Composer HE User Guide
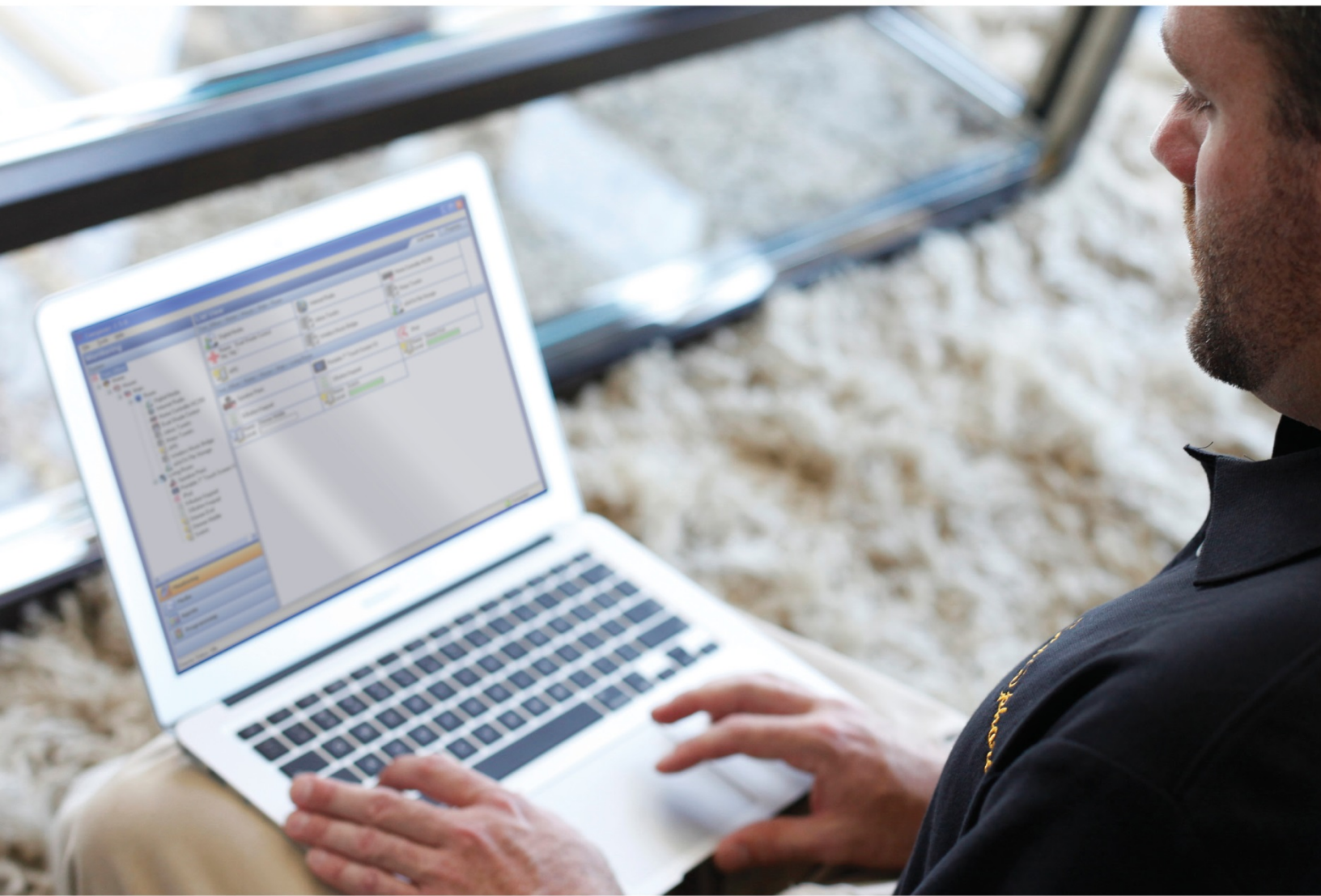
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All Media Guide

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Composer Home Edition User Guide (OS 2.6.0, 9-5-2014 MS)

Contents

Introduction

This document gives you comprehensive information, tips, best practices, and examples about how to use Composer Home Edition (HE) for Control4 Operating System (OS) Release 2.6.0 (OS 2.6.0). Use Composer Home Edition (Composer HE) Monitoring, Media, Agents and Programming views to modify your system.

The purpose of this document is to give you instructions and examples about how to use the Composer HE application to monitor your system, set up your media, program the system, use agents, and other useful Composer HE tasks.

Getting started

For basic startup information, refer to the *Composer HE Getting Started* help in the Composer HE application (located in the menu bar) or in PDF format on the *Control4 website*). The guide also contains information on installation, setup, and getting familiar with the Composer HE interface.

Related documents and resources

You can find the following related documents in PDF (in some instances, web help) format here: *http://www.control4.com/customers/resources#documents*.

- *Composer Home Edition Getting Started* (200-00169)
- *Control4 System Quick Start Guide* (200-00153)
- *Control4 System User Guide* (200-00001)
- *Control4 System Remote Control SR-250 User Guide* (200-00152)
- *Composer Media Edition User Guide* (200-00171)
- *TuneIn User Guide* (DOC-00082) and *TuneIn Quick Setup Guide* (DOC-00079)
- Instructional videos

Monitoring the system

Note: *This section assumes you are familiar with the Composer HE interface. If you are not, see* Composer HE Getting Started*.*

The Control4 Composer HE Monitoring view is designed to help you view your system, rooms, and devices. To access the Monitoring view, start Composer HE. When you choose the Monitoring view (highlighted in the lower left pane), you have two tabs to choose from: List View and Properties.

Monitoring view:

Check the Device Status in List View

The default page in the Monitoring view is 'List View' (first tab, top right) which lets you view all the devices in your Control4 system and their current state.

List View groups devices under the rooms to which they're assigned. In the example above, all of the devices are located in the Living Room because the Living Room is selected in the project tree (Monitoring pane).

- **Monitor Status**

  You can monitor the status of devices in the system. In List View, double-click on the device's icon to bring up the device's controls. Light levels are indicated with slider bars and buttons for on or off state. Each device has a different set of controls.

- **Device Controls**

  You can access the device's controls by double-clicking on any device icon in either the project tree or the List View tab.

:

Double-click on any device with an On/Off option to access the device's controls, for example, a switch. Turn the device on or off; some devices have a color change on the icon in the Device Control and in the List View. See also "Checking the Device Status."

Change Project Properties

The main Composer HE view shows the Properties pane. Click the **Properties** tab to view the properties of the project, room, or device.
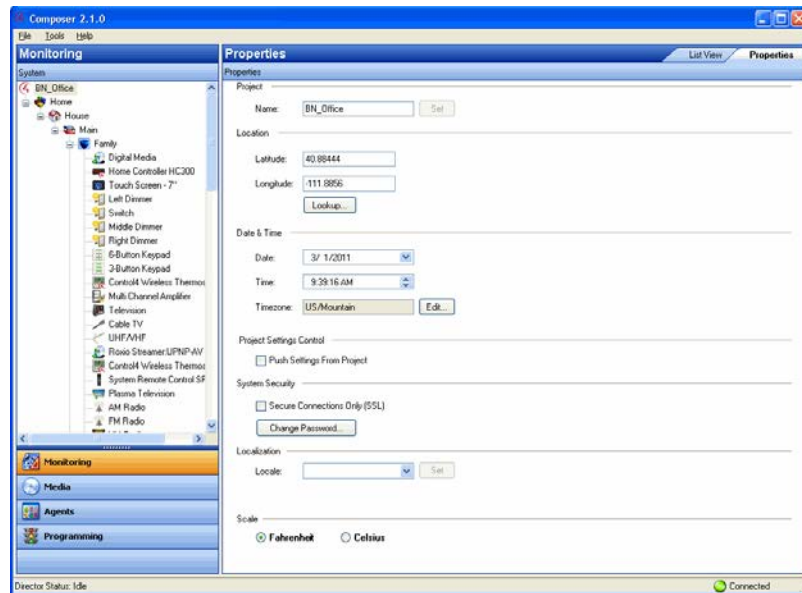
The Properties pane displays the following elements:

- **Project Properties**. This lets you change general information about the project according to the location of the Control4 system. In the project tree, click the **project name** (BN Office is the example above).

  Use the Project Properties pane to do the following:

  - Change the name of the project
  - Change/enter the ZIP Code of the location where the Control4 system resides
  - Change the date and time
  - Change the project settings
  - Enable SSL and password for security purposes
  - Change localization options
- **Room Properties**. In the project tree, click a **room** to view its Properties.

  This lets you edit Room Properties in the following tabs:

  - **Audio Video Devices**. Shows your available audio and video devices, where your audio and video end points are, and what is controlling the volume. If a device does not appear in this window and you think it should, check the connections. The connections may not be mapped properly.
  - **Navigator**. Lets you hide/re-order the device's visibility and display order in a room, including lighting scenes.
  - **Miscellaneous**. Lets you enable the default audio or video volume for a room, and assign an IP mask to the room for programming a third-party remote.

- **Device Properties**. Click on a device from the project tree to see its editable properties. For example, you can set the one-click ramp up and ramp down rates on a Wireless Dimmer. You can also edit the LED colors for all of your switches, keypads, and dimmers.

Control4 recommends that you look over the properties of each device to see how you can change them.

See also "Checking the Device Status" (next) or "Changing Project Properties" later in this document.

Checking the device status

Use the Control4 Composer HE Monitoring view to check the status of the devices in your system by room.

Prerequisites

Ensure that the devices you want in your system have been added and identified to the system. Check with your Control4 Dealer or installer to add devices.

To check device status:

1 Start Composer HE and connect to a Director.
2 In the project tree, select a **room**. The devices are categorized by the room in which the device is installed.
3 Click the **List View** tab.
4 Double-click a device to bring up its configuration and controls.
5 Check or change the configuration as needed.

Changing project properties

Use the Control4 Composer HE Monitoring view to check and change the properties of your project. You can change device and room properties also, but they aren't discussed in this section.

To change the properties:

1 Start Composer HE and connect to a Director.
2 Click the **Properties** tab.
3 Change the boxes as needed:
   - **Name**. Enter the project name.
   - **Location**. Click **Lookup** to change the Latitude and Longitude based on the location of the system by entering the city, state, or ZIP Code.
   - **Date & Time**. Use the drop-down lists to select the date and time. Click **edit** to change the time zone.
   - **Project Settings Control**. Check **Push Settings From Project** to set a device in Composer HE not to allow anyone to change the setting at the device.
   - **System Security**. If set, all Navigators must connect through a secure connection. **Secure Connections Only (SSL)**—Check this box if you want all Navigators in this system to go through a secure connection. Click **Change Password** to change this password.

- **Localization**. Lets you set the locale and character set for countries outside the Unites States.
    - **Locale**—Use the **down** arrow to change the locale.
    - **Encoding**—Use the **down** arrow to select the character set.
    - **Add Locale**—Click to locate the PO files to convert and the Locale Code. Click **OK**.

Setting up your media and playlists

To take full advantage of media lookup services by Gracenote, you must be registered in 4Sight.

After you have completed the initial setup of Control4 Composer HE (see *Composer HE Getting Started*), you can set up and modify the media in your system.
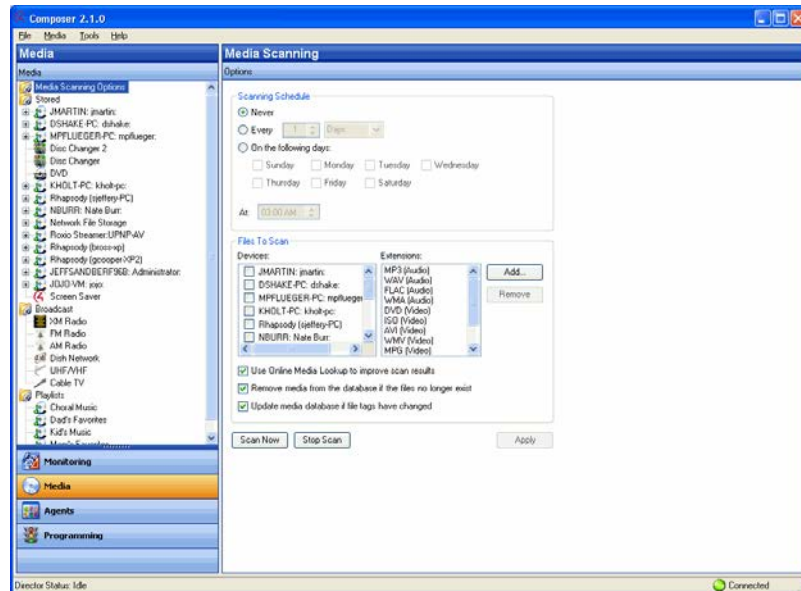
To add and scan songs and albums for playlists, they must be available in MP3, WMA, MP4, M4A/AAC, or FLAC format on a PC or network share.

To add Internet radio stations, the Internet radio driver must be connected to the controller. See your dealer for details.

Note: *The AMG lookup service used in previous releases has been changed to Gracenote. The Sony 777 Disc Changer uses Gracenote for its lookup, 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, WMAs, or MP4s. You can still use Composer ME and Composer HE to add files to Control4.

To view and select the media from the Navigators—the on-screen, touch screens, Control4 apps, or System Remote Control (to select media on-screen)—you first need to add and scan the media into the media database which resides in Director on the primary controller. Use the Media view to perform these activities.

Media view:

If you have MP3, WMA, MP4, FLAC, or AAC files stored in your system, you can create playlists. To add and scan songs and albums for playlists, they must be available in MP3, WMA, MP4, AAC, or FLAC format on a PC or network share.

Tip: *Composer HE requires that your installer adds your system hardware successfully to your project before the media stored on that hardware can be added and scanned. For example, if a disc changer does not appear in the project tree, the media stored in the disc changer cannot be added or scanned. Contact your dealer or installer to add a device that does not appear in the system.*

Setting up media on a disc changer

When setting up a Control4 disc changer to play music or movies, you can add and scan media in Composer HE according to the options available on your disc changer. Adding and scanning populates the media information to the media database, which lets you view the media from your Navigators.

Note: *The AMG media lookup service 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, WMAs, or MP4s. You can still use Composer ME and Composer HE to add files to Control4.

In the Media pane, when you highlight **Disc Changer**, if the options are available on your disc changer, you will see following active buttons:

- **Scan**—Lets you add and scan media located on your disc changer, and add it to the media database (recommended if available).
- **Search**—Lets you search for media titles located on your disc changer, and add them to the media database.

- **New DVD or New CD**—Lets you add new DVDs and CDs to the media database.
- **Edit**—Lets you edit by Type, Title, Artist, Genre, etc.
- **Delete**—Lets you delete an entry.
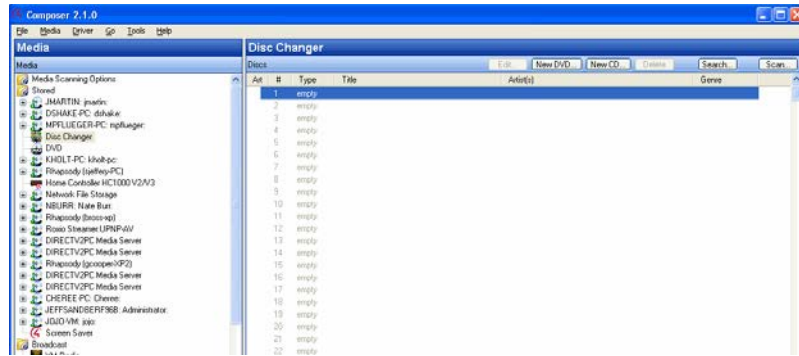
The following sections demonstrate how to add a disc changer to the media database with these options.

Prerequisite

Ensure that the disc changer driver has been added to the project and identified. Check with your dealer or installer to do this for you.
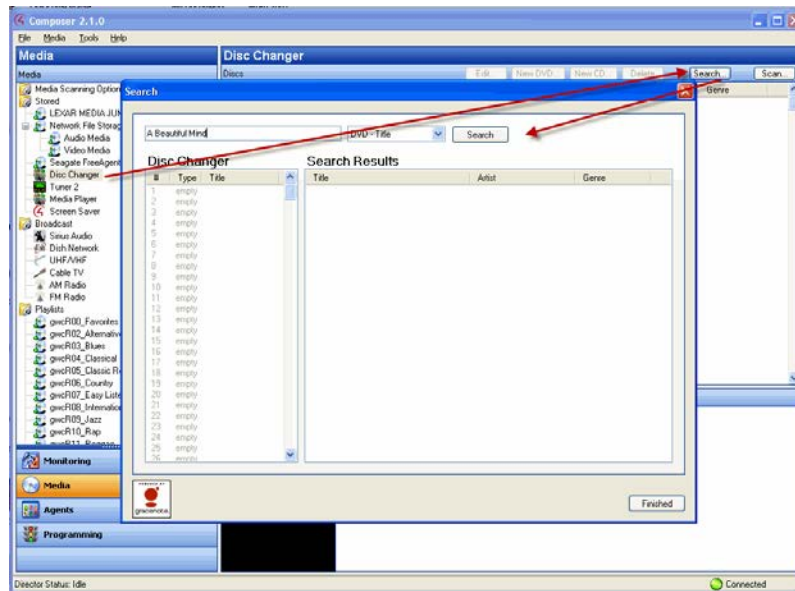
To scan media on the disc changer to the media database:

1   In the Media view, select **Disc Changer** in the Media pane.
2   In the disc changer pane, click **Scan**. The scan results appear.
3   Refresh the Navigators. You are ready to play music now.

To search media on the disc changer and add it to the media database:

1   Select the **Disc Changer** in the Media pane.
2   In the Disc Changer pane, click **Search**. The Search dialog appears.
3   Type the DVD name in the blank box, for example, type 'A Beautiful Mind' and click **Search**. The possible DVD title matches from the web database appear in the Search Results window.
4   Use the scrollbar if necessary to find the appropriate DVD title.

5 Highlight the appropriate DVD title, drag it directly over the empty line item, and select it.

6 Click **Finished**.

7 Repeat these steps for the DVDs/CDs in the disc changer that you want to add to the media database.

8 Refresh your Navigators. The media you added is now selectable for viewing in the Navigators.

To add and search using the New DVD or New CD options:

1 In the Media view, select **Disc Changer** in the Media pane.

2 Click in the empty box for the New DVD and New CD buttons to appear.

3 Click either **New DVD** or **New CD** as appropriate. The New Movie or New Album dialog appears.

4 In the Title box, enter the **DVD** you want to play, for example, 'A Beautiful Mind.'

5   Click **Search**.
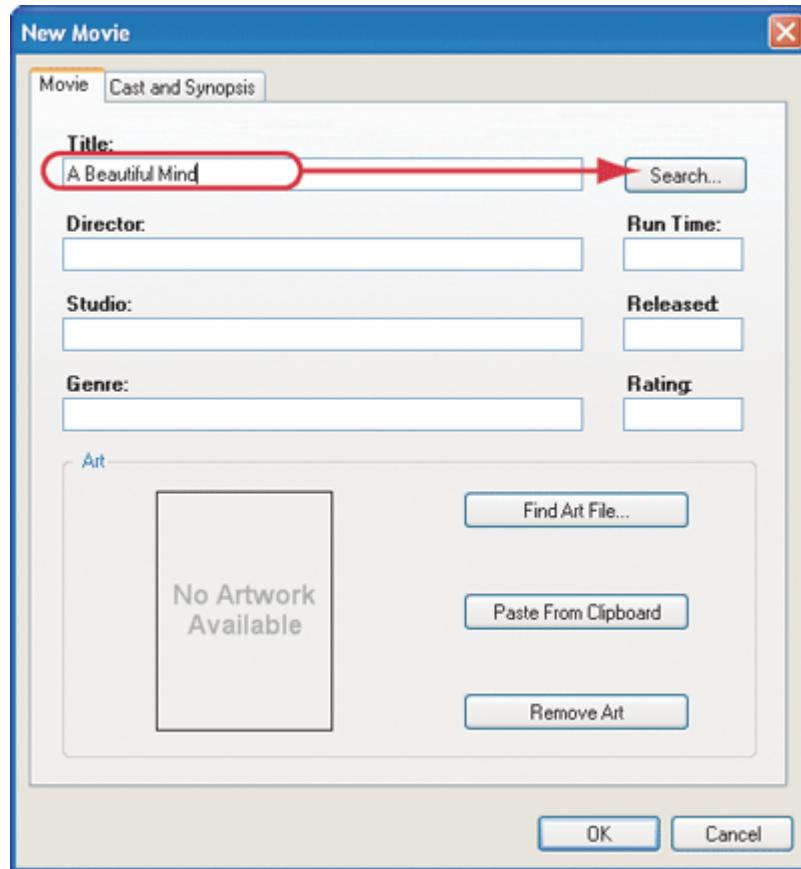
6   When the Search dialog appears, use the scrollbar if necessary to find the
      appropriate cover art, and then select it.

7   (Optional) You can change the search criteria and search again if necessary. The
      possible matches from the web database appear in the Search Results window.

8   Click **Next**. You can choose which information to import, and then edit any
      associated information before adding it to the media database.

9   Click Finished.

10   Click **OK**.

11   Refresh your Navigators. This particular DVD is now selectable for viewing in the
      Navigators.

      Note: *Use these steps for new CDs also. Similar results occur.*

Setting up media auto-scan

Your Control4 Dealer or installer can use the auto-scan feature in Composer Pro to scan your media automatically. Auto-scan applies to disc changers, media players, network-attached storage, and USB disks.

Disc changer

This section applies to a Sony CX777ES disc changer.

The benefits of running a Control4 disc changer with bi-directional communications (RS-232), for example, Sony CX777ES, is that you can scan your DVDs or CDs stored in the disc changer to identify, index, and automatically apply cover art and media information. You can have your dealer or installer configure your Control4 system in Composer HE to scan media automatically, or you can set a manual scan using the **Scan** button. The default is to scan media manually.

Notes:

- *If you scan a DVD or CD, and the media is not recognized, it will be titled "unknown." You can edit the DVD or CD's metadata and manually provide this information from either Composer HE or the Navigators. If this DVD or CD is then changed to a different slot, the system will apply this same information.*

- *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 select the media again to view the scanned content.*

- *Composer HE does not need to be open to scan media. This lets you use other media managers (iTunes, Windows Media Player, etc.).*

Prerequisites

Ensure that the devices you want to scan have been added and identified in the Control4 system. Your dealer or installer can do this for you.

If you want to schedule regular scans, ensure that your network-attached storage is set up and is accessible from Composer HE.

To schedule a regular scan of media from a network-attached device, for example:

1   From the Composer HE main screen, click the **Media** view, and then select **Media Scanning Options**. To scan your media now (and not set up a scheduled scan for later), click **Scan Now** and skip the Scanning Schedule in Step 2.

2   In the Options pane, 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 choose the file type to add or remove. To add a file extension if it doesn't appear in the list use the **down** arrow to select the extension, select **Video** or **Audio**, and then click **Add**. Click **Remove** to remove that file type from the list.
- **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 is 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.

3 Click **Apply**.
4 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 for TV channels

Use the Control4 Composer HE Media view to set up your local broadcast channel stations and listings for display in the Navigators.

Prerequisites

Ensure that the broadcast media has been added and identified to the Control4 system. Check with your dealer or installer who can do this for you.

To set up media for broadcast TV channels:

1 In the Media view, click **UHF/VHF** or another broadcast media type.
2 Click **Search**.
3 When the dialog appears, type your **ZIP Code** in the box.
4 Click **Search** and use the pull-down menu to select **NTSC (analog) Broadcast**. The available channels are populated to the Search Results.
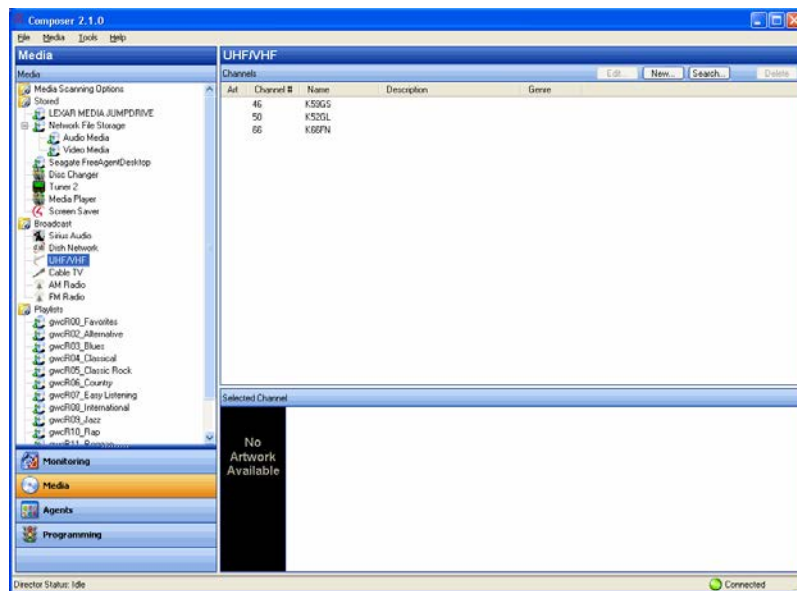
  Note: *This feature is only available in the United States.*

5 Click the boxes to select the desired channels that you want to appear on the Navigators.
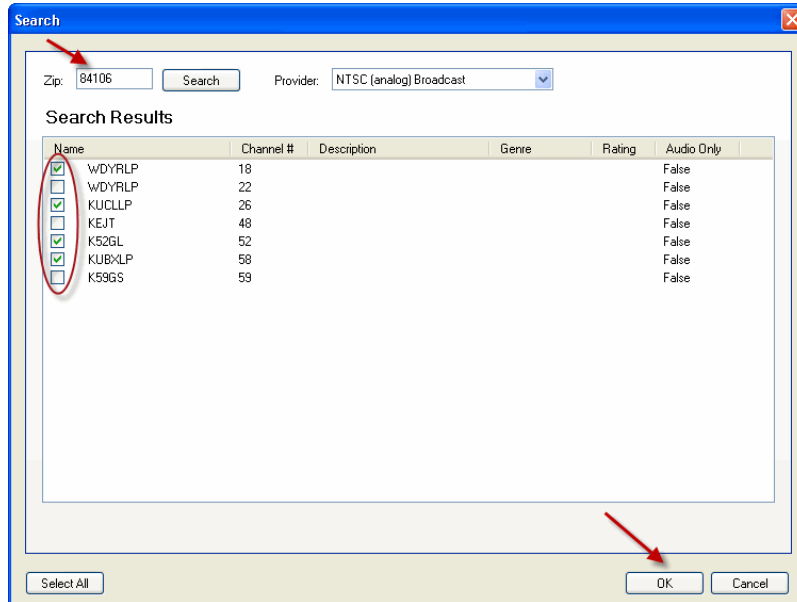
6 Click **OK**.

The selected stations populate in the UHF/VHF pane. You can edit the information as needed; add a description, genre, etc.

7 (Optional) To edit a channel, select the channel, and click **Edit**.

8 Edit the information and click **OK**.

9 Refresh your Navigators. You can now view and select the media from the Navigators.

Setting up media for radio stations

Use the Control4 Composer HE Media view to set up your media for radio broadcast stations.

Prerequisites

Ensure that the broadcast media has been added and identified to the Control4 system and that you have a tuner installed in the system. Check with your dealer or installer who can do this for you.

To set up media for broadcast radio stations:

1   In the Media view, click **AM Radio** or **FM Radio**.
2   Click **Search**.
3   When the dialog appears, type your **ZIP Code** in the box.
4   Click **Search** again. Use the pull-down menu to select **AM Broadcast Stations** or **FM Broadcast Stations**. The available stations are populated to the Search Results window.
5   Click the **boxes** to select desired stations that you want to appear on the Navigators.
6   Click **OK**.
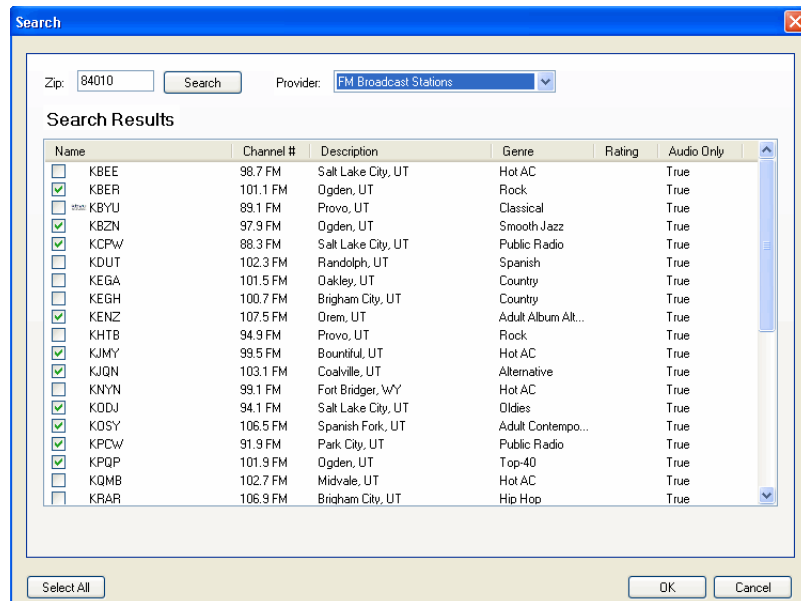
The selected stations populate in the AM or FM Radio pane.

7   (Optional) To edit a station, select the station, and then click **Edit**.
8   Edit the information, and then click **OK**.
9   Refresh your Navigators.
10 Repeat the previous steps for each radio you want to set up. Set up each one separately. The media is now ready to view and select from the Navigators.

Setting up an Internet radio station

Use the Control4 Composer Media view to add Internet radio stations that you can play from touch screens, Control4 apps, or on-screen Navigators. A better alternative to this might be to use TuneIn. See the *TuneIn Setup* or *TuneIn User Guide* for details.

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, WMA, or MP4 format. You'll need to create a new form for each station you add.

To configure Internet radio:

1   Start Composer HE 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**.
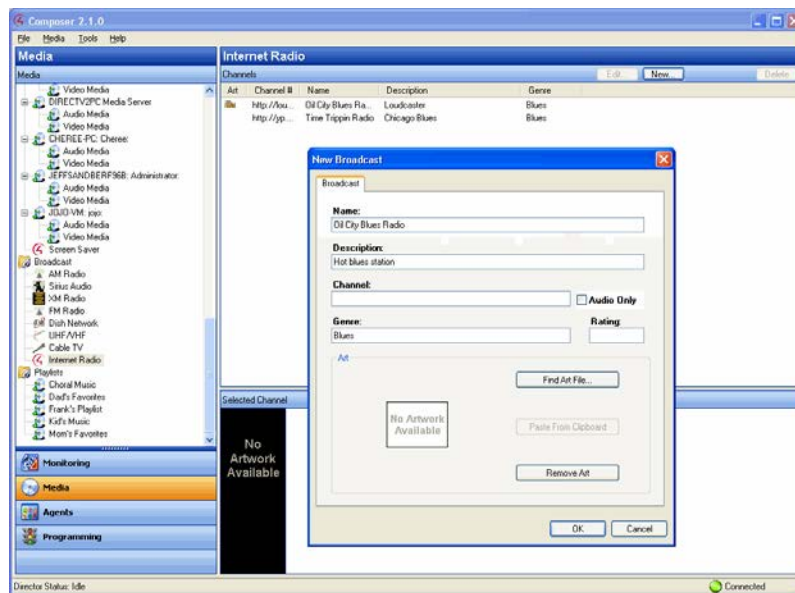
5   Fill out the form:

    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, WMA, or MP4 stream that starts with **http://...** Instructions about how to do that are outside the scope of this document, but your dealer should be able to help you set some up for you.

    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**.
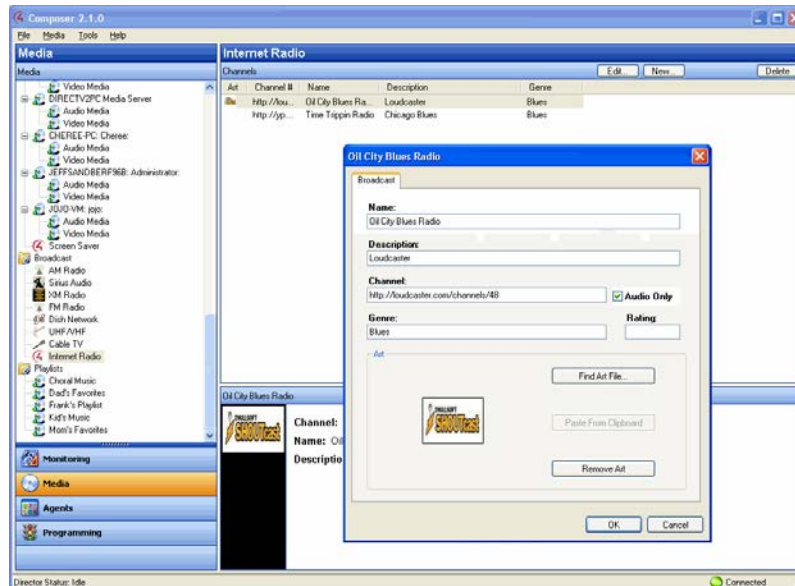
6   Go to a touch screen, Control4 app, or on-screen Navigator and select the **Listen** > **Station**. **Note:** If you have several sources, Internet Radio appears under Sources.

Using TuneIn

An alternative to setting up an Internet radio station would be to use TuneIn. Create a TuneIn account and pair your TuneIn account to the Control4 system, so you can play your favorite stations on your Control4 Navigators. For more information, see the *TuneIn Setup* or *TuneIn User Guide.*

Testing the media information

To test control of media through the Control4 Navigators (System Remote Control, on-screen Navigator on your TVs, LCD Navigator, Control4 app, or any of the other navigators or touch screens), use the steps outlined in the *Control4 System User Guide*.

Suggested test items:

- Playing an album
- Adding an album or track to the Now Playing queue
- Playing a playlist created in Composer
- Creating a playlist at a Navigator (for example, one of the touch screens)
- Playing multiple streams of music (play different music in different rooms)
- Playing a movie on the television

Using external storage devices

You can access digital music from an external storage device attached to your Control4 system. External storage devices include USB flash drives, USB external hard drives, or a PC's drive located on the home network.

Using Composer HE, you can set up your external storage device and networked file storage as described in this section.

Note: *If you disconnect and remove the external drive (network-attached storage, USB, etc.), the music is no longer available. To access the music again, re-attach and add the external storage device, and then refresh the Navigators.*

Prerequisites

Ensure that your external storage device has been added to the Composer project and identified. Your dealer or installer can help you do that.

External storage devices must have media stored in unprotected MP3, WMA, MP4, FLAC, or M4A/AAC formats.

To attach and scan external storage devices using a USB connection:

1 Power on the external storage device.
2 Use the documentation provided with your controller to attach the external storage device using the USB port.
3 When you connect the external storage device, scan the music residing on that device so that the music is available to the Control4 system.
4 Click the **Media** view.
5 In the tree view, select the **external storage device**.
6 Click **Scan**. The media residing on the external storage device is available in the Control4 system.

Note: *You can add media from the external storage device when 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 when it is located on the controller.

To access and scan network storage devices:

1 Select the **Network File Storage** object.

   Note: *This type of setup must be performed by your dealer or installer using Composer Pro.*

2   Click **Add** or **Scan**. **Note:** If your network storage device contains copies of
     songs and albums, it will scan those also (see below). Ensure that your storage
     only has one original of the albums and songs or you'll need to delete the
     duplicates manually in Composer.
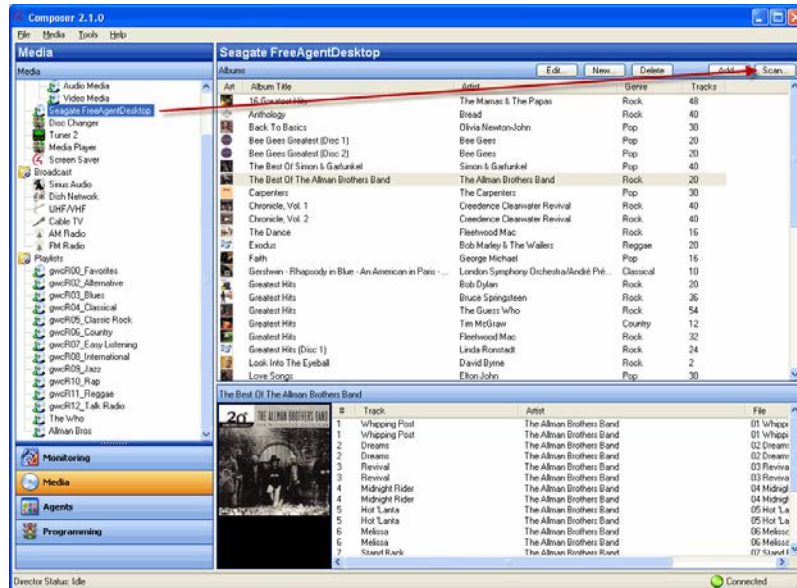
Creating a playlist

Use the Control4 Composer HE Media view to set up a playlist to play songs and
albums from your touch screens, On-Screen Navigators, or System Remote Control.
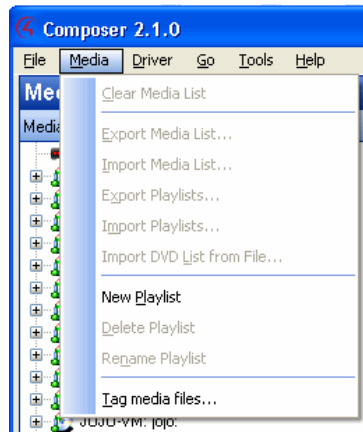
Note: *To set up a playlist for TuneIn or another Internet music service, check with your
dealer or installer or refer to the provider's documentation.*

Prerequisite

Ensure that you have scanned your media from your media storage device to the
digital audio player on the controller.

To create a playlist:

1   From the Media menu, select **New Playlist**.

2   'New playlist' appears that you can rename immediately, or later you can right-click and select **Edit** to change the name. **Example:** Change 'New' to **Frank's Playlist**.

The playlists are designed exclusively for streaming media in digital audio. Playlists are not intended to include broadcast channels or stations.

3   Select the storage device.

4   Drag and drop any albums or songs you want to add to the playlist.
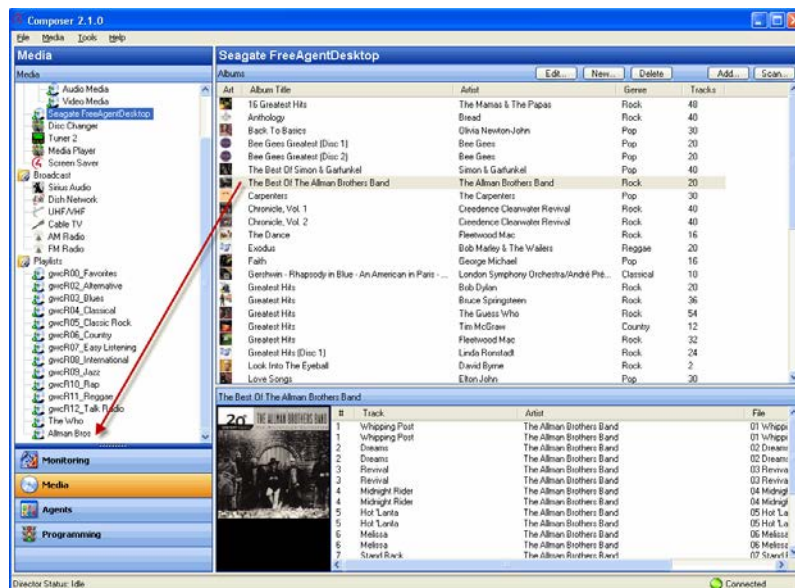
5   (Optional) To delete unwanted songs after you've added the albums, highlight the playlist by right-clicking the song and selecting **Delete**.

Tip: *To remove individual songs, right-click* **Delete**. *To remove multiple songs, press* **Shift***, highlight the items to remove, and then right-click* **Delete***.*

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6   Edit and play your playlists using the Navigators.

Tip: *You can create new playlists from your touch screens or on-screen Navigator also. See the* Control4 System User Guide *for details.*

Editing media information

Use the Control4 Composer HE Media view to edit your media information for 'unknown' DVDs or CDs. You can edit media information also in the Navigators.

Prerequisite

Ensure that the appropriate media device*s* and media have been added and identified to the Control4 system. Your dealer or installer can help you do this.

To edit CD information:

1   In the Media view, double-click the device for which you want to edit the media, for example, CD, Disc Changer, Digital Audio, etc.

2   Click **Edit** or double-click the **album** in the Album Title column. The album's dialog box appears.
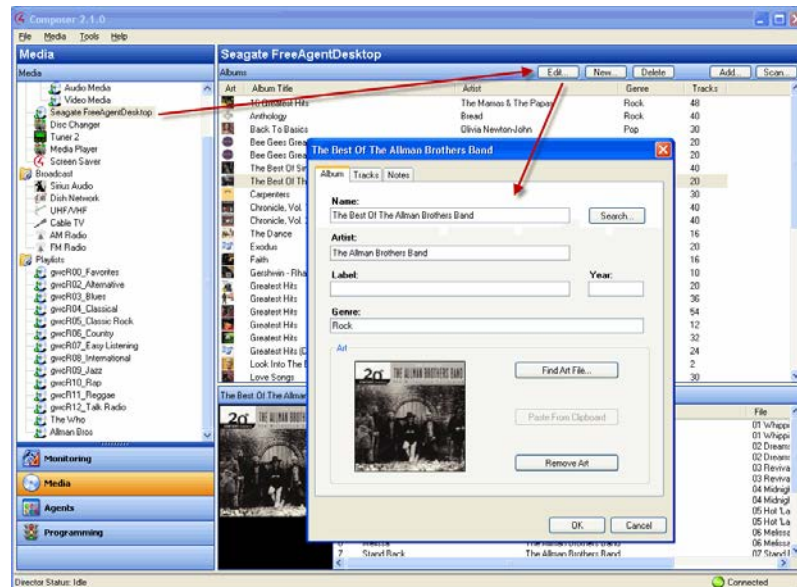

3   To edit and enter any changes, click the **Album** tab.

4   Click the boxes under **Name**, **Artist**, **Label** or **Genre**. In the Tracks and Notes tabs, view and edit **Track Titles** and **Notes**.

5   Click **Search** next to Name or Artist to search the database for similar entries.
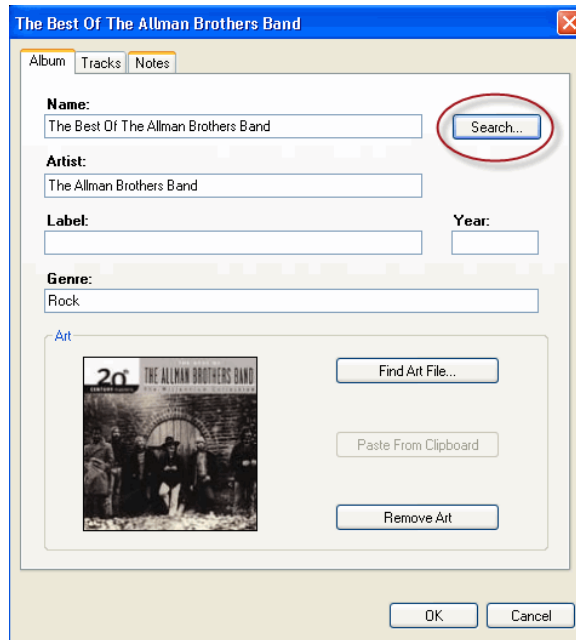
6   To add artwork, click **Find Art File**.

7   To remove the album cover art, click **Remove Art**.

8   When you are finished, click **OK**.

9   To select a search result, select the album title, and click **Next**.
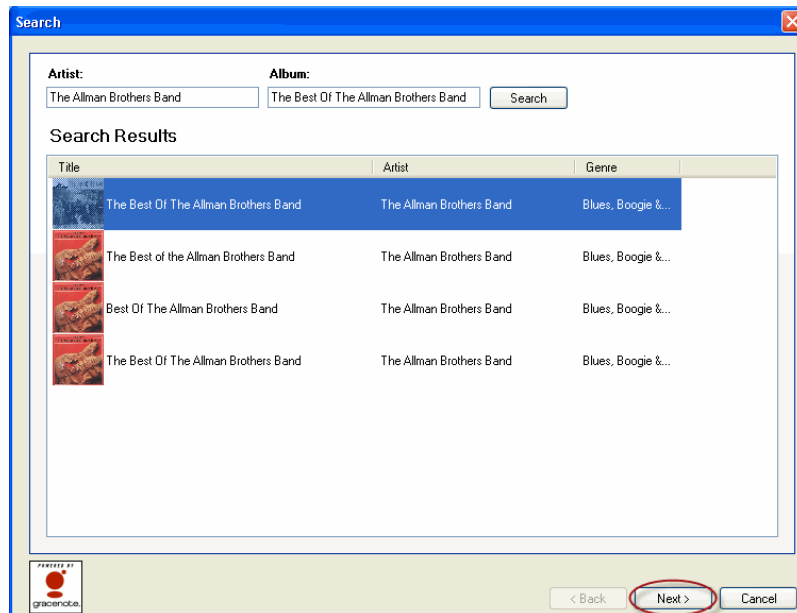
10   View and edit the information for the album, including **Name**, **Artist/Composer**, **Label**, **Genre**, **Year**, **Art**, and **Notes**.
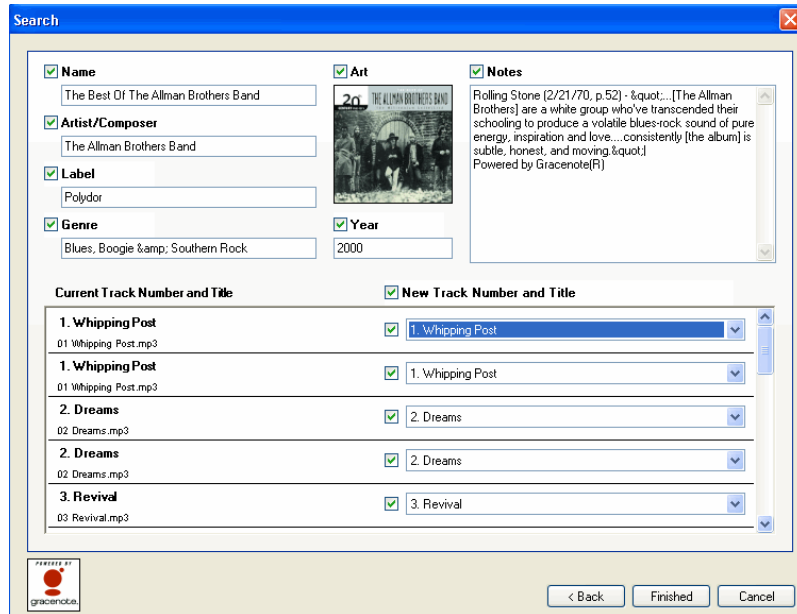
11   Make changes as desired. Click **Back** to return to previous screens.
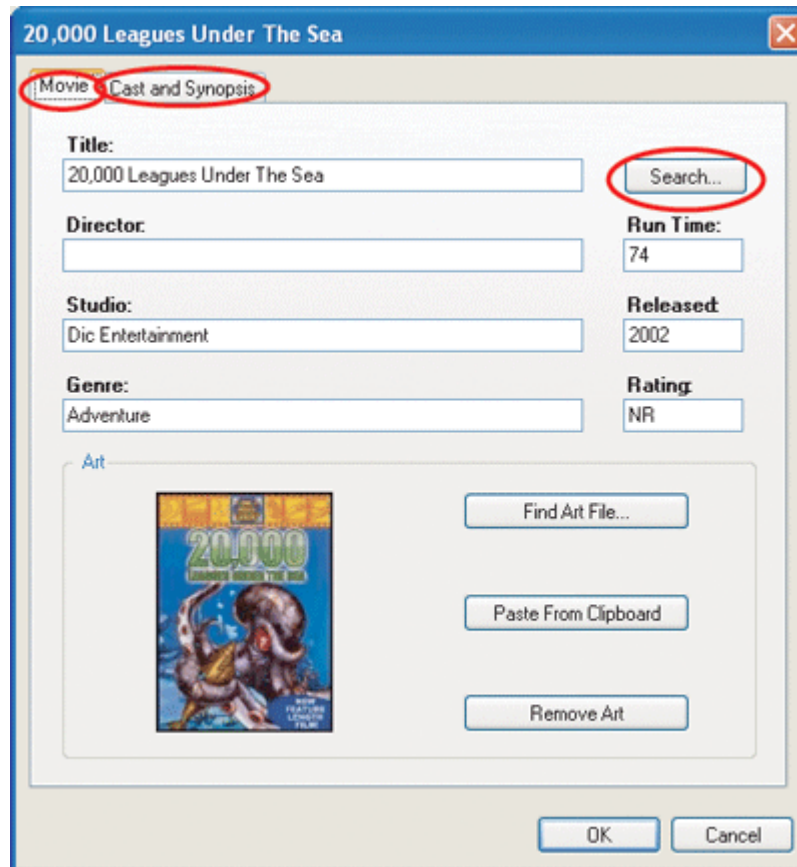
12   Click Finished.

To edit DVD information:

1   In the Media view, select the **movie** under Disc Changer or DVD.

2   Click **Edit** or double-click the title under **Discs**.
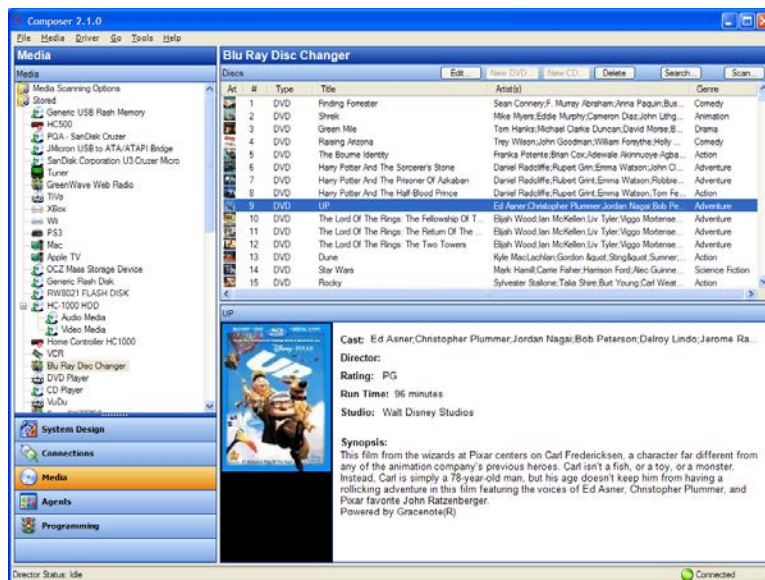
3   Click the Movie tab. Edit the **Title**, **Director**, **Studio**, **Genre**, **Run Time**, **Release date** and **Rating** as desired.

4 Click the **Cast** and **Synopsis** tab. Click the **Cast** and **Synopsis** boxes, and make the desired changes.

5 Click **Search** in the Movie tab to search the database for other DVDs.

6 Double-click the desired **DVD** and edit as desired according to the previous steps.

7 When you are finished, click **Finished**.

Programming the system

Use the Control4 Composer HE Programming view to program your Control4 system.

Programming basics

Use the Control4 Composer HE Programming view to configure events and actions. In Composer HE, click **Programming** to display the Programming view.

Configuring is based on events. When an event starts, it triggers actions to take place.

Example: *When the projector screen lowers (the 'event' starts), the receiver, DVD player, and projector all power on (the 'actions' of the receiver, DVD player, and project are all caused by the screen-lowering event).*

To program the Control4 system, you use Composer HE to drag-and-drop events and actions for corresponding devices to a Script pane. Details about how to do this are explained below.

This table describes the events, actions and scripts used when configuring the system, and how they are used.

| Item	Description
Events	All programming begins with events. An event is a "when" statement: the trigger reporting that something happened, resulting in an automated action. Events happen instantaneously. **Example:** On a keypad, pushing a button is one event. Actions all happen under events. Other events include: When the door opens When it is 7:00 a.m. When it is sunrise
Actions	After the event communicates to the system that something happened, it will send actions. These methods are used to define actions: **Commands**. The Commands tab displays all available commands for a selected item in the Device Actions tree. A command is a "do" statement. Commands are actions the Director tells the device to do so it performs a certain behavior. **Examples** of commands include: Light: on, off VCR: play, stop, pause CD Changer: go to disk Security device: arm, disarm TV: Power on/off, change channel **Conditionals**. The Conditionals tab displays all available conditionals for a selected item in the Device Actions 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 p.m. If the light is greater than 50 percent **Delays**. A Delay stalls a program from running to ensure that the actions happen at the right time.
Script	The linking of events and actions is defined in the script. These events and actions get moved into the Script pane.

Tip: *You can use properties, agents and variables also to configure or program devices. These are considered advanced configuration and programming. See "Programming with Agents" in this document for information.*

Basic programming consists of two parts:

1   Define a device's *events* that trigger the actions (left pane).
2   Define a device's *actions* to trigger when an event fires (right pane).

   Refer to the steps in the next two figures to learn about basic Control4 system programming tasks.

3   Define the device's events (follow the screen's steps and arrows below):
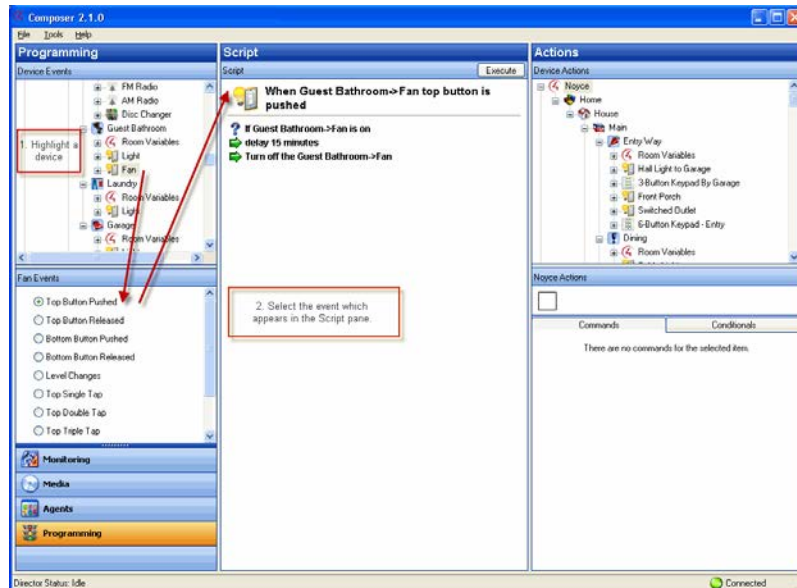
4   Define the device's actions (follow the screen's steps and arrows below):
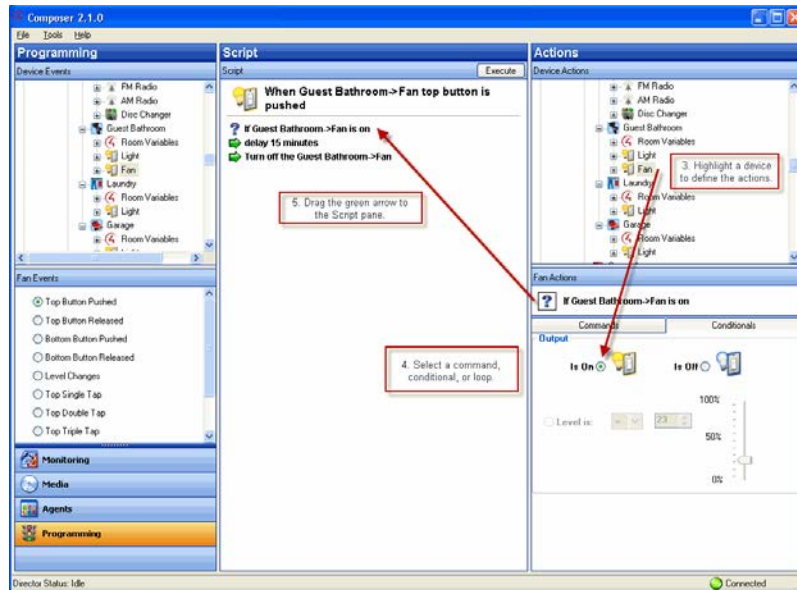
Note: *Programming makes use of agents also, which let you include pre-programmed system functionality, for example, scheduling, delays, or setting up lighting scenes.*

Example: *To program around sunrise and sunset, you use the Scheduler agent. See "Programming with Agents" for information about using agents in programming.*

Programming with commands

Use the Control4 Composer HE Programming view to configure Commands.

A Command is a "do" statement. Commands are actions that tell a specific device what to do.

Example: *The steps below show how to configure a 3-Button Keypad to turn on the sprinklers using a relay for control.*

Prerequisites

In this example, ensure that the devices you want to configure (controller, 3 Button Keypad and Sprinklers Relay) are added and identified to the system. Your dealer or installer can help you do this.

The following example uses these devices in the project:

- Controller
- 3 Button Keypad
- Sprinklers

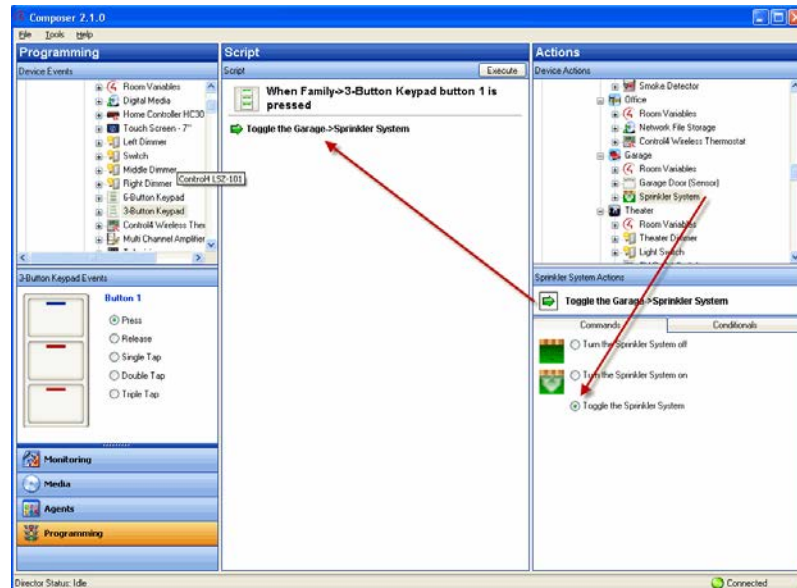**To program a 3-Button Keypad to toggle sprinklers on and off:**

1   In Composer HE, click **Programming**.
2   From the project tree, click **3 Button Keypad**.
3   Click the button that you want to program—**Button 1** (selected by default).

   This automatically identifies the 'Press' event for programming. The event appears at the top of the Script pane (center pane).
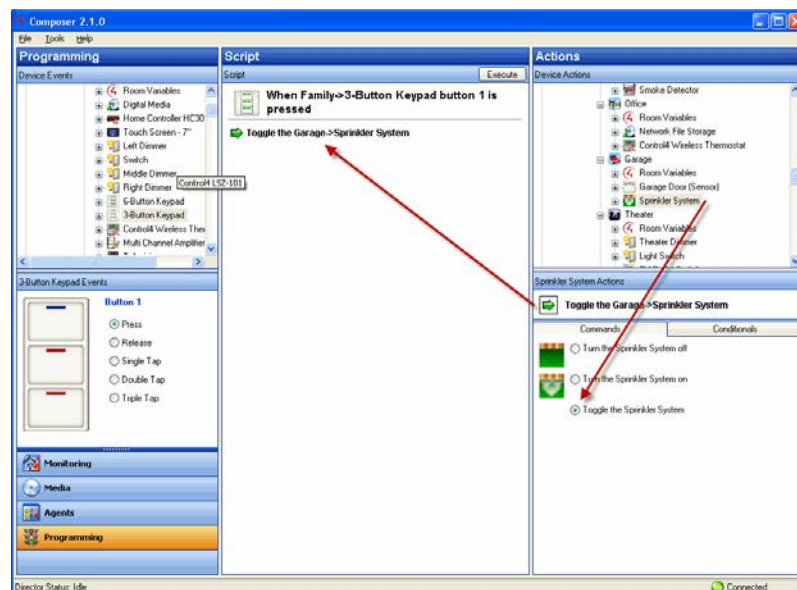
4   From the Actions pane (right pane), highlight **Sprinkler System**.
5   Click the **Commands** tab, and select **Toggle the Sprinkler System**. The command you chose (Toggle the Sprinklers) displays in the right middle pane. This is an action.

6   Click the **green arrow**, and drag it to the **Script** pane (center pane).

7   In the Script pane, click **Execute** to turn on the sprinklers.
8   Click **Execute** again to turn off the sprinklers.
9   Now press the **top button** on your 3-Button Keypad to toggle the sprinklers on and off.

Programming with Delay, Stop, and Break Commands

Use the Control4 Composer HE Programming view to program using Delay, Stop and Break Command*s*.

Delay provides a delay command in response to an event that waits for a specified period of time before executing the next command in a code item.

When configuring a device, you always have the following options:

- **Delay**—Lets you delay an action that is taking place.
- **Stop**—Lets you stop all programming.
- **Break**—Lets you break out of a conditional loop when a specified condition is met and return to programming outside of the loop. **Note:** Usually, the Break command is available only in Composer Pro (the application your dealer uses), but it might be present in the programming set up for your project.
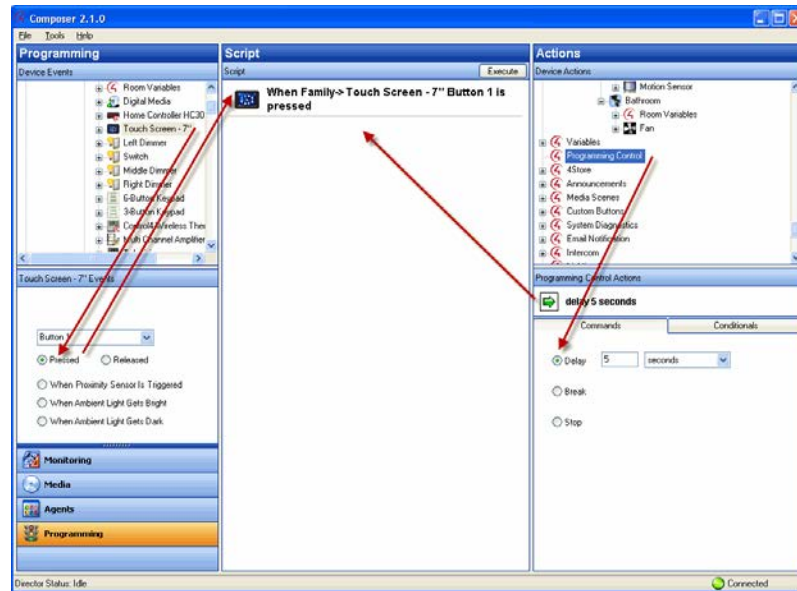
Prerequisite

Ensure that the devices you want to program are added and identified to the system. Your dealer or installer can help you do this.

To use Delay, Stop, and Break commands during programming:

1   In Composer HE, click **Programming**.
2   Select a **device** and an **event**.

3   To use the Delay, Stop, or Break commands, from the right-side pane select the **Programming Control object** (scroll down to bottom of the project tree to find it).

4   Click the **Commands** tab, select **Delay**, and select the number of seconds (for example, **5** seconds). The delay appears on the left side, middle pane.

5   Drag and drop the **delay** command to the Script pane.

Example: *This will ensure that there is a 5-second delay after the projector powers on.*

Programming with conditionals

Use the Control4 Composer HE Programming view to program using conditional*s*.

A conditional is an "if" statement that asks a true or false question to the device.

Example: *The steps below show how to use conditionals in programming. In this example, "when" a doorbell is pressed and the light is off, program the light to turn on.*

Prerequisite

In this example, ensure that the devices you want to program (controller, doorbell and switch) are added and configured in the system. Your dealer or installer can help you do this.

The following example uses these devices in the project:

- Controller
- Doorbell
- Theater Switch

To program a conditional that turns on the light when the doorbell is pressed if the light is off:

1   In Composer HE, click **Programming**.

2   From the project tree, highlight **Doorbell** in a room.

31

3 Select the When the Doorbell is pressed event.

The event appears at the top of the Script pane (center pane).
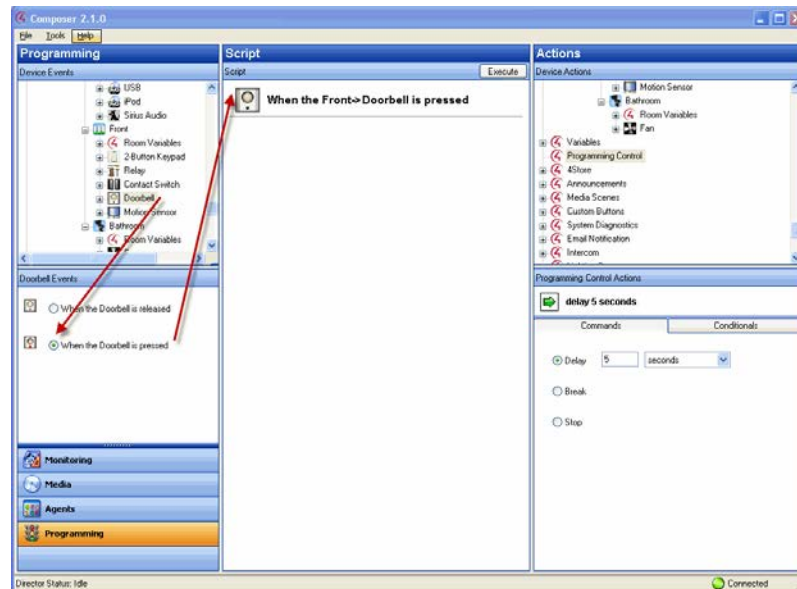
4 From the Actions pane (right pane), click **Light Switch**.

5 Click the **Conditionals** tab, and select **Is Off**. The system displays the conditional you chose in the right middle pane.

6 Click the **blue question mark**, and drag it to the Script pane.
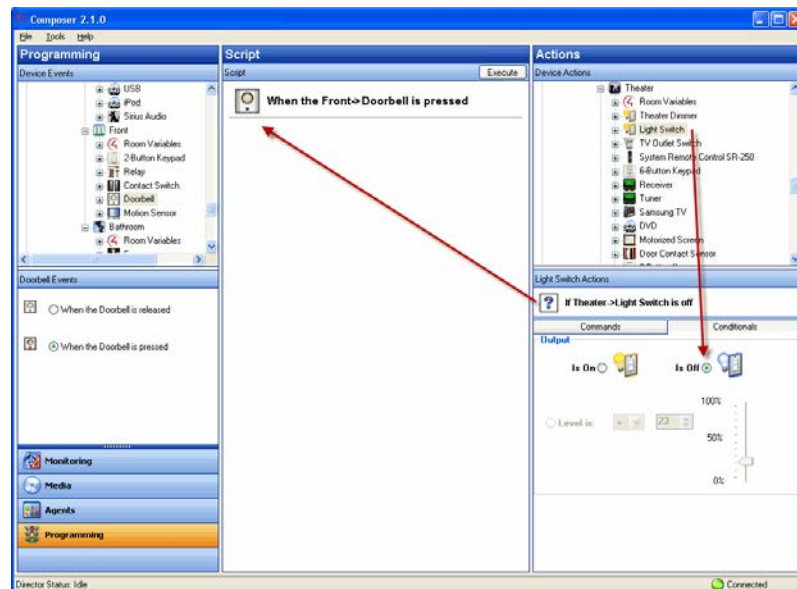
7 From the Actions pane, click **Light Switch** again.

8 In the Commands tab, select **On**. The command you chose displays in the right middle pane.

9 Drag the **green arrow** directly on top of the **blue question mark** in the Script pane to make it a child under the **When the Doorbell is pressed** statement.

Tip: *If you drag the action to the text, or you drag the action under the text into 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 child under the conditional. Watch the arrow to see in which direction it points to place the action as a peer or a child below the statement.*
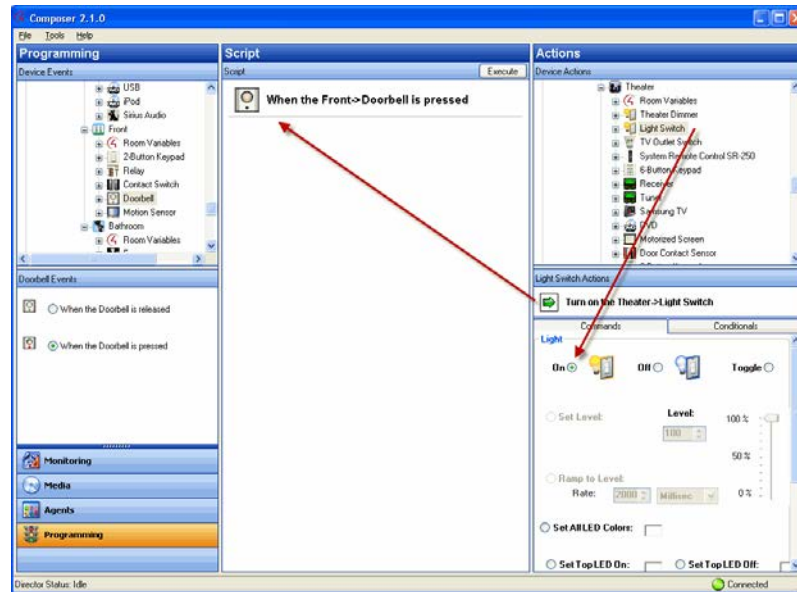
10   Go to your **Theater Switch**, and ensure that the light is off.

11   Press your **doorbell button**, and the light turns on.

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. The Room object is the recommended method for configuring the room. Whenever possible, use the Room object rather than room variables.*

To use room variables:

1   Start Composer HE 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.

Room Variables:
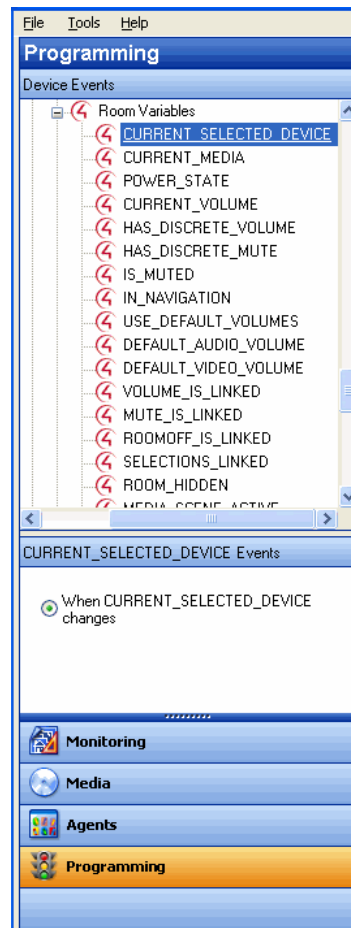
The room variables are described in the following table.

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.
HAS DISCRETE_VOLUME	Lets you do programming when any devices change in the room (requires discrete volume). Use command programming.
HAS_DISCRETE_MUTE	Lets you do programming when the 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.

Events/Actions	Description
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's 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. Use this option 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 your dealer that your system rebooted, helping your dealer monitor the system's performance.

Using custom agent variable agent Boolean

Use the Control4 Composer HE 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

Ensure that the following devices are added and identified in the project. Your dealer or installer can set these up for you.

This example uses the following devices in the project:

* Controller
* Porch Light Switch
* Bedroom music
* Theater music
* Motion Sensor

Create a new variable agent–Boolean

To use a custom agent variable:

1   In Composer HE, click **Agents**.
2   Select **Variable**. The Variables view appears.
3   Click **New**.

4   On the dialog that appears, do the following:

a   Click **New Variable**.

b   In the drop-down menu, select **Boolean**.

c   Name the variable **Power State**, and then click **OK**. The default value is **false**.
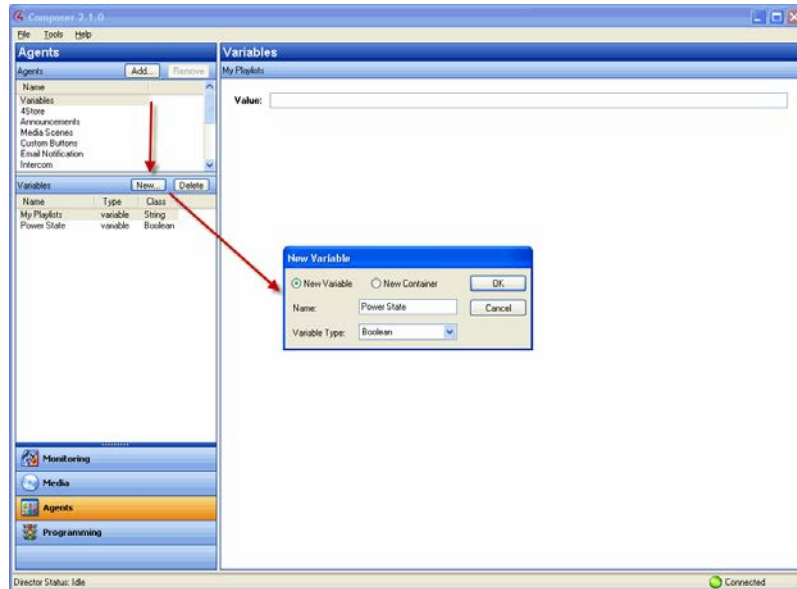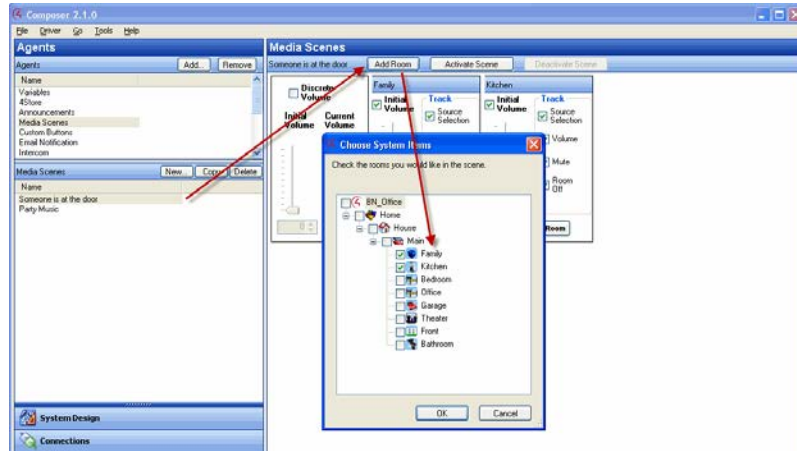

Create a media scene "Someone is at the door"

5   Select the **Media Scenes** agent, and click **New**.

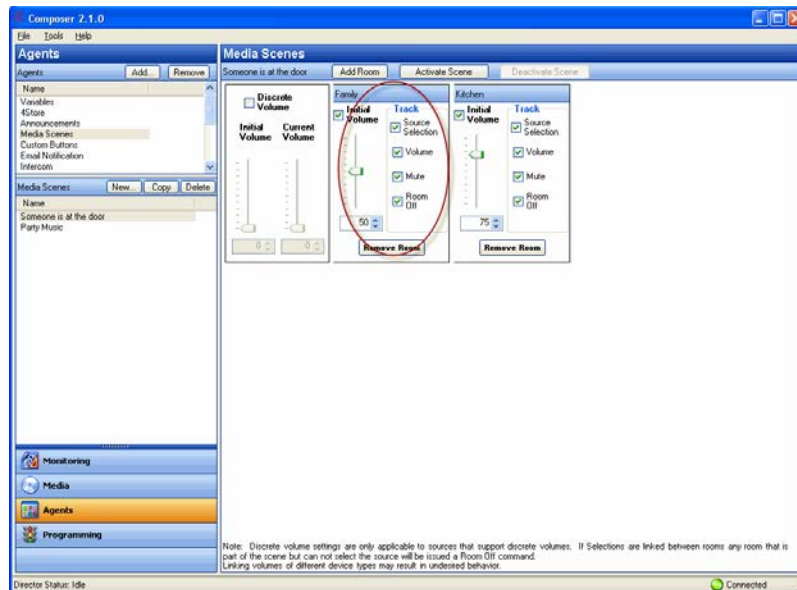6   Name the Media Scene **Someone is at the door**. Click **OK**.
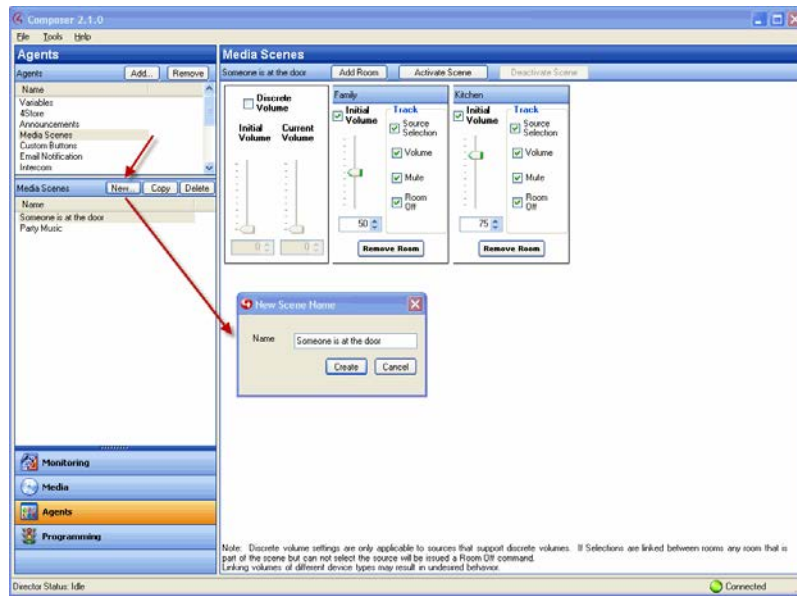
Add the rooms

7   Click **Add Room**, and add the **Family Room** and **Kitchen**.

8   Set the volume in the Family Room to **50**, and the volume in the Kitchen to **75**.


9   Click **Programming** to display the Programming view.

10   In the project tree and the Device Events pane, click to expand Variables, and
     then select **Power State**.

11   In the project tree and in the Device Actions pane, click to expand Variables, and
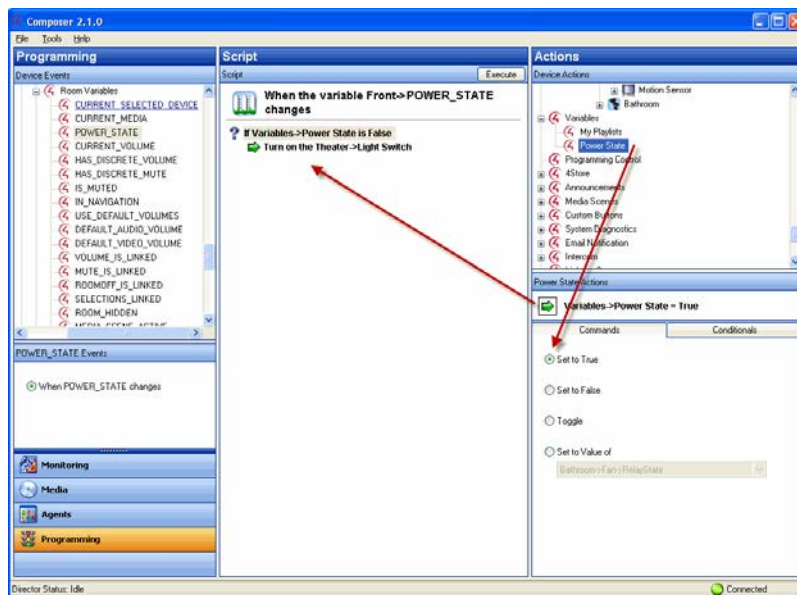   then select **Power State**.

Add the Conditionals and Commands

12   Click the **Conditionals** tab.

13   In the Conditionals tab, click **Is False**, and then drag the **blue question mark** to the **Script** pane.
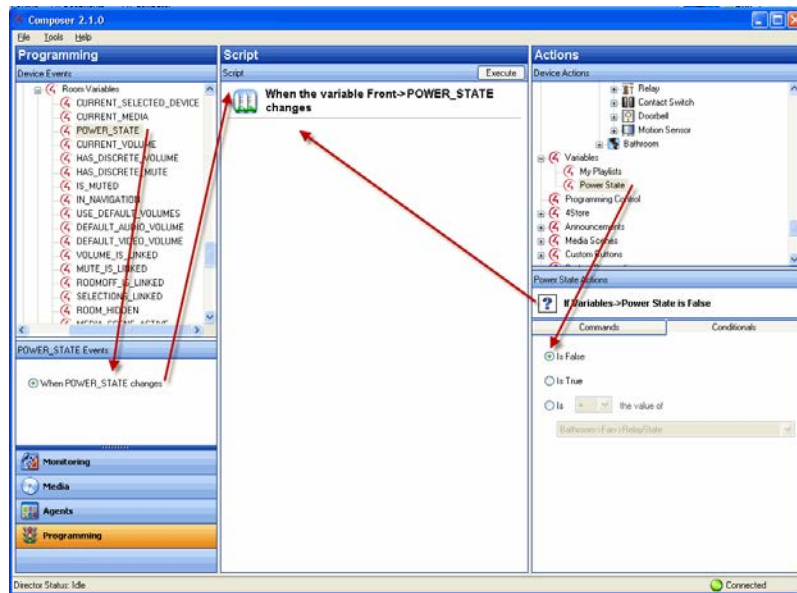
14   Click the **Commands** tab.

15   In the Commands tab, click **Set to True**, and then 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.

16   In the Device Actions pane, select **Light Switch**.

17   Click the **Commands** tab.

18   In the Commands tab, click **On**, and then 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.

19 In the project tree and in the Device Actions pane, select **Media Scenes**.

20 Click the **Commands** tab.

21 Click **Activate** in the Commands tab, and then 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.

22 In the project tree and in the Device Actions pane under Variables, select **Power State**.

23 Click the **Conditionals** tab.

24 In the Conditionals tab, click **Is True**, and then drag the **blue question mark** to the **Script** pane (this is the *second* conditional).

25 Click the **Commands** tab.

26 In the Commands tab, click **Set to False**, and then 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.

27 In the project tree and in the Device Actions pane, select **Light Switch**.

28 Click the **Commands** tab.

29 In the Commands tab, click **Off**, and then 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.

30 In the project tree and in the Device Actions pane, select **Media Scenes**.

31 In the Commands tab, click **Deactivate**, and then 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.
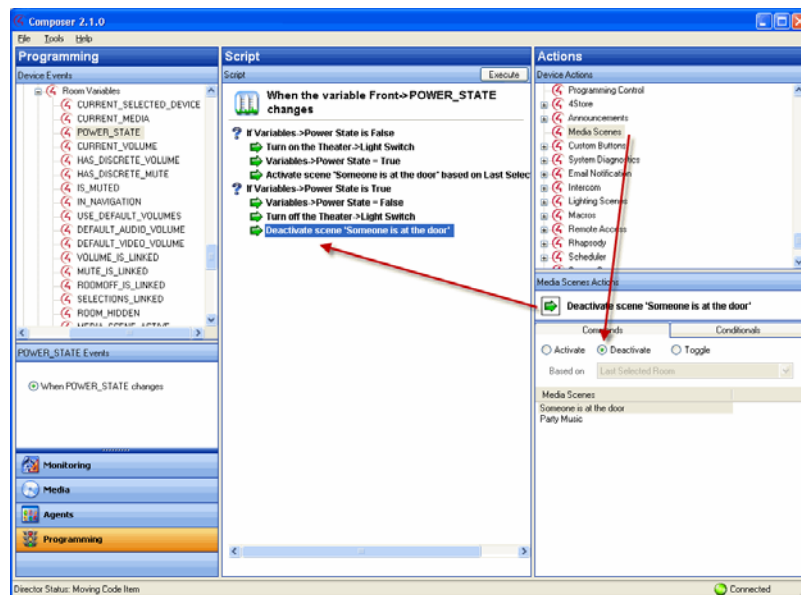
32 In the project tree and in the Device Events pane, select **Media Scenes** and then choose the event **Someone is at the Door**.

33 In the project tree and in the Device Actions pane, select the **Family Room** object. (Repeat the next four steps for the Kitchen also.) **Note:** Bedroom and Theater are shown in the next figure.

34 Click the **Commands** tab.

35 In the Commands tab, click **Select Media**.
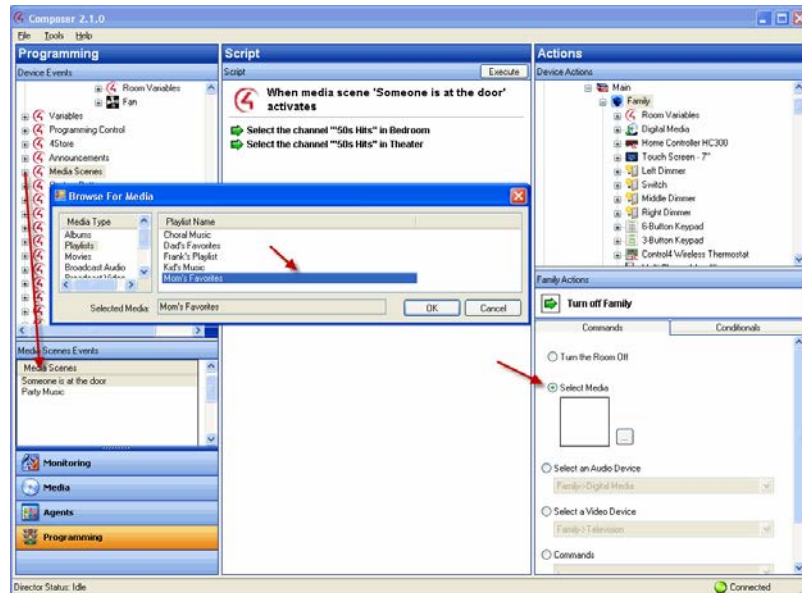
36 In the dialogue that appears, select the album and song that you want to play when **Someone is at the Door** executes, for example, 'Knock Three Times' by Lynn Anderson (or in the example Mom's Playlist). Click **OK**.

37 Drag the **green arrow** to the **Script** pane.

38 Repeat Steps 33-37 for another room.

39 In the project tree and in the Device Events pane, select **Motion Sensor** under **Front**, and then choose the event **When the Motion Sensor senses motion**.

Add the Boolean values

40 In the project tree and in the Device Actions pane, click to expand Variables, and then select **Power State**.

41 In the Conditionals tab, click **Is False**, and then drag the **blue question mark** to the **Script** pane (this is the *third* conditional).

42 In the Commands tab, click **Set to True**, and then drag the **green arrow** on top of the **blue question mark** to make it the *first* subset of the *third* conditional.

43 In the project tree and in the Device Events pane, choose the event **When the Motion Sensor stops sensing motion**.

44 In the project tree and in the Device Actions pane, click to expand Variables, and then select **Power State**.

45 In the Conditionals tab, click **Is True**, and then drag the **blue question mark** to the **Script** pane.

46 In the Commands tab, click **Set to False**, and then drag the **green arrow** on top of the **blue question mark** to make it the *second* subset of the *third* conditional.

Results: The Porch Light turns on and plays a song in the Family Room and Kitchen (or the rooms you selected) whenever the Motion Sensor senses motion at the front door.

Using custom agent variable agent Number

Use the Control4 Composer HE 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.

Prerequisite

Ensure that the correct devices are added and identified in the project. Your dealer or installer can do this for you.

This example uses the following devices in the project:

- Controller
- Dimmer (Theater)
- Light Switch (Theater)
- 6-Button Keypad

Create a New Variable Agent– Number

1   In Composer HE, click **Agents**.
2   Select **Variables**. The Variable Agents view appears.
3   Click **New**.
4   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 menu to select **Number**.
   d   Click **OK**.
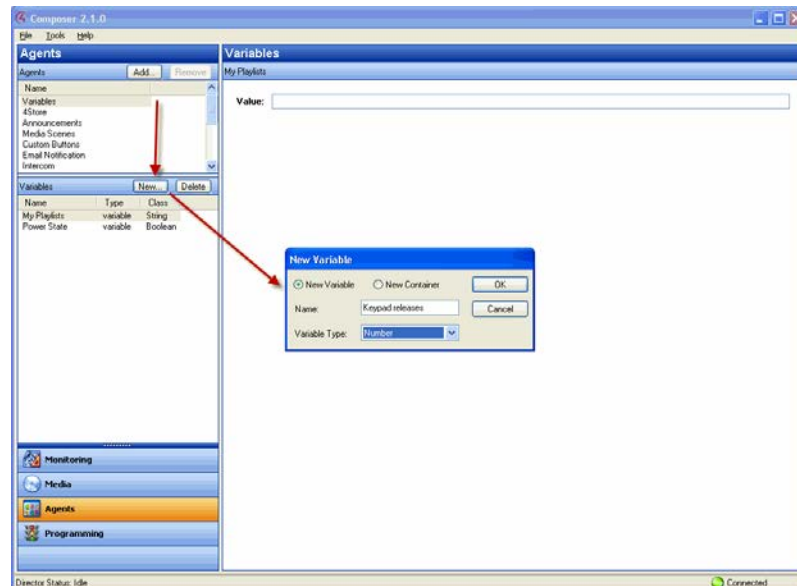
5   In the Variables pane, select the variable **Keypad releases**. The available variables for your devices appear in the right pane.
6   Enter the value as **0** (zero).

Create an event

7   Click **Programming** to display the Programming view.

8   In the project tree and in the Device Events pane, select **6 Button Keypad**.

9   Click **Button 1** on the 6-Button Keypad.

10   Select **Press** for the event. The event appears at the top of the Script pane.

Create the actions

11   In the Actions pane, scroll down to view the agents.

12   Click to expand **Variables**.

13   Select **Keypad releases**.

14   Click the **Commands** tab.

15   In the Commands tab, select the following to add **1** to the present value:

    a   Select the **radio button** by the plus (**+**) sign. Ensure the plus sign is selected.

    b   Select **1** (one). The action appears in the Actions pane.

16   Drag the **green arrow** icon to the **Script** pane.

Create the conditionals

17   Click the **Conditionals** tab.

    a   Select the **Is** radio button option.

    b   Select **equals (=)** sign.

    c   Select **1** (one).

18   Drag the **blue question mark** below the previous command in the **Script** pane. This places the conditional Action parallel to the previous Action command.

19   In the Actions pane, select **Theater Dimmer**.

20   In the Command tab, select **On**. The action command appears in the Actions pane.

21   Drag the **green arrow** to the **blue question mark** in the **Script** pane to make it a subset of this conditional item.

22   In the Actions pane, scroll down to the **Agents**.

23   In the Variable agent, select **Keypad releases**.

24   Click the **Conditional** tab.

    a   Select the **Is** radio button option.

    b   Select **equals (=)** sign.

    c   Select **2** (two).

25   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.

26   In the Actions pane, select **Light Switch**.

27   In the Command tab, select **On**. The action command appears in the Actions pane.

28   Drag the **green arrow** to the **blue question mark** in the **Script** pane to make it a subset of the conditional item.

29   In the Actions pane, scroll down to the Agents list.

30 In the Variable agent, select **Keypad releases**.
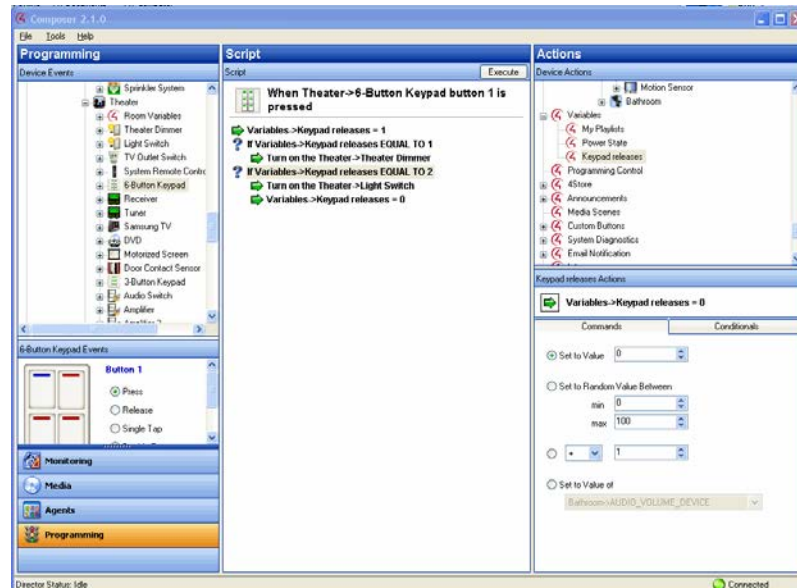
31 In the Commands tab, select the following:

a   Select the **Set to Value** radio button.

b   Set the value to **0** (zero). The Action command appears in the Actions pane.

32 Drag the **green arrow** icon to the **blue question mark** icon in the **Script** pane to make it a *second* subset of the conditional.

Using custom agent variable agent String

Use the Control4 Composer HE Programming view to create custom variables in an agent using a numeric value. **Note:** The steps in this section are for more advanced users of Composer HE, although the steps basically do repeat for each playlist you create. This example includes many steps.

In this example, you will program Button 4 on a keypad to toggle through four playlists.

Prerequisite

Ensure that the correct devices are added and identified in the project. Your dealer or installer can do that for you.

This example uses the following devices in the project:

- Controller
- 6-Button Keypad
- 4 Playlists: Mom's Favorites, Dad's Favorites, Choral Music, and Kid's Music

Add a new variable

To use a custom agent variable agent string:

1   In Composer HE, click **Agents**.

2   Select **Variables**. The Variables agent list appears.

3 Click **New**.

4 On the dialog that appears, do the following:

    a Select **New Variable**, and name the variable **My Playlists**.

    b In Variable Type, use the pull-down menu to select **String**, and then click **OK**.
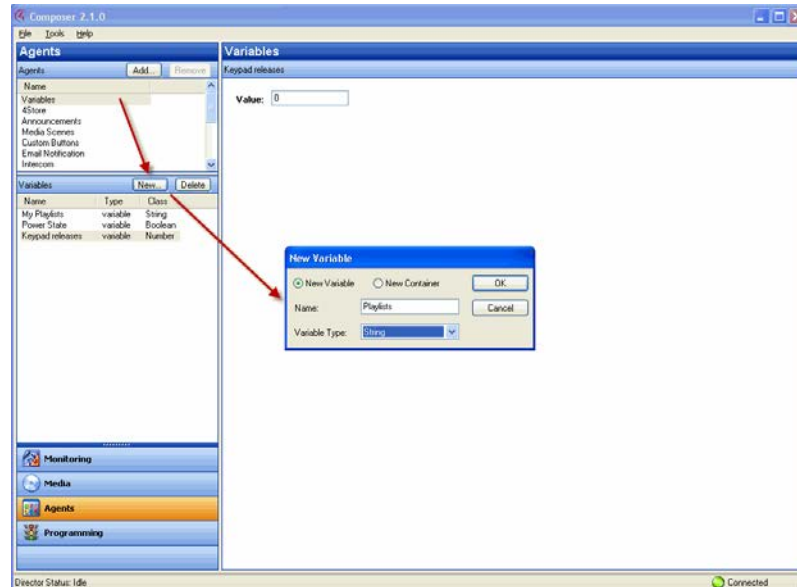
Set up Mom's Favorites playlist in the Theater

5 Click **Programming** to display the Programming view.

6 In Programming, select **6 Button Keypad** in the **Theater** from the Device Events pane.

7 In 6-Button Keypad Events, click **Button 4** on the Keypad.

8 In the Device Actions pane, scroll down and click to expand **Variables**.

9 Select **My Playlists**.

10 In My Playlists Actions pane, click the **Conditionals** tab, and enter the name of a playlist; for example, **Mom's Favorites**.

11 Drag the first **blue question mark** to the **Script** pane.
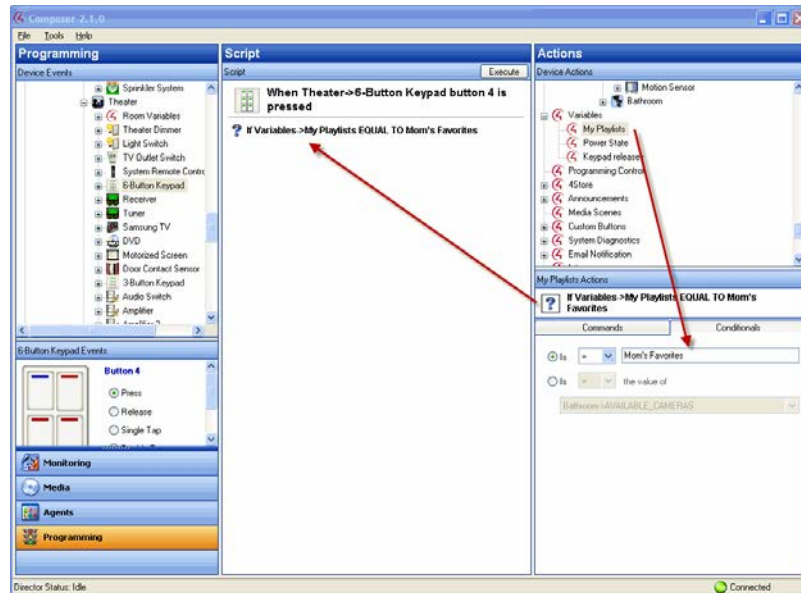
12 In Device Actions, select the **Theater** room object.

13 In Theater Actions, select **Media**.

14 In the window that pops up, select **Playlists**, **Mom's Favorites**, and then click **OK**.

15 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.
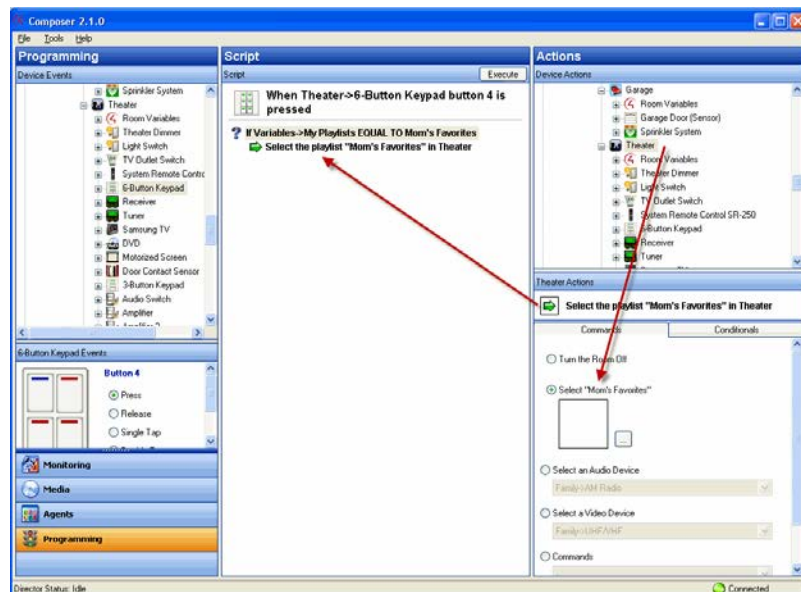

16 In Device Actions, select **My Playlists**.

17 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**.

18 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 you press the button on the keypad, the value of the variable will be Mom's Favorites (Dad's Favorites is shown below), and then will cue that playlist in the Theater.
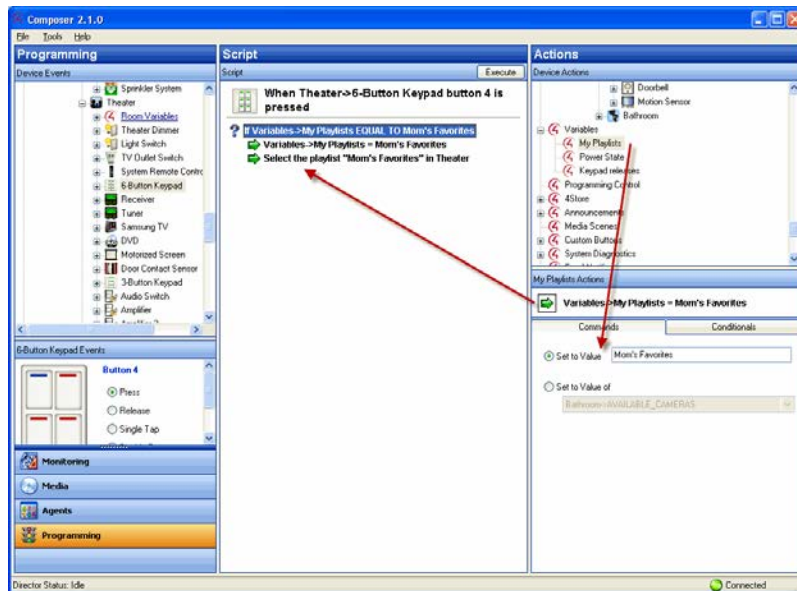
19 In Device Actions, scroll up and then select the **6 Button Keypad** in the **Theater**.

20 In 6-Button Keypad Actions, click **Button 4**.

21 Click the **square of color** to choose the color you want Button 4's LED to be when Mom's Favorites plays. Choose the color in the menu that pops up (in this example: green), and then click **OK**.
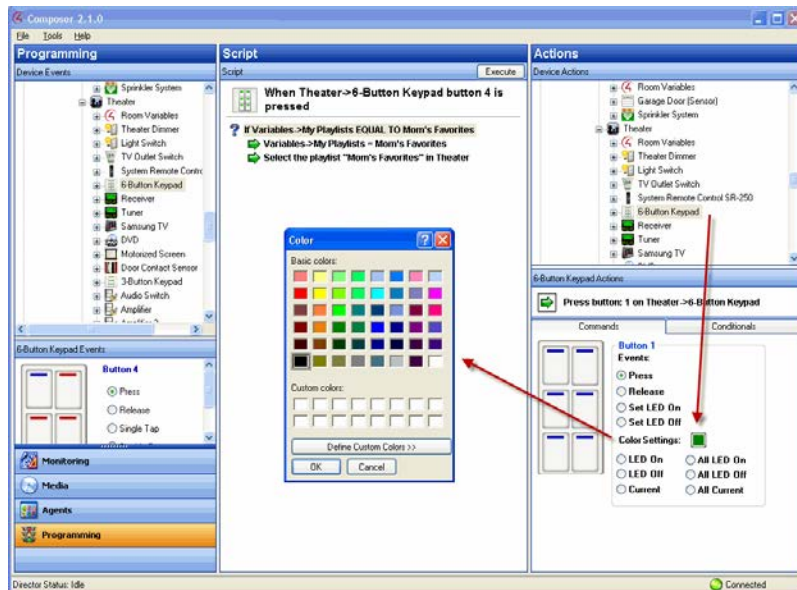
22 Drag the **green arrow** on top of the first **blue question mark** in the **Script** pane to make it a *third* subset of the *first* conditional.

23 In Device Actions, scroll down and select **Programming Control**.

24 In the Programming Control Actions, select the **Stop** radio button.

25 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.
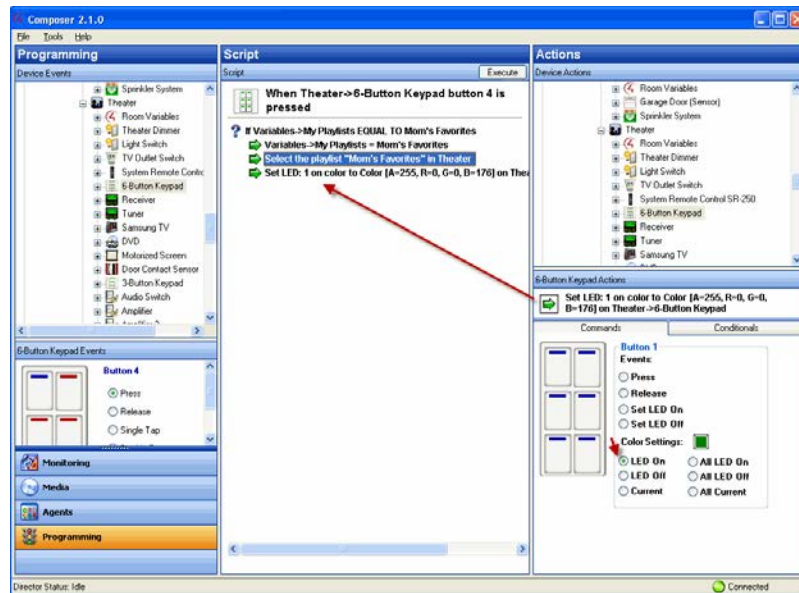
   Note: *It is important to add a* Stop *command here so that when the conditional is fulfilled, the programming does not continue. Because of the way this programming is set up when it's finished, without the stop, the button on the keypad always selects the last playlist in the script.*

Set up Dad's Favorites playlist in the Theater

26 In Device Actions, select **My Playlists** again.

27 In the Conditionals tab, next to 'Is' enter **Dad's Favorites** in the text box.

28 Drag the second **blue question mark** to the **Script** pane.

29 In Device Actions, select the **Theater**.

30 In Theater Actions, select **Media**.

31 In the window that pops up, select **Playlists**, **Dad's Favorites**, and then click **OK**.
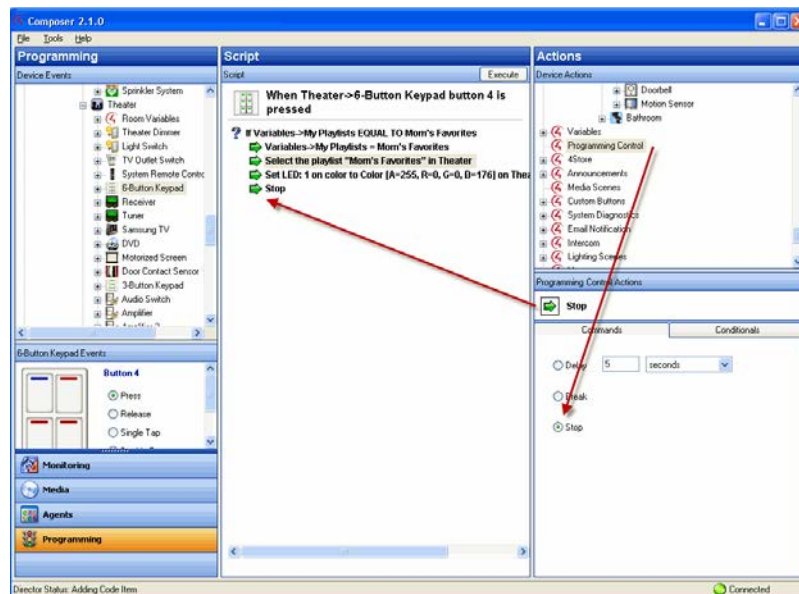
32 Drag the **green arrow** on top of the second **blue question mark** in the **Script** pane to make it the *first* subset of the *second* conditional.

Set up Kid's Room playlist in the Theater

33 In Device Actions, select **My Playlists**.

34 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**.

35 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.

36 In Device Actions, select the **6 Button Keypad** in the **Theater**.

37 In 6 Button Keypad Actions, click on **Button 4**. Click the **square of color** to choose the color you want **Button 4's** LED to be when Kid's Music plays. Choose the color in the menu that pops up (in this example: purple), and click **OK**.

38 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.

39 In Device Actions, select **Programming Control**.

40 In the Programming Control Actions pane, select **Stop**.

41 Drag the **green arrow** on top of the second **blue question mark** to make it a *fourth* subset of the *second* conditional.

42 In Device Actions, select **My Playlists** again.

43 In the Conditionals tab, enter **Kid's Music**.

44 Drag the **blue question** mark to the **Script** pane to make it the *third* conditional.

45 In Device Actions, select the **Theater** room object.

46 In Theater Actions, select **Select Media**.

47 In the window that pops up, select **Playlists**, **Kid's Music**, and then click **OK**.

48 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 Choral Music in the Theater

49 In Device Actions, select **My Playlists**.

50 In the Commands tab under My Playlists, enter the name of the next playlist that you'd like to play; for example, **Choral Music**.

51 Drag the **green arrow** on top of the third **blue question mark** to make it a *second* subset item of the *third* conditional.

52 In Device Actions, select the **6 Button Keypad** in the **Theater**.

53 In 6 Button Keypad Actions, click on **Button 4**. Click the **square of color** to choose the color you want Button 4's LED to be when Kid's Music plays. Choose the color in the menu that pops up (in this example: red), and click **OK**.

54 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.

55 In Device Actions, select **Programming Control**.

56   In the Programming Control Actions, select the **Stop** radio button.

57   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.

58   In Device Actions, select **My Playlists** again.

59   In the Conditionals tab, enter **Choral Music**.

60   Drag the fourth **blue question** mark to the **Script** pane.

61   In Device Actions, select the **Theater** room object.

62   In Theater Actions, select the **Select Media** radio button.

63   In the window that pops up, select **Playlists**, **Choral Music**, and then click **OK**.

64   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.

65   In Device Actions, select **My Playlists**.

66   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**.

67   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.

68   In Device Actions, select the **6 Button Keypad** in the **Theater**.

69   In 6 Button Keypad Actions, click on **Button 4**.

70   Click the **square of color** to choose the color you want Button 4's LED to be when **Choral Music** plays. Choose the color in the menu that pops up (in this example: yellow), and click **OK**.

71   Drag the **green arrow** on top of the fourth **blue question mark** to make it a *third* subset of the *fourth* conditional.

72   In Device Actions, select **Programming Control**.

73   In the Programming Control Actions, select the **Stop** radio button.

74   Drag the **green arrow** on top of the fourth **blue question mark** to make it a *fourth* subset of the *fourth* conditional.

75   In Device Actions, select the **Theater** room.

76   In Theater Actions, select **Media**.

77   In the window that pops up, select **Playlists**, **Mom's Favorites**, and then click **OK**.

   Note: *You do this because the first time you press the button on the keypad, the string variable does not have a value, and so 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.*

78   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.

79   In Device Actions, select **My Playlists**.

80   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**.

81   Drag the **green arrow** below the previous command in the **Script** pane.

82   In Device Actions, select the **6 Button Keypad** in the **Theater**.

83   In 6 Button Keypad Actions, click on **Button 4**. Click the **square of color** to choose the color you want Button 4's LED to be when **Mom's Favorites** plays. Choose the color in the menu that pops up (in this example: green), and click **OK**

84   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.

Programming with agents

Use the Control4 Composer HE Agents and Programming views to configure Properties, Delays and Agents.

An agent provides the ability to perform complex programming by using functional modules. Various types of agents are available, for example, Announcements, Email Notifications, Scheduler, Advanced Lighting, Wakeup, etc.

Example: *The Scheduler agent lets you configure dates and times.*

When using agents in the Programming view, you configure them in two parts:

- In the Agents view, you first **define** an instance of a type of agent.
- In the Programming view, you **use** the instance of the agent for event programming.

Example: *In the Agents view, you can create an instance of Custom Buttons where you identify all of the buttons you want to create. Then in the Programming view you can program the Custom Buttons to perform specific tasks on your devices.*

The "Agent Examples" section can guide you through the process for each type of agent available. Agents can vary greatly in functionality.

Note: *Ensure that the devices to which you want to apply the agents are added and identified in the system. Your dealer or installer can help you do this.*

Agent types

Use the Control4 Composer HE Agents and Programming views to add agents to your system.

Available agents:

- **4Store**—Lets you set up and manage 4Store logins, apps, themes, and also provides some storage.
- **Access**—Lets you hide icons on a Navigator and use a pin code to change the settings for the Navigator.
- **Advanced Lighting**—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 and later, this agent mostly supports the Panelized Lighting products with some limitations for older lighting devices.
- **Announcement**—Provides the ability to play a pre-recorded .WAV file or to display a text message whenever a given event occurs. An audio announcement can play on any audio output device in the selected rooms. Likewise, a supporting text message or stand-alone text message can display on the Navigators in the selected rooms. **Example:** You can create a "Doorbell" announcement that will play a .WAV file (a tone or voice) and display the text message on the Navigators "Someone is at the front door" each time someone presses the doorbell.
- **Custom Buttons**—Lets you create user interface buttons to use for specialized devices on the Navigators. See "Programming with the Room or Global Access Custom Buttons" in "Agent examples."

- **Email Notification**—Lets you have an email message sent to your email address when specified events occur as defined in programming.

  Notes:

  - *Remote access is required to use the Email Notification agent.*
  - *Avoid setting up email notifications for events that occur frequently (for example, when a motion sensor senses motion). If the Email Notification trigger event occurs too often, it causes the system to slow down.*

- **Intercom**—Provides the ability to set up the Intercom device groups and configure Intercom on the new 5" and 7" In-Wall Touch Screens (audio only), the new 7" Portable Touch Screen with Camera (audio and video), the Door Station (audio only), or the 7" In-Wall Touch Screen with Camera (audio or video).

  Example: *Set up device groups so you can send out a broadcast to each of the supported touch screens in that group.*

- **Media Scenes**—Lets you create a scene that plays music in selected rooms on your Control4 system.

- **Macro**—Macro agents associate programming with events.

  Example: *You can create one macro to use in several different programming events.*

- **Rhapsody**—Lets you specify your Rhapsody account name and password.

- **Scheduler**—Defines conditionals of time to the system, and adds the ability to have scheduled events. See "Programming with the Scheduler Agent" in "Agent Examples."

- **Screen Saver**—Lets you set up a Screen Saver agent so you can create various screen savers for your Navigators.

- **SNMP Configuration**—Lets your dealer set up to receive alerts if your home network malfunctions. Check with your dealer for details.

- **Timer**—Provides the ability to start a timer, stop a timer, or repeat 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, then a timer can be used to turn off the light after 15 minutes. Alternatively, a timer can be set to repeat an action whenever the timer expires.*

- **Variables**—A variable is a representation of information about the controlled devices, for example, a power state or current level of the device, and it works much like a Media Scene. Variables provide other programming options not available by using Commands, conditionals, or Loops. There are three kinds of variables:
  - **Room Variables**—Provide you with additional programming options not available from the Room object programming. Use Room object programming in preference to room variables whenever possible.
  - **Custom Variables**—Let you define additional programming options using:
    - **Boolean**—Provides a true/false option. **Example:** The light level is 70 percent.
    - **Device**—Provides a list of device options.
    - **Number**—Provides a value option. **Example:** The light level is 70 percent.
    - **String**—Provides the option to enter a string.
  - **Container Variables**—Provide the ability to bind two or more devices together using device variables. Container variables are available from the Agents view, and by highlighting variables.

Note: *Issues with various implementations have been found. The use of container variables for future implementation is not recommended. Where possible, replace existing implementations with alternate programming.*

- **Wakeup**—Has the ability to initiate a pre-specified wakeup time in the Navigators. The Wakeup agent lets you play music, turn on lights, and change temperatures. See "Programming with the Wakeup agent" in "Agent examples."

Agent examples

Use the Control4 Composer HE agents and Programming views to create and apply agents to devices in the Control4 system.

The following examples are used in the agents-related sections of this document:

- "Programming with the 4Store agent"
- "Programming with the Access agent"
- "Programming with the Advanced Lighting agent"
- "Programming with the Announcement agent"
- "Programming with a Custom Buttons agent"
- "Programming with the E-Mail Notification agent"
- "Programming with the Intercom agent"
- "Programming with the Macro agent"
- "Programming with the Media Scenes agent"
- "Programming with the Rhapsody agent"
- "Programming with the Scheduler agent"
- "Programming with the Screen Saver agent"
- "Programming with the SNMP Configuration agent"
- "Programming with the Timer agent"
- "Programming with the Variables agent"
- "Programming with the Wakeup agent"

Note: *Ensure that the devices to which you want to apply agents are added and configured in the system. Your dealer or installer can help you do this.*

Programming 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. Lets you update the list of purchased apps from
- Composer HE.
- Manage themes. Lets you update the list of purchased themes from Composer HE.
- Manage storage. Store purchased apps and themes to 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. Go to the 4Store web site to purchase apps and themes.
- Ensure that the storage devices you use (e.g., network file storage and controller) have been added and identified in the system.

To use the 4Store agent:

1 Start Composer HE and connect to a Director.
2 Click **Agents**.
3 In the Agents pane, select 4Store.
4 Click **Add** again (in the 4Store bar) to add accounts.
5 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.
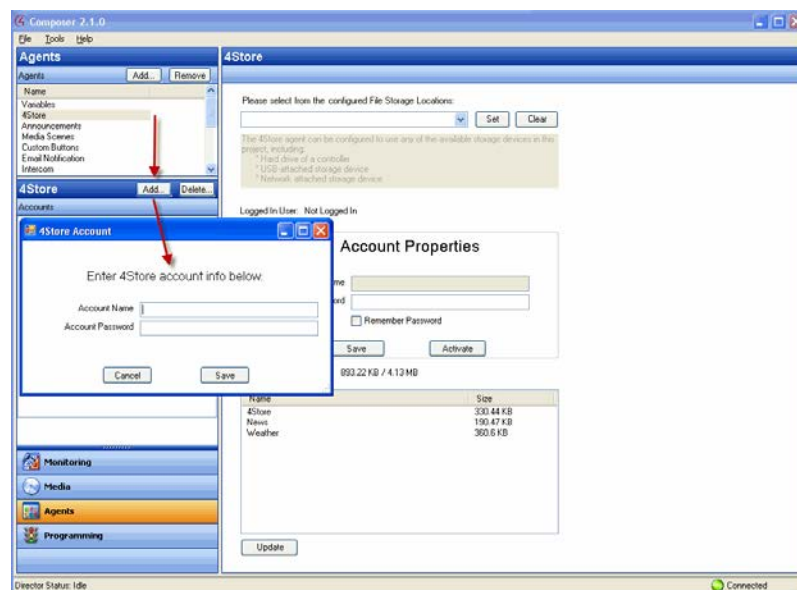
6 Select an account in the list to log in to 4Store. The Account Properties pane is populated with the information you added when you saved it. Click **Activate** to log in to that account. **Note:** When you log in to an account from Composer, all of the Navigators are logged into 4Store.

To select the storage:

1 Use the File Storage Locations drop-down list and select what to store your apps and themes to. After you select the storage device, click **Update** to transfer the apps or themes to the new location.

2   Click **Set**.
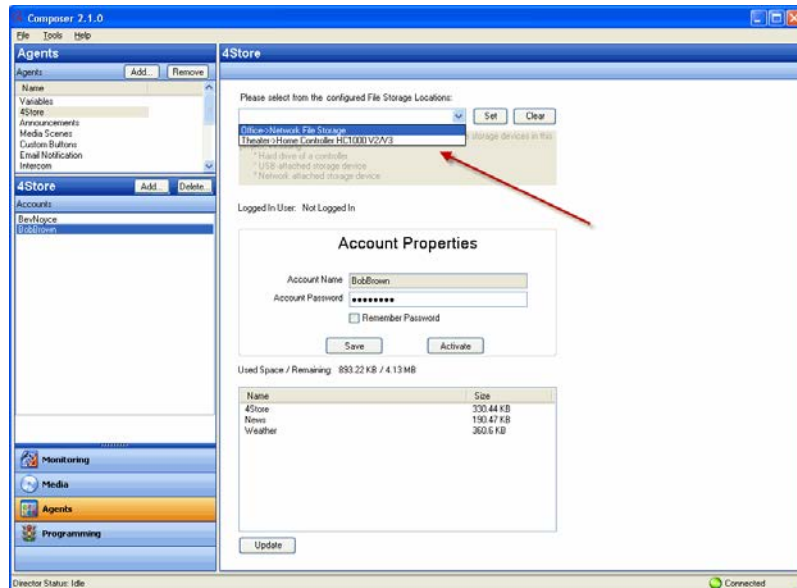
To update the apps and themes purchased for an account:

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.

Programming with 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 buttons. When enabled, the Access agent settings apply to all touch screens and on-screen Navigators in the system.

Status Bar buttons
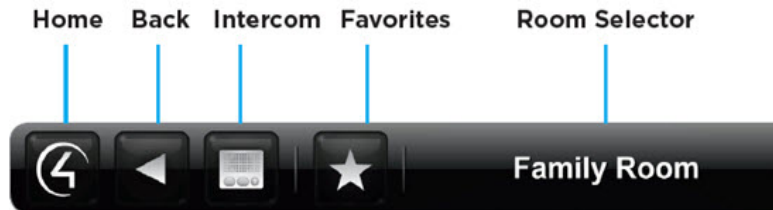
The Access agent provides these key features:

- **Access Code**—Using this agent within Composer Pro, the programmer can establish a four-digit access code to globally restrict access to the Status Bar, More and Settings buttons. Check with your dealer for details.

- **Status Bar Lock**—The Control4 Home, Back, Favorites, Room Selector and Intercom buttons available on the Status Bar can all be locked so that a user must first enter the Access Code to use these features.
- **Status Bar Hide**—The Favorites and Room Selector functions can be hidden from users.
- **More and Settings Button Lock**—The More button on the Control4 Home Screen and the Settings button within More can be locked.
- **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?
- Establish an access code.

Usage

To use the Access agent:

1 Start Composer HE and connect to a Director.
2 Click **Agents**.
3 Select **Access**.
4 In the Access Code pane, enter a four-digit access code on the numeric keypad. This is the code you'll use to manage access to icons in the Navigators.
5 Click **Set Access Code**. The new access code appears in 'Current Access Code' window.
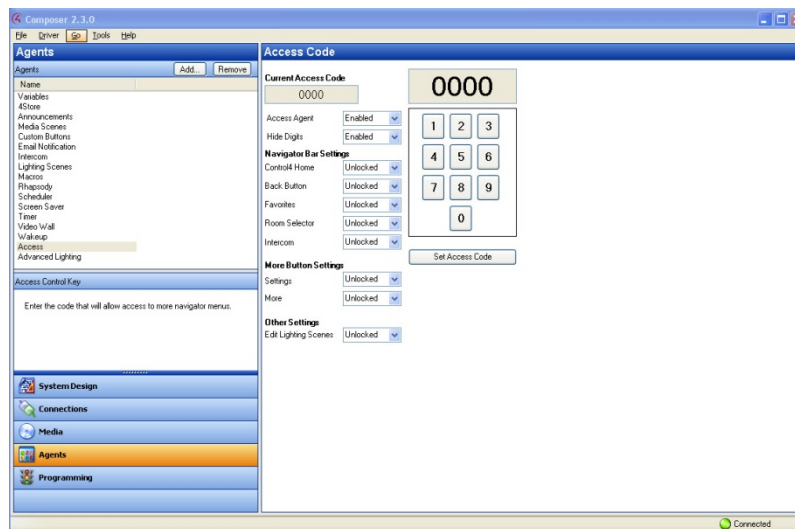
The following settings are available to the programmer as indicated by the names next to the drop-down selectors:

- **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 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 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 remotes. 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 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, 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, 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, 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, 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, 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, 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. Contact your dealer if you forget your Access Code.

Keypad user interface and localization

When the Access agent is enabled, an Access agent keypad displays on the user's 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:
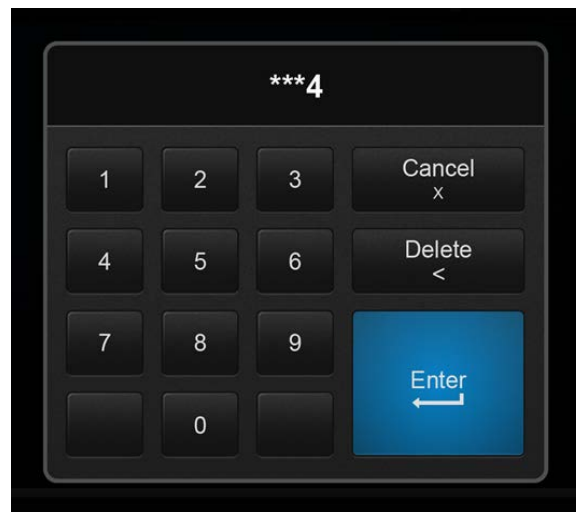
Note: *Cancel, Delete and Enter are translated into the local language, where available.*

Programming with the Advanced Lighting agent

Use the Control4 Composer HE 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.)

The Advanced Lighting 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 HE and connect to a Director.
2   Click **Agents**.
3   In the Agents pane, select **Advanced Lighting** and then click **New**.
4   Enter a name on the dialog that appears, e.g., **Party Lights**.
5   Click **Create**. **Note:** You can click the **Rename** button to rename a scene.
6   Adjust the scene as desired.

- **Show flash option**—Select this option to add a Flash check mark 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 by setting 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, you press and hold for a set period of time in seconds. This action behaves the same as hold rates for dimmers.
- **Toggle Scene**—This drop-down list lets you choose 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.*
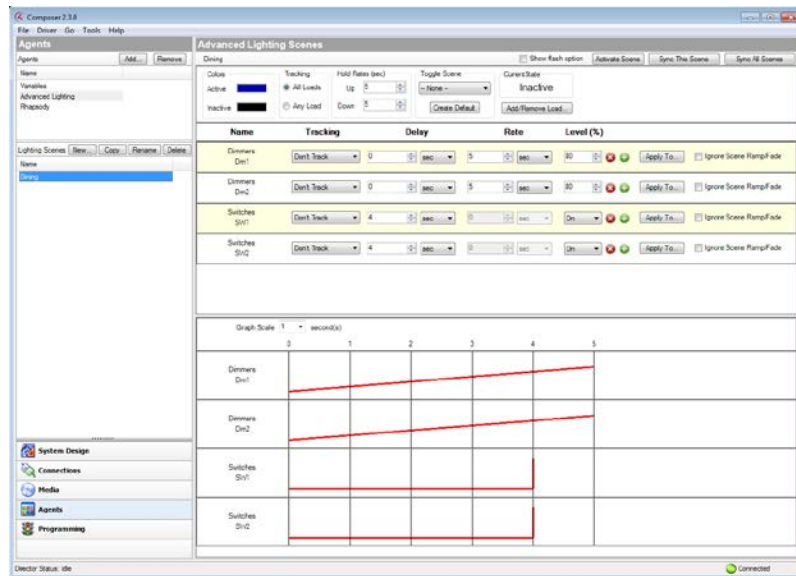
Create a Dining 'Toggle' scene. Notice the difference in switches and dimmers and their values from the previous screen.
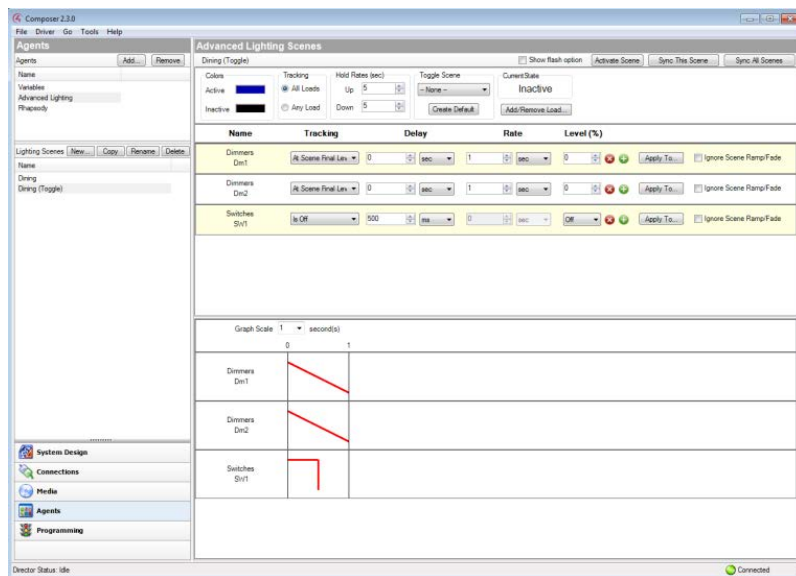
Now have your dealer use Composer Pro to connect the keypad bindings on a 3-Button Keypad.

When you toggle the 3-Button Keypad in the Dining room, various lights go on or off at various levels.

In the Agents view, check out the following options:

- **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.
    - Click **Add/Remove Load** to add or remove specific dimmers or switches associated with 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.

7   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 seconds.*

    - **Rate**—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 (%)**—Set a target lighting level as appropriate by using the drop-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.
   - **Graph Scale**—Select the time, in seconds, that you want to show the light levels.

8   Now click **Programming**—To program a scene, follow the basic steps in
     "Programming Basics for Control4 Systems."

Note: *This agent has 'read-only' variables for the length of each scene.*

Example: *Note the screens below.*

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.
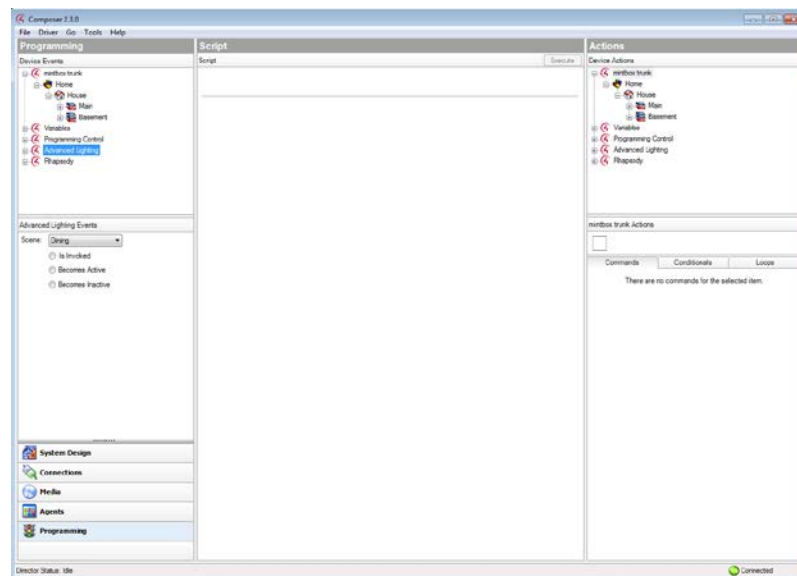
Actions—(Activate, Deactivate)
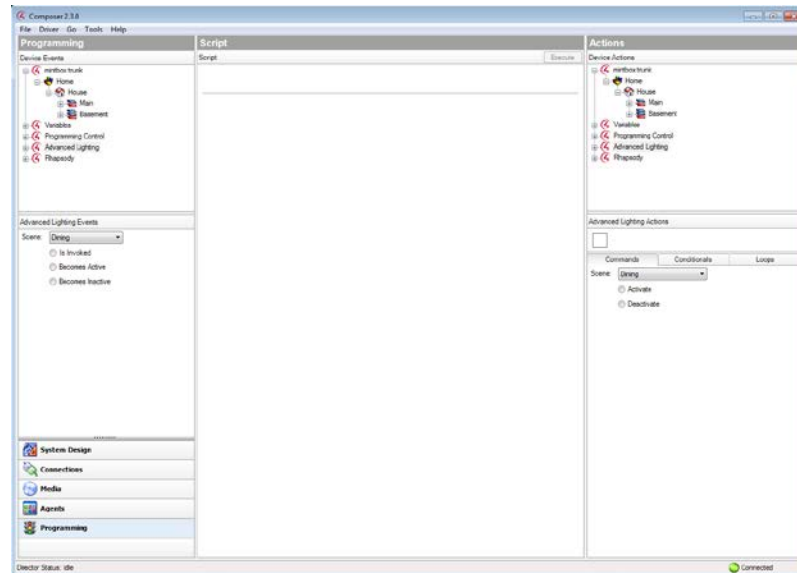
A programming example for use with the Advanced Lighting agent might be in a case where, if the front door opens and it's past 9 PM at night, all the lights turn on in the home at various levels.

Programming with the Announcement agent

Use the Control4 Composer HE Agents and Programming views to program this agent.

You can create an announcement that

- Displays a text-message or web page on any of the graphical Navigators (TV on-screen menu, touch screens, or Control4 apps)
- Plays a WAV-formatted audio announcement through any audio endpoint
- Or a combination of the two

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: *Create a 'Dinner is Ready' announcement that is activated when the family chef presses a custom-programmed button. When the button is pressed, the text message "Come to Dinner Now!" displays on all of the on-screen Navigators and touch screens in the home while an audio file plays a dinner bell ringing.*

Prerequisites

Ensure that the devices to which you want to apply agents are added and identified in the system. Your dealer or installer can help you do this.

This example uses the following devices in the project:

- A controller
- An audio output device (for example, a TV or connected speakers)
- A Navigator with a screen (touch screen, TV on-screen Navigator, or Control4 app)

- Any device involved in the triggering event (for example, a Doorbell Contact, 3-Button Keypad, etc.)
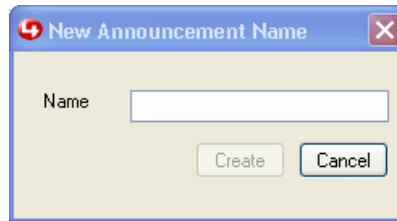
To create a new Announcement agent:

1   Start Composer HE and connect to a Director.
2   Click the **Agents** view.
3   In the Agents pane, select **Announcements**.
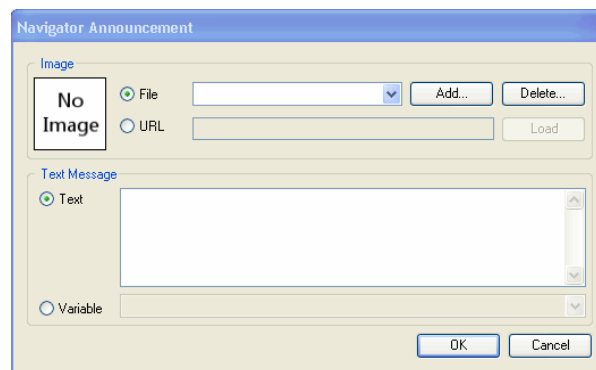4   Click **New**.

   Announcements agent:
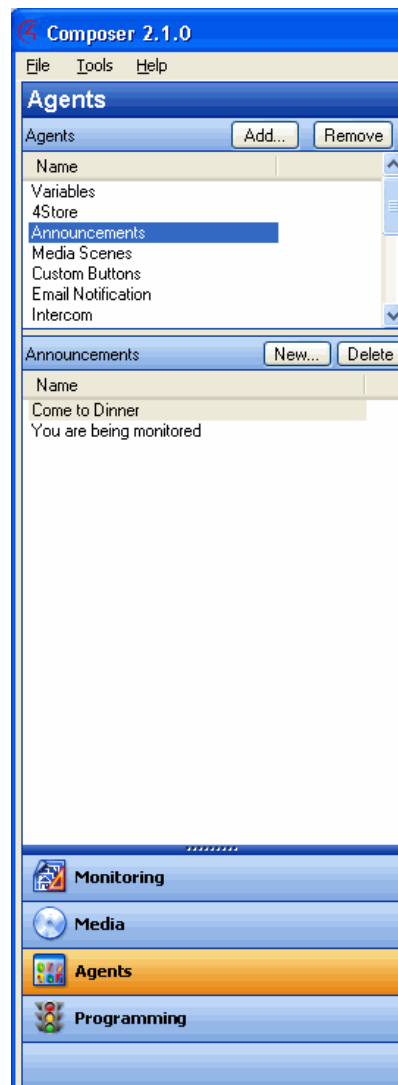
5   With Announcements selected in the agents <name> pane, click **New**.

6 Add a name to the new announcement, and then click **Create**.

7 Set up the Navigator text message to be displayed.

a Check the Display Navigator Text/Image Popup box.

b Click **Edit Text/Image**.

c Enter a text message, a URL, or browse to an image (JPG, GIF, or PNG) to be displayed.

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.

The following 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!</a></BODY></HTML>
```

Note: *A static image file (JPG, GIF, or PNG) only has to be added to your project one time, because it is copied to the controller. When added, it is available in the Text Message drop-down list for use in any additional announcements created.*

d Select the time you want the text message to display by selecting a **Close after** drop-down option (supported display times are from 5 seconds to 10 minutes).

e Click **Add/Remove** and add the Navigators that will display the message. Click **OK**.

8   Audio file. Add a **WAV** audio file and set up the audio file to play (see the figure below).
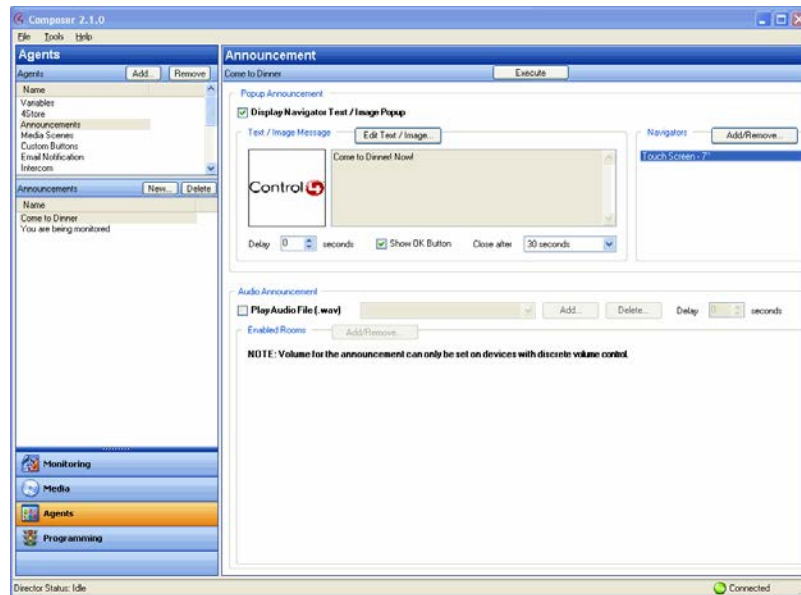
a   Check the Play Audio File (.wav) box.

b   (One time per audio file.) Click **Add** and browse to the .WAV audio file to add it to the drop-down list.

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 list for use in any additional announcements created.*

c   Choose the **WAV** file from the drop-down list.

d   Click **Add/Remove Rooms** and add the rooms where the audio file will play.

e   Set the volume of the audio play for each room.

Note: *Volume for the announcement can be set only on devices with discrete volume control.*
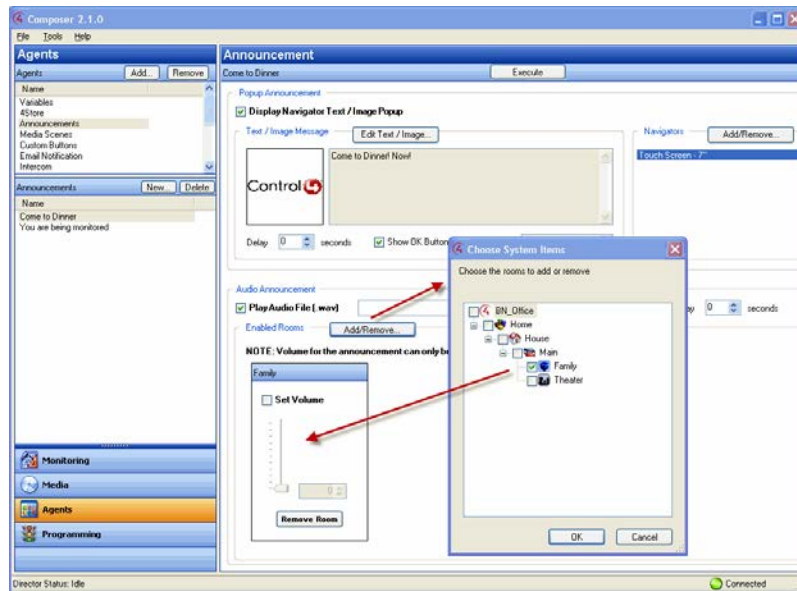
9   Click the **Programming** view.

10   Verify that the new Announcement agent displays in the Actions list (bottom of list).
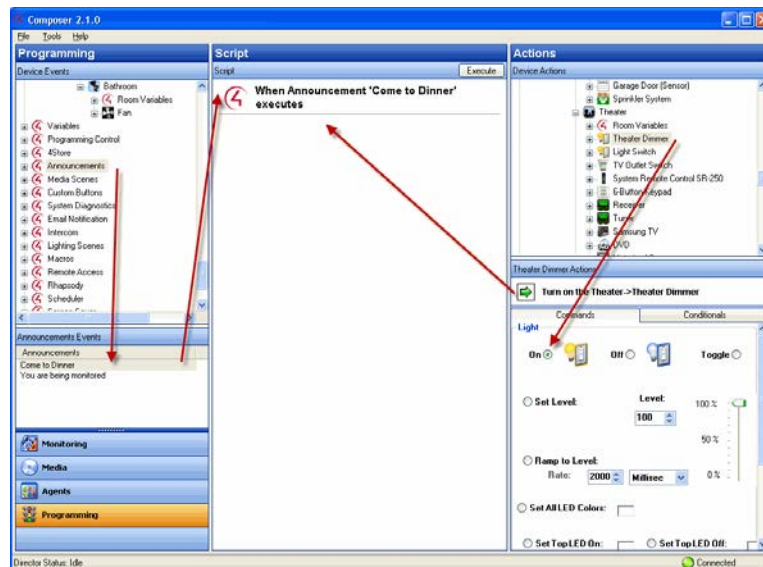
a   Select **Announcements**.

b   Make sure the 'Come to Dinner Now!' 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 Announcement agent "Come to Dinner Now!" (right pane) to run.*

Programming with a Custom Buttons agent

Use the Control4 Composer HE Custom Buttons agent to create up to four custom screens to display on the Navigators (including touch screens and on-screen TVs).

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 your Navigators.*

Guidelines

- You can access each screen on the Navigators from the Control4 main menu or for a room from four available tabs. For 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.
- The Navigators allow up to four tabs per room to access custom screens with custom buttons. Each screen can provide up to six custom buttons for a total of 24 custom buttons. The four tabs in each room can be allocated either as room or global tabs.
- On the Navigators, you can set up a room or global tabs. The example below shows the creation of custom tabs that appear in the Kitchen to 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 screens are available for each room, if a Global button is added and another room already has four screens, the Global button replaces the first screen in that room.*

Prerequisites

- Ensure that the correct devices are added and identified in the project.

  This example uses the following devices 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.)
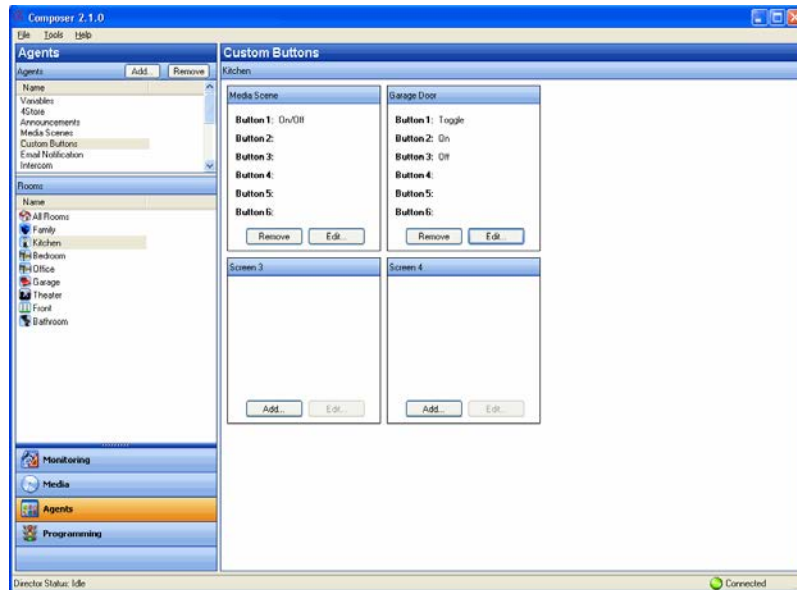
To set up a Custom Buttons agent:

1. Start Composer HE and connect to a Director.
2. Click **Agents**.
3. Choose Custom Buttons.
4. From the list that appears in the left pane, select the **room** for the Custom Button.
5. For example, select **Kitchen**.

6   When the Custom Buttons interface appears, in the Screen *x* area, click **Add**.
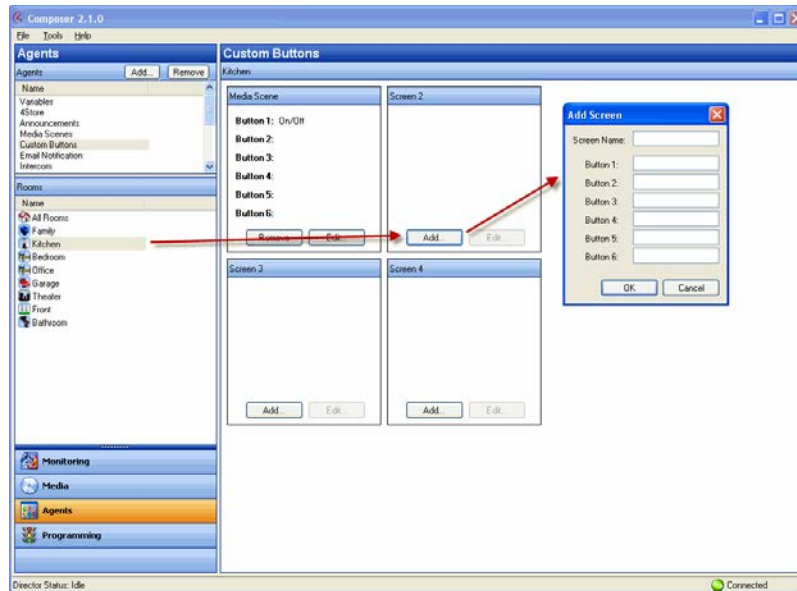
7   Enter the name of the buttons that will appear on the Navigator.


8   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

9   Click **OK**.

10   Click the **Programming** view to program your custom buttons.

11   In the Device Events pane, scroll down to the agents and select the **Custom Buttons** agent.

12   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 Front is pressed, it appears at the top of the Script pane.
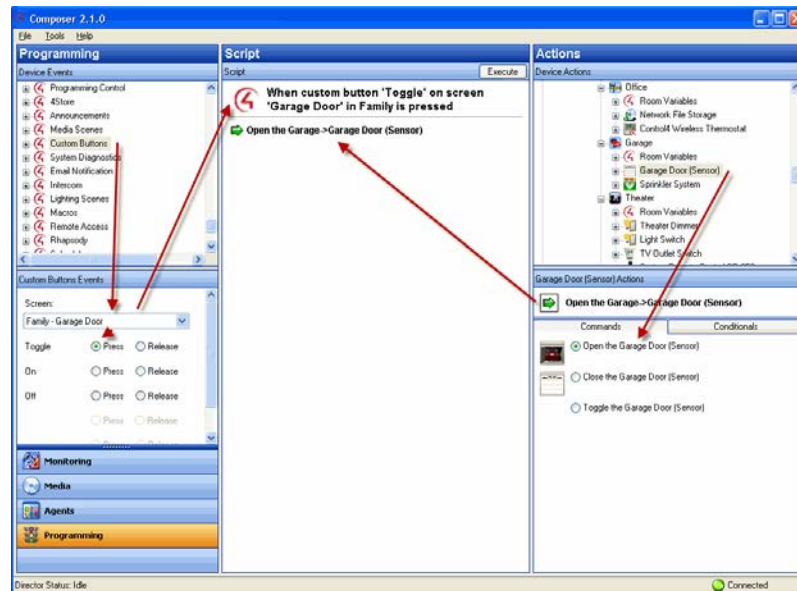
13   In the Actions pane, select **Garage Door**.

14   From the Command tab, select the **Toggle the Garage Door** radio button. The action command appears in the Actions pane.

15   Drag the **green arrow** to the Script pane.

16   Select **File** > **Refresh Navigators**.

Programming with the E-Mail Notification agent

Important: *An active 4Sight Internet Service subscription is required for Email Notification to work. See the* Control4 System User Guide *for details.*

Use the Control4 Composer HE E-Mail Notification agent to have an email message sent to an email address automatically when specific events occur that you define in programming.

Example: *If you want to know when the basement door opens, you can set up an Email Notification agent to send an email message to your Inbox when the basement door is opened.*

* The Email Notification agent is a Control4 service. To use the Email Notification agent, Remote Access is required to facilitate a secure connection between the controller and the Control4 service.
* The Email 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" or "Setting Up Remote Access" in *Composer HE Getting Started*.

- Use the Programming view to define the individual instance that triggers an e-mail 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 Email 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 Email 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 slow things down.*

Prerequisites

Ensure that the correct devices are added and identified in the project. Your dealer or installer can help.

This example uses the following devices in the project:

- Controller
- Door Contact Sensor

To set up an E-Mail Notification agent:

1   Start Composer HE and connect to a Director.
2   Click **Agents**.
3   In the Agents pane, select **Email Notification**, and click **Add**. 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, your installer can create or modify email templates using Composer HE, agents, Email Notification, and then use the* Add Variable *option.*

4   Enter a name on the dialog that appears, for example, 'Security Alert.'
5   Click **Create**.
6   In Email Notification Template Name, select **Security Alert** for the Composer email screen to appear.
7   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.**
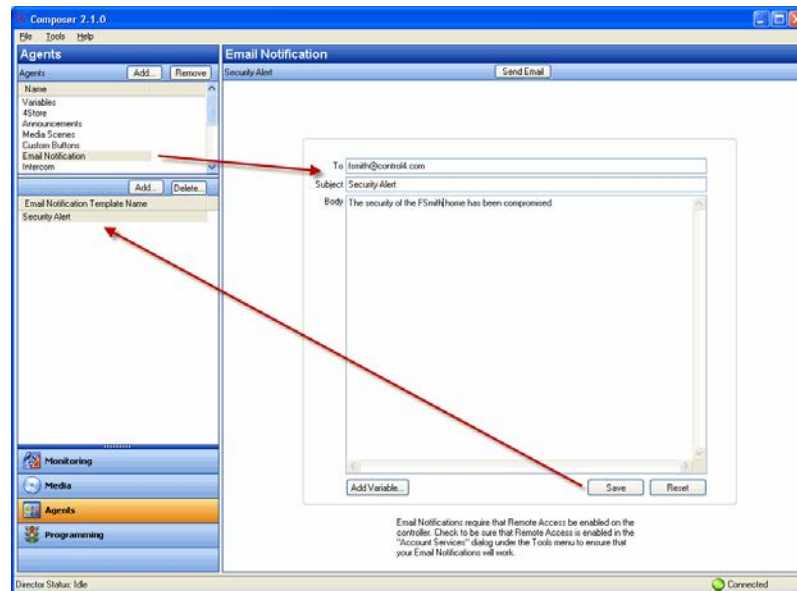
8   Do the following as needed:

   a   Click **Send Email** to test whether you receive an email to your email address.

   b   Click **Save** to exit and go to the Programming view to set up the programming.

   c   Click **Reset** to clear the To, Subject, and Body of the email to start again.

9   With the Agent template created, you can create one instance of the Security Alert for each security zone (or object).

10   Click **Programming** to display the Programming view.

   a   In Programming under Theater, select **Door Contact Sensor**.

   b   In Door Contact Sensor Events, select **When Door Contact Sensor opens**.

   c   In the Actions pane, scroll down and select **Email Notification**.

   d   Make changes to the email as necessary.

   e   Drag the **green arrow** to the Script pane.

11   In the File menu, click **Refresh**.

12   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 the subject.

Programming with the Intercom agent

Use the Control4 Composer HE Agents and Programming views to program this agent.

The Intercom agent lets you configure the 5″ or 7″ In-Wall Touch Screens (supports audio intercom only), the 7″ Portable Touch Screen with Camera, the Door Station, or the 7″ In-Wall Touch Screen with Camera (supports audio and video intercom) so that the Control4 system acknowledges the Intercom system and can communicate with it.

Note: *Only these touch screens models are capable of Intercom functionality.*

Note: *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 broadcasts to touch screens, 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' rooms after they've gone to bed to ensure that they're going to sleep when they should.*

Example: *This example demonstrates how to send a 'test' announcement to a touch screen in the Master Bedroom that indicates that the Master Bedroom is being monitored.*

Tip: *Many of the steps below (creating or removing groups, adjusting settings, etc.) can be performed on the supported touch screens. See the* 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 for details.*

Prerequisites

The example below uses the following devices in the project:

- Controller
- 7" In-Wall Touch Screens
- Intercom license
- Intercom agent (see below)
- Kitchen
- Master Bedroom
- Macro agent

Note: *An Intercom license must be assigned and active on your account. Check with your dealer for details.*

To set up an Intercom agent:

1   Start Composer HE and connect to a Director.
2   Click the **Agents** view.

3   In the Agents pane, select **Intercom**.
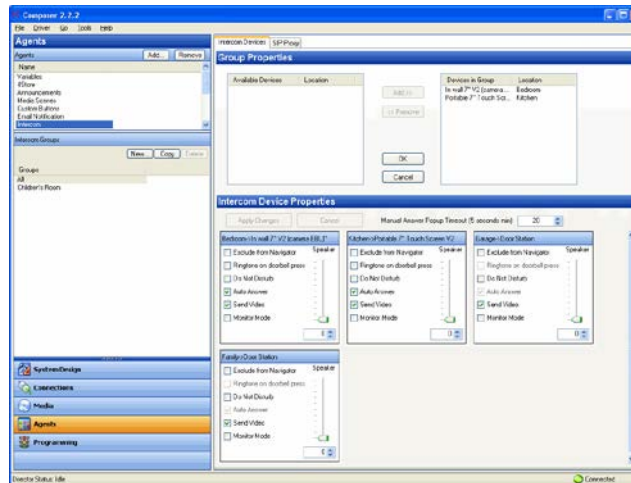
Add new Intercom group

To add an Intercom group:

An Intercom group is a set of Intercom-supported touch screens 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 Intercom Groups 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" In-Wall Touch Screen with Camera, or 7" Portable Touch Screen with Camera, or Door Station. 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**.

  - OR -

  Remove: Select the device in the right box of the Intercom Devices tab, and then click **Remove**. Click **OK**.

Intercom device properties:

Important: *Make sure you review with your dealer all of your Intercom settings for the supported touch screens with and without cameras in OS 2.2 or later before your dealer finishes 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 or later. Auto Answer is ON by default for Intercom V2 in OS 2.2 or later. If you want 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 will have to go to the settings in each touch screen and disable them manually.*

To add or remove settings for each touch screen:

1   Use the Intercom Devices tab to change the settings for each supported touch screen.
  - **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.
  - **Ringtone on doorbell press**—On touch screens, plays a ringtone when a door station doorbell is pressed.
  - **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). 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 *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://wwwregular.expressions.info/tutorial.html*. Explains how regular expressions work.

Programming with the Macro agent

Use the Control4 Composer HE Agents and Programming views to program this agent. Macros agents are routines that associate programming with events.
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, Control4 app, TV screen, etc.)
- Any device involved in the triggering event (doorbell contact, Configurable Keypad, etc.)

To set up a Macros agent:

1   Start Composer HE 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:

5   Select **Macros** in the Agents pane, and click **New**.

6   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.

7   Click the **Programming** view.

8   In the Device Events pane, scroll down to Macros and select **Bob**. "When Bob is executed" appears in the Script pane.

9   In the Device Actions pane, select **Family Room** and the **Switch**.

10   Under Light, select **On**.

11   Drag the green arrow 'Turn on the Family > Switch' to the Script pane.

12   Under Light, select **Off**.

13   Drag the green arrow 'Turn off the Family > Switch' to the Script pane.
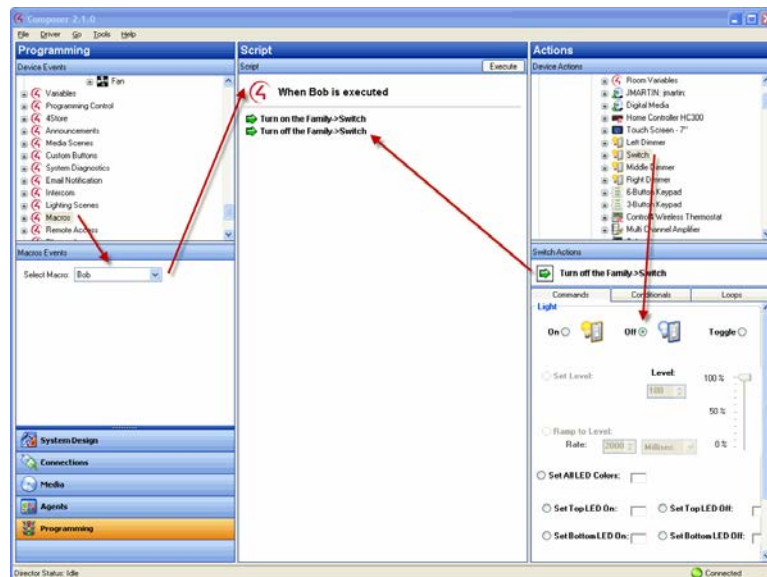
14   You can add the Macros agent to many programs that you create if you want to perform similar tasks, or you can program the agent for a specific device. For example, you can assign this agent to **Button 1** on a Configurable Keypad to run the program when executed.

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.*

Programming with the Media Scenes agent

Use the Control4 Composer HE 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 for any number of rooms.*

Guidelines

- To activate a Media Scene successfully (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 the Media Scene one time, and activate it when desired. Then play the music.

To create a new Media Scenes agent:

1   Start Composer HE and connect to a Director.
2   In the Agents pane, select **Media Scenes**, and click **New**.
3   Enter a name for your new Media Scene. **Example: Party Music**.
4   In the Agents pane, select **Party Music**, and then click **Add Room** in the Media Scenes pane.
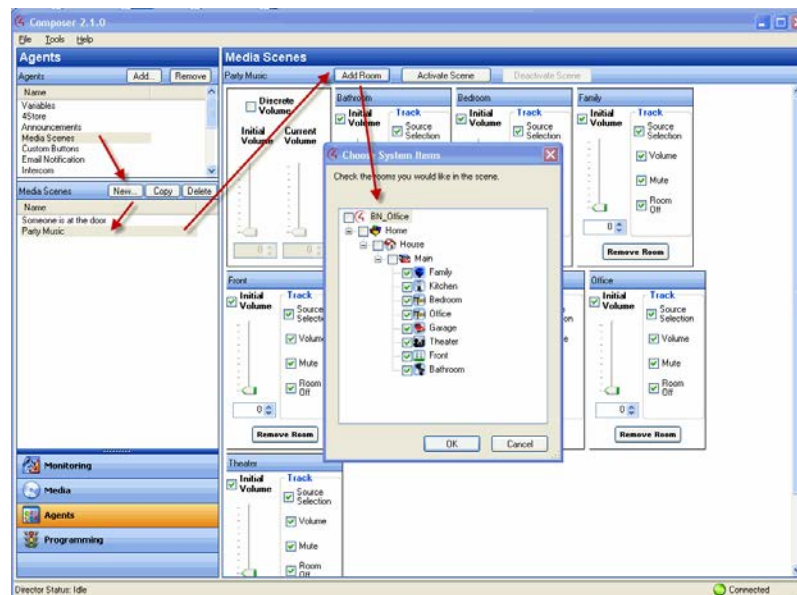
5   The dialog box lists the rooms in your system. Check the **rooms** where you want to play your Party Music, and then click **OK**. **Example: Family, Kitchen,** and **Theater**.

   Tips: To remove a room from a scene, click **Remove Room**. *To create another Media Scene, return to Step 1.*
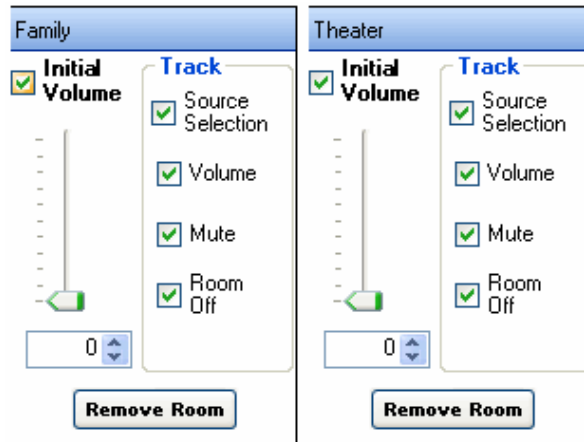
Tip: *You can add all rooms on a floor by clicking* **Main**. *This automatically selects all other rooms in that category. You can include also all rooms in your entire system in the Media Scene by clicking* **House**.

The rooms you selected appear in the new Media scene 'Party Music.'
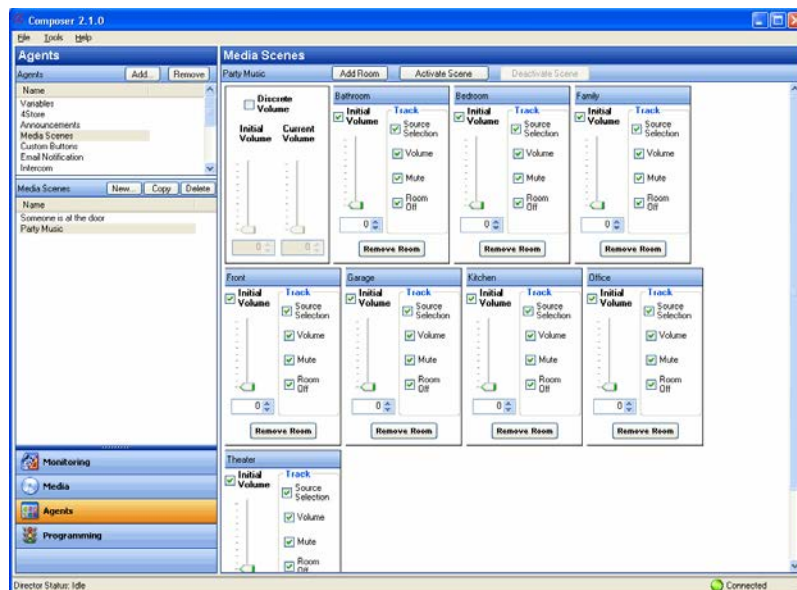
6   To activate the scene, click **Activate Scene** at the top of the screen.

To deactivate the scene, click the **Deactivate Scene** button.

7   You can program a button for your Media Scene. Do this by creating a new Custom Buttons agent.

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**.

The custom button name appears in the pane.

8   Click the **Programming** view.

9   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 then select the* Press *radio button.*

10   In the Actions pane, select **Kitchen**.

11   In the Theater Actions pane under Conditionals, press the **Media Scene Active** button, and then the **True** button.

12   Drag the **blue question** mark to the Script pane.

13   In the Actions pane, scroll down and select **Media Scenes**.

14   In the Media Scenes Actions pane under Commands, press the **Deactivate** button, and then select **Party Music**.

15   Drag the **green arrow** on top of the **blue question** mark in the Script pane.

16   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.

17   Drag the **blue question mark** to the Script pane.

18   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**.

19   Drag the **green arrow** icon on top of the **blue question** mark in the Script pane.
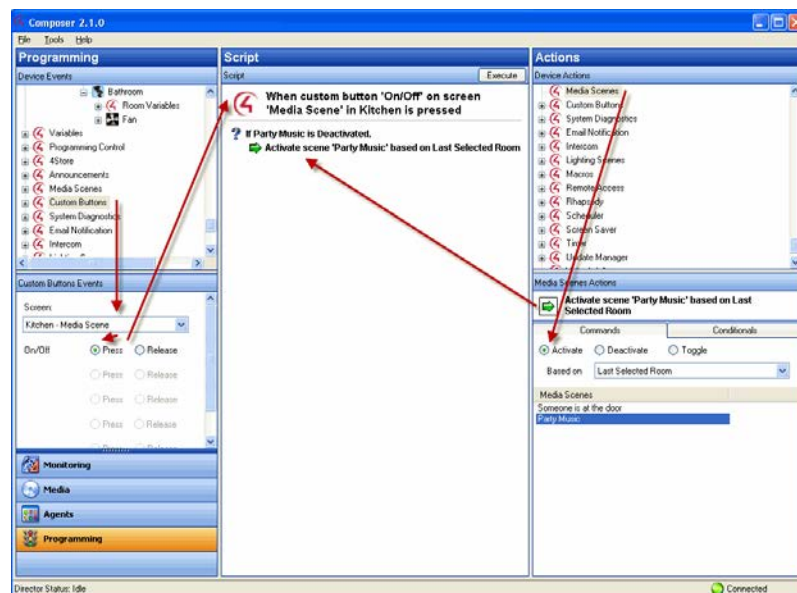
The Script pane now reads, 'When custom button 'On/Off' on screen 'Media Scene' in Kitchen is pressed...Activate scene 'Party Music.'

20   To execute the scene, click **Execute**.

Programming with the Rhapsody agent

Use the Control4 Composer HE Agents view to activate or disable a Rhapsody® agent.

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 any Rhapsody album, songs, or playlists whenever you want, in any room of your house through the Control4 system.*

Prerequisites

- Ensure that a Rhapsody account has been set up.
- 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 HE and connect to a Director.
2 Select **Agents**.
3 In the Agents pane, select **Rhapsody**, and then click **New**. The following dialog box appears in the right pane.

4 Enter your Rhapsody account name and password.
5 Click **Save**.
6 Click Activate.

To disable Rhapsody:

1 Start Composer HE and connect to a Director.
2 Click **Agents**.
3 Select **Rhapsody** from the agents list.
4 Select **Disable Rhapsody**.

Programming with the Room or Global Access custom buttons

Use the Control4 Composer HE Agents and Programming views to create custom buttons for display on your Navigators. The Custom Buttons agent lets you create up to four custom screens to display on the Navigators.

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 your Navigators.*

Each screen is accessed from the main menu or from a room from four available tabs. For 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 be viewed in only one room.

The Navigators contain up to four tabs per room to access custom screens using custom buttons. Each screen can provide up to six custom buttons for a total of 24 custom buttons. The four tabs in each room can be allocated either as room or global tabs.

Note: *On the Navigators, you can set up room or global tabs. The example shows the creation of custom tabs that appear in the* Kitchen *and access a custom screen. If you want to create a Custom tab to appear globally, check the* Global *box next to the Screen Name. Because only four screens are available for each room, if a Global button is added and another room already has four screens, the Global button will replace the first screen in that room.*

Prerequisites

- Ensure that the devices to which you want to apply agents to are added and configured in the system. Your dealer or installer can help you do this.

This example uses the following devices in the project:

- Controller
- Electronic Gate
- Garage Door Sensor

To program using the Custom Buttons agent:

1 Start Composer HE and connect to a Director.
2 Click the **Agents** view.
3 In the Agents pane, select **Custom Buttons**.
4 From the list in the left pane select the **room** where you want the custom button to appear, for example, **Kitchen**.
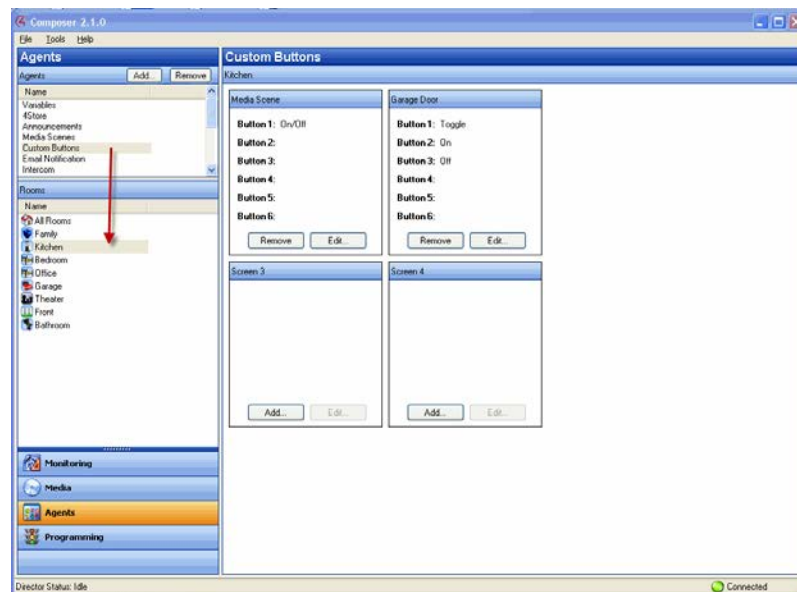
5   When the Custom Buttons interface appears, in the Screen 1 area, click **Add**. In the next few steps, you enter the name of the buttons you want to appear on the Navigator device screen you are creating.

6   Enter the relevant information for the device.
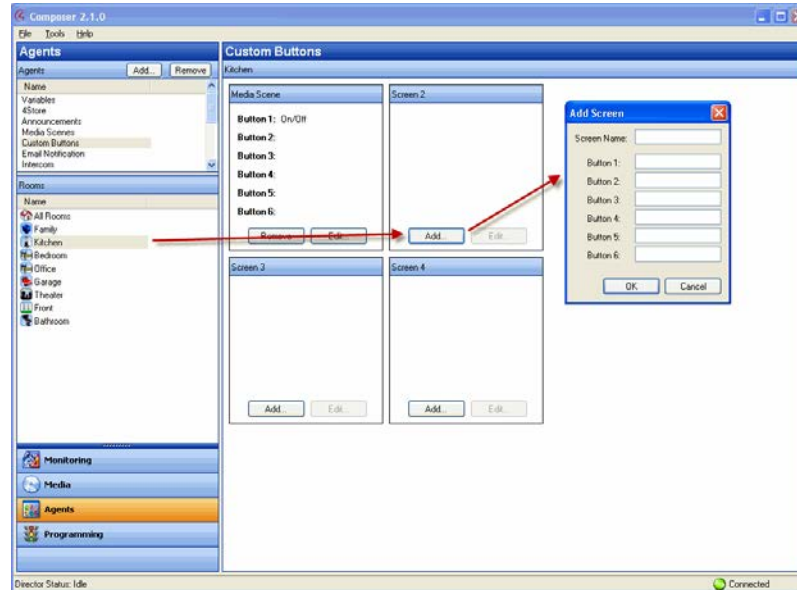
The Screen Name is the name that appears on the access tab to enter the custom screen. The buttons are the names that appear on the custom buttons. For example, using the Electronic Gate, enter the following:

Screen Name: **Electronic Gate**

Button 1: **Toggle**

7   Click **OK**.

8   Create another button for the **Garage Door Sensor**.

9   Click the **Programming** view to program your custom button for the Garage Door.

10   Under Device Events, scroll down to the agents and highlight the **Custom Buttons** agent.

11   In the Custom Buttons Events pane, ensure that **Family – Garage Door** is selected under Screen next to Toggle.

12   Select the **Press** radio button.

The event 'When custom button 'Toggle' on screen 'Garage Door' in Family is pressed' appears at the top of the Script pane.
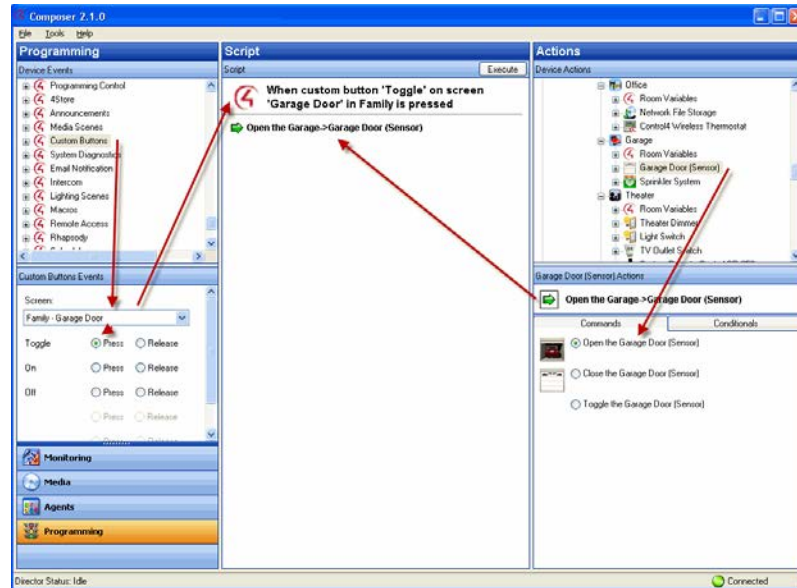
13   Under the Actions pane, highlight **Garage Door**.

14   Click the **Commands** tab.

15   Select the **Toggle the Garage Door** radio button. The action appears in the right middle pane.

16   Click and drag the **green arrow** to the Script pane.

17   From the File menu, select **Refresh Navigators**.

Try the on-screen Navigator, Control4 app, or another Navigator to see the custom buttons you just created.

Programming with the Scheduler agent

Use the Control4 Composer HE Agents and Programming views to create a Scheduler agent. This agent lets you schedule time on the system to trigger events. You have the flexibility to program a specific one-time event, multiple events to re-occur daily, weekly, monthly, yearly, etc.

Example: *Schedule a fun event to wake up dad by playing his favorite song at 7:30 AM on his birthday.*

Prerequisites

Ensure that the devices to which you want to apply agents are added and identified in the system. Your dealer or installer can help you do this.

**To create a Scheduler agent:**

1   Start Composer HE and connect to a Director.
2   Click the **Agents** view.
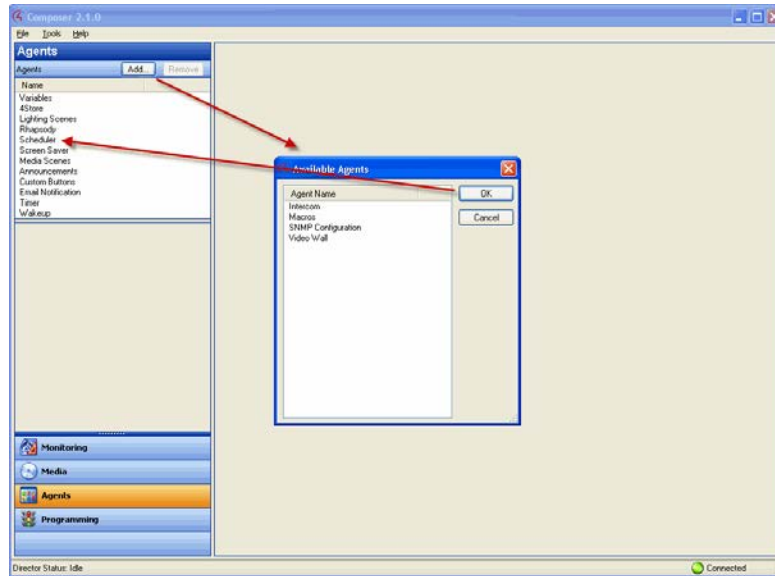
3   In the Agents pane, select **Scheduler**. The Scheduler interface panes appear.
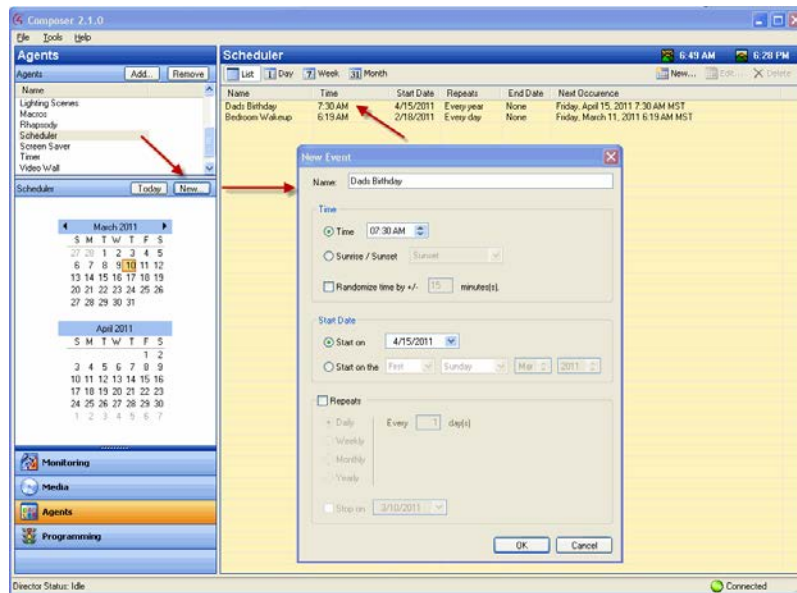
4   In the Scheduler pane, click **New**.

5   In the New Event dialog, enter the relevant information for this Scheduler instance:

a   Enter the Name **Dad's Birthday**.

b   In Time:

    i   Select the **Time** radio button.

    ii   Highlight the hour: **07**, minutes: **30**, and **AM**. Use the drop-down list to select each time separately.

c   In Start Date, select one of the following:

Select the **Start** radio button. Use the drop-down list to select today's date.

Select **Start** on the radio button to choose an exact day, month, and year. Use the drop-down lists to make your selections.

d   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 list to select a month and year to stop this agent.

e   Click **OK**. The event is now added to the list of events.

f   To delete an event, select the event in the list, and click **Delete**.

6   Click the **Programming** view.

7   In the Device Events pane, select the **Scheduler** object at the bottom of the list.

8   In Scheduler Events, click **Dad's Birthday** event. The Script pane shows Dad's Birthday event.
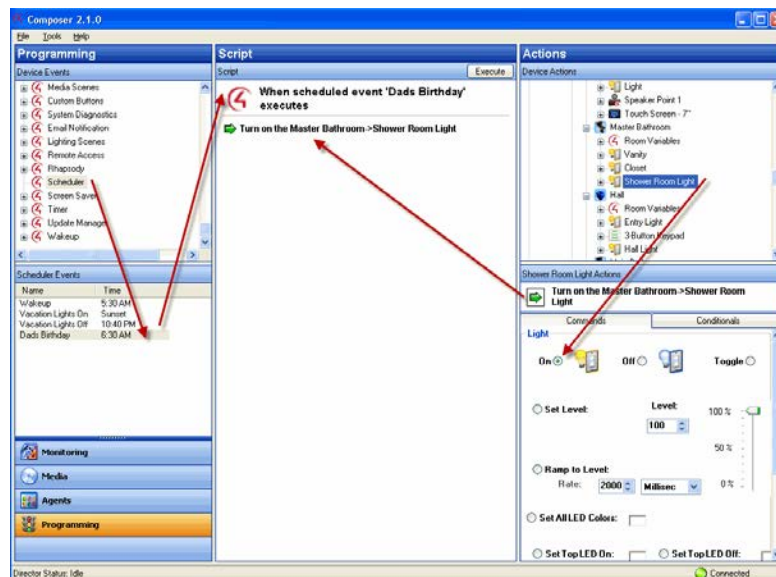
9   Choose the **Device Actions** to initiate in the Actions pane.

10   Drag the actions to the Script pane. These scripted actions execute when Dad's Birthday event executes.

11   You can use the Scheduler agent in programming also to add conditionals or loops to your scripts.

> **Example:** *In the project tree (left pane), select the* **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 minutes before Sunset.
> **c**   Drag the **blue question mark** to the Script pane.
> **d**   In the project tree (right pane), select the **light**.
> **e**   Click the **Commands** tab, select **turn the room on**, and drag the **green arrow** on top of the blue **question mark** in the Script pane.

When you press the **top** button on the 3-Button Keypad, if it is within 5 (five) minutes before sunrise, the light comes on. The Scheduler agent lets you define one-time events and recurring events.

Programming with the Screen Saver agent

Use the Control4 Composer HE Agents and Media view to set up and use 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 or USB device) 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 HE and connect to a Director.
2   Click **Agents**.
3   In the Agents pane, select **Screen Saver**.
4   Click **New**.
5   From the drop-down menu, select the **File Storage Location**.
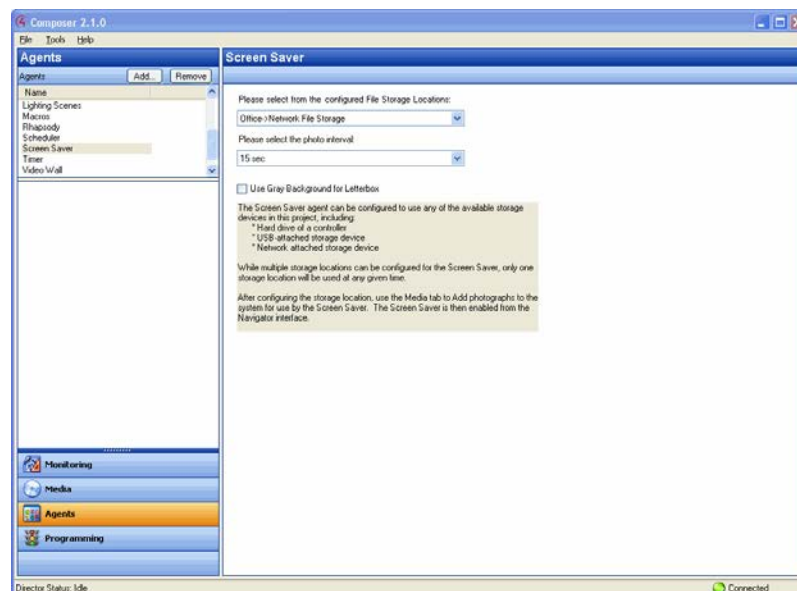
6   Click the **Media** view.

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.
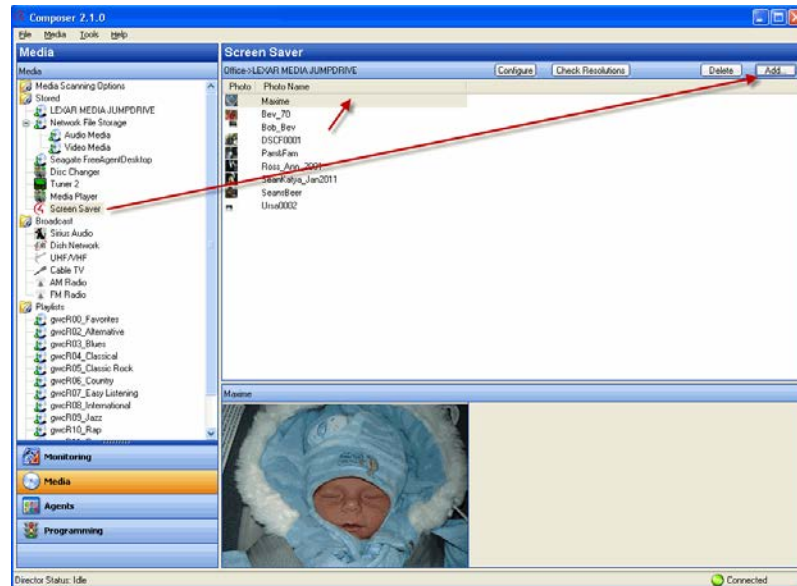
9 To set up a custom screen saver on the Navigators, see the *System User Guide*.

Programming with the Timer agent

Use the Control4 Composer HE Agents and Programming views to set up a timer. A Timer agent provides the ability to start a timer, stop a timer, or repeat a timer based on a given event and action.

Example: *A motion sensor in the system turns on a light when it detects motion, and then a timer is used to turn off the light after 15 minutes. Alternatively, a timer can be set to repeat an action whenever the timer expires, such as a Bathroom fan that restarts each time the light switch is turned on.*

Prerequisites

- Ensure that the devices to which you want to apply the agents are added and configured in the system. Your dealer or installer can help you do this.

This example uses the following devices in the project:

- Controller
- Any device involved in a triggering event (for example, a sensor for a motion detector)

To set up a Timer agent:

1 Start Composer HE and connect to a Director.
2 Click the **Agents** view.
3 In the Agents pane, select **Timer**.
4 Click **New**.
5 Type the **name** of the new Timer (for example, Bathroom Fan), and click **Create**.

6   In Interval, use the drop-down list to set the timer in seconds, minutes, or hours (hh:mm:ss), and then click **OK**.

7   Click **Start** to start the timer.

8   Click the **Programming** view.

9   Highlight the **Timer Action** (in the Device Actions pane), and ensure the new Timer Actions display in the **Commands** tab (Start, Reset, and Stop in the lower right screen).
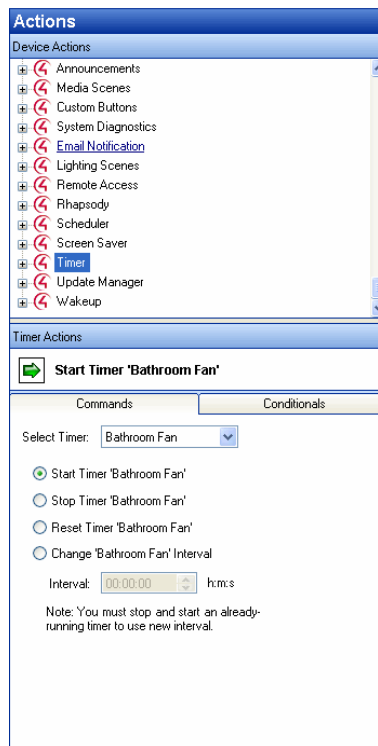
10   Start, Restart, or Stop the timer as needed.

The following table outlines how the timer behaves depending on the state of the timer when a command is executed.

Command Executed is...	And Timer is ...	Then Event	Affect 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

Examples:

- When you execute a **Start** command through programming on a running timer, no event is fired and the time is restarted.
- When you execute a **Start** command through programming on a timer that is not running, the Start event is fired and the timer starts.

- When you execute a **Reset** command through programming on a running timer, the Stop and Start events are fired and the time is restarted.
- When you execute a **Reset** command through programming on a timer that 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.
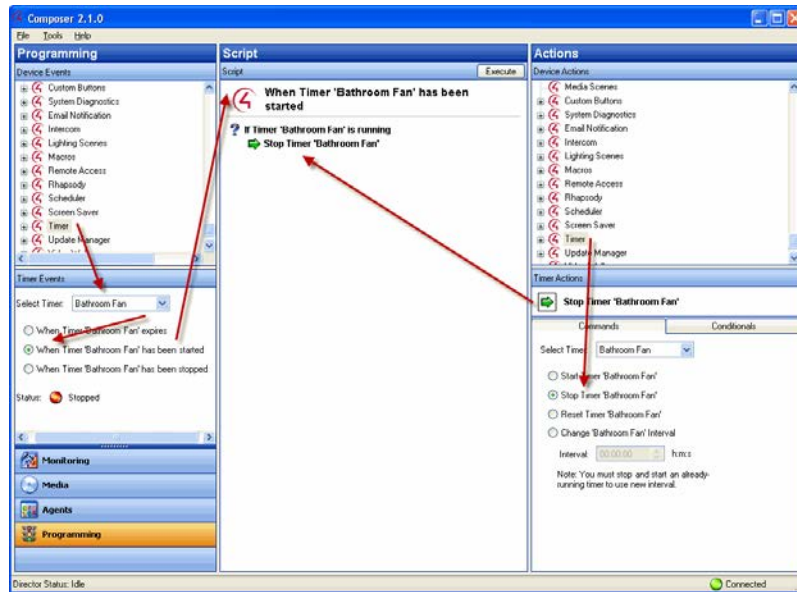
Example screens

See the example screens that follow. Notice how the timer is first used as an action, and then as an event.

Event Screen:
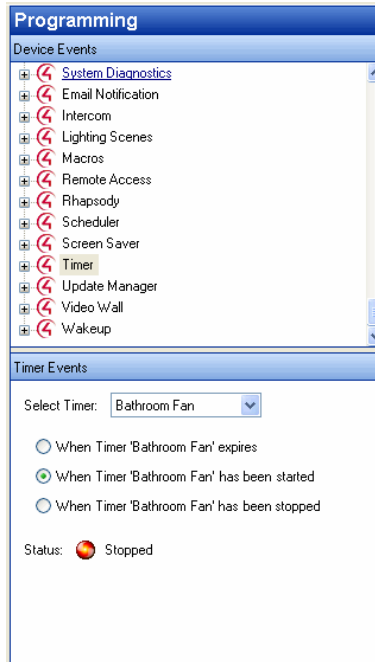
Actions screen:
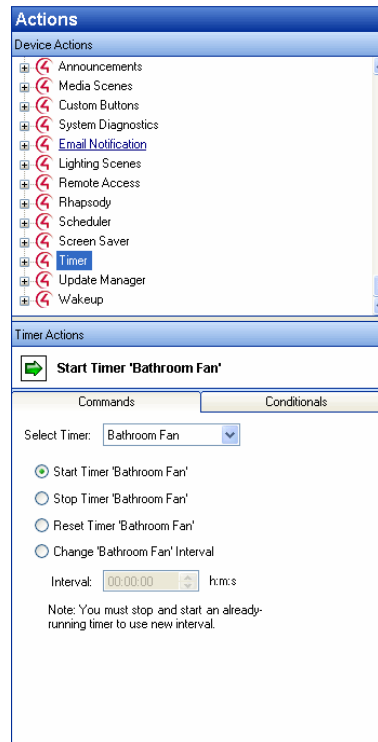
Programming with the Variables agent

Use the Control4 Composer HE 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.

Variables provide other programming options not available using commands, conditionals, or loops. 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.

There are three 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 "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**—Provide the ability to bind two or more devices together by using the device variables.

  Note: *Container variables are provided only for backward capability in Release 1.3 and subsequent releases. 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.*

Programming with the Wakeup agent

Use the Control4 Composer HE Agents and Programming views to program a Wakeup agent. The Wakeup agent lets you set wakeup times, lighting, music, and so on.

Note: *Wakeup times set in Composer HE synchronize with the Navigators or Control4 apps. Likewise, wakeup times changed on the Navigators or Control4 apps will synchronize with Composer.*

Example: *At a specified time in the Navigators, in the Bedroom start playing music from a CD and ramp up the light progressively from 10 to 70 percent light level in 15 minutes. Thirty minutes before wakeup starts, set the temperature in the room to 72 degrees. After 15 minutes of playing music, turn on the TV and play the Local News.*

Prerequisites

1 Ensure that the devices to which you want to apply the agents are added and configured in the system. Your Control4 Dealer or Installer can help you do this.
2 Ensure that you can play music in the project.
3 Schedule a wakeup time. See "Programming with the Scheduler Agent" for details.

This example uses the following devices in the project:

- Controller
- Digital Audio
- Bedroom Dimmer

To program using a Wakeup agent:

1 Start Composer HE and connect to a Director.
2 Click the **Agents** view.
3 In the Agents pane, select **Wakeup**. The Wakeup panes appear.
4 Click **New**.
5 On the dialog that appears, enter a **name**.

  Example: *Bedroom Wakeup*

6   Click **OK**.
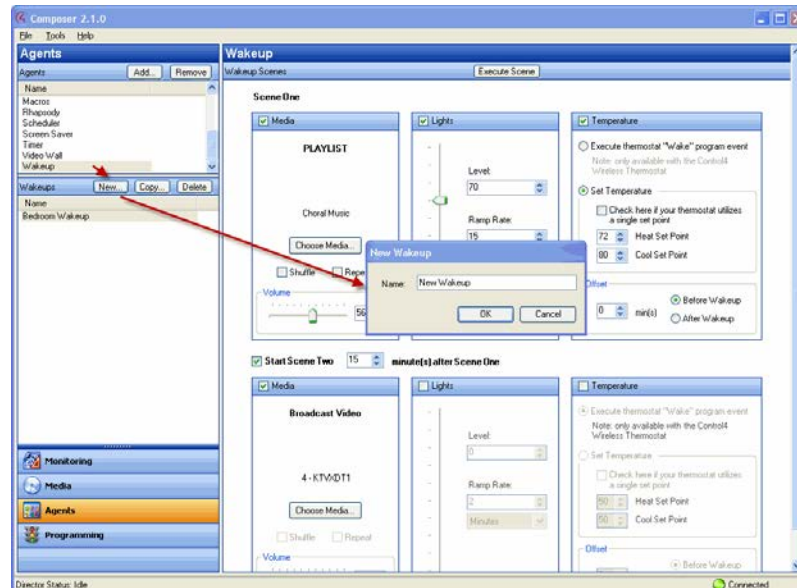
7   Enter **Wakeup Scene 1** information.

    a   **Media**—Click **Choose Media**. Checked by default. Use the drop-down list to
       select **Albums**, and then click a particular album and song you want to play
       when the Wakeup starts, for example, Norah Jones "Sunrise." Set the desired
       volume using the scrollbar or the drop-down list.

    b   **Lights**—Use the scrollbar or set the Light Level to **70**, and use drop-down list
       to set the Ramp Rate to **15** minutes.

    c   **Temperature**—Set the temperature to **72** degrees Fahrenheit to come on **30**
       minutes before Wakeup starts.
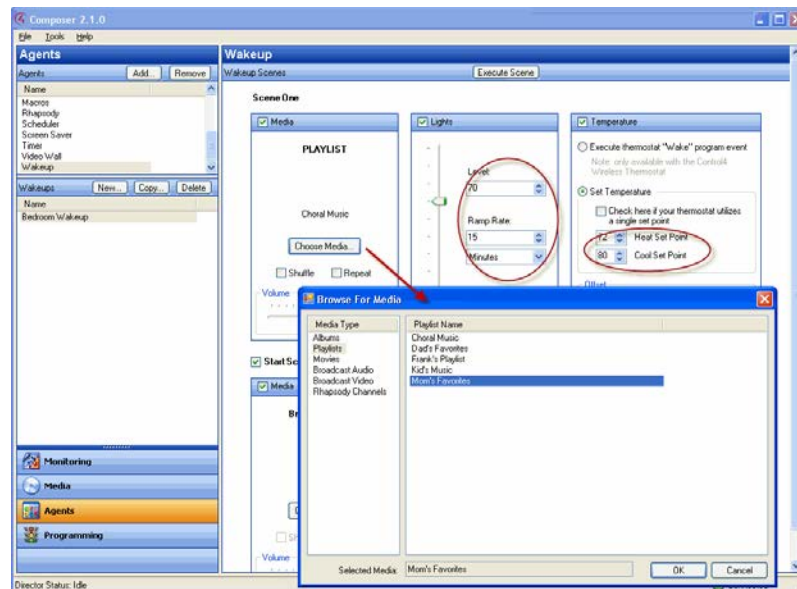
8   Enter **Wakeup Scene 2** information.

a   **Scene 2**—Check **Wakeup Scene 2** and set the Start time to **15** minutes after Wakeup Scene 1. Set the desired **volume** for Wakeup Scene 2 using the scrollbar or drop-down list.

b   **Media**—Click **Pick Media** and use the drop-down list to select **Broadcast Video**. Highlight a local **channel**, (for example, **4-KTVX**), and click **OK**. Set the Volume to **70**.

c   **Lights**—De-select the box to make no changes for Wakeup Scene 2.

d   **Temperature**—De-select the box to make no changes for Wakeup Scene 2.
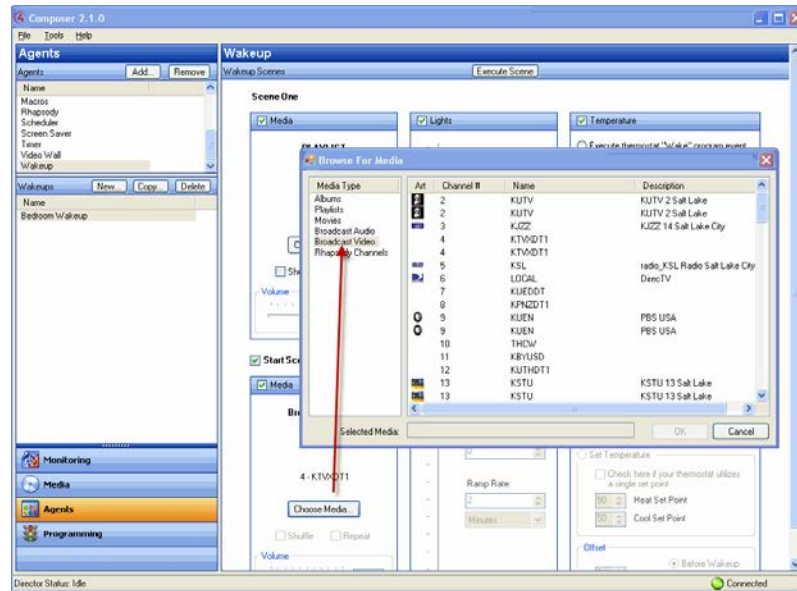
9   Click the **Programming** view.

Note: *Your scene saves automatically, even when you leave the Agents view.*

10   In the left pane, scroll down to view the available agents.

11   Select the **Scheduler** agent event.

The agent event appears at the top of the Script pane.
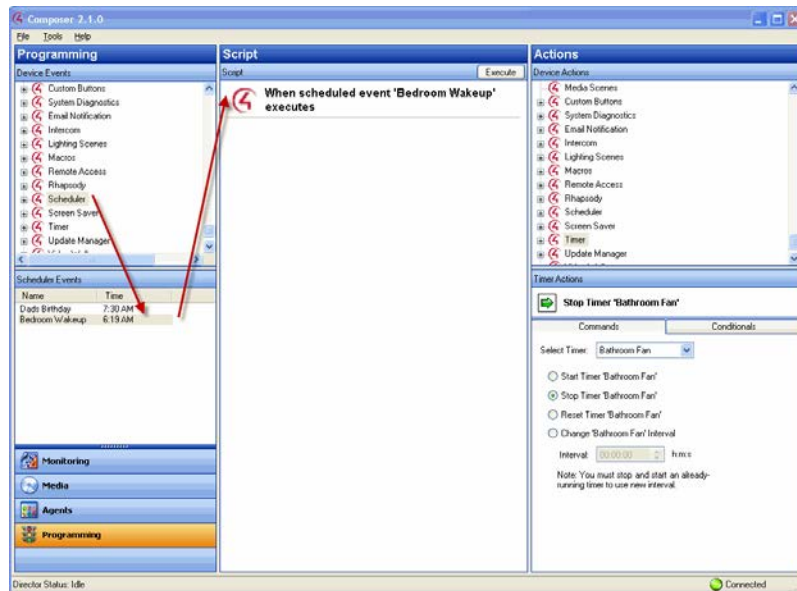
12   In the Actions pane, scroll to the bottom to see the available agents.

13   Highlight the **Wakeup** agent. The available commands appear.
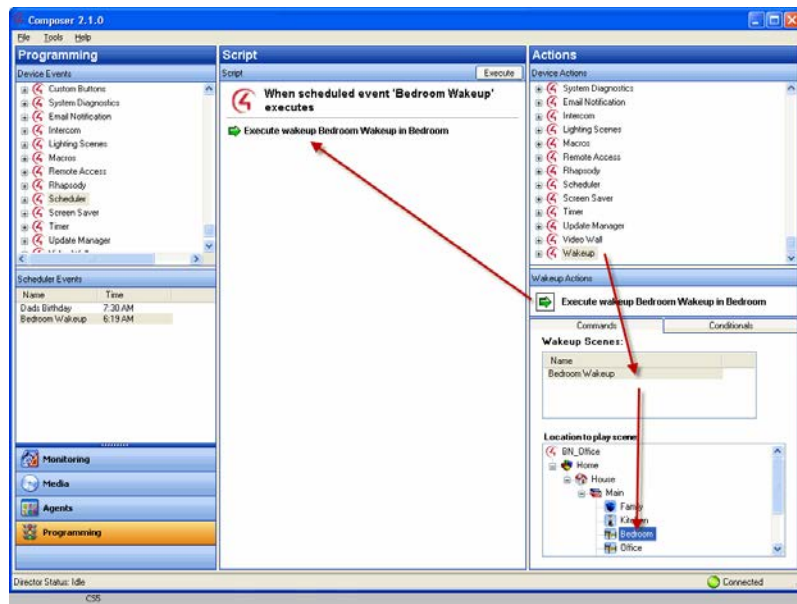
14   Under the **Commands** tab, do the following:

a   Highlight the **Wakeup** scene you want to use, for example, **Bedroom Wakeup**.

b   Highlight the **location** to play the scene, for example, **Bedroom**.

15   Drag the **green arrow** to the Script pane.

16   When you finish, click **Execute**.

Adding more devices

To include an additional device to the Wakeup scene:

1   In the project tree under Device Events, if you want to include additional devices in your Wakeup scene, scroll to the bottom of the project tree.

2   Highlight the **Wakeup** agent.

3   Highlight the **Bedroom Wakeup**. The Wakeup event appears at the top of the Script pane.

4   Under the Actions pane, select the **device** for which you want to trigger the actions when the Wakeup event happens. **Example:** Select **Bedside Lamp**.

5   Click the **Commands** tab.

6   Select the **Turn the Bedroom** ->**Bedside Lamp on** command. The action appears in the right middle pane.

7   Click and drag the **green arrow** to the Script pane.

8   Click **Execute** to execute the command.

Bedroom Wakeup example

At the specified time in Navigators:

1   Thirty minutes prior to wake-up time the temperature rises to 72 degrees.

2   The album of choice starts playing at 6:45 AM.

3   The lights start ramping up to 70 percent light level by 7:00 AM.

4   The bedside lamp turns on.

5   In 15 minutes, Wakeup Scene 2 begins.

6   The TV turns on to the local news at 7:00 AM. The Wakeup is completed.

Note: *You can schedule the wakeup time from your Navigators.*

Related Composer HE tasks

Use the Control4 Composer HE menu bar and views to perform the following sections.

- "Using Back Up As for project configuration and media"
- "Connecting to a Director"
- "Exiting Composer HE"
- "Getting controller project configuration"
- "Loading the project configuration"
- "Searching a topic"
- "Controlling devices from the interface"
- "Refreshing Navigators"
- "Viewing the index"

Using 'Back Up As' for project configuration and media

Use the Control4 Composer HE File menu to back up your project's configuration. When you start Composer HE and change your configuration or settings, Composer HE will ask you if you want to back up your project. You can back it up using a different file name if you'd like.

To back up the file to a PC and save it as a different file name:

1   From the File menu, select **Back Up As**.
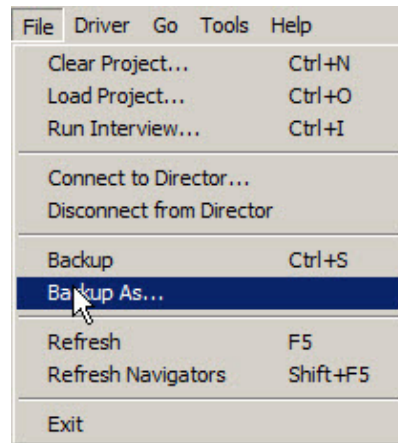
2   Type the new file name for your backup. **Example:** Noyce.
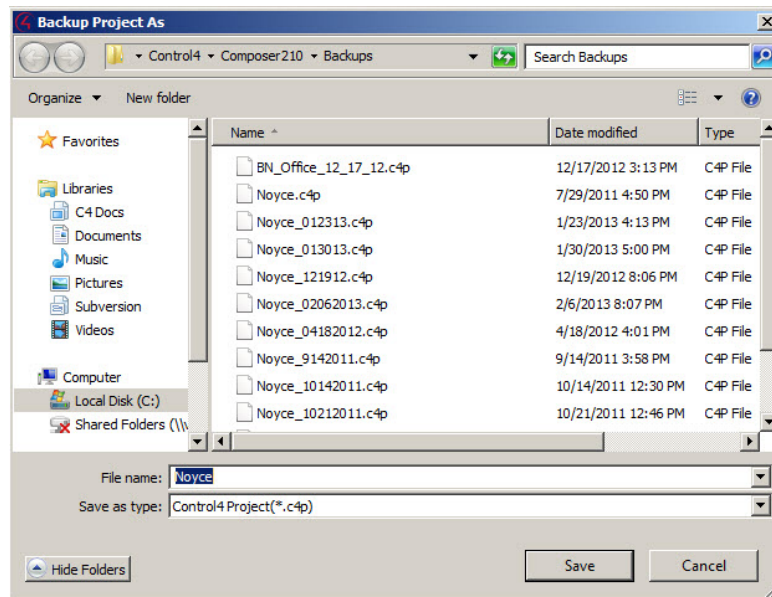
3   When prompted, click **Yes** if you want to back up your media information. It's always good practice to do so.

Connecting to a Director

Use the Control4 Composer HE menu bar to connect to a Director if you don't use the Startup screen to connect.

To connect to a Director:

1   Start Composer HE and connect to a Director.
2   From the File menu, select **Connect to Director**.
3   From the Directors dialog, choose the **Director** (the network address of the controller you are connecting to), and then click **Connect**.

Exiting Composer HE

Use the Control4 Composer HE menu bar or main menu to close and exit Composer HE.

To exit Composer HE:

1   From the Composer main menu, click **Exit Composer**.

–OR-

1   From the File menu, select **Exit**. The system will ask you if you want to back up your project. It is always good practice to do so.

Getting Controller Project Configuration

Use the Control4 Composer HE startup screen or menu bar to access the latest controller configuration.

To get the existing project configuration from a controller:

1   Verify that your PC and the controller are connected to the same network.
2   You can connect two ways:
- From the Composer HE startup screen, click **Director on Local Network**.
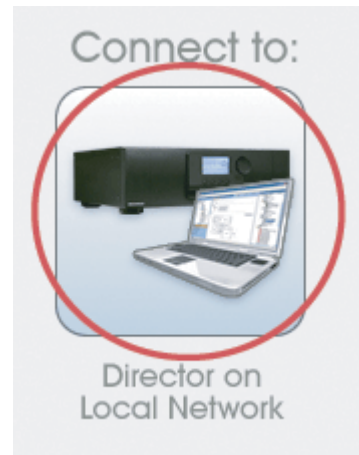
- From the File menu, select **Connect to Director**.
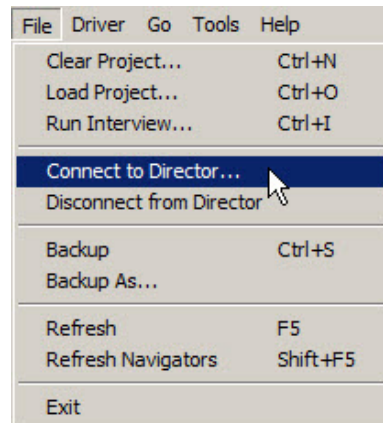
When you connect to the controller's Director, if it exists, the project configuration appears in Composer.

Composer HE 2.6.0 User Guide   Related Composer HE tasks

Loading the project configuration

Use the Control4 Composer HE startup screen or menu bar to load a project.

Warning! *Loading a project will cause the current project configuration to be replaced. To avoid losing your current project, back up your file first.*

Prerequisite

- Verify that your PC and the controller are connected to the same network.

To load the project configuration from a PC to the controller:

1   Connect to the Director (you can do this two ways):
   - From the Composer HE startup screen, click **Director on Local Network**.
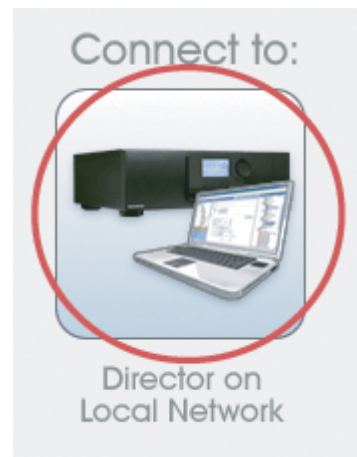
   - From the File menu, select **Connect to Director**.
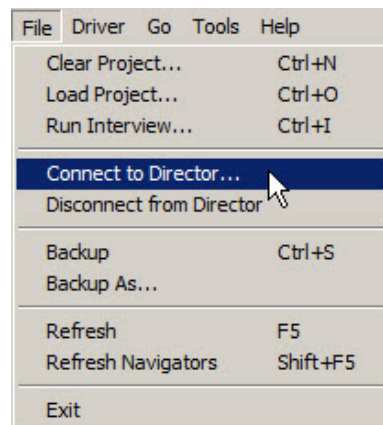
2   From the File menu, select **Load Project**.
3   Click **Yes** when prompted to back up the project.

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4   Choose another project file to open.

Example: *Noyce.c4p. When you see the new project displayed in the Monitoring view, the project is loaded to the controller, and you are connected.*

Searching a topic

Use the Control4 Composer HE menu bar to search for a Help topic. Other topics may be available on the Control4 web site.

To search for Help topics:

1   Start Composer HE and connect to a Director.
2   From the Help menu, select **Contents**.
3   When the Help file opens, click the **Search** tab.
4   In the keyword box, type the topic or keywords to locate the list of related topics, and then click **List Topics**.
5   In Select Topic to display, click a **topic** from the list of links.

Tip: You can use the Index to search for keywords by clicking the Index tab.
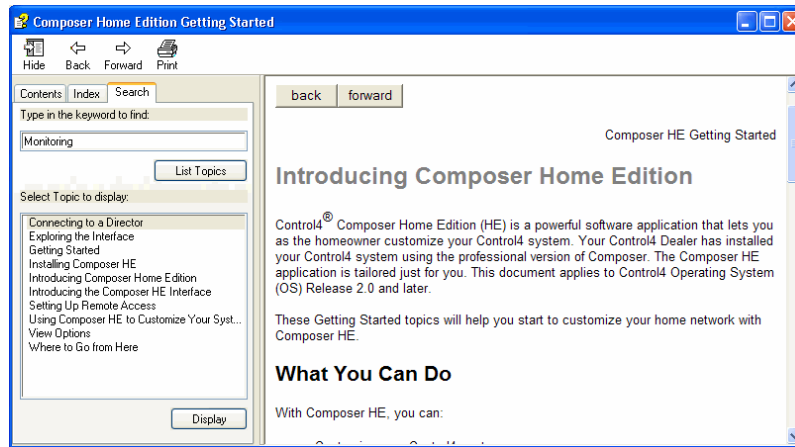
Controlling devices from the interface

Use the Control4 Composer HE main menu to configure devices.

Prerequisites

Ensure that the device is added and configured in the project. Check with your dealer or installer to help you do that.

To control a device:

1   From the project tree or Devices pane, double-click the **device**.

2   When the Device Control screen appears, use it to control the device from the software interface or to set parameters (for example, configuring LED lights on dimmers) temporarily.
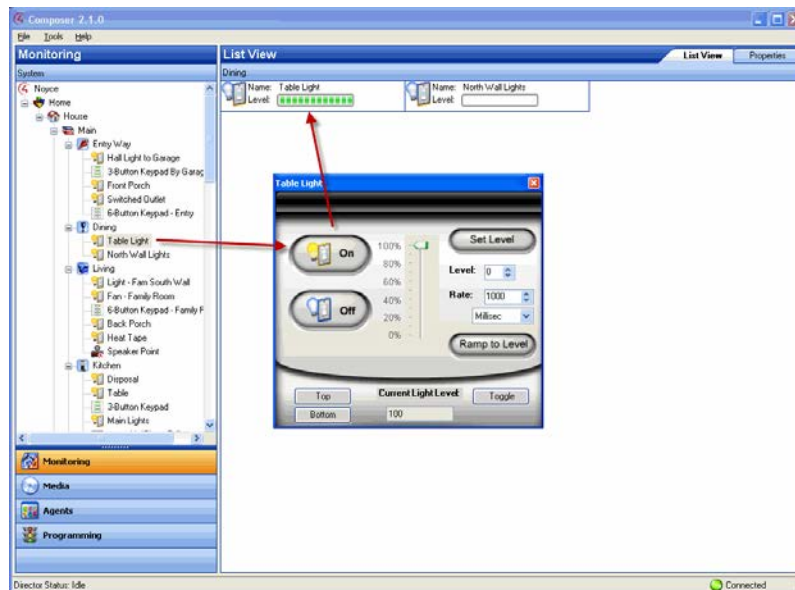
Note: *If you make changes in the Device Control screens for a device, it only changes the device settings temporarily. Use the Properties pane or Programming view to change the device settings permanently.*

Refreshing the Navigators

Use the Control4 Composer HE menu bar to refresh your Navigators after you've made changes to your system. You refresh the Navigators when you change a setting in the system, attach a device, etc.

To refresh the Navigators:

1   Start Composer HE and connect to a Director.
2   From the File menu, select **Refresh Navigators**.

   Tip: *New media appears automatically in the Navigators unless you have a device that is disconnected or has changed locations.*
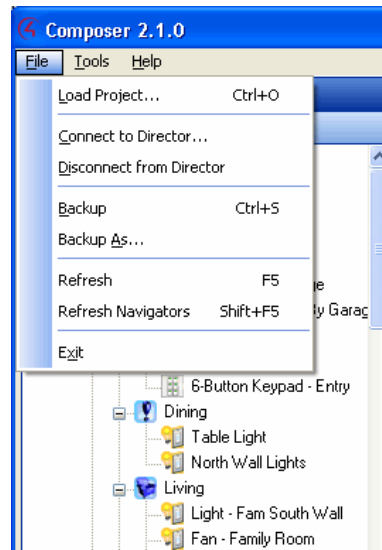
Viewing the index

Use the Control4 Composer HE menu bar to view the Index.

To access the Help index:

1   Start Composer HE and connect to a Director.
2   From the Help menu, select **Index**.
3   View the list of available topics and keywords.

4   Double-click an entry to locate the topic, or select an entry and click **Display**.
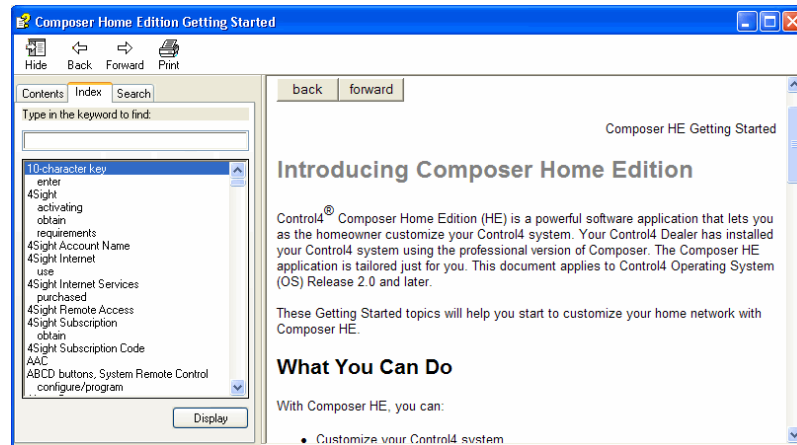
Glossary

4Sight: An Internet service that provides a connection to a 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, Advanced Lighting, Announcements, Email Notifications, Scheduler, and Wakeup.

AV: Audio Video

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 an automated 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 true/false questions, which are acted upon in Composer programming.

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 controller or Contact/Relay Extender can be configured either as NC (normally closed) or NO (normally open).

Control4 system: An automated system designed and developed by Control4.

controller: The main device that makes automation possible. There may be multiple controllers within a Control4 system. The controller that runs Director is referred to as the primary controller.

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: (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.

digital audio player: Provides digital audio streaming capabilities from a controller with hard disk space for music and movies.

Director: Each Control4 controller (for example, an HC-800 controller) ships with pre-installed Director software (Linux based) embedded in the device. The Director communicates with Control4 products and third-party products to enable the 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.

DVR: Digital Video Recorder.

E

end point: The final point (device) on the defined path over which audio and/or video content is routed to a room, for example, a TV or receiver.

Ethernet: Uses Ethernet category 5 (CAT5, CAT5e, CAT6, etc.) wiring to transfer data. Ethernet uses a star network topology that allows multiple points to communicate to a single point. The Door Station and touch screens use Ethernet to communicate to the Control4 controller.

event: An action; used to trigger Composer programming when programming Control4 devices.

F

file format: A format used by applications to store/read files.

FLAC: Supported by Control4 for software release 1.8 or later, 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.

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: Example, 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 method using Control4 devices.

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.

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.

LDAP: (Lightweight Directory Access Protocol)—Used in automated systems.

LED: (Light Emitting Diode)—Primarily used in dimmers, switches, and keypads, but LEDs are also used on other Control4 devices for status purposes.

Linux: An operating system used by several Control4 devices.

List Navigator: A System Remote Control device that uses a Navigator to list options to automate the home.

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 database: Media information is stored in the media database which lets users view their media from the Navigators.

MP3/MP4: A music format that makes streaming audio available.

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 System Remote Control, on-screen Navigator, or touch screens.

O

On-Screen Device: Allows you to select the 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.

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

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 Control: A Control4 System Remote Control is a universal solution that replaces remote controls from other manufacturers and includes programmable buttons. This System Remote Control can access on-screen Navigators.

T

touch screen: A system Navigator that controls the home's lighting, music, videos, and other devices in an automated system.

U

UI (user interface): The preferred term is *Navigator*. The Control4 interface used with Control4 devices to control a home or business, for example, touch screens, Control4 apps, or on-screen Navigators (TV screen).

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

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 or 6 (CAT5 or CAT6) 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 ZigBee; UL listed dimmer; single gang or multi-gang; has an air gap to cut power immediately if needed.

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. Up to 250 devices are allowed per controller, but Control4 recommends 125 maximum.

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.

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