example**: Select IR and Direct Connect.

- **IR**—Select this radio button if the device you want to create a driver for is IR (infrared) controlled.
- **Direct Connect**—Check this box if your IR codes are running through a direct cable, such as S-link.
- **Serial**—See "Creating a Serial-Controlled Device Driver" for information and example implementation.

12 Click **next**.

Edit the volume properties

13 Edit the volume properties for the Harman Kardon AVR-230:

- Check **Audio**.
- Check **Mute**, but do NOT check Discrete Control. The Harmon Kardon AVR-230 has mute toggle only.

14 Leave the other options unchecked. The Harman Kardon AVR-230 does not have these features.

15 Click **next**.

Edit the existing properties for the driver

16 Edit the existing properties for the driver as needed.

17 For the Harman Kardon AVR-230 driver:

- **g** Accept the defaults of Discrete Input Selection and Discrete Surround Sound Selection.
- **h** Click **Add** to add surround sound modes and in the dialog that appears type the Name, and click **ok**.
- **i** Do this for each of the surround sound modes, including Dolby Pro Logic, DTS Neo 6, and THX.

18 Click **next**.

Indicate how power is handled for the device

19 For the Harman Kardon Receiver driver, select **Use discrete on/off codes**, and click **next**. See "Guidelines for Defining Power Management" for help making a selection on this screen.

20 Click **next**.

21 De-select the commands not relevant to the device as needed, For the Harman Kardon Receiver driver, click to de-select.

- Cancel
- Info
- Mute Off
- Mute On
- Power Toggle
- Pulse Surround Mode
- Recall
- Toggle Input
- TV/Video

22 See the diagrams that follow.

Add the commands

23   From the extended command list, add several commands: **DVD** and **Video 1**.

24   To add the commands from the extended command list for each individual command, click
     Add.

25   On the dialog that appears, use the drop-down menu to select the commands, and click **ok**.
     The new command appears in the Default Commands pane.

26   Add custom commands for surround modes, including DTS Neo 6, Dolby Pro Logic, and
     THX. To add custom commands for each individual command, click **Add**.

27   Enter the name of the command, and then click **ok**. The new commands appear in the
     Custom IR Commands pane.
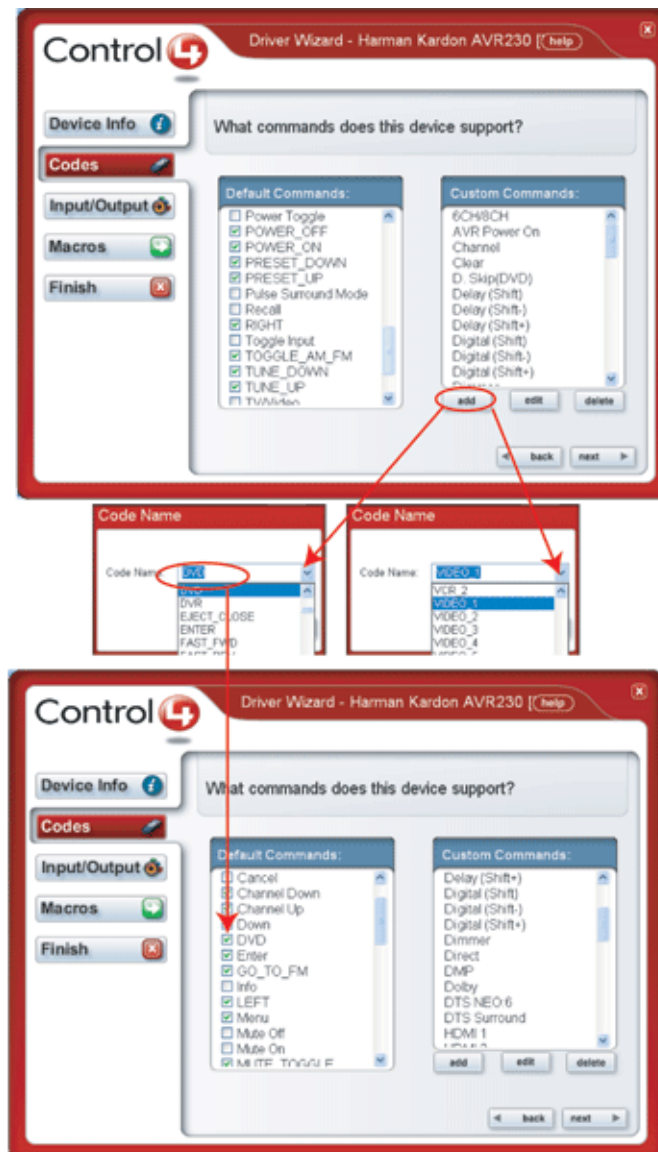
28   Click **next**.

Capture the codes

29 Capture (or recapture) the device codes as needed using the manufacturer's remote and the controller's IR Learning capability. Follow the guidelines for capturing IR codes in "Guidelines for Capturing IR Codes."

When a code has been captured, Composer Pro puts a check next to the captured code in the Codes list, and selects the next code to be captured. When you have captured all the codes, it automatically moves you to the next section Input/Output.

30 Use the Harman Kardon AVR-230 Receiver remote control to capture the codes by pointing it directly at the IR window on the Home Controller HC-1000.

31 Use the Harman Kardon Receiver remote control to capture the codes.

Add the input and output connections

32 Add the input and output connections. For the Harman Kardon Receiver driver:

  a Add 2 inputs: **DVD** and **Video 1**.

  b Add 1 output: **Monitor Out**.

The inputs and outputs appear as shown:
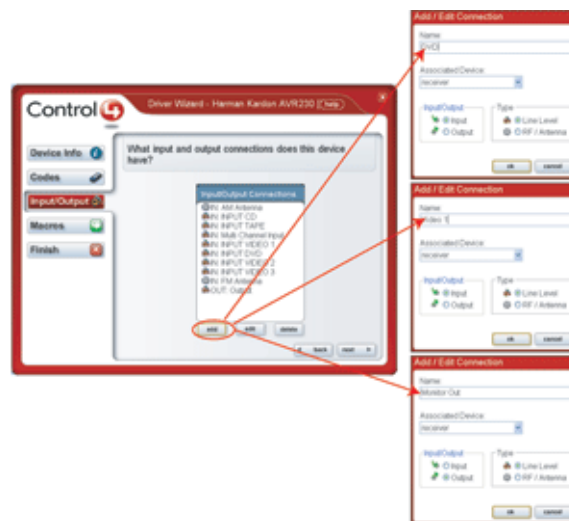
33 Click **next**.

34 Define the connection types for input **DVD**.

  a In Audio Connections, check **Stereo**.

  b In Video Connections, check **Composite**, **S-Video**, and **Component**.

35 Click **next**.

36 Define how you select **DVD**. Select **Code**. Use the drop-down menu, and select **DVD**.

37 Click **next**.

38 Define the connection types for input **Video 1**.

  a In Audio Connections, check **Stereo**.

  b In Video Connections, check **Composite**, **S-Video**, and **Component**.

39 Click **next**.

40 Define how you select **Video 1**. Select **Code**; use the drop-down menu, and select **Video 1**.

41 Click **next**.

42 Define connection types for input **Video 1**.

    a   In Audio Connections, check **Stereo**.

    b   In Video Connections, check **Composite**, **S-Video**, and **Component**.

43 Click **next**.

44 Define connection types for input Monitor Out.

    a   In Audio Connections, check **Stereo**.

    b   In Video Connections, check **Composite**, **S-Video**, and **Component**.

45 Click **next**.

46 Define three (3) macros for Dolby Pro Logic, DTS Neo 6, and THX.

    a   Use the scrollbar to skip all the macros until you get to "Set output Mon..."

    b   Select this macro.

    c   Go to the window in the bottom right corner and find **Dolby Pro Logic**.

    d   Ensure **Pulse** is selected, and click the **green arrow**. This adds the macro to the center pane. The screen heading should read "Define the macro to: Set Monitor Out surround mode to Dolby Pro Logic?"

    e   Do the same for DTS Neo 6 and THX.

47 Click **finish**.

48 See the diagram series that follows.
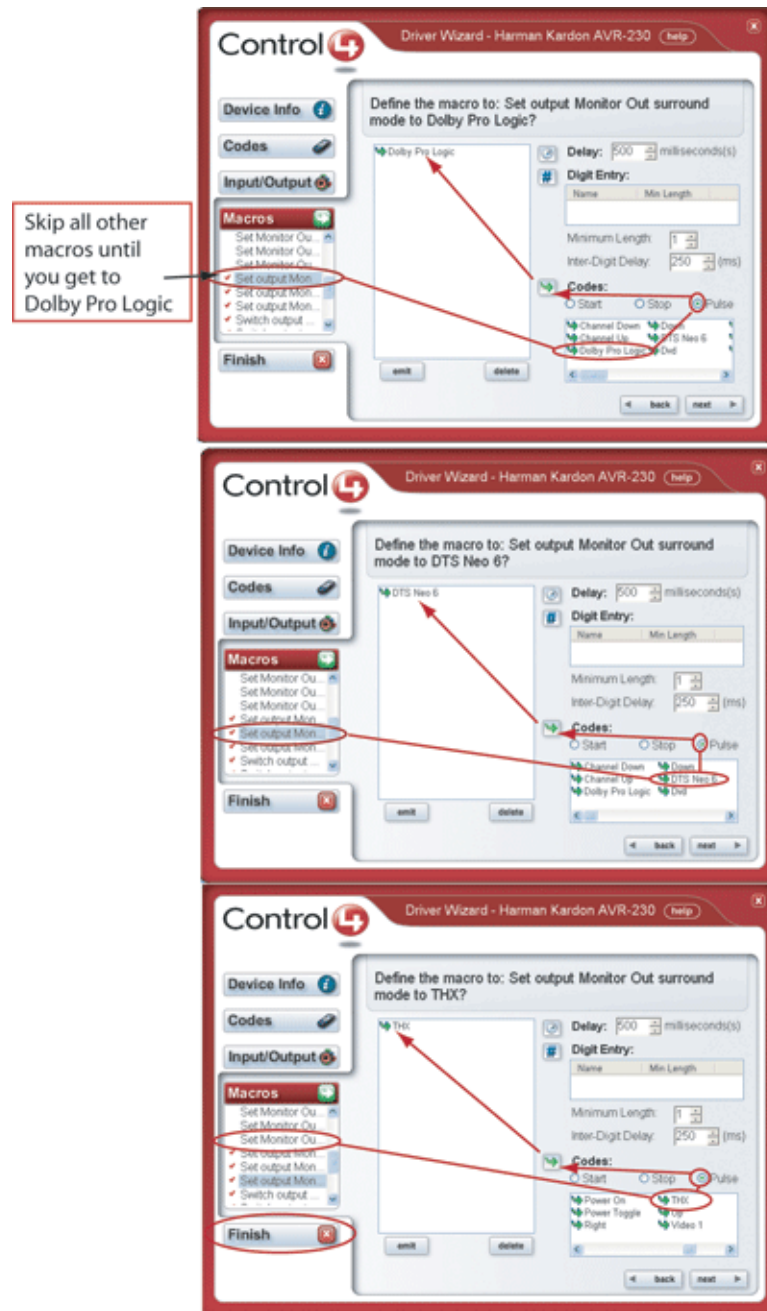
49 You have now completed your driver setup. View the driver you edited in the **Search** tab.

50 Drag the new driver to the project tree.

51 Connect the video, audio and control or network connections (as appropriate) for the device.

52 Click **System Design**, and double-click the device in the project tree.

53 Use the Device Control window to test the control of the device.

54 For the Harman Kardon Receiver driver, double-click **Receiver**.

Serial-controlled device drivers

Creating a serial-controlled device driver

Create serial drivers using the Control4 Driver Wizard in Composer Pro. Instead of capturing the code as you do with IR, you enter the specific serial data that you must send for each command.

To create a serial-controlled driver:

1   Follow the same steps used in "Creating IR-Controlled Drivers" and select a serial-controlled driver rather than an IR-controlled driver.

2   Follow the wizard pages to create the driver.

Guidelines for entering serial codes

This section describes the different formats you can enter for the serial data of each command in Control4 serial drivers.

These formats include:

- **Basic Method to Enter Bytes**—Shows you how to enter a basic code.
- **Method to Enter Delays**—Shows you how to enter a delay code that you need to control some devices.
- **Method to Enter Parameters**—Shows you how to enter the needed parameters.
- **Method to Enter Checksums**—Shows you how to enter the checksums.

Method	Description
Basic Method to Enter Bytes	All serial data in the end becomes bytes. There are three (3) basic formats to represent bytes, but in the end the resulting data is just bytes, and any format would suffice for the entry. For ease-of-use, multiple formats are supported. ***Examples*** for all methods: Data is equivalent to the ASCII string "DVD" with a carriage return at the end. **Decimal Data**—With decimal data and between any of the different formats there must be a space to act as a delimiter between different pieces of data. To enter decimal data, enter the value to be stored in the byte in decimal. Valid data is from 0-255. ***Example:*** Data ("DVD" with carriage return): 68 86 68 13 **Hexadecimal Data**—With hexadecimal data and between any of the different formats, there must be a space to act as a delimiter between different pieces of data. To enter hexadecimal data, enter the '$' symbol immediately followed by the value to be stored in the byte in hexadecimal. Valid data is from $00-$FF. ***Example:*** Data ("DVD" with carriage return): $44 $56 $44 $0D **ASCII Data**—All ASCII data must be inside double quotes. Each byte inside the quotes represents one byte of data. Look at any ASCII table to

Method	Description
	see the real values each character represents. The same ASCII characters supported in the C programming language are supported. Escape characters are also supported in the same way. Supported characters include \n (new line), \r (return), \t (tab, and \" (double quotes).

Example: Data ("DVD" with carriage return):

"DVD\r"

Mixing formats — All of the above formats can be used together, and the person can use whichever seems most efficient.

Example Data (All examples represent the exact same data):

"DVD" $0D
68 "VD" 13
"DV" $44 13
$44 $56 68 13
68 $56 68 "\r" |
| **Method to Enter Delays** | Many times it is necessary to create delays when sending data to a serial device. The '#' character is used to represent that the following number is a delay in milliseconds. A space is required between each element in the data.

Example: This example assumes that the protocol calls for a "PWON\r" command followed by a 1500 millisecond delay followed by a "PLAY\r".

ASCII Example:

"PWON\r" #1500 "PLAY\r"

Decimal Example:
80 87 79 78 13 #1500 80 76 65 89 13 |
| **Method to Enter Parameters** | Many commands have parameters. Examples of these commands are the GO_TO_CHANNEL command for TVs and Satellite receivers or GO_TO_DISC commands for DVD and CD changers.

During driver creation, you are allowed to create macros to embed the parameter in the data that is being entered. This creates different problems depending on whether the protocol is a binary or ASCII protocol. When entering ASCII parameters, use a modified version of the format that C uses in its printf function.

Example: This example is a GO_TO_CHANNEL command where the protocol specifies that the devices need the ASCII command "Channel XXX\r" where the XXX is the three digit (decimal) channel number that is being requested with zeroes padded (on the left) if the number is less than 100. The parameter name is CHANNEL_NUMBER.

ASCII Example:

"ChannelHarman Kardon03dCHANNEL_NUMBER \r"

Later, at run time when this command is called with the Channel 56, the output appears as follows:
"Channel 056\r"

During driver creation, you can also enter parameters in a binary protocol |

Method	Description
	format. Borrowing from the last format with the modification that following the%, first is the byte count (valid counts are 1, 2 and 4), followed by the byte order (E = big endian, e = little endian), followed by the data format (D = decimal, others to follow). This is obviously followed by the actual parameter name as in the example above. *Example*: This example assumes the protocol needs a start byte that is the number 2, followed by the GO_TO_CHANNEL command code which is 57, followed by a 2-byte big endian channel number, followed by the end byte which is 0. 2 57%2EDCHANNEL_NUMBER 0 Later on at run time when this command is called with the Channel 357 the output looks like the following using our format. 2 57 1 101 0 (Hint 0x0165 is hexadecimal for 357, and 1 = 1 in decimal and 65 = 101) If the protocol used little endian for the parameter, the data entry is: 2 57%2eDCHANNEL_NUMBER 0 The output for the previous example is: 2 57 101 1 0
Method to Enter Checksums	Many protocols require a calculated checksum. A way must be provided for the user to calculate a checksum. There are several formats for checksums, so different types of checksums must be allowed. The '&' signifies that the software needs to enter a checksum followed by a byte count (valid counts are 1, 2, and 4), followed by the byte index in the command where the checksum calculation starts (valid numbers are 0-9), followed by the byte size of the checksum chunks (valid sizes are 1 and 2), followed by byte order (E = big endian e = little endian), followed by the checksum calculation format (STD = standard (chunk size wide) addition inverted, CRC = CRC). *Example:* The example uses the same devices as previously mentioned and assumes the big endian GO_TO_CHANNEL command, where that command needs a checksum (before the 0 end byte) starting at the beginning of the command, and the command is a simple 1-byte checksum. The data entry displays the following: 2 57%2EDCHANNEL_NUMBER &101ESTD 0 And the output for the previous examples is (channel = 357): 2 57 1 101 94 0

Example: Creating a serial driver
InFocus LP850 projector

When creating a serial driver using the Control4 Driver Wizard in Composer Pro, the driver supports one-way communications.

Example: *In this example, you create a driver to support the serial-controlled **InFocus LP850 Projector**.*

To create a new serial driver:

1   Start Composer Pro and connect to a Director.
2   Ensure that you have added a controller to your project (this should be the first device added).
3   To launch the Driver Wizard, from the Driver menu select **Create a New Driver**.
4   In the Driver Wizard, select the device driver you want to create, and click **ok**.
5   Fill out the driver information, such as Manufacturer, Model, and Driver Creator name. The date created, date modified, and the copyright information is generated automatically.

    For the InFocus LP850 Projector, use the following information:

    - Manufacturer: **InFocus**
    - Model: **LP850**
    - Driver Creator: **ACME Integrators**

6   Indicate how this device is controlled using IR or Serial. **Example**: **Serial**.
7   Set up the serial settings.

    - **Serial**—Select this radio button if the device you want to create a driver is for serial controlled. The following serial options are specific settings on serial devices.
    - **Baud Rate**—The number of symbols or characters per second sent over a serial link. Options: 110, 300, 1200, 2400, 4800, 9600 – default, 19200, 38400, 57600, 115200, 230400, 460900, 921600.
    - **Data Bits**—Use the drop-down menu to select (5, 6, 7, 8 – default).
    - **Flow Control**—The control of the transfer of data to avoid congestion. Options: None - default, Xon/Xoff, Hardware.
    - **Stop Bits**—Options: 1-default, 1.5, 2.
    - **Parity**—The process for detecting whether bits of data have been altered during transmission of data. A parity bit is appended to an array of bits to make the sum of all the bits always odd or always even for error detection. Options: None – default, Even, Odd, Mark, Space.

8   For the InFocus LP850 Projector, use the following settings:

    - Baud Rate: **19200**
    - Data Bits: **8**
    - Flow Control: **None**
    - Stop Bits: **1**
    - Parity: **None**

9   Click **next**.

Define the audio parameters

   Example: *Projectors do not have audio, so do not check anything.*

10 Click **next**.

11 Fill out the device properties for the driver you are creating. Properties are features that vary between the different models of the same device type. For example, some Televisions have discrete power control and some only offer toggle power on/off. You must define in the driver you're creating the features supported in the model.

12 For the InFocus LP850 Projector driver, check **Discrete Input Selection**.

13 Click **next**.

Indicate how the power is handled

14 For the InFocus LP850 Projector driver, select **Use discrete on/off codes**. For more information about power management options, see "Guidelines for Defining Power Management."

15 Click **next**.

Select the appropriate codes

16 For the InFocus LP850 Projector driver, de-select the following commands:
- Cancel
- Channel Down
- Channel Up
- Enter
- Info
- Number 0 through 9

17 Click **Add** to enter any custom commands.

18 Add the following options:
- Aspect Ratio: **16:9**
- Aspect Ratio: **4:3**
- Aspect Ratio: **Native**
- Ceiling mount **off**
- Ceiling mount **on**

19 Enter the serial code for each serial command.

20 Click **next** to continue through the codes. For information about how to enter serial codes, see "Create a Serial-Controlled Driver."

21 Click **Add** to identify the Input connections on the device.

22 For the InFocus LP850 Projector, add the following input connections:
- Video 1 (Input, Line Level)
- Video 2 (Input, Line Level)
- Video 3 (Input, Line Level)
- Computer 1 (Input, Line Level)
- Computer 2 (Input, Line Level)
- Computer 3 (Input, Line Level)

23 Click **next**.

Define the connection types for the inputs and outputs

24 Define the connection types for Inputs/Outputs for all the inputs/outputs. For the InFocus LP850 Projector driver, define all the previous inputs identified previously.

25 Click **next** until you have defined all of the inputs and outputs.

Define the macros

26 Enter any additional serial codes needed to perform the desired action. For Serial Drivers, based on the selections you made in the Device Info section (where you defined Driver capabilities), both Codes and Macros have to have the serial strings entered.

27 Click **next**.

28 Click **next** again.

29 Click **OK** to return to Composer Pro. The driver you created is located in the Search tab in Composer Pro.

30 You have now completed the setup of you driver. Select the **Search** tab and the driver type you just created.

31 To check whether your driver is in the Online Database, select the driver. For the InFocus LP850 Projector driver, select **Projector** > **InFocus LP850**.

32 Drag and drop the new driver to the *project tree*.

33 Make the appropriate video, audio, and control connections or network connections (if appropriate) for the device.

34 Click **System Design** and double-click the device in the project tree. Use the Device Control window to test the control of the device.

Example: *Double-click* **Projector**.

DriverWorks Two-way serial or TCP/IP driver

Creating a 2-way serial or TCP/IP-controlled driver

You can create most serial drivers using the Control4 Driver Wizard in Composer Pro. Instead of capturing the code as you do with *IR,* you enter the specific serial data that you must send for each command.

Use DriverWorks instead of the Control4 Driver SDK to create 2-way drivers for *AV* and non-AV devices that are controlled using a serial or TCP/IP connection.

DriverWorks exposes each of the driver APIs previously published through the Control4 Driver SDK (now discontinued). It is an SDK framework that allows 2-way drivers to be written for the Control4 system.

DriverWorks drivers can be written and installed without requiring platform- and version-specific compiling. Using DriverWorks does require some programming skills, but this tool leverages the Lua-embeddable scripting language, which is powerful, fast, and light-weight language (when compared to other scripting languages). DriverWorks comes installed with Release 1.6 and later software releases.

For information on using DriverWorks, refer to the SDK DriverWorks documentation ("Getting Started with DriverWorks"), which is downloadable from the documentation area on the Control4 Dealer Web site: Go to http://dealer.control4.com/dealer/support/software-updates.

Related tasks

Here are a few other tasks related to using Control4 device drivers in Composer Pro.

 "Exporting a driver in the project"

"Verifying IR codes using the Driver Wizard"

Using a new device driver in an existing project

A new device driver can be added to an ongoing project in the Control4 system.

To add a new driver to an existing project:

1   Start Composer Pro and connect to a Director.
2   Delete (right-click > **Delete**) the driver from the existing project.
3   Add the device to the project again.
4   Re-configure any connections (see the Network or Control/AV tabs in the Connections view) and any associated programming.

Exporting a driver in the project

For all audio/video equipment, you can export a Control4 driver to save or add to other projects. This essentially saves a driver for other uses outside of the current project.

Example: *Export the driver you have edited on one Control4 system to another Control4 system, and save it with your company name.*

To export a connected driver:

1   Start Composer Pro and connect to a Director.
2   In an existing project and from the project tree, right-click the driver you want to export and select **Export Driver**. This option is available from System Design, Connections, or Programming.
3   On the dialog that appears, type your company name in the **Creator Name** box.
4   Click the **Search** tab to find the saved driver.

Maintaining Your System

Use this chapter to learn how to:

- Update Composer and Director
- Create Panelized Lighting reports

Updating Composer and Director

Use the Control4® Composer Pro software to update Composer Pro and Director.

IMPORTANT! Before you begin any update, check the Control4 website for any Release Notes or upgrade documents associated with the update, especially if it's a major update such as up to Release 1.8.2 or OS 2.0. Read those documents first.

Depending on the type of upgrade you need to perform, the following tools and website may need to be used.

- Control4 website
- Update Manager
- Network Status
- System Manager
- Device Properties (Sony STR-DA2800ES/DA5800ES AV Receiver only)

Control4 website

Composer Pro updates (software releases) are available on the Control4 Dealer website at http://dealer.control4.com/dealer/products/software-updates/. You will need a Dealer login and password to access this site.

Prerequisites

Ensure that Release 1.8.2 and Composer Pro 2.0 are installed before you begin a subsequent update. See *Composer Pro Getting Started* for details. If you have an earlier release, see the update instructions for that release. You must update first to Release 1.7.4 and then 1.8.2 before updating to OS 2.0 and later.

Activate your licenses. See "Purchasing and Setting Up Dealer Licenses" in *Composer Pro Getting Started* or *Managing Dealer Accounts on my.control4.com* on the Control4 Knowledgebase for details.

To access the software updates:

1   Log in and go to: http://dealer.control4.com/dealer/products/software-updates/.

2   Under Software Updates select the software version to download and install.

The following software releases are available on the Control4 website: Composer 1.2.5	Composer 1.8.2	Composer 2.1.0	Composer 2.2.2
Composer 1.3.2	Composer 2.0.4	Composer 2.1.1	Composer 2.2.4*
Composer 1.6.0	Composer 2.0.5	Composer 2.2.0	Composer 2.3.0
Composer 1.7.4	Composer 2.0.6	Composer 2.2.1	Composer 2.4.0
Composer 2.5.0			

*For the Sony STR receiver, use the 'receiver' Properties page. See "Sony STR-DA2800ES/5800ES with full Control4 Automation" in this guide.

Other software utilities are available for download also at the Dealer software download site.

IMPORTANT! *For new installations, it is always a best practice to use the latest version of the released software.*

Update Manager

Update Manager in Composer Pro automatically updates Director and all of the IP-connected devices that are available in your project (identified and online), allowing you to update all the devices in the project configuration also. You can use Update Manager to update from all previous releases.

To support multiple releases, the release (for example, 1.7.x) installs in a Composer Pro directory (for example, Composer17x), which differs from previous releases that were installed in the Composer Pro directory. You do not need to uninstall previous releases to install a new release, but you must install Composer 2.0 or later before you begin the update to the latest release.

Note: You cannot use Update Manager to update a Sony STR-DA2800ES/DA5800ES Receiver with Full Control4 automation. See "Updating Firmware" in this guide or the Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide in the dealer Product pages at control4.com for details.

To access Update Manager:

1   Start Composer Pro and connect to a Director.
2   From the Tools menu, click **Update Manager**.

Network Tools

Composer Pro Release 1.7.3 or later uses this option.

To access Network Tools:

1   Start Composer Pro and connect to a Director.
2   From the Tools menu, click **Network Tools**.
3   Network Tools has three (3) tabs (Release 1.8.0 or later). Use these tabs as required by the software:

    - IP Network
    - ZigBee Network
    - EmberNet Upgrade

System Manager

System Manager provides some of the functionality as in previous releases, but it does not perform the update. Use System Manager to add, refresh, connect, or disconnect devices.

Updating firmware

Sometimes you'll receive new devices that aren't on the same firmware version. For all devices to be able to communicate with each other, they do need to be on the same firmware version. Refer to the current Release Notes to get the latest updates on firmware.

ZigBee devices

ZigBee devices update automatically to the current firmware version when they are installed and identified to the system.

IP devices

To update IP devices, run **Update Manager**. You can check the firmware version either in System Design > Properties pane (for the device), or in Tools > Network Tools > ZigBee tab for ZigBee devices.

Black & Decker locks

Note: Ensure you're running a current version of Composer Pro and Director on the system. Without the current version, the latest firmware will not be available.

To force a firmware update on the lock:

1   Remove the batteries from the lock (press a key or two to eliminate any charge in the lock).
2   Put the batteries back in.
3   Press the **top left** button four (4) times.
4   Press the **top right** button four (4) times.

The firmware should start updating. If it does not, ensure that your batteries are fresh. If you cannot manually start the firmware update, the lock should automatically check in for an update after the first check-in of the lock, at 3 AM.

Sony STR-DA2800ES/DA5800ES with Full Control4 Automation

In OS 2.2.4 and later Sony prohibits the use of a USB update using Update Manager. This is a security breach to Sony's system, so they do not allow it outside of a Sony factory or technician-repair scenario. As such, you still can perform a firmware update in Composer Pro.

To update the Control4 software in the receiver:

1   In Composer, locate the Sony STR receiver device in the project (**receiver**). This driver signals updates and coordinates with Sony's web service where the approved updates are kept.
2   Click on the receiver to view the Properties page.
3   The 'Auto Updates Enabled' property defaults to 'false.' Do not change this setting.
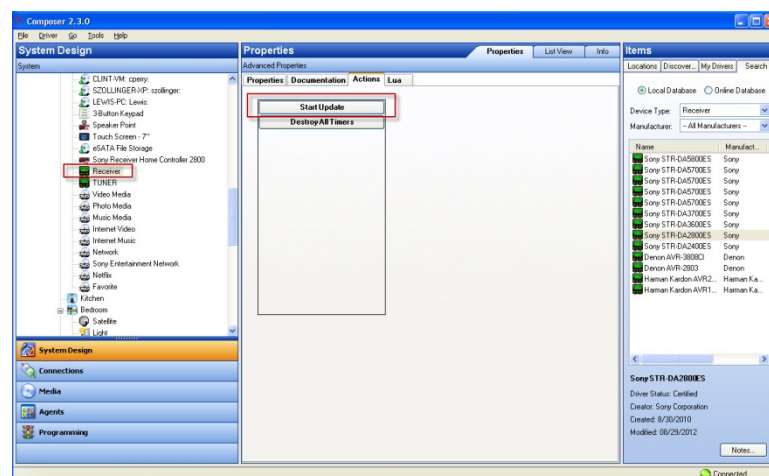
When a new firmware update is posted to the Sony update web service, the receiver will detect the update and ask you if you want to update if

• the receiver has been rebooted (power off and back on, not on 'standby'),

- an update exists on the Sony update web server,

- the receiver is connected to the Internet, and

- the TV screen connected to the receiver is on.

A Sony UI page will display and ask you to accept or cancel the update by clicking **OK** or **CANCEL** (displays either in the Sony UI or the on-screen Navigator). Use the Sony remote shipped with the receiver to make the selections.

4   (Optional) The Actions tab gives you another way to get an update if the previous conditions are met (see the list in Step 3).

    a   Click on the **Actions** tab.
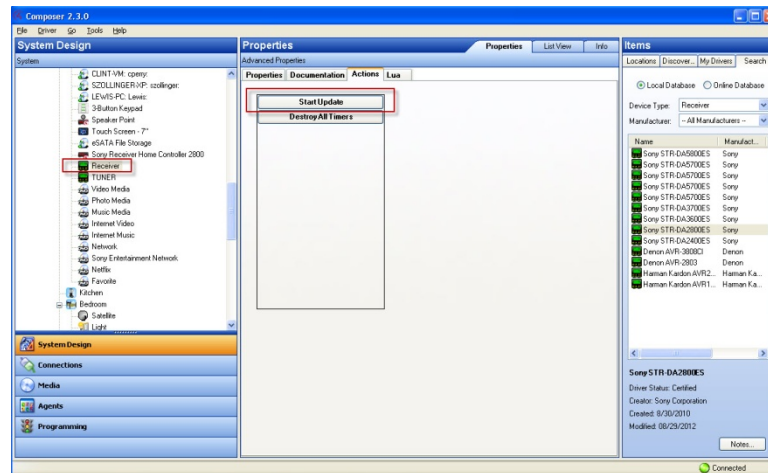
    b   Click **Start Update**. This action checks the Sony update web server for updates. If there is an update, a Sony UI displays in the on-screen Navigator and will ask you to accept or cancel the update by selecting **OK** or **CANCEL**.

Guidelines for updating a Control4 system

Use these Control4 guidelines to update a Control4 system.

IMPORTANT! Before you begin any update, check the Control4 Dealer website for any Release Notes, Read This First, or upgrade documents associated with the update and the release. Read those documents first.

Note: The update behavior and steps for various releases differs. Make sure you review any documentation associated with the release before you begin your updates.

Follow these important guidelines for updating Composer Pro:
- **Back Up Your Project**. If you have a project in an earlier version of Composer, back it up before you update.
- **Verify the Network Connections**. Update Manager requires an active network *connection* to function properly. Ensure that the network connection is up and working prior to performing the upgrade.
- **Update Errors**. If you notice any errors during the update process in the Update Manager's output pane, take note of the error message, and follow instructions provided at "Troubleshooting the Upgrade Process."

IMPORTANT! You cannot have both connection methods identified on the system. Remove the network connection to Zigbee and identify it again using the Ethernet connection.

- **Power On**. Ensure that the power state of all devices is **On**. You can verify that all devices are online from the Network Tools page.
- **Know When the Update is Completed**. When upgrading the Control4 *controller* running *Director*, you are disconnected from Composer Pro and streaming audio stops.

  a   After this occurs, restart Composer Pro and reconnect to the system.

  b   Go to **Tools** > **Update Manager** and watch the update process.

  c   Also, go to **Tools** > **Network** to ensure that everything is connected. If it is not connected, it cannot update that firmware.

  d   After Update Manager indicates that it is completed (you may see a message like "Finished site update attempt," all the IP devices on the system are now updated. This does not include ZigBee devices or hybrid devices (containing both IP and Zigbee).

  e   Go to **Tools** > **Network Tools** to view the firmware versions to ensure they are updated to this release.

  Tip: Be patient. In cases where the ZigBee mesh is moved, it can take up to five minutes for all connections to be re-established.

Guidelines for updating specific devices

- **Primary Controller**. The primary controller holds a new firmware image file, which is transferred and reflashed when an Ethernet network connection is present. After the update, disconnect the IP identification and identify again using Zigbee.
- **ZigBee Devices**. When upgrading a controller associated with ZigBee devices, such as dimmers, switches, and keypads, these are also upgraded. As these devices upgrade, the device's LEDs and the associated lighting loads may flicker. This is normal behavior.
- **ZigBee Pro Devices**. Follow the instructions in *Composer Pro Software Release Update Instructions - 1.7.3 to 1.8.0* for details about ZigBee Pro updates.
- **Home Theater Controller and Speaker Point**. During the update, the LEDs flash, indicating the upgrade process is in a critical mode.

  Note: In OS 2.0 and later, Speaker Point does not support the M4P/AAC format. Use MP3.

  WARNING! Do not stop the update or disconnect the network during an update.

- **Audio Matrix Switch** or **Multi Channel Amplifier**. If you are updating an Audio Matrix Switch or Multi Channel amplifier that is using a ZigBee connection, you must temporarily connect these devices to an Ethernet connection before updating for the firmware update to occur.

Estimating Control4 system update times

Use Control4 Composer Pro to update the Control4 system.

Estimating update times per device type

The update time is dependent on the size of the Control4 system, the available network bandwidth, and the types of devices you are updating.

There are three (3) types of devices: IP devices that communicate solely by TCP/IP, ZigBee, ZigBee Pro devices that communicate via ZigBee or ZigBee Pro, and hybrid devices that use both TCP/IP and ZigBee for communication.

Depending on the device type, some devices, such as the IP devices update in parallel; other ZigBee or hybrid devices are updated sequentially, one after another. Generally, the IP devices are updated in parallel immediately after the primary controller updates. After that, the ZigBee devices update in sequence starting with the system remote control, and then followed by the hybrid devices which update in sequential order. The system remote control is the first ZigBee device to update if it is in Wake mode. During or after the update, if the system remote control was in Sleep mode, it updates immediately after it wakes up.

The following list identifies some typical Control4 devices and update time estimates.

- **IP devices** (updated in parallel immediately after the primary controller):
    - Controllers—20 to 40 minutes
    - 7" touch screens—15 to 20 minutes
    - Speaker Point—10 to 15 minutes
- **ZigBee devices** (updated sequentially):
    - System Remote Control—3 to 5 minutes (updated as the first ZigBee device if awake)
    - Dimmer/Keypad/Switches—3 to 5 minutes
    - Thermostat—10 minutes
- **Hybrid devices** (both Zigbee and IP - updated sequentially):
    - Multi-Channel Amplifier -16-5 minutes
    - Contact/Relay Extender—5 minutes
    - Audio Matrix Switch—5 minutes
    - Multi Tuner V1 and V2—5 minutes
    - XM Module—5 minutes
    - Dock for iPod—5 minutes
    - Media Player—5 minutes
    - IO Extender—5 minutes

Note: An update from Release 1.7.4 to Release 1.8.2 may take longer than other updates.

Example: a total of

- *20 devices may take 110 minutes or longer*
- *30 devices may take 150 minutes or longer*
- *60 devices may take 300 minutes or longer*

to complete the process. Dimmers and switches do not need to be updated.

You may want to practice on your own Control4 system first before upgrading a customer's home; for example, an update to Release 1.8.2 is not trivial.

Best practices for updating a Control4 system

These sections will help you understand the best practices to follow when performing a Control4 update in Composer Pro. If you follow these sections in order until your system updates successfully, you may avoid some unnecessary pitfalls.

General procedure

To update your system and software:

1   Back up the current project and media.
2   Check that you have a good network connection.
3   Check the currently-installed Composer Pro and Director versions.
4   Update Composer Pro software and drivers.

5   Update Control4 products using Update Manager (except for Sony STR Receivers).

6   If you have problems, see "Troubleshoot the Upgrade Process" or contact Control4 Technical Support.

Tip: The update process is highly dependent on valid network configurations and Internet connection availability and bandwidth. Please confirm that the devices on your network have a valid connection to the Internet. If you are using DHCP, confirm that your DHCP is active and can issue valid IP addresses to clients on the network.

IMPORTANT! Do not use a previous release of Composer Pro to modify a 2.0 system. Likewise, do not use a 2.0 version of Composer Pro to modify a previous release of the Control4 system.

Back up the current project and media

To back up your current project and media:

1   Back up your current project file from a previous release by using **File** > **Backup As**. Give it a filename that clearly identifies it as the backup.

2   (Optional) Back up your media. Copy all directories to your computer's hard drive or other storage media from the media storage location on your Control4 *controller* at: **\\<ip address of Control4 controller>\media\audio**.

3   Continue to the next section.

Check the currently installed Composer version

It is helpful to check the currently-installed Composer Pro version before installing the update to make any necessary project adjustments.

To check currently installed Composer Pro version:

1   In Composer Pro, click **Help** > **About Composer**.

2   From the dialog that appears, write down the Composer Pro and Director versions.

Example: Composer version 2.3.0.190646 and Director version 2.3.0.190646.

To ensure that the Control4 system is working properly, the Composer Pro and Director versions should always be consistent and have the same version number.

Note: You do not need to be on a certain version, however, to update. Update Manager updates the Control4 system from all previous releases. The only reason you need to know this information is to determine when your project was set up. Control4 always recommends that you write down these versions in case this information is needed later.

3   Continue to the next section.

Update Composer software and drivers

The Composer Pro software download consists of Composer Pro software and new or updated device drivers to support Control4 hardware and other third-party products. The following steps outline how to launch the software executable and ensure that you have the latest drivers.

Note: The Inspector utility can be used to verify each package after installation. Inspector reads all of the md5sums in the /var/lib/dpkg/info directory, and runs a new md5sum against them. Any missing files or files where the md5sums have changed are reported in /tmp/Inspection.$timestamp.

To install a released Composer Pro software version:

The following steps are an example of a software installation. Refer to the Release Notes associated with the software release for specific instructions.

1   Download the software package from the Internet at www.control4.com.
2   Install the current Composer Pro software, for example, Composer Pro 2.4.0.
3   Follow the on-screen instructions to complete the installation.
4   During the installation process, click the **Continue Anyway** button for the installation to proceed.
5   Continue to the section, "Update Control4 Products Using Update Manager."

(Optional) To ensure the driver database is updated:

1   From the Driver menu, select **Manage Drivers**. In the utility, you can see the creation and modification dates for all drivers in the local database residing on your computer.
2   Click **Add** to search the online database, and compare the modified dates to determine if a new driver is available.
3   If a newer driver is available and you want to download it, **check** the box next to the device model number, and click **OK** to download the newer associated driver.

*Tip: When Composer Pro is first installed, the My Drivers tab is pre-populated with a list of drivers. The My Drivers tab provides shortcuts to commonly-used drivers. You can add, remove, and re-order items to the My Drivers tab as needed. Removing drivers from My Drivers tab only removes the driver from the list. It still exists in the Local Database. To get back to the default My Drivers tab list and to include newly-added Control4 devices, right-click any **device** and click **Restore Default List**. This action does not affect the Local Database in any way. Also, right-click the **My Drivers** tab, select **Add Driver**, and then select all the Control4 devices not currently in the list.*

Note: Devices that use SDDP for Auto Discovery (OS 2.2.4 and later) do not require you to identify the device; just add the device to the room. See the Composer Pro Getting Started guide for details.

Update Control4 products using Update Manager

Refer to the following sections to guide you through the update process:

- Update from Release 1.7.4 to 1.8.2. See "Update from Release 1.7.4 to 1.8.2."
- Update from Release 1.8.2 to 2.0. See "Update to Release 1.8" or "Update to Release 2.0."
- Refer to the Release Notes in subsequent releases for additional update instructions.

Update from Release 1.7.4 to 1.8.2

Use Control4 Composer Pro to update your system from Release 1.7.4 to Release 1.8.2. Detailed instructions about how to update from Composer Pro Release 1.7.4 to 1.8.2 are not included in this document. For those instructions, refer to the *Composer Pro Software Update Instructions - Release 1.7.4 to 1.8.2* on the Control4 dealer Documentation page. The document provides general steps, terms and concepts, and what to prepare for prior to performing the update. It then describes the steps for the update.

Ensure that Composer Pro and Director are using the same version of 1.7.4, and that all devices are identified on the network before starting this update.

What's new in the update?

Release 1.8.x introduces support for ZigBee Pro 1.1. During the update from 1.7.4 to 1.8.2 all ZigBee devices will be updated to run on the ZigBee Pro stack which requires a complete replacement of the firmware on all devices. This enhancement allows Control4 to operate with other ZigBee Pro-compliant devices which opens up a whole world of new devices that are compatible with the Control4 system.

Highlights of the update

- New terms such as ZigBee Access Point (ZAP), ZigBee Pro, MiniApp, and EmberNet are introduced and described.
- Two (2) stages of upgrade occur for MiniApps (dimmers, switches, keypads, and outlet modules): the ZigBee Pro stack is installed, and then all the devices must be joined to the network. When updating the MiniApps, special LEDs on the devices indicate their status.
- Products not supported with ZigBee Pro:
  - System remote control V1 and V2
  - LCD keypad (use Ethernet)
  - Contact∕Relay extender (use Ethernet)
  - Audio products (audio matrix switch, multi-channel amplifier, and multi-tuner). Use Ethernet.
- The Network Tools screen (formerly Network Status) has a new tab for EmberNet Upgrade. This shows all of the devices on the current network that haven't been updated to ZigBee Pro.

Update to Release 1.8.2

Use the Control4 Composer Pro Update Manager to update to Release 1.8.2.

IMPORTANT! To update to Release 1.8.2, the Control4 system first must be updated to Release 1.7.4. After that, follow the instructions in the Composer Pro Software Release Update Instructions - Release 1.7.4 to 1.8.2 on the Control4 [Knowledgebase](#).

Update to Release 2.0 and later

Use the Control4 Composer Pro software to update to OS 2.0.

Note: Before you begin the update, ensure that the Control4 system has been updated first to Release 1.7.4 and then to 1.8.2. Also, ensure that you have installed Composer Pro 2.0.

For update instructions, refer to

- *[Composer Pro Software Release Update Instructions - Release 1.7.4 to 1.8.2](#)*
- *[Composer Pro Software Release Update Instructions – Release 1.8.2 to 2.0](#)*
- *[Control4 System Software Release Version 2.0 Release Notes](#)*

on the Control4 Dealer website or on the Control4 Knowledgebase. These documents provide important terms and concepts that you must understand, and what to prepare for prior to performing the update. It then describes the steps to follow to complete the update.

To install updates later than OS 2.0, follow the instructions in "Updating Composer and Director."

Updating with a USB device (USB Stick Creator)

Create an Install on a USB device

These steps show you how to create an install to a USB device attached to your computer's hard drive and use the same USB device to install your customer's system without an Internet connection.

Note: *You cannot create a USB install for a Sony STR-DA2800ES or STR-DA5800ES receiver. See "Updating Composer and Director" for details.*

Prerequisites

- Have a USB drive handy, formatted for FAT32 with at least 2GB (OS 2.2.2 or earlier) or 4GB (OS 2.2.2 or later) total available disk space.
- Only installs for OS 1.7.4, 1.8.2, 2.1 or later can be created using this procedure. **Note**: This creation procedure does not work on OS 2.0.*x* releases. If you are creating an install using an older software version, refer to *USB Stick Creator White Paper* at control4.com on the Knowledgebase to create the install.
- A valid license on the controller to be updated.

To copy an install to a USB device:

1   Open a browser and go to www.control4.com.
2   Log in as the dealer.
3   Go to Products > Software > Software Updates > USB Installer.
4   Click on the **USB Install Creator** program.
5   Follow the instructions in the *USB Stick Creator White Paper* (located next to USB Installer) to complete the process.
6   Connect the USB drive to your customer's system using Composer Pro, and then follow the instructions in the USB Install White Paper.

Reports

Panelized Lighting reports

Use the Control4 Composer Pro Tools menu to create reports for Panelized Lighting installations (Tools > Reports).

Creating reports in Composer Pro is essential for the electrician to use as a reference before they install and wire the Panelized Lighting devices in the panels. Use the **Tools** > **Reports** option to select and generate the reports.

IMPORTANT! *Before you begin to design and plan a Panelized Lighting system, make sure you attend the Panelized Lighting training sessions and videos, and then review the Panelized Lighting documentation in the Products section on the Control4 website.*
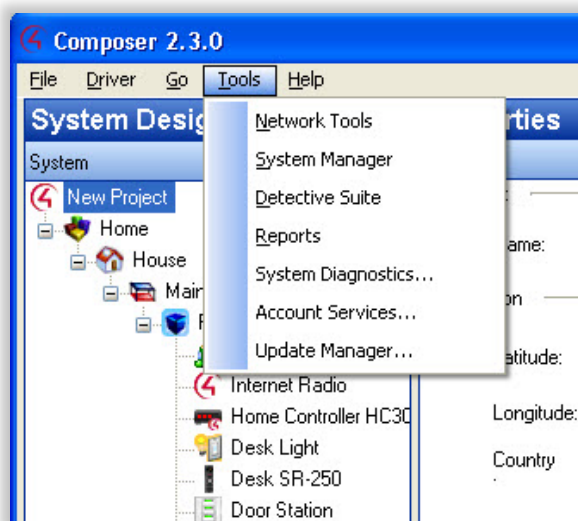
Report types

- **Panel Report**. This report lists all Control4 panels in the project. Each panel shows the modules and associated terminal blocks that should be installed in each slot.
- **Module Report**. This report can be generated for one or all panels in the project. This lists each module, where it goes in the panel, the circuit breaker information for the module, and all loads connected to the module.
- **Load Schedule Report**. This report lists all of the Panelized Lighting lights in the project.

Create a Panel Report

Create and generate this report for Control4 2-Slot or 5-Slot panels.

To create a Panel Report:

1   In the Reports list, select **Panel Report**.
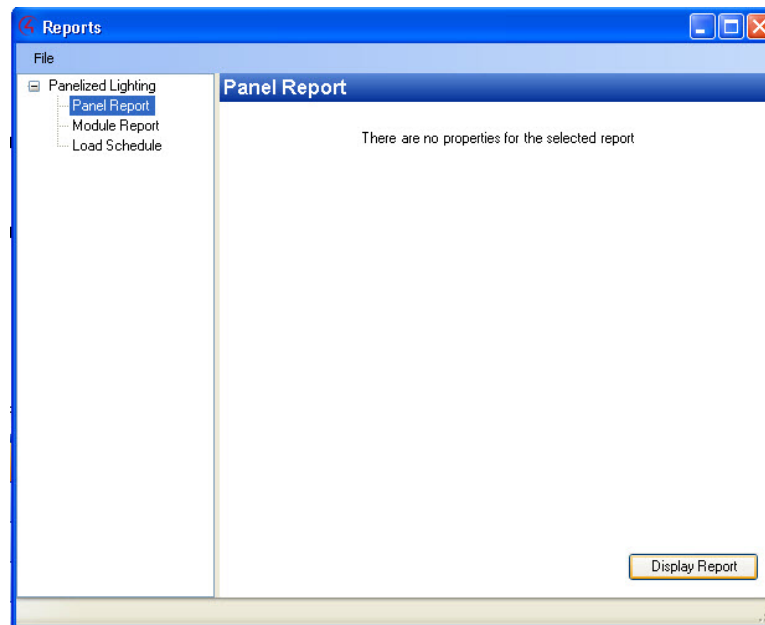
2   Click **Display Report**.
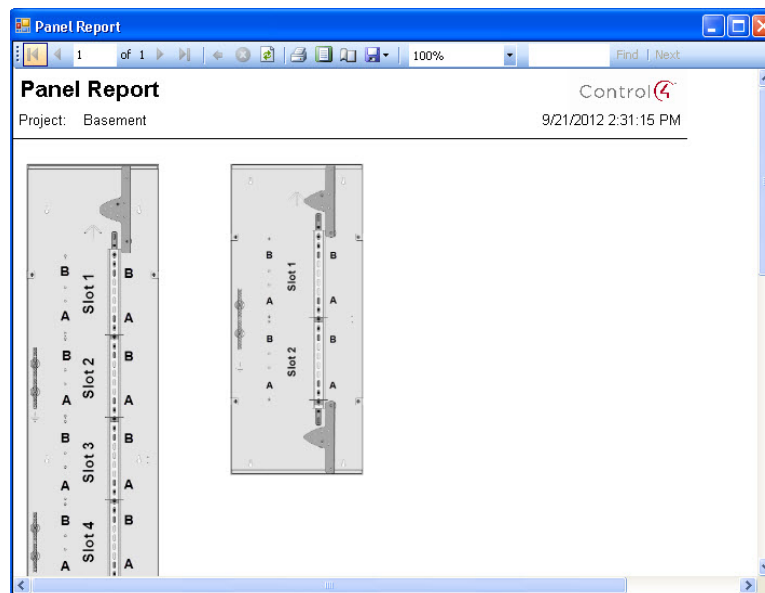
3   View, save, or print out the report. The report shows a graphical view of the panels and where the devices should be installed.

Create a Module Report

Create and generate this report for Panelized Lighting modules.

To create a Module Report:

1   In the Reports list, select **Module Report**.
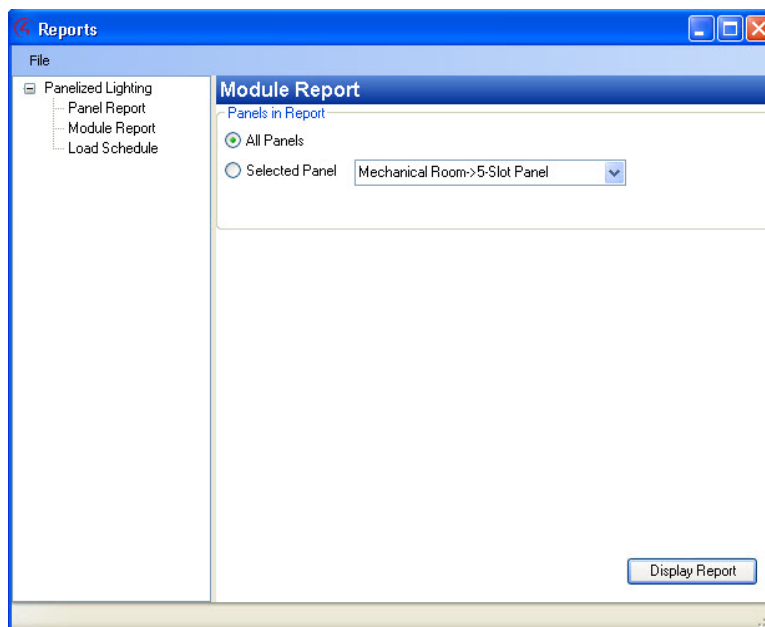
2   Select to create a report for All Panels or a specific panel.

3   Click **Display Report**. This report shows the channels, loads, load name and location, wattage, and power booster.
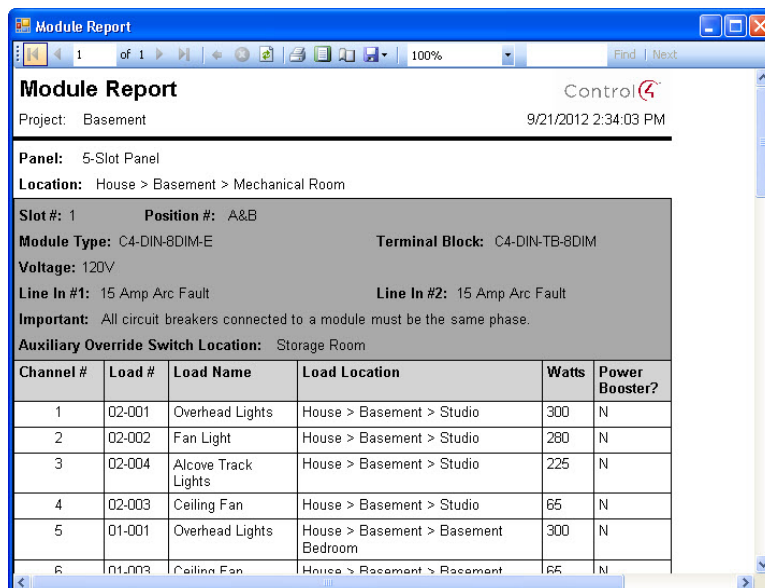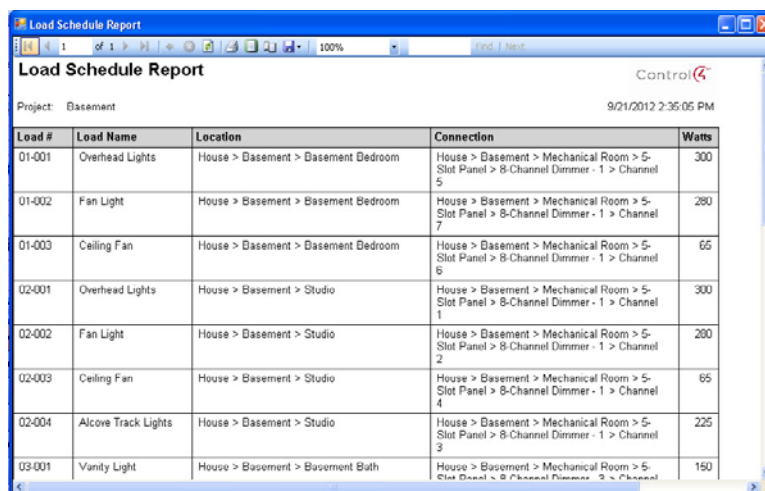
4   View, save, or print out the report.

Create a Load Schedule Report

Create and generate this report for the load schedule.

To create a Load Schedule Report:

1   In the Reports list, select **Load Schedule**.

2   Click **Display Report**.

3   View, save, or print out the report. This report shows the load number, name, and location, the connections and the wattage.

Troubleshooting

Use this chapter to learn how to:

- Follow general guidelines for troubleshooting
- Troubleshoot controllers
- Troubleshoot a Director connection
- Troubleshoot media
- Troubleshoot devices
- Troubleshoot the upgrade process

Guidelines for troubleshooting

This section outlines general troubleshooting guidelines to check first if you are having problems with a Control4® system.

The following table lists the main areas typically found to resolve some issues on the Control4 system.

Guideline	Where to go
Check room connections	Composer Pro automatically sets room connections when you set up a system. These settings are default settings, and may not necessarily match your physical connection. Ensure that the room connections are set to match your specific system. If you move a device to another room, move it in the project tree also, and then identify it again to make sure it's connected properly. For more information, see: "Connecting rooms" "Testing device controls"

Guideline	Where to go
Check Control/AV connections	The Control and AV connections identify the physical connections to the system. When these are defined, the system is completely automated and programmable. However, if one of the connections is not correctly identified, it can cause the system not to run properly. Ensure that the control and AV connections match the physical configuration. For more information, see: "Control/AV tab" (see *Composer Pro Getting Started*) "Control and audio video connections" (see "Control/AV tab" in *Composer Pro Getting Started*)
Check network connections	If a device is not using a control connection to communicate to the Control4 controller, it uses a network connection: a type of connection that uses a network address such as TCP/IP (Ethernet), ZigBee, ZigBee Pro and WiFi. 1. Ensure that the network connections viewable in the Connections view > Network tab all have a network address associated with the device. If not, identify the device again. 2. Ensure that the Control4 controller, such Home Controller HC-250, has a network address. If the address is not appearing, identify the device again. From the Tools menu, select **Network Tools**. This lets you see all of the ZigBee and IP network addresses on the network. It shows whether the device has an address, if it has an active connection to the network (status is online), and the ZigBee signal strength of each device. For more information, see: "Network Tab" (see *Composer Pro Getting Started*) "Network Tools Dialog" (see "Tools menu" and "Network tools dialog" in *Composer Pro Getting Started*) Connecting a Device to the Network (see "Connecting devices") "Cannot identify the device to the network" "Verifying the network connections"
Ensure Navigators are connected to Director	From any of the Navigators, press **Info** > **Director** (for releases prior to 2.0) or **More** > **Settings** > **Network** (OS 2.0 or later) to ensure that you are connected to the Control4 controller's network address. You can find out the Control4 controller's network address from the Connections view > Network tab. For more information, see "Customizing Navigators."
Ensure music is added and scanned	In Composer Pro, ensure that your music is available (added to the controller) and is scanned into the system. 1. Make sure the stored or broadcast media is added or scanned. 2. Check the Room Properties page to see if the media was added. 3. Ensure that Navigators were refreshed after scanning media. 4. If the controller reboots, re-scan the media. For more information, see: "Items pane" (see *Composer Pro Getting Started*) "Setting up media stored on a controller" "Setting up media stored in a disc changer" "Setting up media for television channels" "Setting up media for radio stations" "Using external storage devices" "Adding an audio switch or audio/video switch"

Guideline	Where to go
	"Creating a playlist" "Editing media information" "Testing media control"
Refresh Navigators	Whenever you update the system, scan music, or update devices or device information, from the File menu, select **Refresh Navigators**.

Troubleshooting controllers

The following table lists troubleshooting problems on Control4 system controllers.

Symptom	Possible problems and solutions
The controller has N/A for IP address	1. The controller has no network connection. Plug in your Ethernet cable. After a few moments, the addresses should appear. 2. The power cable is not plugged in. Plug in your power cable. 3. No DHCP on the network. Ensure that DHCP is operational.
The controller has a blank front display	1. Either your cables are unplugged, or they are not connected. If both are connected, unplug them and connect the Ethernet cable before connecting the power cord. 2. The controller is not connected to a cable/modem/switch/ using DHCP. 3. Ensure that the Reset button is not jammed behind the plastic cover (older controllers only).
The controller doesn't come back up after a power outage	To receive a notification of the controller going down and coming back up, set up an Email Notification agent to alert you when the project is loaded and the controller comes back up. When you create the alert, place the alert on the project (Device Events top level). See Example: "Program using the E-Mail Notification Agent."

Rebooting the Control4 system

At one time or another you may have configured the Control4 system incorrectly, or the connection to the network is not behaving the way it should. In this case, you can reboot or reset the system. You don't have to do anything in Composer Pro other than check that the device you reboot is on the network.

To reboot a controller:

1   Disconnect the power cord from the controller.

2   Plug the power cord back into the controller.

3   Verify that the controller comes back on the network in Composer Pro. See "Connecting a device to the network" or your controller's installation guide for details.

Note: *To reboot a Sony STR-DA2800ES/DA5800ES receiver with full Control4 automation, unplug the receiver and plug it back in. See the* Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide *on the Documentation page or Product page for details.*

Resetting the Control4 system

Use the Control4 system Composer Pro to reset a controller. You reset a controller to reset it back to the factory defaults. Refer to your controller's installation guide for reset and factory restore instructions.

Note: *To reset or restore a Sony STR-DA2800ES/DA5800ES receiver with full Control4 automation, see the* Sony STR-DA2800ES/DA5800ES Receiver Control4 Automation Activation Guide *for details.*

Troubleshooting a Director connection

The following table lists troubleshooting problems connecting to a Director.

Symptom	Possible problems and solutions
Cannot see the Network Address of Director in the Director's dialog	1. In Tools > System Manager, click **Refresh** several times to see if the network address appears. 2. If not, select **Add** and enter the name and network address. 3. Make sure Director is enabled on the controlling device. a. At a command line, enter **telnet [controller IP address]**. b. Enter the **root username** and **password**. c. Enter **sysman status**. d. If Director is not enabled, enter **sysman enable director**. e. Enter **sysman status** and verify the Director is now enabled. f. Enter **exit**.

Troubleshooting media

The following table lists troubleshooting problems with Control4 system media.

Symptom	Possible problems and solutions
DVDs not showing up in the disc changer	Ensure that you have a serial disc changer. Only bi-directionally-controlled serial disc changers can scan media. If you have a serial disc changer, see the following: 1. Ensure that music is added and scanned 2. Check these sections: "Setting up media stored in a disc changer" "Connecting rooms" "Checking control/AV connections" "Connecting a device to the network"
Cannot play music or music channels not appearing in the Navigators	If music is not running, see the following: 1. Ensure that the Navigator is connected to Director. See *Composer Pro Getting Started*. 2. Ensure that a room is appearing on the Navigator. If not, click the room and change the room to one that can play music. 3. Ensure that music is added and scanned. 4. See "Connecting rooms."

	5. See "Checking control/AV connections."
	6. See "Connecting a device to the network."
	7. Refresh the Navigators. See the *Composer Pro Getting Started*.

Troubleshooting device control

The following table lists some control problems on Control4 system devices.

Symptom	Possible problems and solutions
The Device is not Controllable from a Navigator	If the device, such as a dimmer, is not controllable from the Device Control window (double-click the device from the project tree); no connection exists. Refer to the following sections: "Connecting rooms" "Checking control/AV connections" "Connecting a device to the network"

Troubleshooting Navigators

The following table lists troubleshooting problems with Control4 Navigators.

Symptom	Possible problems and solutions
Not seeing Room Location on the Navigators	From a Navigator (on screen or touch screen), ensure that the device is connected to Director. See "Connecting rooms." Check the connections: 1. For an on-screen Navigator, see "Checking control/AV connections." 2. For touch screens, see "Connecting a device to the network."

Troubleshooting driver creation

The following table lists troubleshooting problems when creating Control4 drivers.

Symptom	Possible problems and solutions
IR Learning is not working	1. A controller must exist in the project to run IR Learning. Add a controller. 2. The process of capturing IR codes is very sensitive to lights, such as sunlight, fluorescent lights. If it is not working properly, turn off the lights or cover the physical hardware so that the light cannot interrupt the code capture. For a complete list of IR capturing guidelines, see "Guidelines for capturing IR codes."

Troubleshooting dimmers, switches, and keypads

The following table lists troubleshooting problems with Control4 system dimmers, switches, and keypads.

Symptom	Possible problems and solutions

Dimmers, switches, or keypads are not behaving correctly	1. **Reboot**. Try rebooting the device by tapping the **top** button 15 times. On the 6-Button Keypad, this is the top left button. This action reboots the device, but does not clear programming associated with the device.
	2. **Reset**.
	    a. Tap the **top** button 5 times.
	    b. Tap the **bottom** button 5 times.
	    c. Tap the **top** button again 5 times. If you are using the 6-Button Keypad, this is the top left and bottom left button. This clears all your network connections.
	    d. Go back into the **Connections** view > **Network** tab, and identify the device again after resetting.

Cannot identify the device to the network

This section provides troubleshooting instructions to identify a Control4 system device on the network.

If you cannot identify a device on the network, follow these steps until the problem is resolved:

1   Make sure the Control4 controller is identified in Composer Pro. In the Connections > Network tab, see the line item for the Control4 controller. Is there a network address for the controller?

2   (Controller only) In System Design, select the controller object to check the Zserver status. Is the Zserver running? If not, click **Enable**.

3   If the controller is identified and Zserver is running, check whether any other devices identify. Do they?

- If **yes**, a problem exists with the individual device. On switches, dimmers, and keypads, if you tap the top of the button **9** times, the bottom **9** times, and the top **9** times again (pause for a breath in between each 9 count), this will reset the device. Doing the same thing with 7, 4, and 7 will make the device's LED flash the channel it's on (if it's on Channel 14, it will flash 14 times). If the channel doesn't match the one for your system remote control and controller, the channel will need to be changed. Call Control4 Technical Support.

  Note: *For Release 1.8 and later, ZigBee Pro devices select one (1) channel. Control4 recommends that you not change the channel; Zserver determines which channel to use automatically based on the available frequency space. Refer to the* Composer Pro Software Release Update Instructions - 1.7.4 to 1.8.2 *on the Control4 Knowledgebase or on the Dealer website for details.*

- If **no**, some other devices in the house may be causing interference. Power down any 2.4 GHz devices, such as microwaves and cordless phones. Continue to the next step.

4   Will the devices identify now?

- If **yes**, something in the house is causing interference. Replace it, or reset the channel on all of your devices. You cannot reset the channel on wireless dimmers, switches, etc., at this time. Call Control4 Technical Support.
- If **no**, a problem exists with the controller's radio transmitter. Call Control4 Technical Support.

Troubleshooting the upgrade process

Follow these guidelines if you are experiencing Control4 upgrade or update problems.

Basic troubleshooting guidelines

1   Reset the device's network settings. See "Resetting the Control4 system."
2   Attempt to have the update successfully downloaded while connected to a different network or by using a USB drive update (see "Information about older releases").
3   Allow the device to retry downloading the update as it automatically restarts and retries it.
4   Is the defect install/update related to an ongoing system operation?
5   Media not available? If it is a USB drive or network file share, make sure it is mounted (use the System Design view). If the media is on USB drive connected to a secondary controller, re-scan the media for that device.
6   Navigator not connected to Director? Reconnect Navigator to Director.
7   Are strange things happening to the devices?

- Make sure all ZigBee devices are updated to the latest firmware.
- Make sure Director and Composer Pro are using the same version.
- Disconnect and identify any problematic devices again.
- Power cycle all IP devices.
- **Be patient**. In cases where the ZigBee mesh is moved, it can take up to five minutes for all connections to get re-established.

8   Turn on Diagnostic Logging (in Composer Pro, **Tools** > **System Diagnostics** > **Logging** > **Start**). Use the Logging tool to determine what was happening on the system. Can you duplicate it, and is there a workaround? For details, see "Logging Diagnostics Information."

Tip: Report any problems during the update process to:

Control4 Technical Support:
http://www.control4.com/residential/products/resources/#techsupport
Email: support@control4.com
Telephone: 1-888-400-4072

Status message	Description	Resolution
1. Device IP address detected with a different version — update needed.	The Director discovered a device that is a different version than the Director box.	Perform update.
2. Device IP address indicated it needs to be updated.	The device sent a status message to the Director that says it needs to be updated.	Perform update.
3. Finished update attempt.	Current update is completed. A separate message notifies you of how many devices succeeded or failed.	(Status message only) No action is required.

Status message	Description	Resolution
4. Update information was missing or invalid. Reinstall the files for the USB drive, and attempt the update again. If the problem persists, contact Technical Support.	A Director could not find the matching update information for a device retrieved from the USB drive. This would be the case if files were deleted from the USB drive.	Re-install the files for the USB drive, and attempt the update again. If the problem persists, contact Technical Support.
5. Update information was missing or invalid. Contact Technical Support.	The Director could not find the matching update information for a device retrieved from the Web. The database contains invalid data.	Contact Technical Support.
6. Director device is not yet identified. Please identify the Director device and attempt the update again.	The system has not yet discovered the Director device.	Identify the Director device, and perform the update again.
7. Starting update to version <targetVersion>. Director version is <version of Director>.	An update has started.	(Status message only) No action is required.
8. Detected USB device containing update information. The USB device will be used for the update.	The system has detected a USB drive.	(Status message only)
9. Device <ipaddress>: <Status data received from the device>	The system received data from the device.	(Status message only) No action is required.
10. Updated: <number of updated devices> Failed: <number of failed devices>	Follows the message "Finished update attempt" (number 3) to provide specific details.	Reconnect, re-identify, and restart the update.
11. Device <ipaddress> failed to update.	Provides the specific IP address of any device that failed to update. Follows the message number 10 when applicable.	Try to identify the device again, and try the update again. If not successful, contact Technical Support.
12. Failed email results to <entered email address>". Error was: <error number>. Verify that the VPN is correctly setup and functioning on your Director box and that a valid mail address was entered. Contact Technical Support if this problem persists.	This is called if an error is returned when trying to send the summary via email.	Verify that the VPN is correctly set up and functioning on your Director box, and that a valid mail address was entered. Contact Technical Support if this problem persists.
13. Unable to obtain update version information from the Web interface at URL <url used for getting the version, i.e., http://webdev-1.control4.com/...>. Verify that Internet access is available from Director.	System has not received the version information back from the database.	1. Ensure that you can communicate to the Internet to the Website from your computer. Use a prompt box to ping the address. 2. Ensure that you can connect to the Control4 controller through the Local Area Network. 3. Ensure that a firewall is not blocking the update. 4. If you still cannot update, use a USB drive for the installation.
14. Detected devices that still need to be updated. Restarting the update process.	To allow an update to propagate throughout the system, the system waits 5 minutes after the start of the update before checking the status of connected devices. If outdated devices are still detected, this message is sent, and the system restarts the update process.	(Status message only). No action is required.
15. The information on the USB drive is invalid. Reinstall the update on the USB drive and attempt the update again.	The system cannot parse the update-info.html file on the USB drive. The file is not valid xml.	Re-install the update on the USB drive, and attempt the update again.

Status message	Description	Resolution
16. Not enough free space on file system to store update information. Disk free = <amount of free space> needed = <space needed>. Remove stored media, log files, etc., and attempt the update again.	There is not enough free space on the box running Director to store the largest set of packages for a device type.	Remove the stored media, log files, etc., and attempt the update again.
17. Unable to access the directory for update information. Please contact Technical Support.	System cannot access the /packages directory. Either the disk has a serious problem, or the mounts didn't work right.	1. Ensure that you can communicate to the Internet to the Website from your computer. Use a prompt box to ping the address. 2. Ensure that you can connect to the Control4 controller through the Local Area Network. 3. Ensure that a firewall is not blocking the update. 4. If you still cannot update, use a USB drive for the installation.
18. Out of file space for packages.	Ran out of disk space while downloading the software packages. The update fails, then restarts after 5 minutes, and the "Not enough free space" message (number 16) displays.	Remove the stored media, log files, etc., and attempt the update again.
19. Device <ipaddress> failed because it reported a status of <reported device status>.	The device reported that it failed to update.	Try to identify the device again, and restart the update. If it fails again, contact Technical Support.
20. Touch screen device at <IP address> must be docked before upgrading. Please dock the touch screen and restart the update.	A Wireless Touch Screen was not properly seated in its dock when the update started.	Please dock the touch screen, and restart the update.

Diagnosing trouble spots

Use the Control4 System Diagnostics tool in Composer Pro to view, monitor, and troubleshoot a Control4 system.

System Diagnostics tool

The Control4 system includes many devices running embedded operating systems communicating over a wired or wireless network. During installation, configuration, and troubleshooting, the ability to look at the overall status of the components becomes very useful.

The System Diagnostics tool lets you gather system information to help you determine if any issues encountered are configuration problems, performance issues, or potential defects.

System Diagnostics uses

Possible uses of the System Diagnostic tool include:

- Viewing controller performance information:
  - CPU usage
  - CPU usage history
  - Memory usage
  - Memory usage history
  - Processes running

- Viewing controller networking information:
  - Network type
  - Connection status
  - MAC address
  - IP address
  - Subnet mask
  - Gateway
  - DHCP status
  - DNS server information
  - View system information
- Viewing system information:
  - Detailed lower-level information about the devices listed
- Viewing logging information:
  - When troubleshooting a problem that is reproducible, use the System Diagnostics tool to capture logged information while reproducing the problem to email to Control4 Technical Support.
  - When troubleshooting a problem that is not reproducible, connect the controller, enable logging, and allow the logging to continue running for a specified period of time to capture the problem. The logs are then captured and emailed to Control4 Technical Support.

Use the Control4 Composer Pro System Diagnostics tool to view, monitor, and troubleshoot a Control4 system. The diagnostics information is organized into four (4) tabs:

- Controller Performance
- Controller Networking
- System Info
- Logging

To access the System Diagnostics tool:

1   Start Composer Pro and connect to a Director.
2   On the menu bar, click **Tools** menu, then click **System Diagnostics**. The tool is available over a LAN connection using remote access.
3   Use the tool to diagnose problems on your own, or capture and send information to Control4 Technical Support.

System Diagnostics interface

Controller Performance

- **Controller Performance**—Lets you view controller performance information, including CPU and memory usage.

  1   Click the **History** button to view the history of the CPU and memory performance.
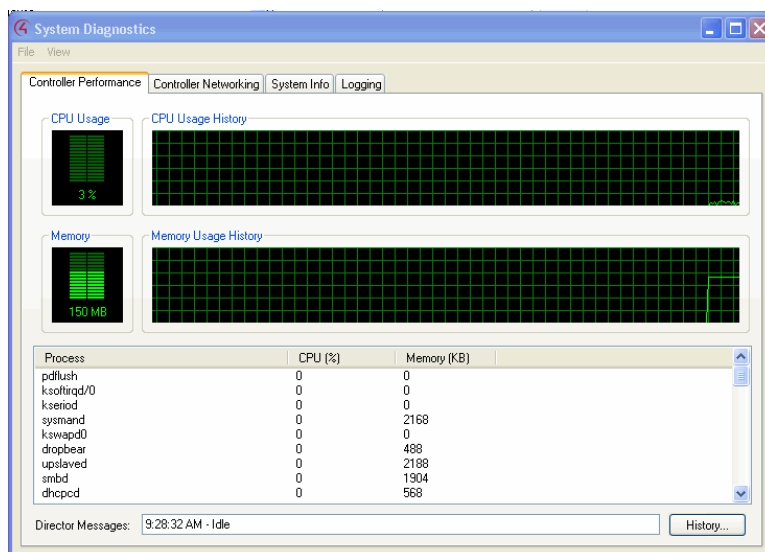
Controller Networking

View controller networking information, including network type, connection status, MAC address, IP address, Subnet mask, Gateway, DHCP status, and DNS server information.

1   Click the **Test Internet Connection** button to test the current Internet connection.
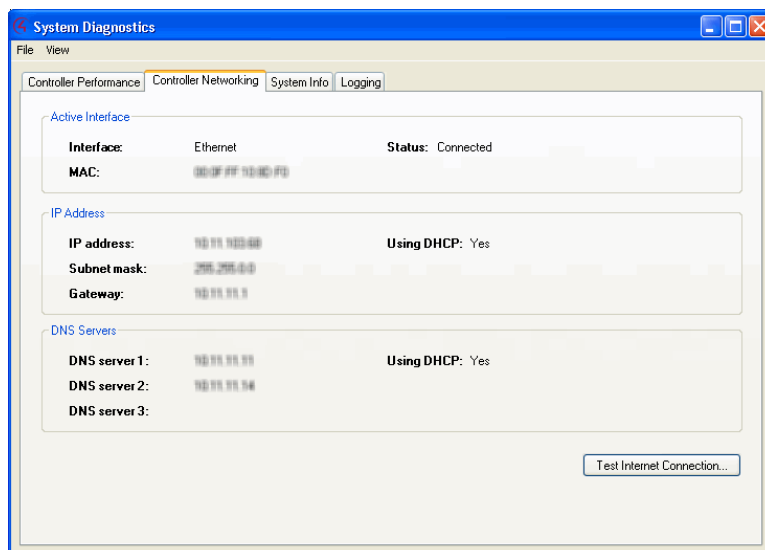
System Info

View detailed system information.

1   Click the **Save to File** button to specify the location and filename for a text-file version of the output.
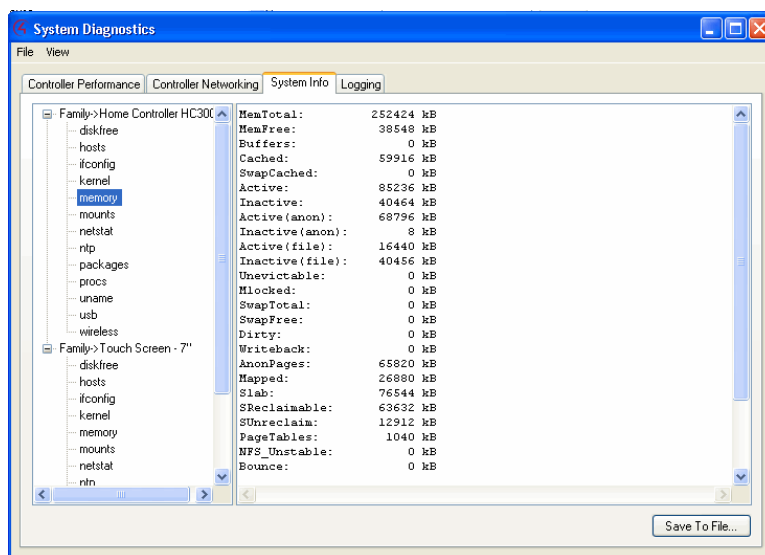
Logging

-   Log system problems.
1   Click the **Start Logging** button to indicate what type of logging you want displayed, and then allows you to "Start" the logging process.
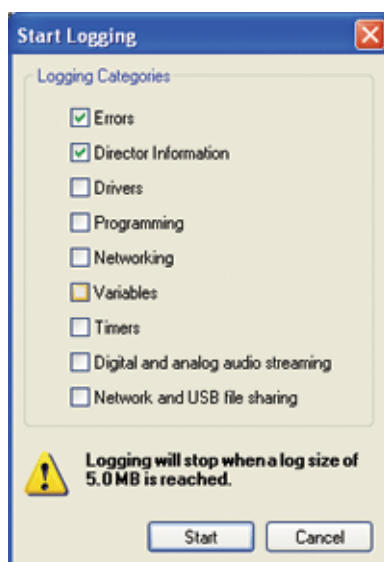
2   Click the **Stop Logging** button to stop the tool from logging information.
3   Click **Open Controller Log** to view the logged information in a file.

Viewing controller performance information

Use the Control4 Composer Pro System Diagnostics tool (**Tools** menu > **System Diagnostics**) to view controller performance.

The Controller Performance tab contains information regarding CPU and memory utilization for the Primary Controller of the project. Asynchronous messages from the Director regarding its current state are also displayed.

To view controller performance information, including CPU and memory usage:

1   Start Composer Pro and connect to a Director.

2   From the Tools menu, select **System Diagnostics**. The Controller Performance tab is viewable by default.

3   View information displayed on the Controller Performance tab:

- **CPU Usage**—Shows a graphical form of current CPU usage and CPU usage history for the primary controller, which is the Control4 controller used to control the system if multiple controllers exist on a system.

- **Memory Usage**—Shows in graphical form the current memory usage and memory history for the primary controller.

- **CPU and Memory Usage by Component**—Shows percentages of CPU and memory use per component.
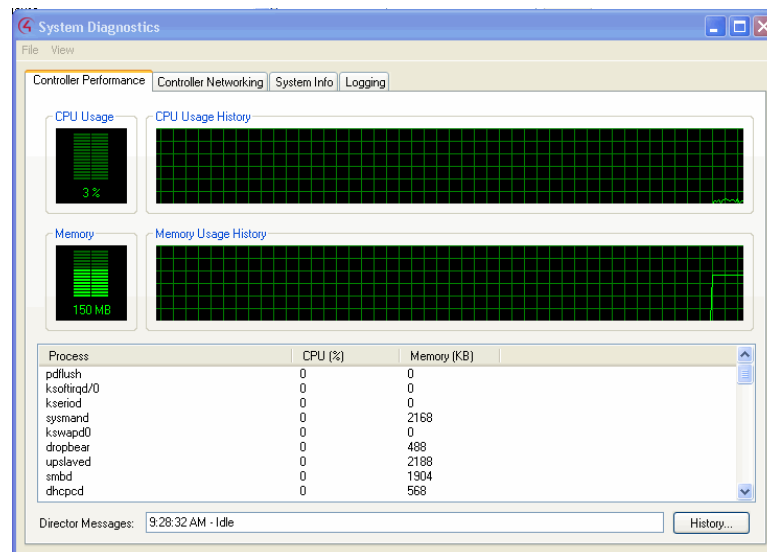
4   Refresh the screen or update the speed. To do this, from the View menu you can:

- **Refresh Now**—Restart the real-time display of CPU and Memory usage.

- **Update Speed**—Change the speed to High, Normal, Low, or Paused.

5   View the Directory messages by clicking the **History** button.

Using the controller networking information

Use the Control4 Composer Pro System Diagnostics tool (**Tools** menu > **System Diagnostics**) to use controller networking information.

View the information, including:

- Network type
- Connection status
- MAC address
- IP address
- Subnet mask
- Gateway
- DHCP status
- DNS server information

To use controller networking information:

1   Start Composer Pro and connect to a Director.
2   From the Tools menu, select **System Diagnostics**, and then click the **Controller Networking** tab.
3   Ensure that the network information shown is reflective of your network.
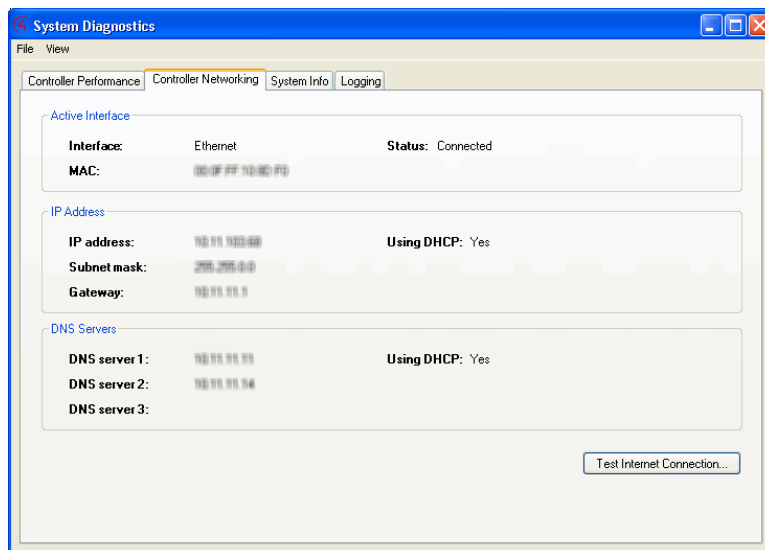
4   To test your Internet connection, click the **Test Internet Connection** button. The screen
displays the current status of networking services, including the *CD* & *DVD* Lookup Service,
Media Web Service, and Updates Web Service.

This screens shows that the example services failed.
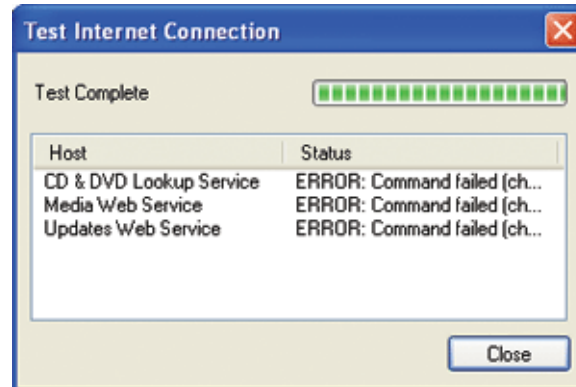
5   Click **Close** to exit the dialog box.

Using system information

Use the Control4 system Composer Pro System Diagnostics tool (**Tools** menu > **System
Diagnostics**) to use system information.

View System Info current configuration settings, state of the primary controller and any other
Control4 device in the Control4 system's current project. The information displayed is a summary
of several commands.

To use system information:

1   Start Composer Pro and connect to a Director.

2   From the Tools menu, select **System Diagnostics**, and then click the **System Info** tab.

3   Select a **device** or **sub-category** (expanding the list as needed) in the left pane to display
the system configuration information in the right pane.
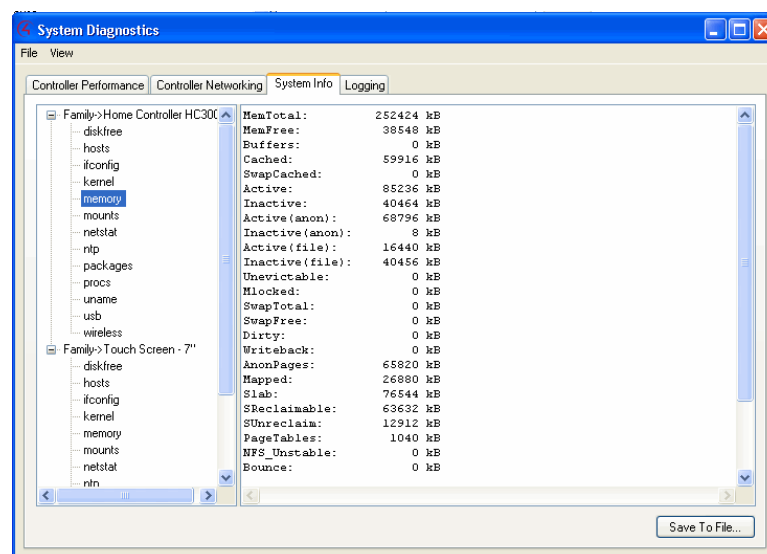
4 To save the displayed information to a file, click **Save to File** and specify the location and name for the file.

Logging diagnostics information

Use the Control4 system Composer Pro System Diagnostics tool (**Tools** menu > **System Diagnostics**) to use the logging feature and log files.

View Logging to configure, start, stop, and schedule diagnostic logging of the Control4 system.

- **Capturing Information While Reproducing a Problem**—When troubleshooting a problem that is reproducible, use the System Diagnostics tool to capture logged information while reproducing the problem to email to Control4 Technical Support.
- **Enabling Logging for Debugging**—When troubleshooting a problem that is not reproducible, connect to the controller, enable logging, and allow the logging to continue running for a specified period of time to capture the problem. The logs are then captured and emailed to Control4 Technical Support.
- **ZigBee and I/O Communications**—These items are available for logging in System Diagnostics.
- **DirectorState.corrupt**—If for any reason Director is unable to load a project file, it is saved to DirectorState.corrupt prior to loading a clean project file (Tools > System Diagnostics > Logging).

To use system logging:

1 Start Composer Pro and connect to a Director.

2 From the Tools menu, select **System Diagnostics**, and then click the **Logging** tab.
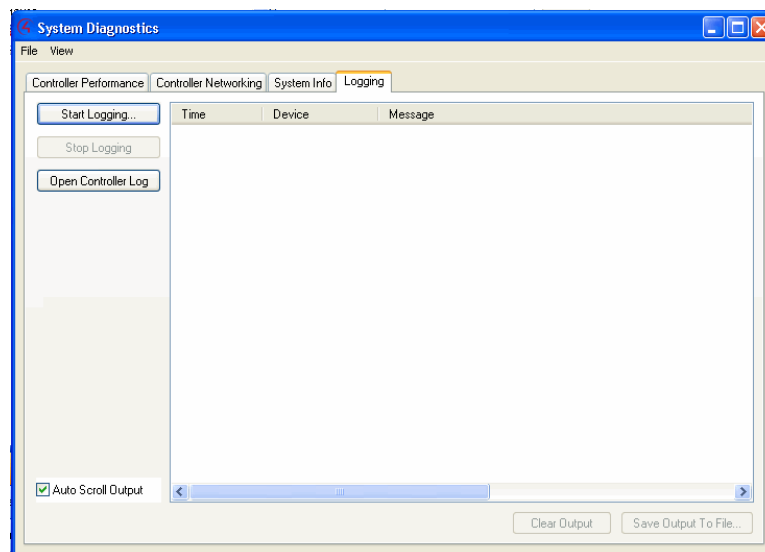
3 To enable logging, click **Start Logging**, and then select whether to save the information currently displayed (if any).

4   Select the logging categories, and then click **Start**. The results are displayed.
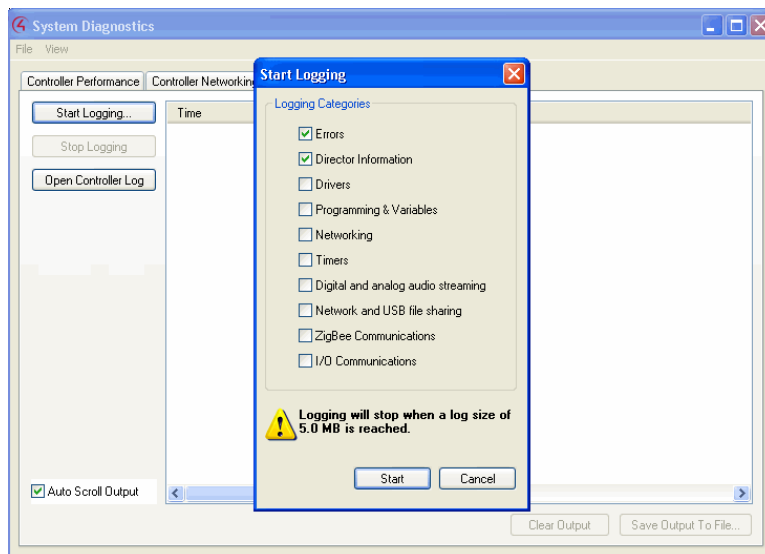
5   (Optional) To save the log, but continue logging the results, click **Clear Output**. The logging feature remains enabled, but a Save As dialog box lets you specify the location and name of the text version of the log.

6   (Optional) To save the log and disable the logging process, click **Stop Logging**. The logging feature is disabled, but a Save As dialog box lets you specify the location and name of the text version of the log.

7   To view the controller Log, click **Open Controller Log**.

Glossary

4

4Sight: An Internet service that provides a connection to the home automation system any time and from any place worldwide.

A

AAC: Advanced Audio Coding. A successor to the MP3 format. A standard, lossy compression and encoding scheme for digital audio. Touts better sound quality.

action: An activity that occurs when an event prompts it to do so.

agent: In Control4 programming, agents provide the ability to perform complex programming by using functional modules. There are various types of agents; for example, Announcements, Email Notifications, Scheduler, Lighting Scenes, Wakeup, etc.

AV: Audio Video

B

Boolean: The computer logic used to determine if a statement is 'True' or 'False.'

button-link binding: The LED colors used based on the device; the Installer can set these colors independently from the device to which the colors are bound.

C

CD: (Compact Disc) - An optical disc that stores digital data. This format is compatible with Control4 products.

client: A software or hardware device that communicates to a server for feedback from the server via an application for the user.

Command: A 'do' statement; actions the Director communicates to a device.

Composer: The Control4 software used to design and define a Control4 home automation system.

Composer Pro: Composer is used to set up and configure Control4 devices to communicate with each other in a home automation system.

conditional: An 'if' statement that asks a true/false questions which are acted upon in Composer programming.

configuration worksheet: Used in Composer software training to design and configure a project in Composer.

connection: Binding or linking devices together in Composer so they can communicate with each other.

contact: Contacts are generally used to monitor the status of something (door, window, water sensor, etc.) and can be hooked up through a security panel or directly using a Control4 controller or Contact/Relay Extender. Contacts connected to a Control4 controller or contact/relay extender can be configured either as NC (normally closed) or NO (normally open).

Control4 system: A home automation system designed and developed by Control4.

Controller: The main device that makes home automation possible. There may be multiple controllers within a Control4 system. The controller that runs Director is referred to as the primary controller.

cover art: An illustration of the cover of a DVD or CD album that displays in the Graphical or on-screen Navigators when playing music or watching videos.

CSV: comma-separated value. Can be used when adding media to a Control4 system.

D

device: A component that requires a device driver; code that is used to allow the Control4 system to work with that device.

device driver: Every device in the Control4 system needs a corresponding device driver to control the device.

DHCP: DHCP (Dynamic Host Configuration Protocol) - A protocol used between a network client and a DHCP server (usually a router or access point) that dynamically assigns IP addresses from a pre-defined list to clients on a network.

Director: Each Control4 controller (such as a Home Controller HC-500) ships with pre-installed Director software (Linux based) embedded in the device. The Director communicates with Control4 products and third-party products to enable home automation and interaction of individual devices. Director runs the Control4 devices. Composer Pro is the software used to connect to and program a system Director that resides on a controller.

DriverWorks: The DriverWorks SDK is used to create two-way drivers for audio video (AV) and non-AV devices.

DVD: (Digital Versatile Disc) – A media format for video and data storage.

E

end point: The end point is the final point (device) on the defined path over which audio and/or video content is routed to a room. An example of this would be a TV or Receiver.

Ethernet: Uses Ethernet category 5 (CAT5 or CAT5e) wiring to transfer data. Ethernet uses a star network topology that allows multiple points to communicate to a single point. The Speaker Point® and Mini Touch Screens use Ethernet to communicate to the Control4 controller.

event: An action; used to trigger Composer programming when programming Control4 devices.

F

forward-phase dimming (also known as *leading edge dimming*): A type of phase-cut dimming in which the load is dimmed by cutting off the leading edge of each electrical cycle. This type of dimming must be used with magnetic transformers (magnetic low-voltage loads) and works well for many other load types including incandescent and cold cathode. It should not be used with electronic transformers (electronic low-voltage loads) unless the transformer specifications specifically state that Forward Phase dimming is allowed.

file format: A format used by applications to store/read files.

FLAC: Supported by Control4 for software release 1.8, this is a free, open source, lossless audio codec format that supports tagging, cover art and fast seeking. Audio is compressed with no loss in quality.

full duplex: The simultaneous transfer of data in both directions. For example, on a 5" or 7" In-Wall Touch Screen the caller can send out a call and the receiver on the other end of the call can answer via his or her 5" or 7" In-Wall Touch Screen and then respond.

G

gateway: (router)- Provides a means of communicating between two separate networks.

H

home network: A network installed in the customer's home that provides an Ethernet or wireless connection so that Control4 devices can communicate with each other.

home automation system: The Control4 system: a line of home automation products that communicate with each other over Ethernet, WiFi, or ZigBee for a total home automation experience.

I

intercom: A two-way audio and/or video communication among supported Control4 touch screens.

Interviewer Wizard: An automated setup program in Composer that builds a project for home automation.

IR: A device controlled using a wireless remote control device. Commands are sent via pulses of infrared light to the device.

K

keypad managed: On a keypad, the LED state is controlled by the buttons on the keypad.

keypad unmanaged: On a keypad, the LED state of the buttons is controlled through programming rather than from the keypad buttons.

L

LCD: (Liquid Crystal Display) - A display used with some Control4 interfaces.

LCD Navigator: An LCD device used to control lighting, music, videos, etc., on an LCD screen.

Linux: An operating system used by several Control4 devices.

List Navigator: A system remote control device uses a Navigator that lists the options.

Live Connection: A term used in Composer Pro to indicate an actual connection to the network.

loop: A type of conditional in programming; a 'while' statement; for example, "while the sprinklers are on…"

M

Media Manager: Media information is stored in the Media Manager database, which will permit users to view the media information from the Navigators.

MP3: A music format that makes streaming audio available.

MP4: An audio and video format. Can also store images and subtitles.

N

Navigator: A Control4 Navigator used with the Control4 system to control lights, music, videos, etc. Navigator is software that the customer interacts with using a universal remote control, on-screen Navigator, touch screen, or LCD Screen.

O

on-screen device: Allows you to select the controller (Media Controller or Home Theater Controller) in the room that controls the source for the on-screen display.

P

playlist: A list of songs compiled in a list. The list can be compiled by songwriter, album, song type, or any combination.

Power Over Ethernet (POE): Network cabling that provides Ethernet connectivity and device power over a single cable for Control4 devices.

programming: A machine-readable artificial language used to express computations that can be performed by a device.

project tree: A tree view in Composer where the project is layered by the larger branches (Home, Office, etc.) and then the lower branches (floor, rooms, etc.), and finally to the leaf level (drivers).

R

ramp rate: The rate that a dimmer ramps up its voltage.

relay: An electrical switch that opens and closes. A relay is controlled by another electrical circuit.

remote access: The ability to access a device from a remote location.

Remote Director: Connects you to the home network while working in Composer from a remote location.

retrofit: The ability to set up a home automation system in an existing structure or home. Compare this with new building construction.

reverse-phase dimming (also known as *trailing edge dimming*): A type of phase-cut dimming in which the load is dimmed by cutting off the trailing edge of each electrical cycle. This type of dimming must be used with electronic transformers (electronic low-voltage loads), and works well for many other load types including incandescent; some types of dimmable fluorescent and compact fluorescent; and some LED power supplies. It should never be used with magnetic transformers (magnetic low-voltage loads).

RJ-45 jack: An eight-pin jack used to connect CAT5e network cables to devices through Ethernet signals.

router: See gateway. Functions similar to an AP but with additional functionality for controlling the network; for example, coordinating traffic between different networks.

S

SDDP (Simple Device Discovery Protocol): A protocol developed by Control4 to allow devices to be easily added to a control system. It has the ability to leverage other protocols and work on almost any physical layer. SDDP offers four primary functions:

- Enable devices to use Dynamic Host Configuration Protocol (DHCP) while still being able to identify them uniquely.
- Enable Director to discover devices residing within the Control4 system.
- Enable Director to identify devices residing within the Control4 system.
- Enable automatic installation of drivers for discovered devices.

serial-controlled device: Serial-controlled devices with an RS-232 interface and control protocol often have a higher level of controllability than IR-controlled devices. Examples of serial-controlled devices are projectors, multi-disc DVD changers, etc.

switch: An extension of a router that adds more Ethernet ports to support additional devices or clients on the local network.

system event: An action that causes another action; for example, if a projector turns on, it enables the other devices in the system that work with the projector.

system remote: System remote control

system remote control: A Control4 system remote control is a universal solution that replaces system remote control devices from other manufacturers, and includes programmable buttons. This system remote control can access on-screen (graphical) Navigators.

T

touch screen: A touch screen is a home automation system Navigator that controls the home's lighting, music, videos, and other devices on the home automation system.

U

UI (user interface): The preferred term is *Navigator*. The Control4 interface used with Control4 devices to control home automation, such as touch screens, MyHome apps, or on-screen Navigators.

universal remote: Universal remote control. A third-party remote control that can be programmed to replace other remotes in the home so that only one remote is needed, replacing all others. Control4 system remote control devices are a type of universal remote control.

USB (Universal Serial Bus): A format used with USB sticks that plug in to a USB port on Control4 devices.

V

Virtual Connection: A term used in Composer Pro to indicate a connection outside the network.

Virtual Director: A connection to a virtual controller only (a PC is the Director host rather than the controller). Projects created or edited here are benign until the saved project is loaded onto a controller.

W

WAP: Wireless Access Protocol. The protocol used to enable wireless access of Control4 devices.

WiFi: Uses bi-directional wireless technology to transfer data. WiFi (wireless fidelity) devices "connect" to each other by transmitting and receiving signals on a specific frequency of the radio band using a wireless access point. This technology uses the star network topology. WiFi uses high bandwidth 802.11.

wired network: Uses Ethernet Category 5 (CAT5) wiring to send and receive data between devices connected to a network.

wireless access point: A router extension with an antenna that communicates with WiFi devices and clients in the home. A wireless hub that connects to the wired network, and distributes the wireless signal.

wireless switch: Uses the ZigBee. UL listed dimmer. Single or multi-gang. Has an air gap to cut power.

WLAN: Wireless local area network.

WMA (Windows Media Audio): – Audio data compression technology developed at Microsoft; an audio file format that competes with MP3.

Z

ZigBee: A wireless network that uses bi-directional wireless mesh network technology to transfer messages from one device to another. Unlike a star network topology where devices can only send messages to each other by sending them first to a single central device (which then delivers the message to the recipient device), a mesh network topology allows the devices to forward messages from one device to another, thereby extending the effective range of the network. Uses low bandwidth 802.15.4. 250 devices are allowed per controller but Control4 recommends 125.

ZigBee Pro: The 1.1 version of ZigBee that provides improvements in standardization by: allowing more interoperability with other Control4 devices, support for home automation profiles, and improves the scalability of multiple ZigBee access points.

Zserver: A ZigBee server that contains software which runs on a Control4 HC-class controller.

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