# 40348 A/V CONTROLLER AND A/V CONTROLLER MANAGER MANUAL

**Table of Contents:**

## System Requirements:

- Operating System:
  - Windows® Server 2003, XP, Vista, Sever 2008, 7, 8, 8.1, and 10
- Processor:
  - 400MHz Pentium® processor or equivalent (Minimum)
  - 1GHz Pentium® processor or equivalent (Recommended)
- RAM:
  - 96MB (Minimum)
  - 256MB (Recommended)
- Hard Disk:
  - Up to 500MB of available space may be required
- Display:
  - 800x600, 256 Colors (Minimum)
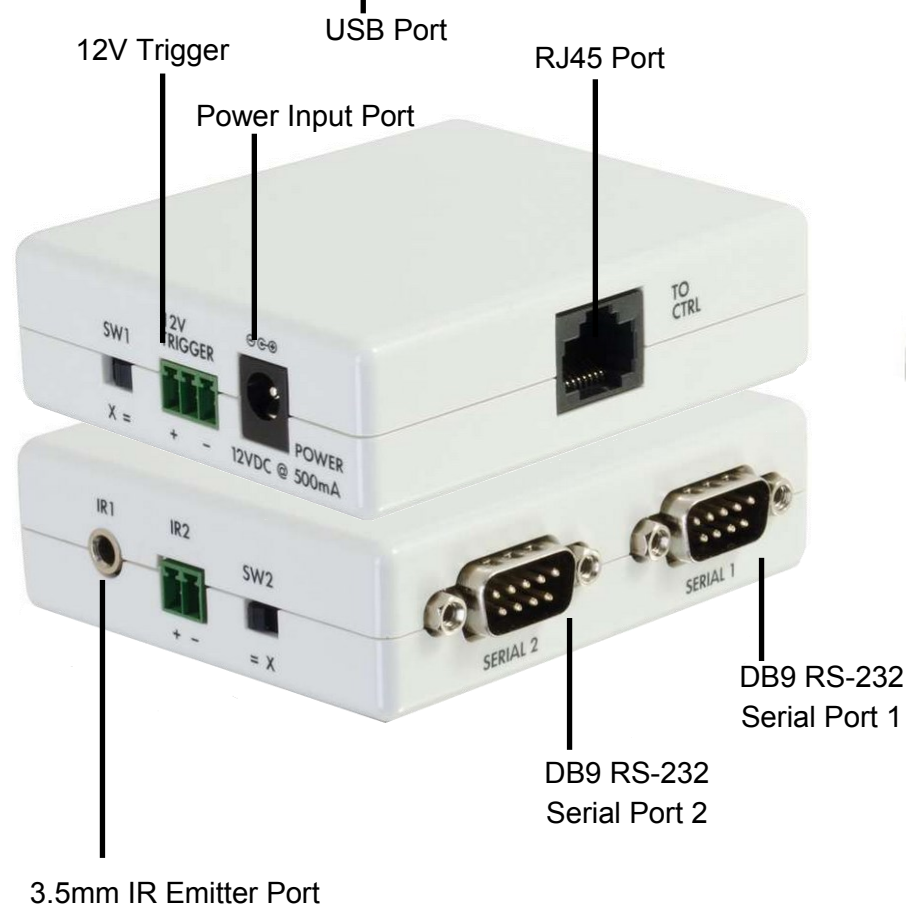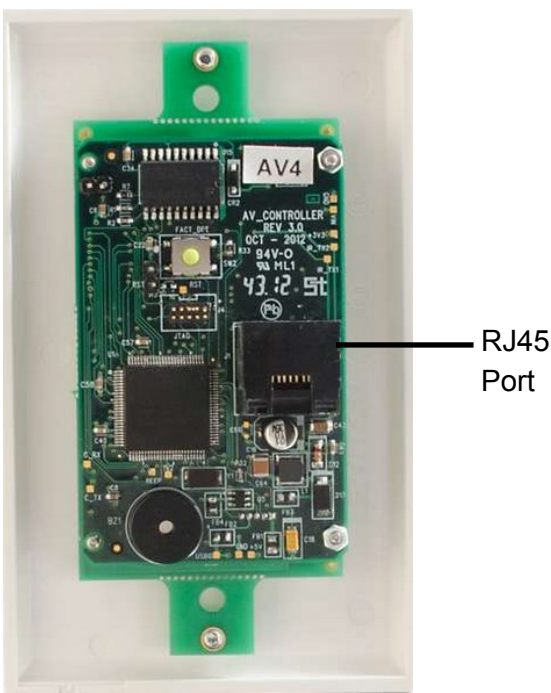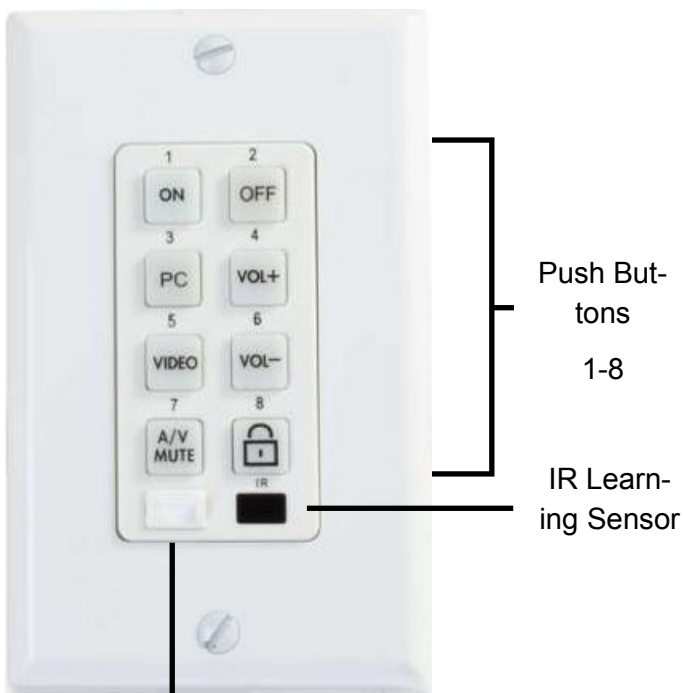  - 1024x768, high color, 32-bit (Recommended)

## Package Contents:

| Description | Replacement Part Number |
|---|---|
| C2G A/V Controller Wall Plate | --- |
| Key Plate | 98073 |
| Face Plate | 40345 |
| 1 Sheet of Rubberized buttons | 98078 |
| Multiport Controller Interface Adapter (MCIA) | 98071 |
| Single IR Emitter Cable | 40432 |
| AC/DC Power Adapter* | 98070 |
| Mounting Hardware | 98072 |

| Other Available Parts | Part Numbers |
|---|---|
| Two Position Screw Terminal Block (MCIA Component) | 98074 |
| DC Power Cable | 98075 |
| Plenum-Rated DC Power Cable | 98079 |
| USB A Female to USB Mini A Male Adapter | 40346 |
| 1m USB A Female to USB Mini A Male Adapter Cable | 40347 |
| 1m USB A Male to 5-Pin Mini B Male Cable | 27005 |

*Always use an approved AC/DC adapter that provides output power in the range of 7.5~12V DC, 500mA.

**Device Overview:**



Push But-
tons

1-8

IR Learn-
ing Sensor

RJ45
Port

USB Port

12V Trigger

Power Input Port

RJ45 Port

TO
CTRL

SW1 12V
TRIGGER

X =

12VDC @ 500mA POWER

Stick– On IR Emitter

3.5mm Mono Connector

IR1 IR2

SW2

+ –

= X

SERIAL 2

SERIAL 1

DB9 RS-232
Serial Port 1

DB9 RS-232
Serial Port 2

3.5mm IR Emitter Port

# Hardware Installation:

## Mounting the Key Plate:
The key plate must be mounted to the C2G A/V Controller before the face plate is mounted. Use the following steps to assemble and mount the key plate.
- Arrange the buttons in the holes of the key plate.
- Choose the buttons that will be used and tear them from the button sheet.
- Insert the bottom tab of the key plate into the hole at the bottom of the PCB. Be sure that the opening for the USB port aligns with the USB port on the PCB.
- Push the top of the key plate toward the PCB until the key plate locks into place.

## Mounting the Wall Plate
Mount the C2G A/V Controller to the wall following Steps 1 - 3
**Step 1:** Identify the desired location for mounting the junction box.

**Step 2:** Connect the Cat5E cable to the PCB wall plate controller and mount the PCB wall plate to the junction box. The controller requires a minimum junction box depth of 22mm.

**Step 3:** Mount the face plate to the PCB wall plate.

## Multiport Controller Interface Adapter
The Multiport Controller Interface Adapter (MCIA) is the central connection point for the C2G A/V Controller. The ports on the MCIA are as follows:
- 5.5mm DC Power Port - Power input port
- RJ45 - Data input port and power output port
- 3.5mm Port - IR signal output port
- Screw Terminal Port - IR signal output port
- DB9 Port - Serial RS232 output Port

The dip switches on the MCIA alter the pinout of the DB9 Serial RS232 port. There are two different settings, standard and reversed. See the dip switch settings to the right:

> **Standard "="** - This setting configures the pinout of the DB9 port on the MCIA to match the standard
>
> **Reversed "X"** - This setting is used in situations where the Serial cable being used does not match the pinout requirements of the device being controlled, i.e. null-modem.

## Connecting the Controller
**Step 1:** Connect a Cat5E cable between the RJ45 port on the MCIA and the RJ45 port on the C2G A/V Controller.

**Step 2:** Using a RS232 serial control cable (not supplied with this unit), connect the MCIA's DB9 port to the projector/video display device's RS232 port. (If applicable).

**Step 3:** Connect the IR Emitter Cable to the 3.5mm jack on the MCIA and peel off the adhesive cover on the IR Emitter head. Place the IR Emitter head on the IR eye of the device to be controlled. (If applicable).

**Step 4:** Connect the AC/DC Power Adapter* to an available AC outlet and then to the DC power input port on the MCIA.

**Warning:** The AC/DC Power Adapter should only be installed in an accessible location and in accordance with local building codes.

*Always use an approved AC/DC adapter that provides output power in the range of 7.5~12V DC, 500mA
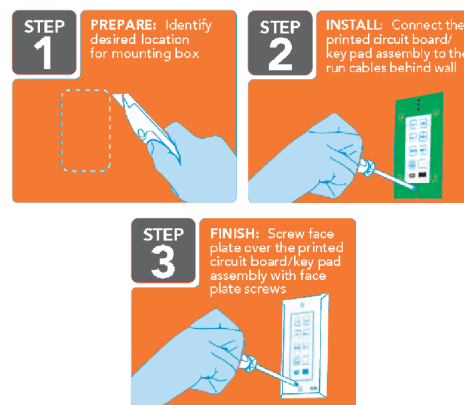
## Hardware Connections:

### RJ45

An RJ45 port is located on both the MCIA and the back of the wall plate controller. A Cat5E cable must be connected between the MCIA and the wall plate controller to provide a link to pass power from the MCIA to the wall plate controller as well as pass IR and Serial control signals from the wall plate controller through the MCIA to the devices that will be controlled. The Cat5E cable used to connect the MCIA to the wall plate controller should be wired to the T568B pinout standard.



T568B Pinout
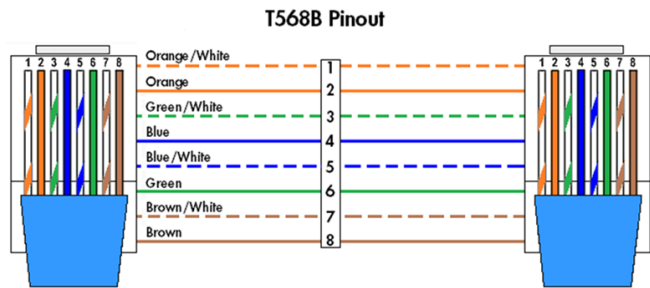
### Infrared (IR)

There are two different IR ports located on the MCIA, a 3.5 mm port and a Screw Terminal. Both of these ports allow the wall plate controller to operate devices through the use of IR signals.

**3.5mm Port (IR1) -** This port provides a tip-sleeve (TS) connection and accepts a standard 3.5mm mono connection from an IR emitter.

**Screw Terminal Port (IR2)-** This port provides a bare wire connection from an IR emitter and will accept a minimum wire gauge of 24AWG and a maximum wire gauge of 14AWG. This port is ideal for situations where the IR emitter must be extended. The left opening is the positive and the right opening is the negative portion of the IR signal.
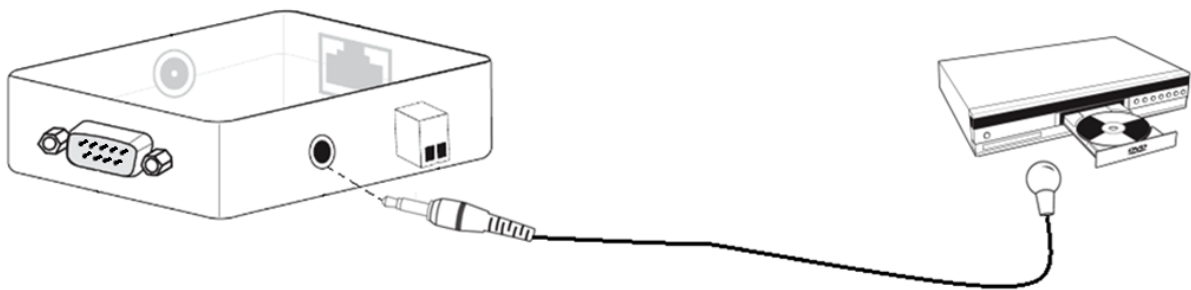


### Serial RS232/DB9 Port

This port allows the controller to operate devices through the use of Serial RS232 commands. The dip switches on the MCIA alter the pinout of the DB9 Serial RS232 port. There are two different settings, straight and crossed (null-modem)



DB9 Serial Cable
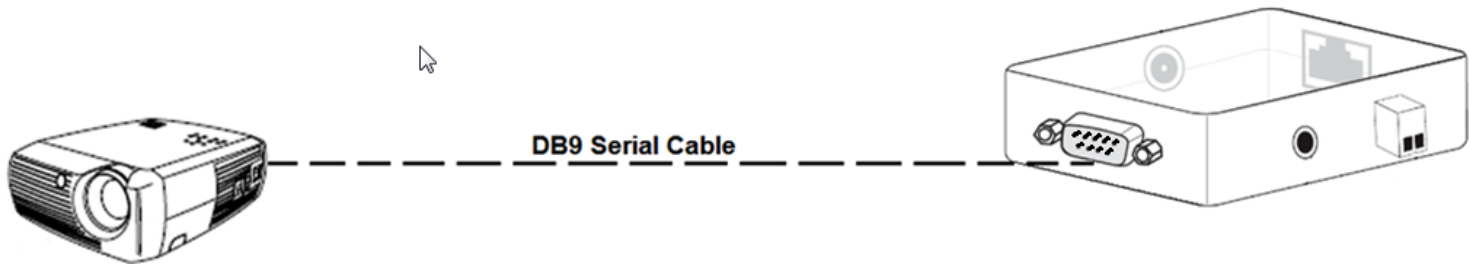
### 5.5mm DC Power Port

This port on the MCIA accepts a 9V, 500mA DC power input from the AC/DC power adapter* or other DC power source and provides power to the wall plate controller.

*Always use an approved AC/DC adapter that provides output power in the range of 7.5~12V DC, 500mA.
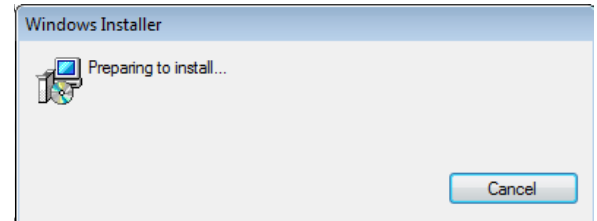
## Software Installation

**Note:** Do not connect the C2G A/V controller to the host PC until the software program has been installed.

**Step 1:** Insert the software installation CD into the computer's CD drive. If AutoPlay is enabled, then the software installation process will begin immediately.

If AutoPlay is not enabled on the computer, then open Windows Explorer, navigate to the contents of the CD drive, and then double-click on the Setup.exe file to install the software.

**Step 2:** Once the installation process has started through AutoPlay or the Setup.exe file the computer will prepare to install the software.

**Step 3:** After the computer has prepared the installation, the A/V Controller Manager software welcome screen will appear. Click the "Next >" button to continue.
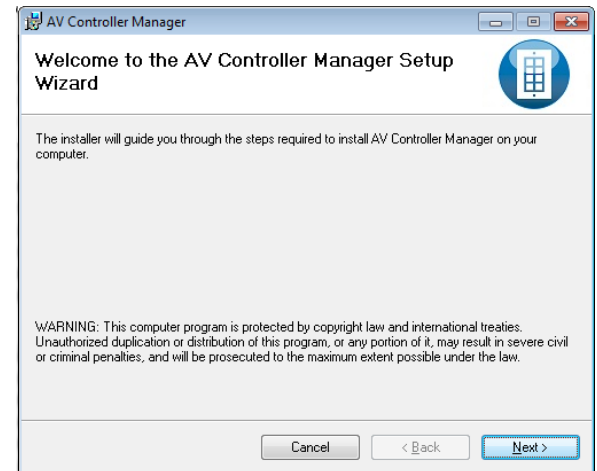
**Step 4:** Select the installation folder where the software will be installed. The default installation location, C:\Program Files (x86)\AV Controller Manager,  will be auto-populated in the folder text box and using that location is recommended. Click on the "Next >" button to continue.
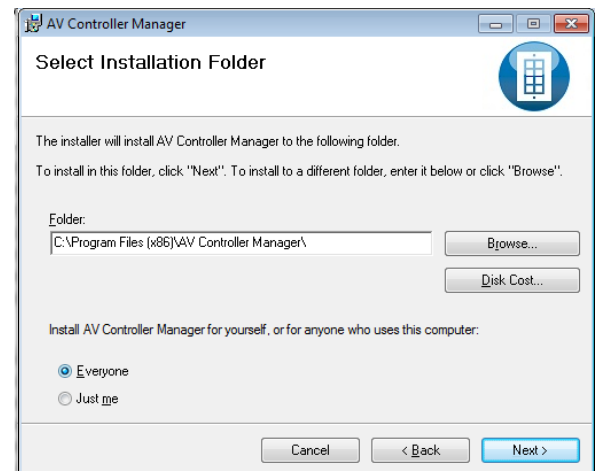
**Step 5:** The installer will indicate that it is ready to install the software on the computer. Click the "Next >" button to continue.

**Step 6:** After a brief installation process, the installer will indicate that the A/V Control Manager has been successfully installed. Click the "Close" button to exit the installer.

# A/V Controller Manager Functions

## Introduction

The A/V Controller Manager is the graphical user interface (GUI) software that allows a user to configure and program the C2G A/V Controller. The GUI is pre-loaded with serial RS-232 commands for many popular projectors allowing for faster installation. However, the GUI provides the ability to add devices that are not pre-loaded into the library. To begin programming, connect the controller to an available USB port on the computer and then start the GUI by simply double clicking the A/V Controller Manager icon on the desktop or in the Start menu.

A/V Controller Manager

## System Configuration

The System Configuration screen is the first step in the programming process and is used to ensure that the controller is being properly recognized by the GUI. To perform this check, click on the System Configuration tab, and then click on the Read Controller Version button. If the controller is properly recognized, then the System Configuration chart will be populated with the controller's firmware, hardware, and software version numbers. If the information is not populated, then please see the Troubleshooting & FAQs section for possible solutions.
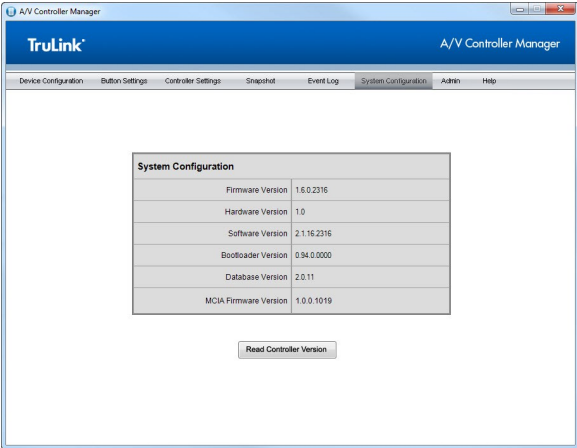
## Device Configuration

The Device Configuration screen allows devices that are programmed into the GUI to be selected  so that they may be used for button programming. Up to six devices may be added simultaneously. Use the dropdown boxes within the Device Information field to select the Device Type, Manufacturer/Brand, Model Number and Control Command type of each device that is to be configured. Once all fields have been selected, click on the Save button to add the device to the table on the right side of the GUI window. Repeat this process for each device that will be added for programming. Once all devices have been added, continue to the Button Settings tab.
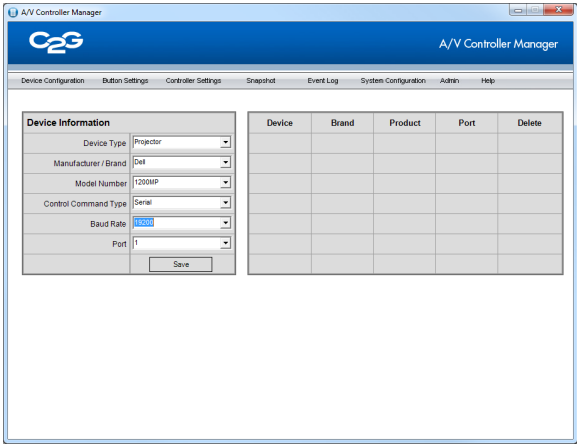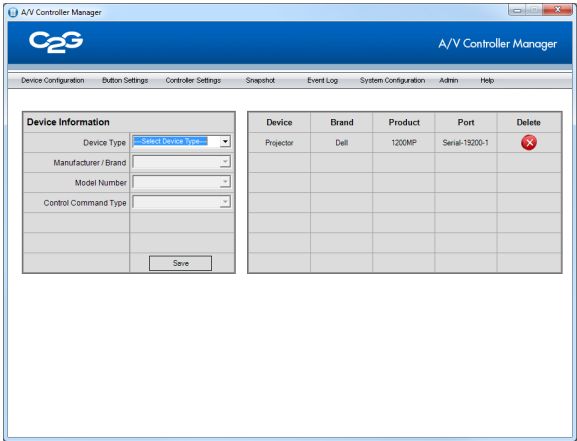
If a Device Type, Manufacturer/Brand or Model Number is not listed in the drop downs of the Device Information field, then it must be added through the Admin tab. Please see the Admin section for specific instructions on adding a device.

For 12V trigger device configuration use the following settings:
**Device Type -** Controller
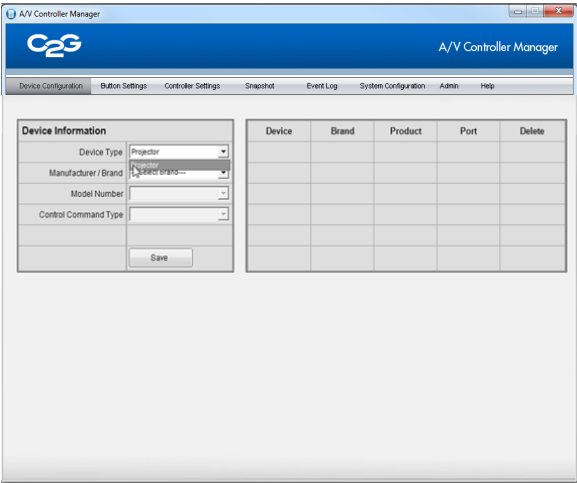**Manufacturer/Brand -** C2G
**Model Number -** MCIA2

Note: If a device will be setup for both serial and IR Control Command Types, then it must be added to the device table twice. Enter the device once with a Control Command Type of serial, and once with a Control Command Type of IR.

To remove a device from the table click on the red button within the Delete column
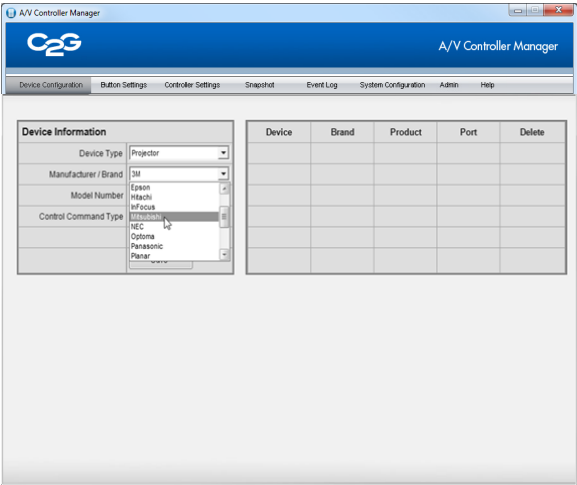
**Device Configuration Example**

**Step 1:** Select the Device Type from the dropdown within the Device Information field.



**Step 2:** Select the Manufacturer/Brand from the dropdown within the Device Information field.



**Step 3:** Select the Model Number from the dropdown within the Device Information field. If applicable, select the Control Command Type from the Device Information field.

**Step 4:** Set the Baud rate to the manufactured determined increment. The Baud rate is often found in device manual or directly from the manufacturer.

**Step 5:** Set the port number based on which port the selected device has been plugged into on the MCIA2 box

**Note:** The Control Command field will only need to be selected if the device has both serial and IR commands stored in the GUI library. If only serial or IR are entered into the GUI library, then this field will auto-populate.
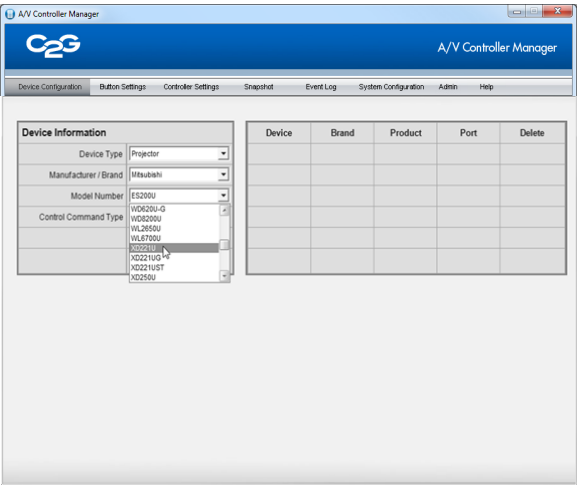
**Step 6:** Click on the Save button to store the device information in the Device table. Repeat these steps for all devices in the system that will be controlled. Up to six devices may be programmed simultaneously.
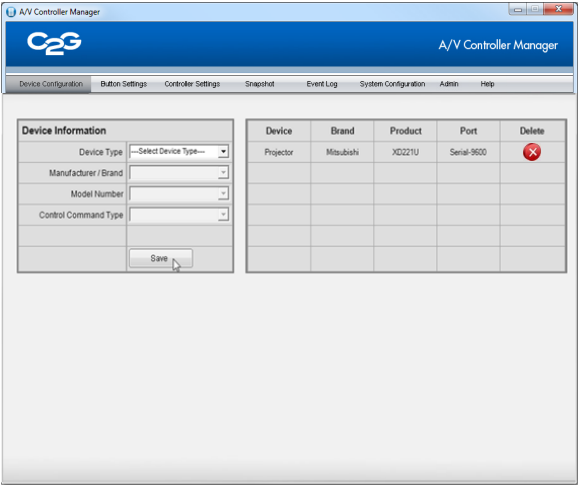


**Note:** Click on the red button within the Delete column to remove a device from the table.



8.
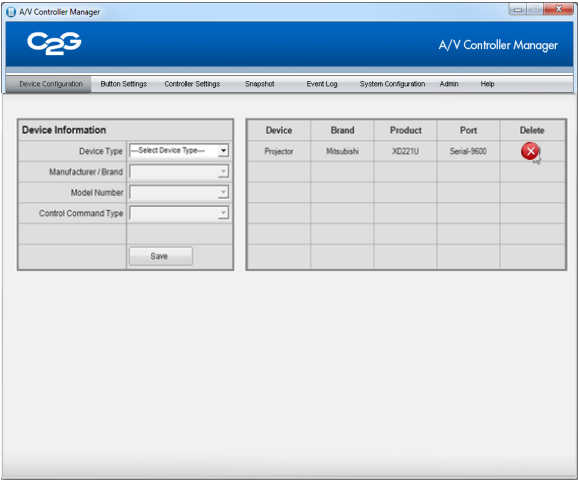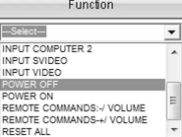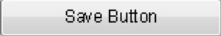
# Button Settings

The Button Settings screen allows the buttons to be configured with the functions that will control the devices in the A/V system. The screen shows the standa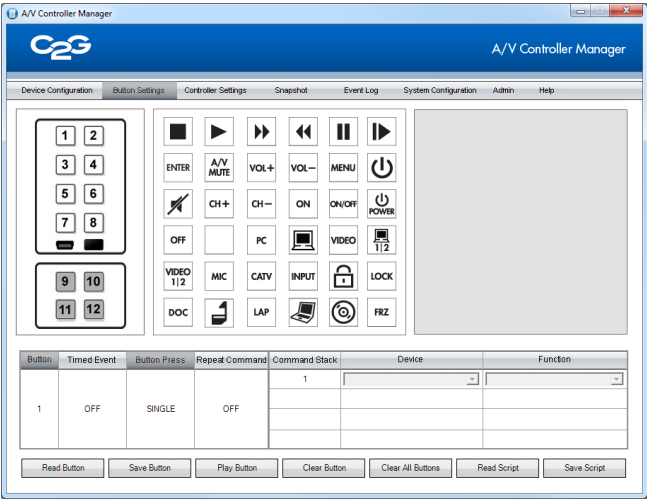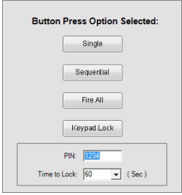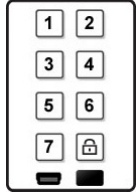rd button layout on the wall plate controller, 1 - 8, the four virtual buttons, 9 - 12, as well as the 36 button functions. Please note that the virtual buttons cannot be accessed through the buttons on the wall plate controller and are only used for timed events.

The following table illustrates the various clickable areas within the Button Settings screen and explains the function of each area. It is recommended that this section is read before programming the buttons.



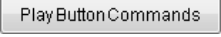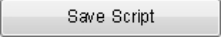| Clickable Area | Function | Related Area |
|---|---|---|
|  | Clicking on the numbered buttons in this area selects the button that will be programmed. The button number that is currently being programmed will be displayed in the Button column in the programming table. |  |
|  | Timed Events may only be used on one of the virtual buttons. Clicking on one of the virtual buttons, 9 - 12, automatically activates the Timed Events configuration window. |  |
|  | The Timed Event configuration window opens to Daily programming by default. Daily programming provides the ability to program an event which will occur on specific days of the week at specific times. The Save Settings button saves the day and time configuration. The Clear Settings button will clear the day and time configuration. | |
|  | Click on the Repeat button to access the Repeat configuration window. Repeat programming provides the ability to program the duration between event occurrences. This means that the events will occur whenever the set duration has elapsed. The Save Settings button saves the duration time configuration. The Clear Settings button will clear the duration time configuration. | |
|  | Click on the top of the Button Press column, highlighted in red*, to activate the Button Press Option configuration window. This option is set to Single by default. The Single configuration allows one command to be programmed to the button. While in Single, each press of the button will execute the single command that is programmed on the button. |  |
|  | Click on the Sequential button to enable the programming of up to four commands per button. Once the controller is programmed with the Sequential Button Press Option, each press of the button will perform the next command in the command stack. Once the last command in the command stack has been performed, the next press of the button will perform the first command in the command stack. |  |
|  | Click on the Fire All button which will enable the programming of up to four commands per button. Once the controller is programmed with the Fire All Button Press Option, each press of the button will perform all of the commands in the command stack with a delay between each command. Use the Program Delay dropdown to select the amount of delay between each of the command performed. |  |

**Button Settings**

| Clickable Area | Function | Related Area |
|---|---|---|
| Button Press Option Selected: / Single / Sequential / Fire All / Keypad Lock / PIN: / Time to Lock: 60 (Sec) | When programming button 8, click on the Button Press column to activate the Button Press Option configuration window and then click on the Keypad Lock button which will program button 8 as the lock button. Once the controller is programmed with the Keypad Lock on button 8, pressing button 8 will lock out the keypad until the selected pin is entered. This option also allows the user to select the duration of the inactivity timer. Once this time is selected, the controller will automatically lock if it has not been used for the selected period of time. Use the text box next to "PIN:" to enter the PIN code that will be required to unlock the controller. The pin numbers will relate to the button numbers on the controller, so the pin must use numbers between 1 and 8 and must be four digits in length. Use the dropdown next to "Time to Lock:" to select the time period, in seconds, of the inactivity timer. When Keypad Lock has been selected for button 8, the button 8 within the GUI will show a lock icon. | 1 2 / 3 4 / 5 6 / 7 🔒 |
| Repeat Command / OFF | Click on the top of the Repeat Command column, highlighted in red*, to activate the Repeat Command configuration window, which is set to off by default. When the Repeat Command Option is off, pressing and holding the button on the controller will have no affect on the number of times the command is executed. | Repeat Command Option Selected: / Repeat On / Repeat off |
| Repeat Command Option Selected: / Repeat On / Repeat off | Click the Repeat On button to activate the Repeat Command Option. When the Repeat Command Option is enabled, pressing and holding the button on the controller will cause the command to be repeatedly executed until the button is released. The most common application for using this function is when programming volume controls. | Repeat Command / ON |
| Device / ---Select--- / XD221U | Use the dropdown in the Device column to select which device will be controlled by the command. | |
| Function / ---Select--- / INPUT COMPUTER 2 / INPUT SVIDEO / INPUT VIDEO / POWER OFF / POWER ON / REMOTE COMMANDS:-/ VOLUME / REMOTE COMMANDS+/ VOLUME / RESET ALL | Use the dropdown in the Function column to select which command will be programmed on the button. | |
| Read Button | Clicking the Read Button button downloads and displays the configuration information of the active script on the controller. The A/V Controller must be connected to a USB port on the computer for this button to function properly. | |
| Save Button | Clicking the Save Button button stores the configuration information for the button that is currently being programmed within the GUI. Each button must be saved before configuring a different button. Switching to another button without clicking the Save Button will cause the configuration information to be lost. | |
| Clear Button Settings | Clicking the Clear Button Settings button deletes the configuration information for the button that is currently being programmed. | |
| Play Button Commands | Clicking the Play Button Commands button executes the commands that have been configured for the current button to test for functionality. | |
| Save Script | Clicking the Save Script button saves the configuration information from all buttons into a format that may be uploaded to the controller. | |
| Clear All Buttons | Clicking the Clear All Buttons button deletes the configuration in the GUI from all buttons. | |

## Button Settings Example

### Accessing the Button Settings Tab

Click within the Button Settings tab under the A/V Controller Manager title bar to program and configure the specific functions of each button.



### Button Selection

Click on the numbered buttons within this area to select the button which will be programmed. The button that is currently being programmed will be displayed in the Button column of the Programming table.



### Timed Events

Timed Events may only be used on one of the virtual buttons. Clicking on one of the virtual buttons, 9 - 12, automatically activates the Timed Events configuration window.



### Daily Timed Event

The Timed Event configuration window opens to Daily programming by default. Daily programming provides the ability to program an event that will occur on a specific day of the week at a specific time. To program a timed event, hold down the CTRL key on the keyboard and use the mouse to click on each day that the event should occur, and then use the dropdown boxes to select the time of day that the event will occur. Click on the Save Settings button to store the day and time configuration. The Clear Setting button will clear the day and
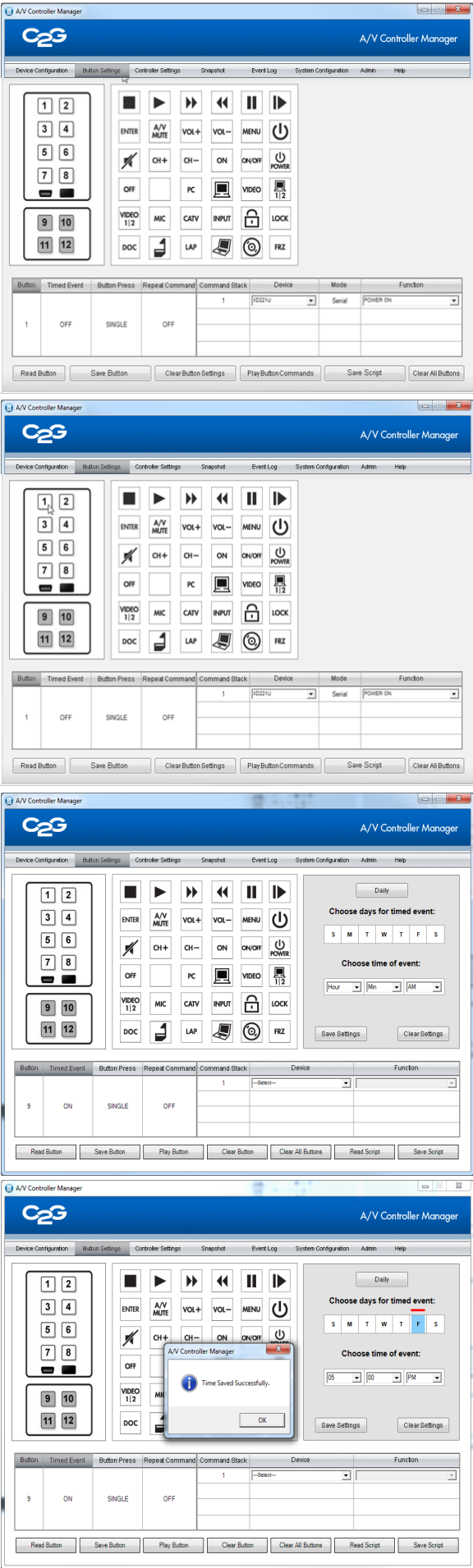
# Button Settings Example

## Button Press

Click on the top of the Button Press column in the Programming Table to open the Button Press Option configuration panel. This configuration panel controls how the controller sends stacked commands, up to 4 per button to the devices. Three options are available through the Button Press Option configuration panel.

Single
Sequential
Fire All

Single - This is the default option and is used when only a single command has been programmed to the button. This option will send that single command each time the button is pressed.

## Button Press - Sequential

This option is used to program more than one command to the button and will send the next command in the stack each time the button is pressed. Once the last command in the stack has been performed, the next button press will perform the first command in the stack.

## Button Press - Fire All

This option is used to program more than one command to the button and will perform all commands in the stack each time the button is pressed. When selecting this option a program delay must be selected using the dropdown in the Button Press Option configuration panel. The program delay allows an interval between 1 and 255 seconds to be set between the firing of the commands in the stack.

## Button Press - Keypad Lock

This option is used to program button 8 as the Keypad Lock. When selecting this option a PIN number and Time to Lock duration must be selected using the text box and dropdown in the Button Press Option configuration panel. The PIN number is used to unlock the keypad and the Time to Lock time period is a timer that will automatically lock the controller after a period of inactivity.

12.
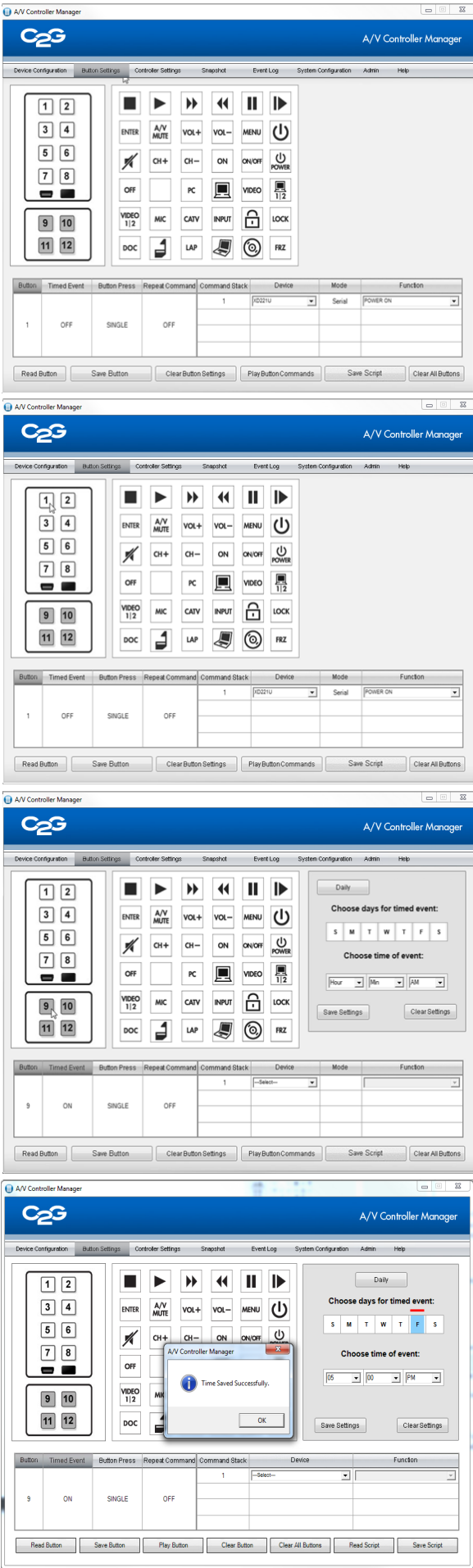
# Button Settings Example

## Repeat Command

Click on the top of the Repeat Command column in the Programming Table to open the Repeat Command Option configuration panel. The Repeat Command option is set to Off by default. When the Repeat Command Option is Off, pressing and holding the button on the controller will have no affect on the number of times the command is performed.



## Repeat Command

Click the Repeat On button to activate the Repeat Command Option. When the Repeat Command Option is on, pressing and holding the button on the wall plate controller will cause the command to be repeatedly executed until the button is released. The most common application for this option is when programming Volume controls.



## Device

The Device column in the Programming Table is used to select the device that will be controlled. Use the dropdown in the column to select the device. When the device is selected the Mode column will automatically populate with the Control Command Type that was selected on the Device Configuration screen.



## Function

The Function column in the Programming Table is used to select the command that will be used to control the device selected in the Device Column. Use the dropdown in the column to select the command.
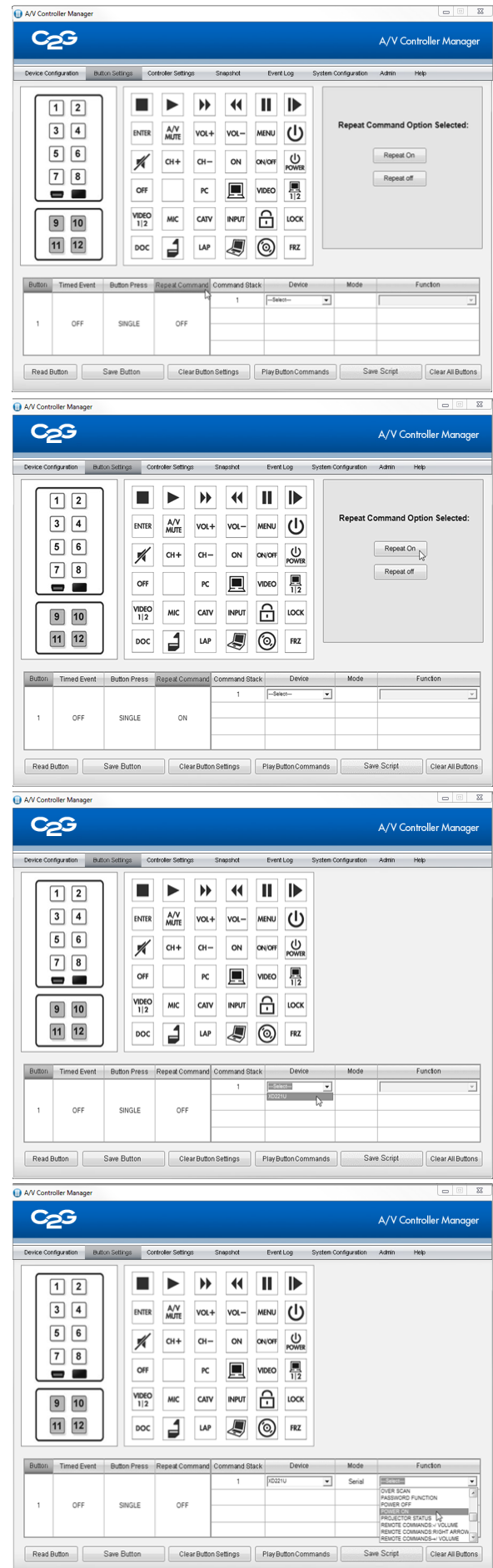
# Button Settings Example

## Read Button

This button is used to read the configuration information that is currently stored in the active script on the wall plate controller.

Note: The wall plate controller must be connected to a USB port on the computer for this button to function.



## Save Button

This button is used to store the configuration information for the button that is currently being programmed in the GUI. Each button must be saved before configuring a different button.

Note: If a button is not saved before configuring a different button, then the configuration information will be lost.



## Clear Button Settings

This button is used to delete the configuration information for the button that is currently being programmed in the GUI.



## Play Button Commands

This button is used to test the configuration information programmed to the button.

Note: The button configuration information must be saved, the wall plate controller must be connected to a USB port on the computer and the MCIA must be connected to the device through IR or serial for this button to function.
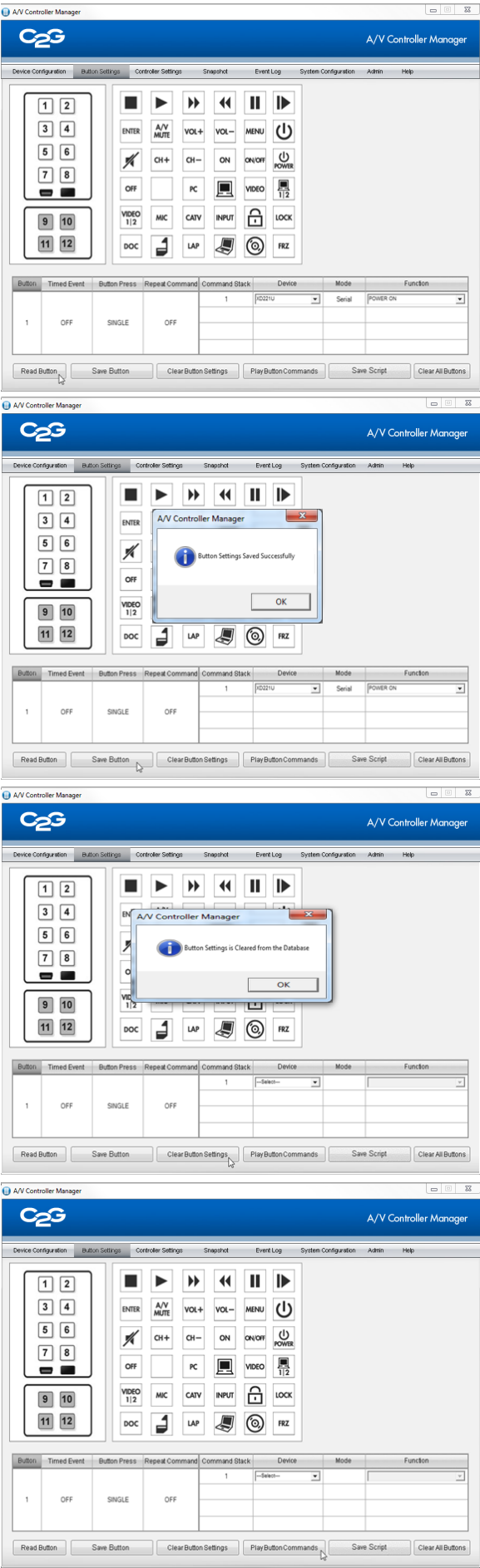
## Button Settings Example

### Save Script

This button is used to save the configuration information from all of the buttons into a file format that may be uploaded to the wall plate controller.

Note: The default location for saved script files is C:\Program Files (x86)\AV Controller Manager. It is recommended that script files be saved in this default location unless the script will be saved to a USB thumb drive.
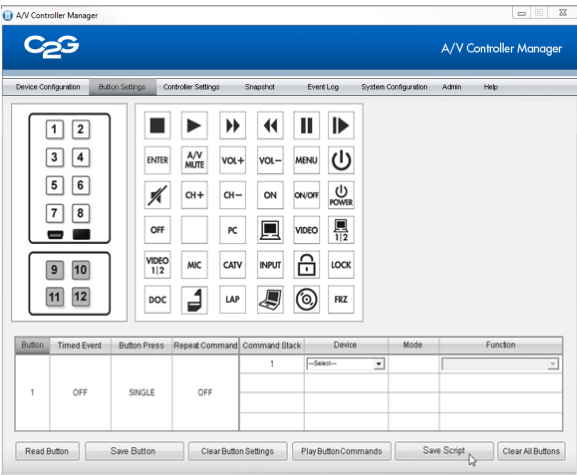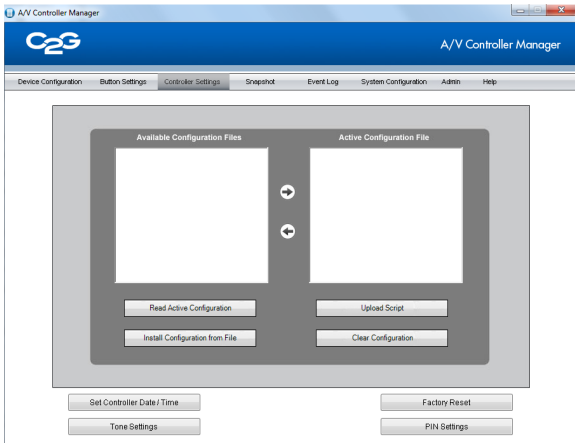


### Clear All Buttons

This button is used to delete the configuration information from all buttons.
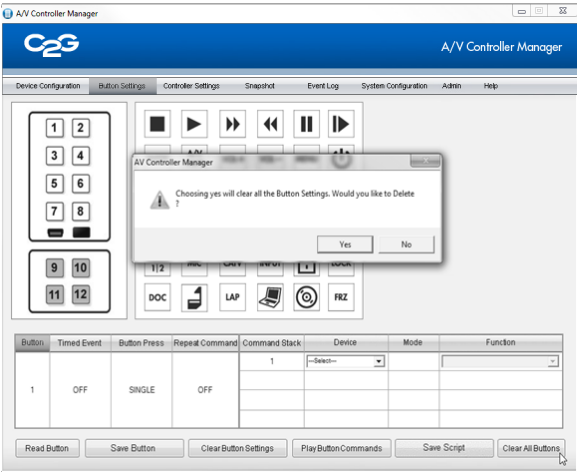
# Controller Settings

## Accessing Controller Settings

Click within the Controller Settings tab under the A/V Controller Manager title bar to upload and download scripts, as well as change various controller settings.



## Install Configuration From File

This button is used to load script files stored in a location on the computer other than the default location, C:\Program Files (x86)\AV Controller Manager. Files loaded into the GUI using this button will appear in the Available Configuration Files window.

Note: Script files that are saved in the default location, C:\Program Files (x86) \AV Controller Manager, will automatically appear in the Available Configuration Files window.
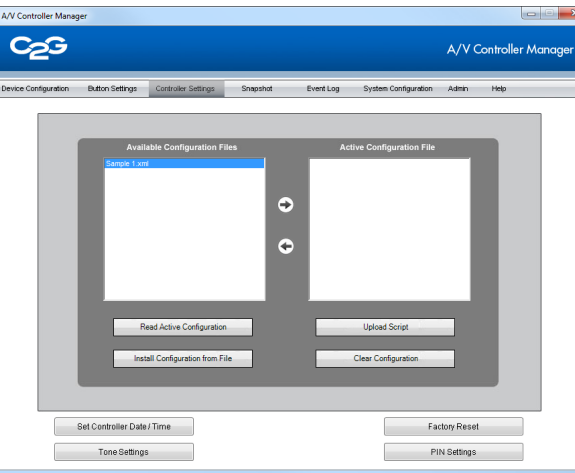


## Active Configuration File

To upload a script file to the wall plate controller, the script file must be moved from the Available Configuration Files window to the Active Configuration File window. To move a file between the windows click on the file to be moved, and then click on the arrow button between the two windows to move the file. Note: Only one file may be moved to the Active Configuration File window and uploaded to the controller at a time.
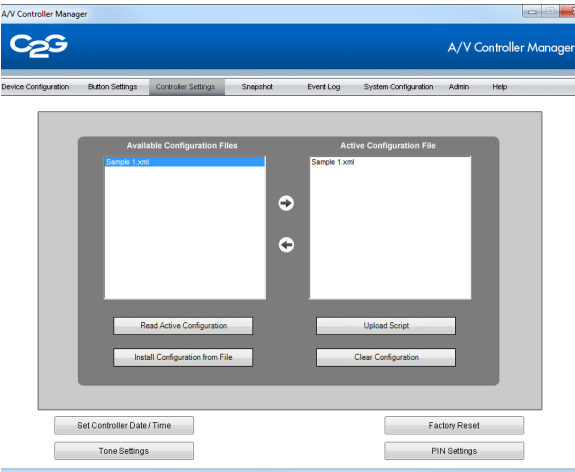
# Controller Settings

## Upload Script

This button is used to upload the script in the Active Configuration File window to the wall plate controller. Use the following steps to upload a script

**Step 1**: Move one script from the Available Configuration Files window to the Active Configuration File window.

**Step 2**: Click on the Upload Script button.

**Step 3**: Use the dropdown in the popup window to select an available Scenario number between 1 and 9 and then click on the OK button.

Note:  The wall plate controller must be connected to a USB port on the computer. Only one file may be uploaded to the wall plate controller at a time. This process must be repeated for each script uploaded to the wall plate controller.

## Clear Configuration

This button is used to remove a script from the Active Configuration File window. This will allow other scripts to be uploaded to the wall plate controller.

## Set Controller Date/ Time

This button is used to read and adjust the wall plate controller's date and time settings. Click on the Apply button to save any changes that are made before clicking on the OK button to exit. Click on the Set to PC Time button to set the wall plate controller to match the computer's date and time settings.

Note: The wall plate controller must be connected to a USB port on the computer for this button to function.

## Tone Settings

This button is used to turn the wall plate controller's tone on or off. The wall plate controller's tone is on by default and the controller will produce an audible tone with button presses. To turn off this setting click on the Tone Settings - Off button.

Note: The wall plate controller must be connected to a USB port on the computer for this button to function.

17.
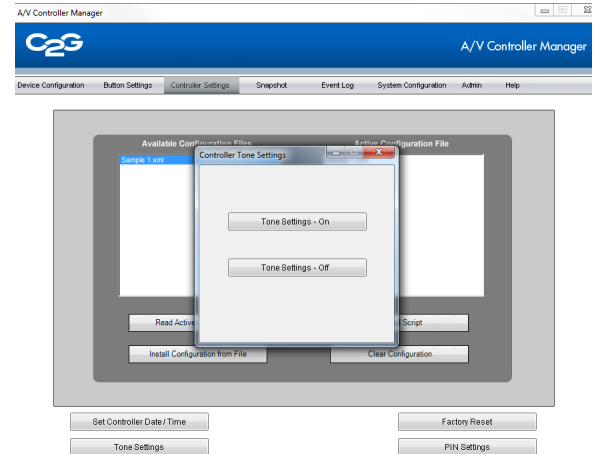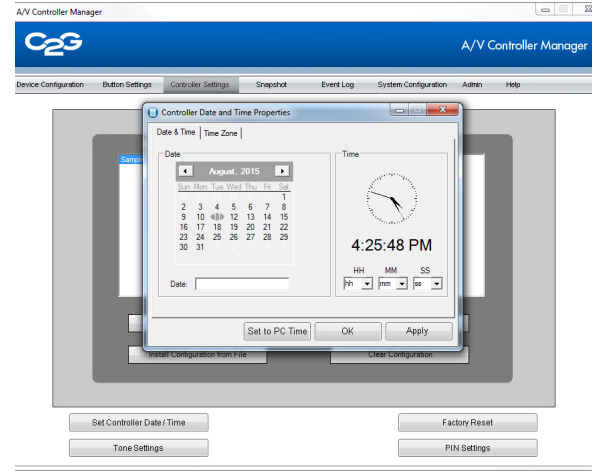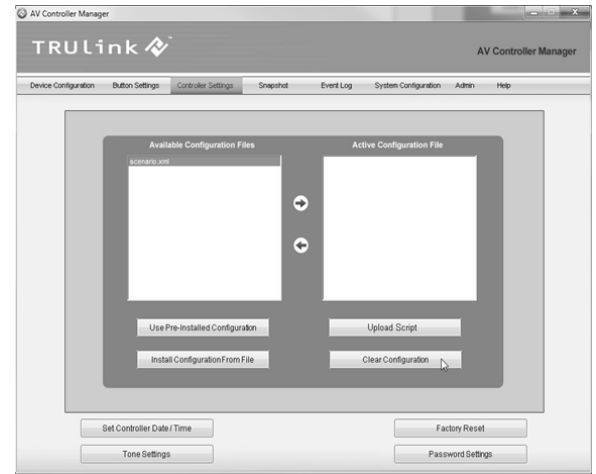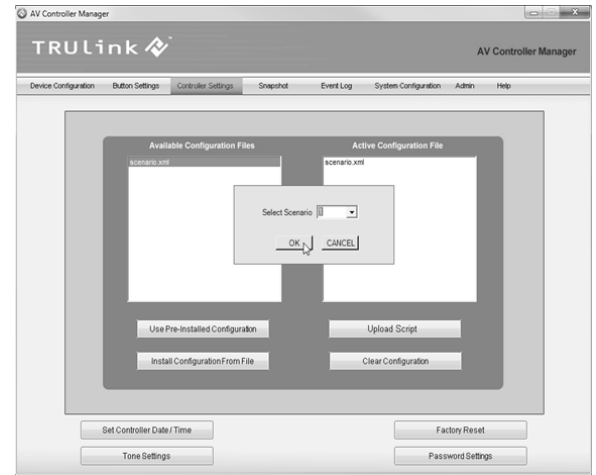
# Controller Settings

## Factory Reset

This button is used to restore the wall plate controller to the factory settings and will erase the memory on the controller.

Warning: Any configuration information that is stored on the wall plate controller will be erased and will be unrecoverable.

Note: The wall plate controller must be connected to a USB port on the computer for this button to function.
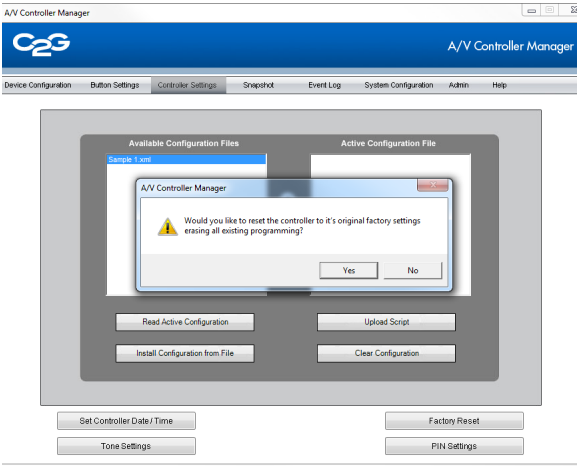


## Password Settings

This button is not active in this version of software.

# Snapshot

## Accessing Snapshot

This screen shows the current configuration for buttons 1 - 8 within the GUI. Click on the Snapshot tab under the A/V Controller Manager title bar to access this information



## Snapshot - Virtual Buttons

To view the current configuration information of the virtual buttons, 9 - 12, within the GUI, click on the virtual buttons link at the bottom of the Snapshot tab. Note: This link will not be active unless information has been saved to the virtual buttons

# Event Log

## Accessing Event Log

This screen provides information on changes that have been made to the wall plate controller. Click on the Event Log tab under the A/V Controller Manager title bar to access this information

Note: The wall plate controller must be connected to a USB port on the computer for this button to function.
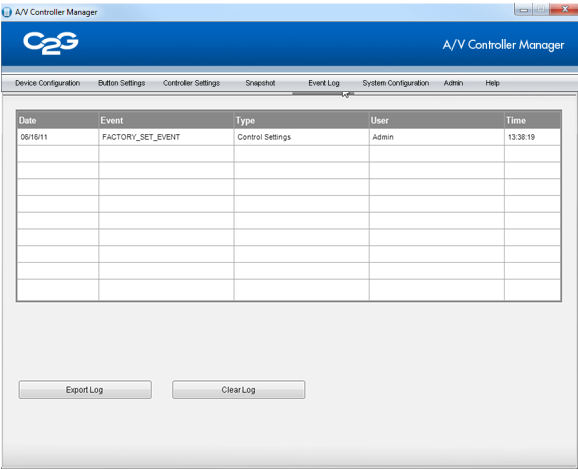
## Event Log - Export Log

The Export Log button save the Event Log information to a file on the computer. Clicking the button opens a popup window to chose the save location and file name.

Note: The wall plate controller must be connected to a USB port on the computer for this button to function.
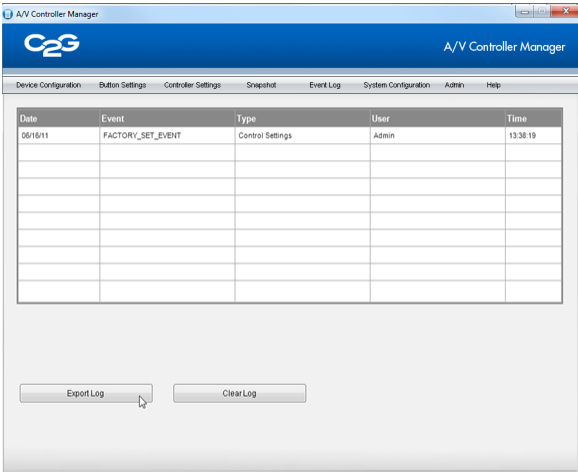
## Event Log - Clear Log

The Clear Log button will erase the Event Log information from the controller.

Note: The wall plate controller must be connected to a USB port on the computer for this button to function.

19.
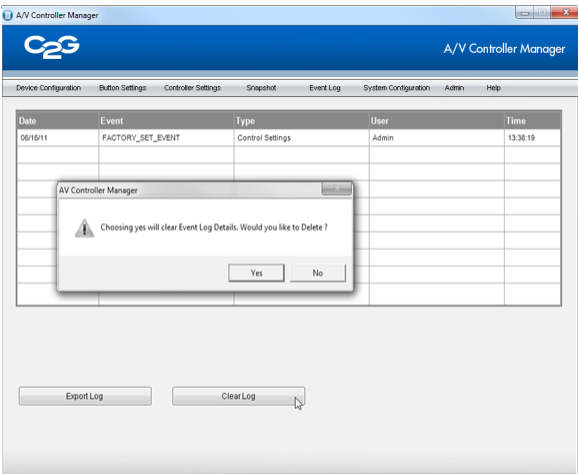
# Admin

## Accessing Admin

The Admin tab provides the ability to add devices and make adjustments to the control command database. Click on the Admin tab under the A/V Controller Manager title bar to access this information
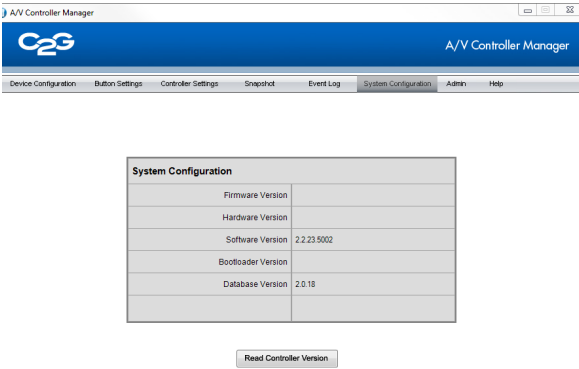
# Adding a Device

## Device Type

Admin will open to the Device Type screen by default. This screen allows different types of devices, i.e. Blu-ray, DVD, etc, to be added to the control command database.

To add a device type, type the name of the device type into the Device Type Name text box, click on the Submit button, and then click on the OK button in the popup window.

To remove a device type click on the device type within the View/ Delete Device field, click on the Delete button at the bottom of the filed, and then click on the OK button in the popup window.
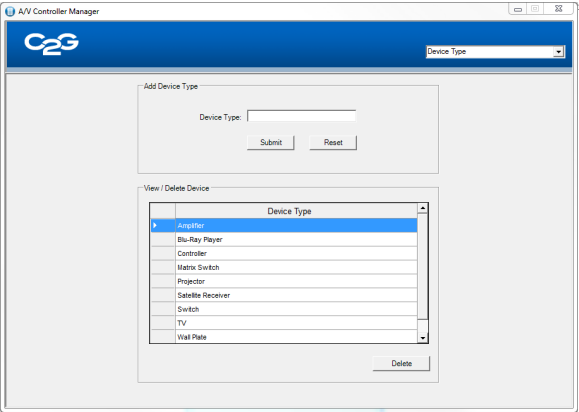
## Brand

Use the dropdown at the top of the Admin screen to switch to the brand screen. The brand screen allows different brands to be added to the control command database.
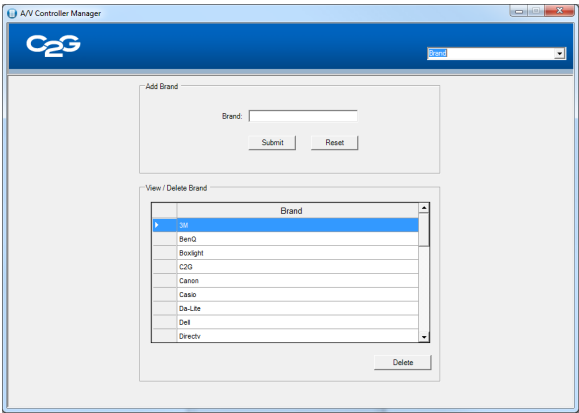
# Adding a Device

## Brand - Adding a brand

To add a brand, type the brand name into the Brand Name text box, click on the Submit button, and then click on the OK button in the popup window.

To remove a brand, click on the brand within the View/ Delete Device field, click on the Delete button at the bottom of the filed, and then click on the OK button in the popup window.
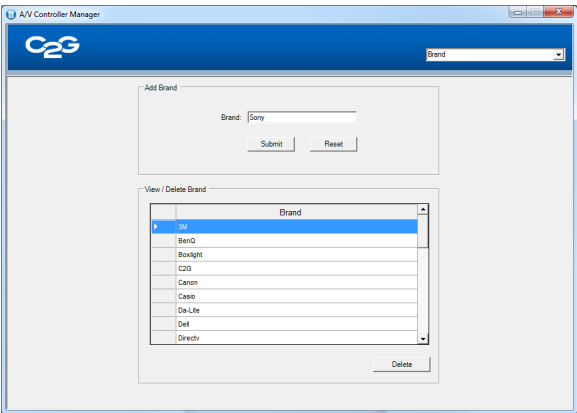
## Model

Use the dropdown at the top of the Admin screen to switch to the model screen. The model screen allows different model numbers to be added to the control command database.
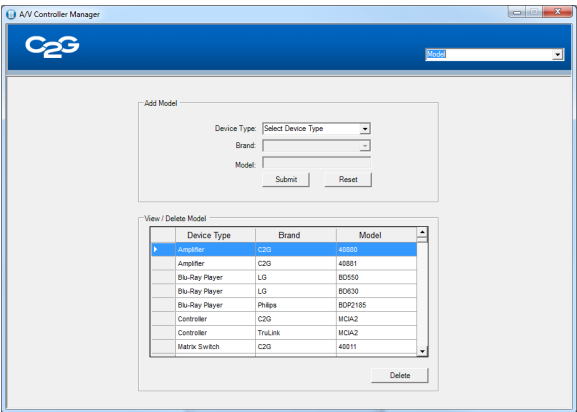
## Model - Adding a model number

To add a model number, select the device type using the Select Device dropdown, select the brand name using the Select Brand dropdown, type the model number into the Model Name text box, click on the Submit button, and then click on the OK button in the popup window.

To remove a model, click on the model within the View/ Delete Device field, click on the Delete button at the bottom of the filed, and then click on the OK button in the popup window.
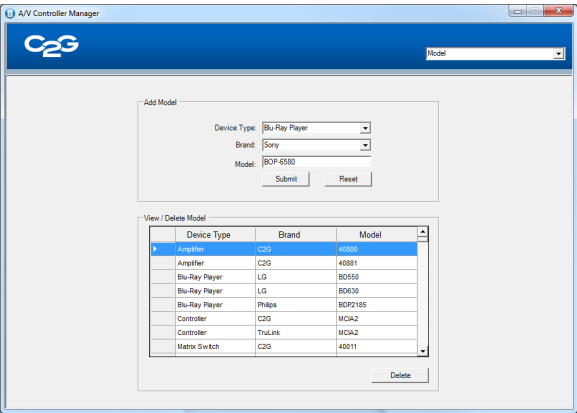
## Device Details

Use the dropdown at the top of the Admin screen to switch to the device details screen. The device details screen allows an assignment of IR or serial control for the commands that will be entered into the control command database.
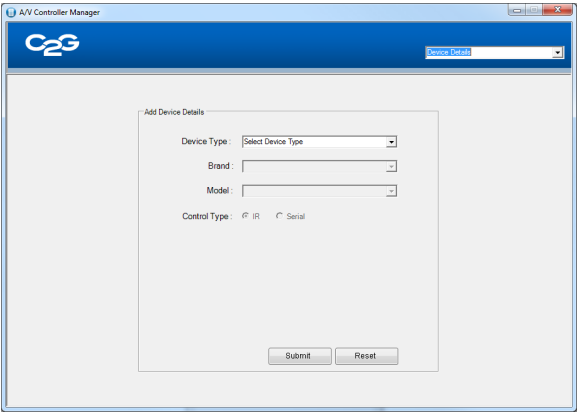
# Adding a Device

## Device Details - Assigning device details

To assign device details, select the device type using the Device Type dropdown, select the brand name using the Brand dropdown, select the model number using the Model dropdown, click on the radio button for IR or Serial, click on the Submit button, and then click on the OK button in the popup window.

To assign device details to a different device, click on the Reset button and then repeat the steps described above.
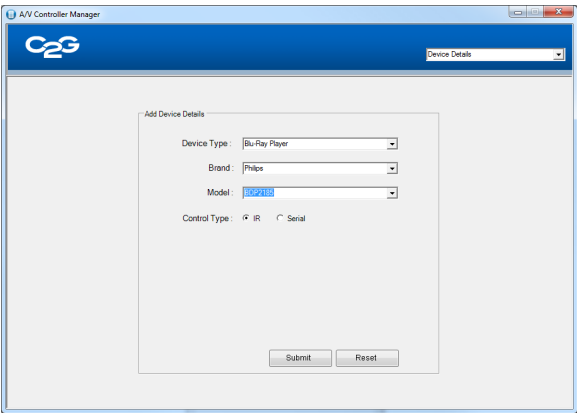
## Device Functions

Use the dropdown at the top of the Admin screen to switch to the device functions screen. The device functions screen allows the control commands for the device to be entered into the control command database.
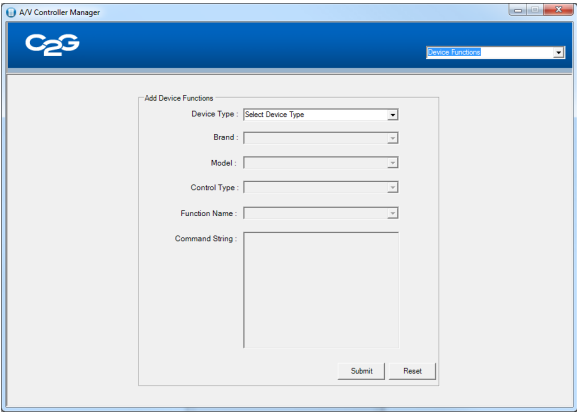
## Adding a Device

### Device Functions - Adding device functions

To assign device functions, select the device type using the Device Type dropdown, select the brand name using the Brand dropdown, select the model number using the Model dropdown, select the control type using the Control Type dropdown*, and then use the Function Name dropdown to select < Add New Function >, or if IR < Learn IR >.

**Serial Commands:** Selecting < Add New Function > is required for entering serial commands. After selecting < Add New Function > enter the name of the function, i.e. Power On, Power Off, etc., into the Function Name text box, enter the command string into the Command String text box, click on Submit button, and then click on the OK button in the popup window.

**Infrared Commands:** IR commands may be manually entered by selecting < Add New Function >. After selecting < Add New Function >, type the name of the function, i.e. Power On, Power Off, etc., into the Function Name text box, enter the command string into the Command String text box, click on Submit button, and then click on the OK button in the popup window.

IR commands may also be learned through the wall plate controller's IR receiver by selecting < Learn IR >. The wall plate controller must be connected to a USB port on the computer for this function to work. After clicking on < Learn IR >, point the device's remote at the IR window on the wall plate controller, press the button on the remote for the function that will be learned** for a very short duration***, type the name of the function, i.e. Power On, Power Off, etc., into the Function Name text box, click on Submit button, and then click on the OK button in the popup window.

To assign device functions to a different device, click on the Reset button and then repeat the steps described above.

*This dropdown will auto-populate with the control type entered on the Device Details screen unless the device has been entered twice as IR and serial. If both control types have been entered on the Device Details screen, then select the control type for the functions that will be entered into the control command database.

** The command must be learned by the wall plate controller within 60 seconds of clicking < Learn IR >. If the command is not learned in that time frame, then the software will present a time out message and the process must be repeated. When the command is successfully learned the controller will beep and the command string will appear in the command string text box.

*** If the button on the IR remote is pressed for too long of a duration during the learning step, the IR command string may repeat multiple time. If the code is duplicated multiple times it will cause the command to fail. To correct a command failure please delete the previous command and try the learning phase again.
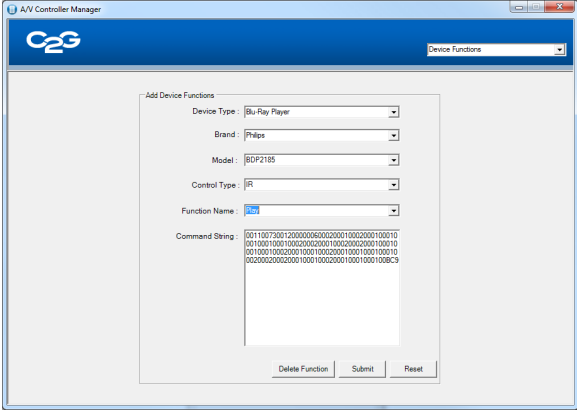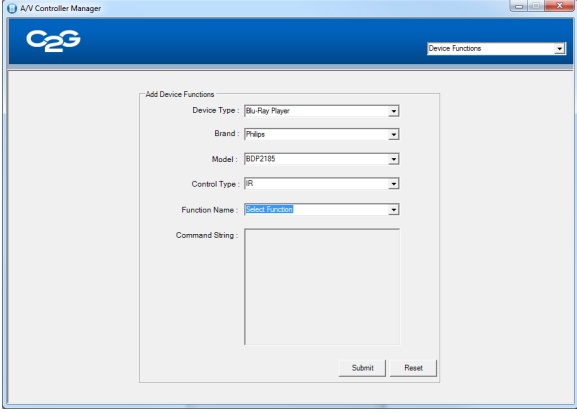
## Database Utility

### Accessing Database Utility

The Database Utility screen allows for additions to and storage of the control command database using Microsoft® Access database files. Use the dropdown at the top of the Admin screen to switch to the Database Utility screen.

# Database Utility

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## Database Utility - Export

The export button compresses and stores the database information. Click on the Export button, select a location on the computer for storage through the popup window, and then click on the Save button to save the file and close the popup window.



## Database Utility - Import

The import button allows a Microsoft® Access file to be uploaded to the control command database. See the file format below for the required fields. To import a file, click on the Import button, select the file through the popup window, and then click on the Open button to import the file and close the popup window. Note: Importing a file will add information to the database and will only replace information in the database that is duplicate.



## Database Utility - Backup

The Backup button stores the database information to a location on the computer. Click on the Backup button, select a location on the computer for storage through the popup window, and then click on the Save button to save the file and close the popup window.
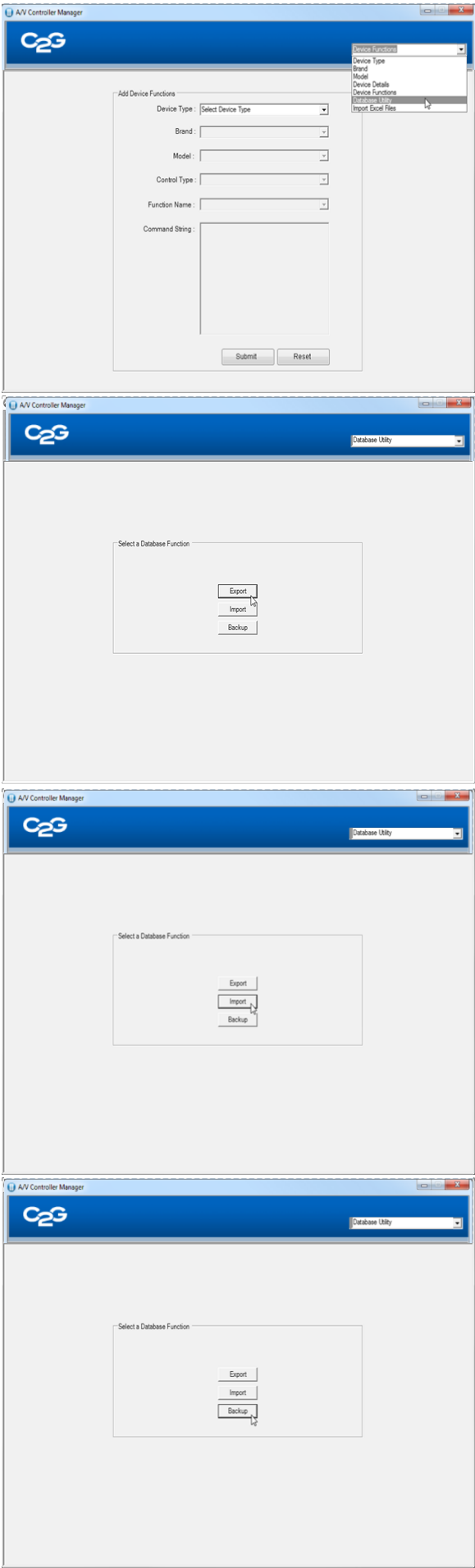
# Database Utility

## Import Excel Files

The Import Excel Files screen allows for additions to the control command database using Microsoft® Excel files. Use the dropdown at the top of the Admin screen to switch to the Import Excel Files screen.
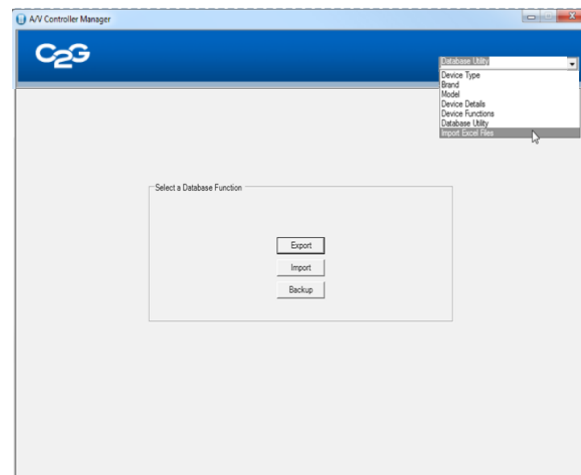
## Import Excel Files - Start

The Start button allows a Microsoft® Excel file to be uploaded to the control command database. See the file format below for the required fields. To import a file, click on the Start button, select the folder that contains the Excel file through the popup window, and then click on the OK button to import the file and close the popup window.

Note: Importing a file will add information to the database and will only replace information in the database that is duplicate.
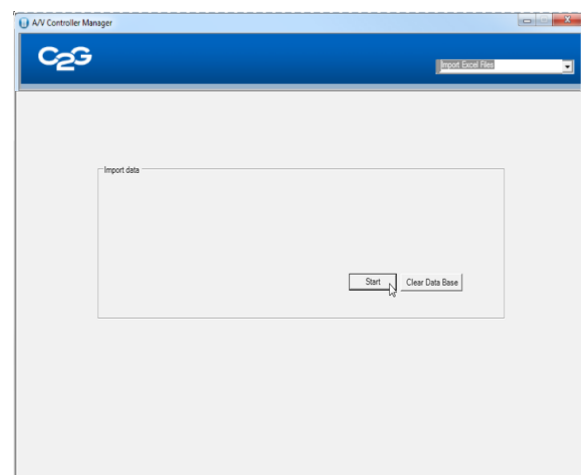
## Import Excel Files - Clear Data Base

The Clear Data Base button compresses the database and remove the data. This allows for a smaller database with fewer options which may streamline programming. To clear the database, click on the Clear Data Base button, and then click OK on the popup window.
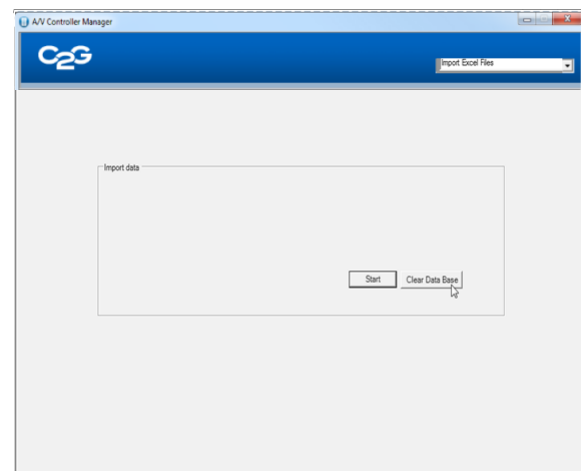
## Database Utility

**Required fields for Microsoft® Access and Microsoft® Excel files**



| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Device Type | Brand Name | Model Number | Controller Type | Baud Rate | Data Bits | Parity | Stop Bits | Flow Control | Operation Type | Function Name | ASCII | | Command String | |
| 2 | Projector | Smart | UF65 | Serial | 19200 | 8 | N | 1 | N | Control | Power On | on | | 6F 6E | |
| 3 | | | UF6 | | | | | | | Control | Power OFF | | | | |
| 4 | | | UF | | | | | | | Control | VGA 1 | | | | |
| 5 | | | | | | | | | | Control | VGA 2 | | | | |
| 6 | | | | | | | | | | Control | VGA 3 | | | | |
| 7 | | | | | | | | | | Control | S-VIDEO 1 | | | | |
| 8 | | | | | | | | | | Control | S-VIDEO 2 | | | | |
| 9 | | | | | | | | | | Control | S-VIDEO 3 | | | | |

Note: A sample file comes with the software. The sample file can be modified to create a custom device type data base.
The sample file is located under C:\ProgramFiles (x86)\AV Controller Manager\4200W-Serial.xlsx.
When saving the new file, ensure that the file name ends with:    -serial.xlsx

1.  Device Type should describe the device that is being entered, i.e. Projector, Blu-ray Player, etc.
2.  Multiple model numbers should be listed in different cells of column "C". Adding multiple model number in the same cell will create an error when importing the data
3.  Controller Type can only be "Serial" or "IR"
4.  List Baud Rate without abbreviations. **Example:** 19.2Kbps should be listed as 19200.
5.  Columns "F" to "I" should only contain one character per cell. If the requirement is =None, use "N"
6.  Column "K" will be a combination of upper and lower case letters using the description outlined in the user manual for the device
7.  Column "L" is for ASCII code only and will not be imported to the database
8.  Columns "M", "N" and "O" is for the main code string in Hexadecimal. "M" is used for the Start bit, "N" is used for the main code and "O" is for the End/Return bit.

## Changing the Active Script

The C2G A/V Controller is able to hold up to nine different scripts programmed through the GUI and one script that is reserved for the IR learning function. Use the following steps to switch the active script.

**Step 1:** Put the controller into administrator mode by connecting a USB Mini A adapter or cable to the USB port on the front of the wall plate controller. When in administrator mode, all of the buttons will be illuminated blue with the exception of button number 8 which will be illuminated green.

**Step 2:** Press and release button number 2, and then enter the code for the desired script (refer to the chart below for script codes).
After pressing button number 2 the script code must be entered within 5 seconds or an error will occur, indicated by a triple beep and button number 8 which will be illuminated red. If an error occurs, then the controller will remain in error mode for 15 seconds and then will return to administrator mode and the script change may be attempted again.

If the script code is entered correctly, then the controller will beep, button 8 will blink green, and the button corresponding to the script* will blink twice to confirm the selection. After several seconds, all keys will illuminate in sequence and the controller will be reset. This confirms that the new script is loaded and the controller is ready to use.

*Note: Buttons 1 and 8 will blink when script 9 is selected and buttons 2 and 8 will blink twice when script 10 is selected.

| Script | Script Code |
|---|---|
| Script 1 | 1 - 1 - 1 |
| Script 2 | 2 - 2 - 2 |
| Script 3 | 3 - 3 - 3 |
| Script 4 | 4 - 4 - 4 |
| Script 5 | 5 - 5 - 5 |
| Script 6 | 6 - 6 - 6 |
| Script 7 | 7 - 7 - 7 |
| Script 8 | 8 - 8 - 8 |
| Script 9 | 1 - 1 - 2 |
| Script 10 (IR Learning) | 1 - 1 - 3 |

## IR Learning Direct To The Face Plate

The C2G A/V Controller is capable of learning IR commands from a device's remote control through the front of the wall plate. Use the following steps to learn IR Commands.

**Step 1:** Put the controller into administrator mode by connecting a USB Mini A adapter or cable to the USB port on the front of the wall plate controller. When in administrator mode, all of the buttons will be illuminated blue with the exception of button number 8 which will be illuminated green.

**Step 2:** Press and release button number 4 to enter IR learning mode. After pressing button number 4, all buttons will dim and then button 8 will illuminate green when the controller is ready to proceed.

**Step 3:** Press and release the button that is to be programmed within 10 seconds of button 8 illuminating green*. The button that was pressed will be illuminated blue as well as the top button, 1 or 2, of the opposite column of buttons. This indicates that the button will be programmed with one command. Press and release the button that is being programmed up to three additional times to increase the number of commands that will be programmed to that button.

**Step 4:** After the proper number of commands have been selected, wait five seconds, and then the top button, 1 or 2, in the column opposite of the button being programmed will begin blinking indicating that the controller is ready to learn the first command.

**Step 5:** Point the device's remote control at the IR window on the wall plate controller and press the button on the remote control for the command that will be learned. When the command is learned the controller will beep once, and the top button, 1 or 2, in the column opposite of the button being programmed  will stop blinking indicating that the code has been successfully learned. The next button down in the column opposite of the button being programmed will begin blinking indicating that the controller is ready to learn the next command. Repeat this process until the last command has been learned.

**Step 6:** Once the last command has been learned, all buttons will dim except for the button that is being programmed, which will being blinking and continue to blink for eight seconds. During this time the blinking button may be pressed and held for five seconds to set the button press option.
> If a single command is learned…
> - the default button press option setting is "Single". In this mode each press of the button will fire the command.
> - and the blinking button is pressed and held for five seconds, then the button press option will be set to "Repeat". In this mode holding down the button will repeatedly fire the command until the button is released. This is typically used for volume controls.
>
> If multiple commands are learned…
> - the default button press option setting is "Sequential". In this mode each press of the button will fire the next command in the stack. After the last command has been fired the next button press will perform the first command in the stack.
> - and the blinking button is pressed and held for five seconds, then the button press option will be set to "Fire-All". In this mode each press of the button will fire all commands in the stack.

Once eight seconds have elapsed, or the button being programmed has been pressed and held, the controller will beep and all buttons will be illuminated blue with the exception of button 8 which will be illuminated green.

**Step 7:** Repeat steps 1 through 6 for each button that is to be programmed through IR learning

**Step 8:** Once all buttons have been programmed switch to script 10 where the IR learning information is stored. Use the following steps to select script 10.

- Insert the mini-A USB adapter into the USB port on the front of the controller.   The controller will enter Admin mode, indicated by button 8 being illuminated green.
- Push button 2 to enter script selection mode.
- Within 5 seconds of pushing button 2, push the sequence 1 - 1 - 3 to select script 10.
- If the script code is entered correctly, then the controller will beep, button 8 will blink green, and then button 8 and 2 will blink twice to confirm the selection.
- Remove the Mini-A USB adapter to resume normal operation using script 10.

See the Changing scripts from the controller keypad section for specific instructions on changing scripts.

*If the button that is to be programmed is not pressed, then the controller will present an error. The controller will beep twice, button 8 will blink red, and then the controller will return to administrator mode. After an error these steps will have to be repeated to enter IR learning mode and learn IR commands.

# USB On-The-Go (OTG)

The C2G A/V Controller features USB On-The-Go which allows scripts to be uploaded or downloaded from a USB thumb drive.

**Uploading a script to the controller**
**Note:** The script that is uploaded from a USB thumb drive to the controller will overwrite the active script. Use the instructions in the Changing scripts from the controller keypad section to select an empty script or a script that may be overwritten before uploading from a USB thumbdrive.

**Note:** When saving a script file to the USB thumb drive it must be saved within a specific folder named "script" and with a specific name, "scenario.xml". If the file is not saved in the required format, then it will not be possible to upload the file. The following path must be used for saving the file.

- \script\scenario.xml

If the script is downloaded of another C2G A/V Controller, then it will automatically be placed in this path with these names.

Use the following steps to upload a script to the controller.

**Step 1:** Save a script file to a USB thumb drive from a computer to the path "\script\scenario.xml", or download a script from another C2G A/V Controller

**Step 2:** Connect the USB thumb drive to the USB A female port of a USB A female to USB Mini A male adapter or adapter cable, and then connect the adapter or adapter cable to the USB port on the front of the wall plate controller. Once connected the controller will enter Admin mode, indicated by button 8, which will be illuminated green.

**Step 3:** Press and release button 1 to begin the upload process. After a few seconds the buttons will repeatedly light in the following sequence, 7, 5, 3, 1, which will indicate uploading.  The controller will beep and the buttons will stop blinking to indicate that the upload is complete

**Step 4:** Disconnect the adapter or adapter cable from the controller to return to normal operation.

**Downloading a script from the controller**
**Note:** The controller will download the active script only. Use the following steps to download a script from the controller. Use the instructions in the Changing scripts from the controller keypad section to select the script that will be downloaded.

**Step 1:** Connect the USB thumb drive to the USB A female port of a USB A female to USB Mini A male adapter or adapter cable, and then connect the adapter or adapter cable to the USB port on the front of the wall plate controller. Once connected the controller will enter Admin mode, indicated by button 8, which will be illuminated green.

**Step 2:** Press and release button 3 to begin the download process. After a few seconds the buttons will repeatedly light in the following sequence, 1, 3, 5, 7, which will indicate downloading.  The controller will beep and the buttons will stop blinking to indicate that the download is complete

**Step 3:** Disconnect the adapter or the adapter cable from the controller to return to normal operation

## Changing the Battery

The C2G A/V Controller contains a CR1225 battery that support the real-time clock operation for timed events. The battery is located between the main PCB of the wall plate controller and the daughter board PCB at the top of the wall plate. Use the following steps to replace the battery.

**Warning:** Ensure that the controller is disconnected from power before replacing the battery. Failure to do so may result in damage to the controller.

**Step 1:** Remove the wall plate from its mounting location and disconnect the Cat5E cable.

**Step 2:** Locate and remove the battery. The battery is located between the main PCB of the wall plate controller and the daughter board PCB at the top of the wall plate.

**Note:** To avoid damage to the controller use a small, non-conductive object to remove the battery.

**Step 3:** Insert a new battery, size CR1225, into the wall plate controller. The positive side of the battery should face the main PCB and the front of the wall plate controller.

**Step 4:** Reconnect the Cat5E cable and mount the wall plate.

**Caution:** There is a risk of explosion if the battery is replaced by an incorrect type. Dispose of old batteries in accordance with local laws.


## Changing the buttons

Use the following instructions to change the buttons on the wall plate controller.

**Step 1:** Remove the wall plate from its mounting location and disconnect the Cat5E cable.

**Step 2:** From the back of the wall plate controller push down on the key plate retaining tab and then toward the front of the wall plate.

**Step 3:** Once the top retaining tab is loose, carefully remove the key plate from the wall plate controller.

**Step 4:** Choose the buttons that will be used and tear them from the button sheet.

**Step 5:** Arrange the buttons in the holes of the key plate.

**Step 6:** Insert the bottom tab of the key plate into the hole at the bottom of the PCB. Be sure that the opening for the USB port aligns with the USB port on the PCB.

**Step 7:** Push the top of the key plate toward the PCB until the key plate locks into place.

**Step 8:** Reconnect the Cat5E cable and mount the wall plate.

## Firmware Update Procedure

Updating the firmware of the A/V Controller may be required occasionally. Use the following steps to update the firmware:

**Note:** Copy the entire Firmware folder from C:\Program Files (x86)\AV Controller Manager   onto a USB thumb drive. Make sure no other file folders have firmware in the file name on the thumb drive.

Use the following steps to update the firmware of the controller.

**Step 1:** Save the firmware folder to a USB thumb drive from a computer with the AV Controller software

**Step 2:** Connect the USB thumb drive to the USB A female port of a USB A female to USB Mini A male adapter or adapter cable, and then connect the adapter or adapter cable to the USB port on the front of the wall plate controller. Once connected the controller will enter Admin mode, indicated by button 8, which will be illuminated green.

**Step 3:** Press and release button 7 to begin the update process. After a few seconds the buttons will repeatedly light in the following sequence, 7, 5, 3, 1, which will indicate updating.  The controller will beep and the buttons will stop blinking to indicate that the update is complete

**Step 4:** Disconnect the adapter or adapter cable from the controller to return to normal operation.

# FAQ/Troubleshooting

1. The serial codes that I entered are not working. What can I do?
2. The make and model of my serial or IR device is not listed, how can I add it?
3. Where can I get a replacement USB mini-A adapter in order to access admin mode?
4. How can I change the active script that I am using?
5. I am receiving an error when trying to upload a script from a USB thumbdrive. What is the problem?
6. The controller is not lighting up blue. What is the problem?
7. Where can I get a serial cable to go from the MCIA to my projector?
8. How can I extend the IR emitter cable longer than the 9 foot cable provided?
9. How do I locate the serial codes for my device?
10. How do I load the same script onto other controllers?
11. The controller is not being recognized by the software. What can I do?
12. I am receiving an error when uploading firmware from a USB thumbdrive. What is the problem?
13. I am receiving an error when downloading a script to a USB thumbdrive. What is the problem?
14. I am receiving an error when attempting to learn IR commands through the face plate. What is the problem?

**1. The serial codes that I entered are not working. What can I do?**
- Please make sure that the serial codes are entered in Hexadecimal format and not ASCII. If the serial codes are provided in ASCII format, then they will need to be converted to Hexadecimal.
- Verify that the baud rate is set correctly for the model of projector.
- Make certain the serial cable being used is the correct pinout for the projector.
- If the cable is a straight through serial cable and the projector requires null modem, then use the dip switches on the MCIA adapter to reverse the pinout of the cable.

**2. The make and model of my serial or IR device is not listed, how can I add it?**
If a device is not listed in the pre-configured devices, then it must be manually added.Please click on the admin tab, login, and then follow the instructions on Adding a Device.Each IR or serial command that will be used for that device must be added through the Adding a Device screen.

**3. Where can I get a replacement USB mini-A adapter in order to access admin mode?**
Please contact us at 800-506-9607 in order to obtain a replacement USB mini-A adapter. Two options are available.
- 40346 - USB A Female to USB Mini-A Male Adapter
- 40347 - 1m USB A Female to USB Mini-A Male Adapter Cable

**4. How can I change the active script that I am using?**
Please refer to the Changing scripts from the controller keypad section.

**5. I am receiving an error when trying to upload a script from a USB drive. What is the problem?**
There may be a few issues that would cause this problem.
- Ensure that the script file is saved on the USB thumbdrive in the proper folder and that it is named properly. The file must be saved to the following folder with the following name: \script\scenario.xml
- Ensure that the USB OTG upload procedures are followed. See the USB OTG section for upload procedures.
- Ensure that the USB thumbdrive is known good and working. Test with a different USB thumbdrive if available.

**6. The controller is not lighting up blue. What is the problem?**
- Make sure the controller is connected to the MCIA adapter with a known good Cat5E cable. Verify that the Cat5E cable is good by testing that cable with a continuity tester or a different Cat5E cable.
- Make sure the MCIA adapter is connected to power. The power cable should be plugged into the MCIA on one end and then connected to a power outlet or the C2G Audio Amplifier.
- Test an additional wall plate controller, MCIA adapter, or power adapter/cable it in the same configuration. (If available)

**7. Where can I get a serial cable to go from the MCIA to my projector?**
That depends upon the serial connector on the projector. If the serial connection on the projector is a DB9 port, then we offer a wide selection of cables that may be used. If the serial connection on the projector is a different connector than a DB9, then contact us at 800-506-9607 to see if we carry or if we can make the cable for the projector.

# FAQ/Troubleshooting

**8. How can I extend the IR emitter cable longer than the 9 foot cable provided?**
> There are 2 ways to extend the IR emitters.
> 1. A 3.5mm mono extension cable may be used to extend the IR emitter up to 25ft.
> 2. The screw terminal block that connects to the IR2 port on the side of the MCIA adapter may be used to extend the IR emitter up to 50ft.  This extension requires a cable that has at least 2 conductors (ie. a Cat5E cable) and a 2-conductor 3.5mm keystone jack similar to our item 37035. Use the following steps to extend the IR emitter from the screw terminal.
>    - Remove the green screw terminal block connector from the controller's packaging.
>    - Select a bulk cable that has a least 2 conductors with at minimum wire gauge of  24AWG, i.e. Cat5E cable, at the appropriate length for the IR emitter extension up to 50ft.
>    - Insert and secure the conductors into the two opening of the screw terminal block.
>    - Secure the other end of the conductors into the back of the keystone jack, 37035 .
>        - To terminate to the keystone jack, push down on the orange tabs and insert the wires. The left side (screw facing up) conductor of the screw terminal block connects to the positive (+) position on the keystone and the right side (screw facing up) conductor of the screw terminal block connects to the Negative (-) position on the keystone.
>        - Connect the IR emitter cable to the 3.5mm female port on the keystone jack, remove the adhesive cover from the IR emitter head, and then stick the IR emitter heard on the IR receive of the device to be controlled.

**9. How do I locate the serial codes for my device?**
> This can be commonly found in the manual of the device. If this information is not included in the manual, then contact the manufacturer of the device to obtain the serial codes.

**10. How do I load the same script onto other controllers?**
> - Once the script has been created in the Button Setting section of the software, it can be saved onto a USB thumbdrive and uploaded to other controllers.
> - It is also possible to download the active script from one controller and then upload it to another controller. Please see the upload and download steps in the USB OTG section for specific instructions on this process

**11. The controller is not being recognized by the software. What can I do?**
> - Verify that the USB cable used to connect the controller to the computer's USB port is known good. Test with an alternate USB cable if available.
> - Verify that the controller is connected to power through the MCIA adapter. All of the buttons on the controller should be illuminated blue. If the buttons are not illuminated blue, then see question 9 for possible solutions.
> - If the software was started before the controller was connected to the computer, then the controller will not be recognized. To correct this issue, disconnect the controller, shut down the software, reconnect the controller, and then start the software.
> - Verify that the controller is being recognized by the computer. While the controller is connected to the computer, open Windows Device Manger. The A/V Controller should be listed the category of "libusb-win32 devices" as "Audio Video Controller"

**12. I am receiving an error when uploading firmware from a USB thumbdrive. What is the problem?**
> There may be a few issues that would cause this problem.
>    - Ensure that the firmware file is saved on the USB thumbdrive in the proper folder and that it is named properly. The file must be saved to the following folder with the following name: \firmware\firmware.dfu
>    - Ensure that the firmware update procedures are followed. See the Firmware Update section for the update process.
>    - Ensure that the USB thumbdrive is known good and working. Test with a different USB thumbdrive if available.

**13. I am receiving an error when downloading a script to a USB thumbdrive. What is the problem?**
> There may be a couple of issues that would cause this problem.
>    - Ensure that the script download procedures are followed. See the USB OTG section for specific instructions on this process.
>    - Ensure that the USB thumbdrive is known good and working. Test with a different USB thumbdrive if available.

**14. I am receiving an error when attempting to learn IR commands through the face plate. What is the problem?**
> There may be a few issues that would cause this problem.
>    - Ensure that the procedures in the IR learning through the face plate are followed. See the IR Learning through the face plate for specific instructions on this process.
>    - When IR Learning mode has been initiated, the key that will be programmed must be pressed within 10 seconds. If this key is not pressed, then the controller will present an error.
>    - Once the controller has indicated that it is ready to learn an IR command, the command must be sent within 20 seconds. If the command is not sent, then the controller will present an error.