MX-890 Programming Manual

Control the Experience.

500 Mamaroneck Avenue
Harrison, NY 10528
Phone: (914) 835-4484
Fax: (914) 835-4532

USING CCP EDITOR TO PROGRAM

Introduction

The MX-890 color remote can control up to 200 devices with up to 10 pages each. Control these devices using IR (direct line of sight) or via RF (with an optional base station). Use RF to control devices indoors and out, through walls and floors, and in other rooms. Increase or decrease the living room television volume from your kitchen or other room without pointing towards the TV. Before we can accomplish this, we need to program the MX-890 in the Complete Control Program.

This manual will guide you through the steps of programming your MX-890 remote control, based on the **Programming in CCP** manual found within CCP or in the URC Control Room. Each of the programming steps below, are represented by symbols which compare that step with the programming process described in the **Programming in CCP** manual. These symbols will help point out which steps are the same (green), similar (yellow) or completely different (red) from the process described there. Make sure to review all of the red (different) and yellow (similar) steps, because the programming procedure will be different. If you would like further information regarding a specific step, refer to the **Programming in CCP** Manual.

Different
STOP, you need to review this step. When you see this symbol make sure to stop and read the information provided. This step is totally different than described in the **Programming in CCP** manual.

Similar
Review this step as there are slight changes in the programming process. This step is similar to what is described in the **Programming in CCP** manual.

Same
You may skip this step. It's the same process shown in the **Programming in CCP** manual.

Programming the MX-890

The following programming sections may differ from their counterparts shown in the Programming in CCP manual. Review each step below to familiarize yourself with their similarities or differences.

Configure Home
In this section you will...
● Add a room, base station and the MX-890 to your project.

This step is different than *Configure Home* found in the **Programming in CCP** manual.
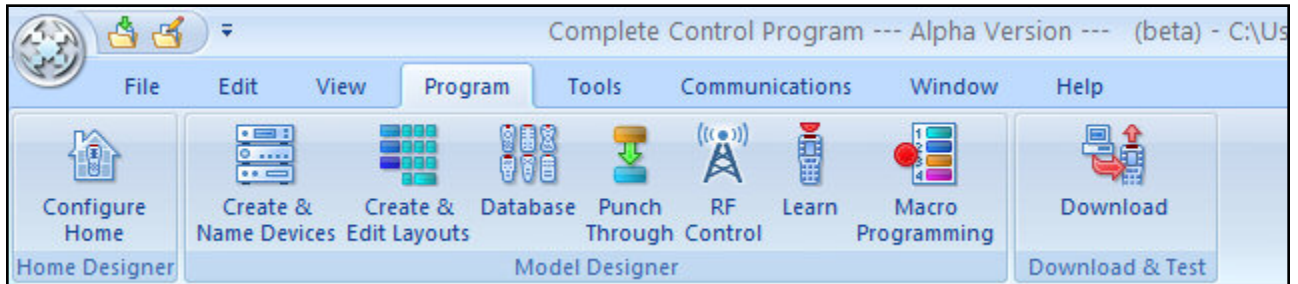
Button Properties
In this section you will…
● Modify a button image, text, position or add a variable to it.

This step is different as it is not found in the **Programming in CCP** manual.

Create & Name Devices
In this section you will…
● Add every component that you would like to control to your project.

This step is different than *Create & Name Devices* found in the **Programming in CCP** manual.

Create & Edit Layouts
In this section you will…
● Add a theme and button layout to each device.

This step is different, as it is not found in the **Programming in CCP** manual.

Database
In this section you will…
● Select and save the manufacturer's IR codes to control each of your newly added devices.

This step is identical to *IR Database* found in the **Programming in CCP** manual.

Punch Through

In this section you will...

● Save commands from one device (i.e. AVR) to another device (i.e. Cable).

This step is identical to *Programming Punch Through* found in the **Programming in CCP** manual.

RF Control

In this section you will...

● Select the optional base station to use in your project.
● Determine, for each device, how it communicates to the system (IR/RF).
● Route IR commands to specific ports for better reliability.

This step is identical to *RF Control* found in the **Programming in CCP** manual.

Macro Programming

In this section you will...

● Record a sequence of commands that is executed when the end-user selects a button.

This step is different than *Macro Programming* found in the **Programming in CCP** manual.

Download

In this section you will...

● Send all of your programming to the MX-890 .

This step is identical to *Downloading* found in the **Programming in CCP** manual.

Configure Home: Adding the MX-890

This step is different than *Configure Home: System Configuration* found in the **Programming in CCP** manual. The **Configure Home** button allows you to add additional rooms, base stations and remote controls to your project.

After opening CCP, you will be greeted with either:

1. A previously viewed project...
   a. Press **Program** then **Configure Home.**
   b. Add **Room(s), Base Station(s)** and a **MX-890** remote.
   c. Once the MX-890 is added, the Model Properties window opens. Select the **Default Base Station, Name** it, and select an **Option (New, Existing, Copy, Mirror).**

OR
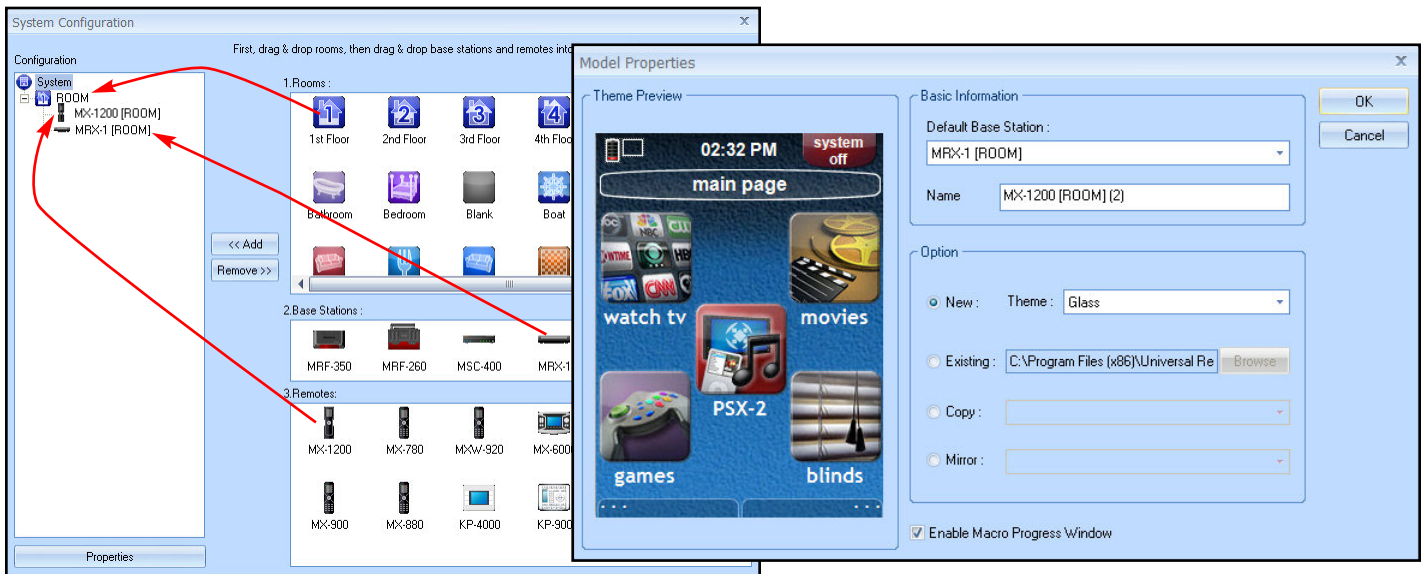
2. Press **File** then **New.** A **New File** window opens to display a list of radio button options:

a. **Default (1 Room, 1 Remote):**
   Select a remote from this drop down. (i.e. MX-890). This is the remote that you will program in this project.

b. **Empty (No Rooms, No Remotes):**
   This option creates a blank file which will require you to add rooms, base stations and remotes from **Configure Home** detailed above.

c. **Open existing file as template:**
   Modify a pre-existing file to create a new project. Press the **browse ...** button to locate that file.

4

U
S
I
N
G

C
C
P

E
D
I
T
O
R

T
O

P
R
O
G
R
A
M
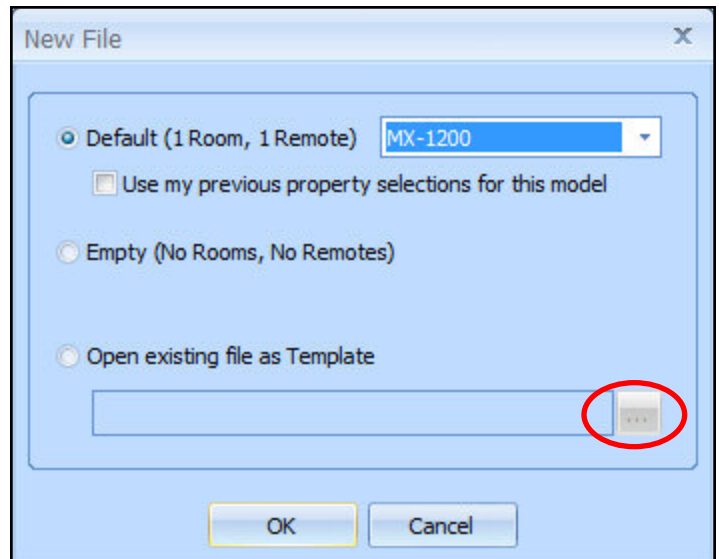
Button Properties

This step is different as it is not found in the **Programming in CCP** manual. Since the MX-890 is a graphical remote, you can tweak a button by adding text and modifying its image using **Button Properties**.

1. Click on a user interface button to view the **Button Properties** window on the right side of CCP. Or click on the **Properties** tab to open the Button Properties window.

2. Modify a button by using the following options:

   Variable: Create (press **New**) or assign a variable from the drop down list change the state of a button from normal to pressed. This is an optional feature. For further details, refer to the *Advanced Applications - Variables* section in this manual.

   Button ID: Not used in programming. This internal Button ID is used by CCP as a button identifier.
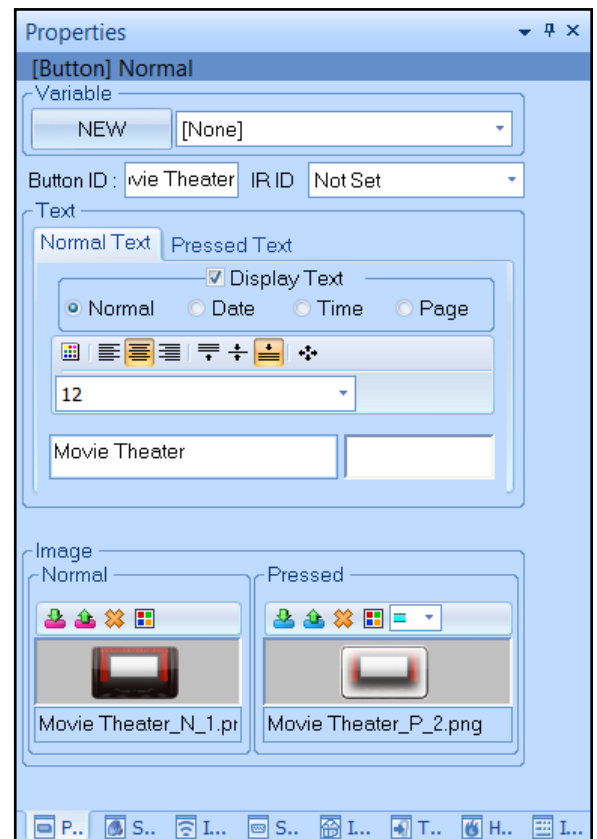
   IR ID: This ID is used by the CCP databases to map commands to the correct soft button locations when using the "Save All" function of the database. It is usually not modified during typical programming, but it can be manipulated using the pulldown list in order to assign a desired IR ID to a button.

   Text: Click on the "Text Entry" box and use the keyboard to edit the label of a button. Text tools allow you to change the Font, Color, Style and Position of the text on a button. The Text window also allows you to have different text on the "Normal" button state and the "Pressed" button state.

   Only one line of text is visible in the text box window. Use the keyboard **Arrow Up and Arrow Down keys to edit multi-line text.**

   Image: Each button has a pre-selected image that can be modified to a BMP, GIF, JPG or animated GIF. *Normal and Pressed are detailed on the next page.*

Properties

[Button] Normal

Variable

NEW   [None]

Button ID : vie Theater   IR ID   Not Set

Text

Normal Text   Pressed Text

☑ Display Text
⊙ Normal   ○ Date   ○ Time   ○ Page

12

Movie Theater

Image
Normal   Pressed

Movie Theater_N_1.pr   Movie Theater_P_2.png

P..   S..   I..   S..   I..   T..   H..   I..

URC
Control the Experience.

Normal: This image appears on the button before it is pressed.

Export:
Click on this button to browse your computer and save the existing image as a file anywhere on your pc.

Import:
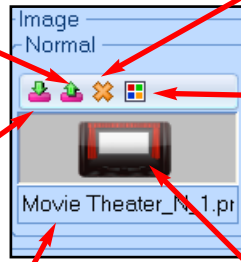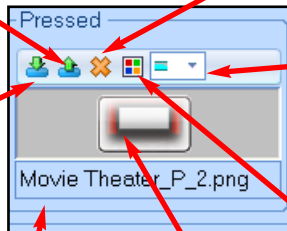*Click on this button to browse predefined CCP device images.*

Delete:
Click on this button to delete the currently loaded image.

Background Color:
Click on this button to open the color window and pick a color for a rectangular button without art.

Image name:
This field displays the file name.

Image preview:
An image of the before (normal) state is displayed.

Pressed: This image appears while the button is pressed.

Export:
Click on this button to browse your computer and save the existing image as a file anywhere on your pc.

Import:
Click on this button to browse predefined CCP device images.

Delete
Click on this button to delete the currently loaded image.

Invert the Normal Image:
As a shortcut you can opt to simply invert all the colors of the "Normal" image after the button is pressed.

Image name:
This field displays the file name.

Image preview:
An image of the after (pressed) state is displayed.

Background Color:
Click on this button to open the color window and pick a color for a rectangular button without art.

M X - 8 9 0   P R O G R A M I N G   M A N U A L

Create & Name Devices

This step is different than *Create & Name Devices* found in the **Programming in CCP** manual.

1. Select a **Category**: Activities, Blanks, Brands, Devices or Rooms. Once a category is selected, the icons listed on the right will transition to match the chosen category.

2. Select a **Theme** from the list to choose from various styles.

3. Select an **icon** and **drag** it to the MX-890 user screen.

4. To rename a **Page Name** or **Device Name**, select the **icon** within the user screen and enter a new name in the associated field.

> To remove an undesired icon, select it and press the **Delete** button below the user interface. If you run out of space when adding devices, simply press the **Next Page** button.

5. Press **Save** then **Next.**

U
S
I
N
G

C
C
P

E
D
I
T
O
R

T
O

P
R
O
G
R
A
M
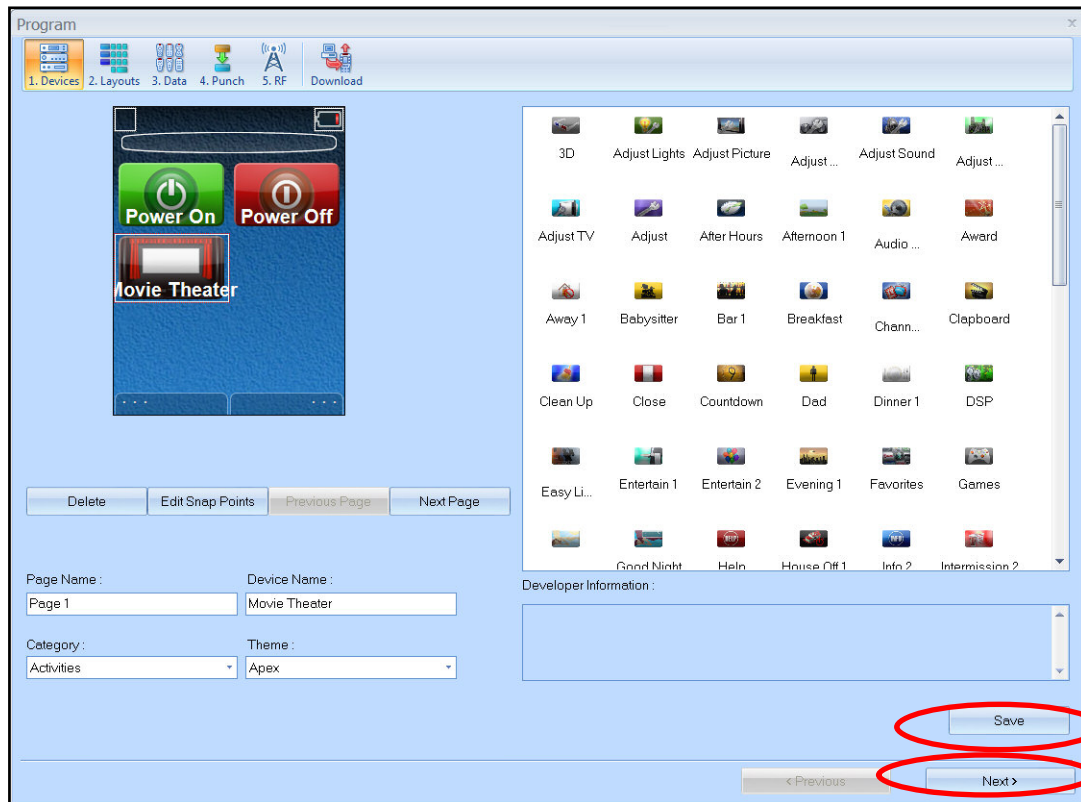
Create & Edit Layouts

This step is different as it is not found in the **Programming in CCP** manual. Graphical remotes like the MX-890, have various themes to choose from which showcase different images and colors. Button layouts have a predetermined command configuration based on the type of device you are adding. (ie. AVR to Audio, TV to TV.)

1. Select a device or activity within the **Select Device** list.

2. Click an option from the **Select Theme** list to showcase different backgrounds, images, color and text.

3. Choose one of the layouts listed within **Select Button Layout** that most closely relates to the type of device you are adding.

4. Once your selections are made, press the **Add Pages** button to populate the device's pages with the selected themes and button layout. Use the **Overwrite Pages** button to replace pages that were previously created.

5. Press the **Prev Device** or **Next Device** buttons to toggle through the device list and repeat steps 1 - 5.

6. Press **Next** when you have finished adding themes and button layouts.

USING CCP EDITOR TO PROGRAM
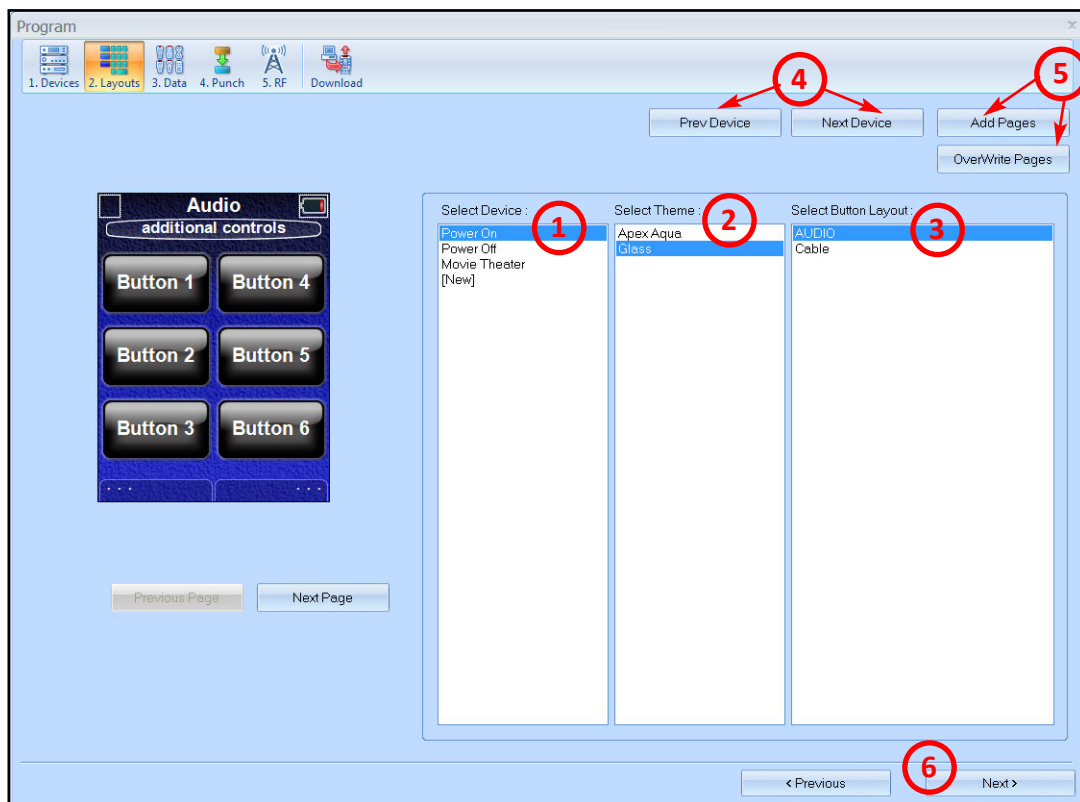
Macro Programming

This step is different than *Macro Programming* found in the **Programming in CCP** manual.

Basic Macro Functions

TEST   Execute the list of commands in the macro window via the IR port of the connected remote.

RECORD   Starts the macro recording process, which enables you to navigate to any page and click on a button to create an "alias" to it. This "alias" is added to the list of the commands in the macro window.

An "alias" references the command on the original button.

STOP   Stops the recording of macro steps.

DELETE   Deletes the highlighted macro step(s).

DELAY   Opens the **Delay** window so that you can specify a delay time between macro steps.

Advanced Macro Functions

JUMP TO   Enables you to jump to any device or main page of the remote.

TEXT   Opens a **Text** window to type in text that will appear on the button as a macro step. Program a delay at the same time as the text to determine how long the new text will appear on the button. You can have as many text steps as you like (to the maximum of 255).

IR DATABASE   This button opens the **IR Database Navigator** within the Properties area above the macro window.

LEARN   Provides quick access to learn a command from another remote.

SLEEP TIMER   This feature allows the user to determine when the recorded macro executes.

VARIABLE   Opens the **Action Variable Setting** window, which enables you to choose a previously created variable and set it to **True**, **False** or **Invert** its status. If you want to create a variable, click on "Add New" at the bottom of the window.

IF/ELSE   Enables you to create a conditional macro. (**If** [*condition*] is True, do [*action*]... **Else** do [*action*]).

TOGGLE   Enables you to create a list of commands that the button will "toggle" through.

Basic Macro Functions

These basic functions are at the heart of macro creation. Without these functions, how else would you create a macro? You can **record** your commands, **stop** the recording process, **delete** unnecessary commands, add a **delay** to the macro list (i.e. if a device needs time after power up to receive a command) and finally **test** the macro list.
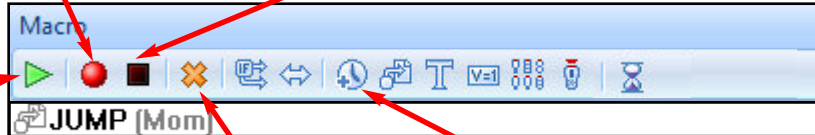
Stop:
Stops the recording of macro steps.

Record:
Starts the macro recording process, which enables you to navigate to any page and click on a button to create an "alias" to it.

Test:
Run a macro to execute a list of commands. (Make sure the remote is connected before testing the macro.)

Delete:
Deletes the highlighted macro step(s).

Delay:
*Opens the **Delay** window so that you can specify a delay between macro steps.*

Advanced Macro Functions

The advanced macro functions consist of **Jump to, Text, IR database, Learn, Sleep Timer, Variable, If/Else,** and **Toggle**.

Jump to
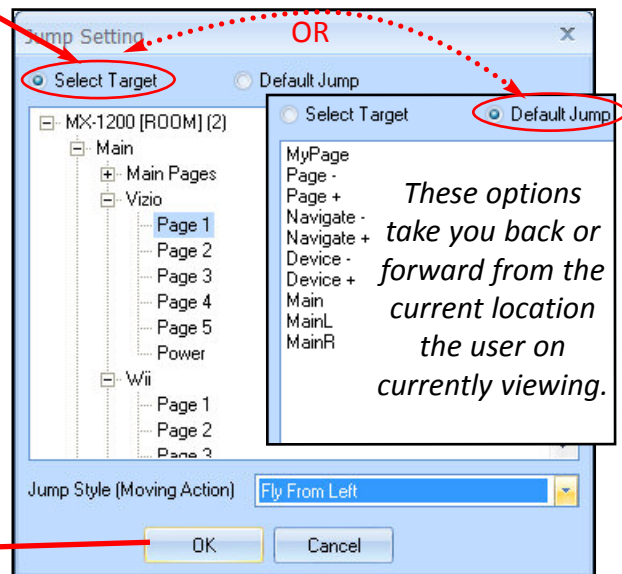Enables you to jump to any Device or the Main page of the remote.

Select Target
Navigate to a page and add it to the macro as a jump.

OR

Default Jump
Select the Default Jump radio option to choose from a list of options.

This feature is typically used to jump to a "Please Wait" page, as the FIRST step in a macro, and usually the LAST step of a macro is a jump to a DEVICE.

OR

These options take you back or forward from the current location the user on currently viewing.
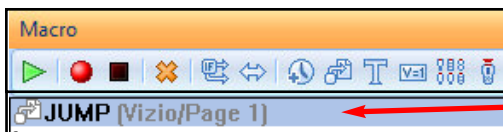
Text

This macro feature displays dynamic text on the button where the macro is created.

*Opens a **Text** window to type in text that will appear on the button as a macro step.*
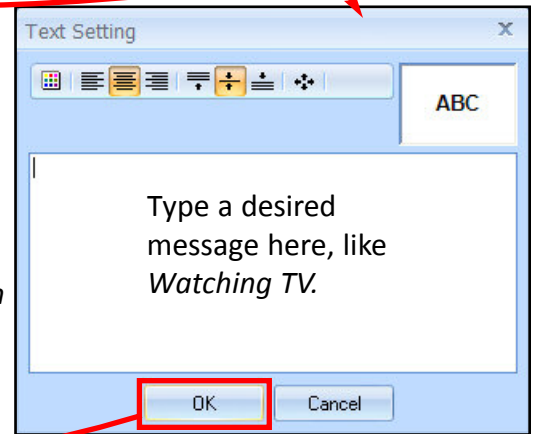
Program a delay at the same time as the text to determine how long the new text will appear on the button. You can add a maximum of 255 steps to any macro.
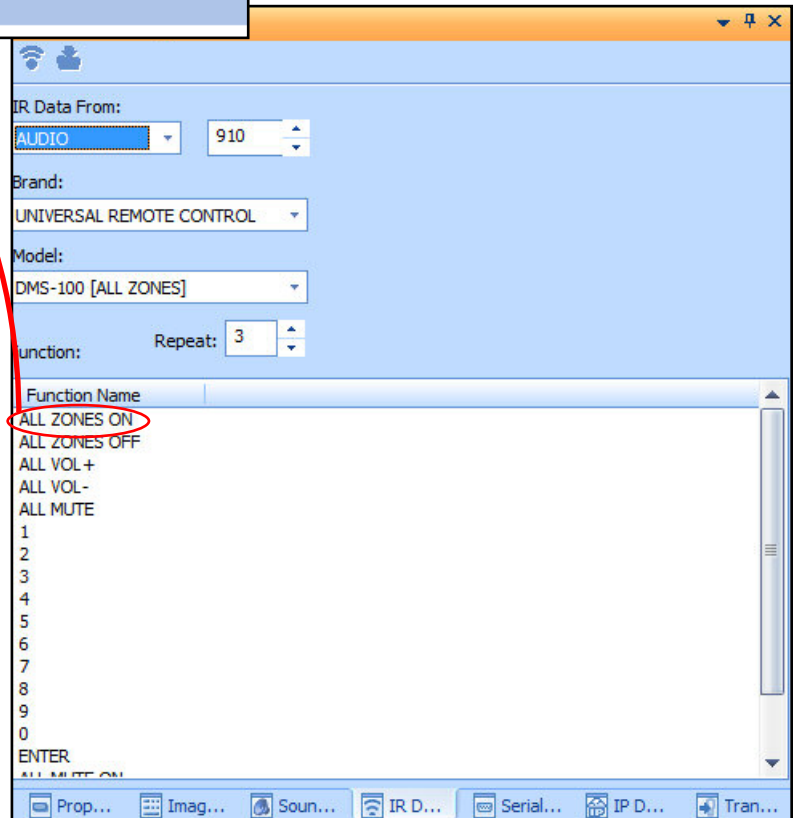
Type a desired message here, like *Watching TV.*
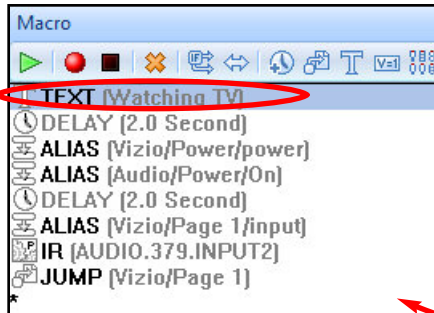
IR Database

This step is identical to *IR Database* found in the **Programming in CCP manual.** This button opens the **IR Database Navigator** within the Properties area above the macro window.
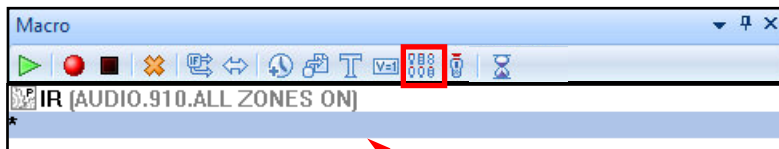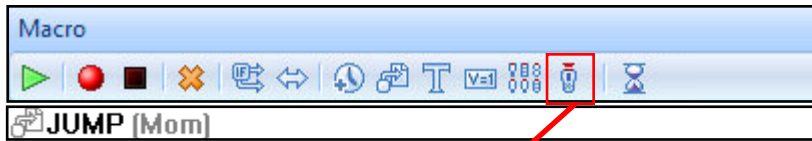
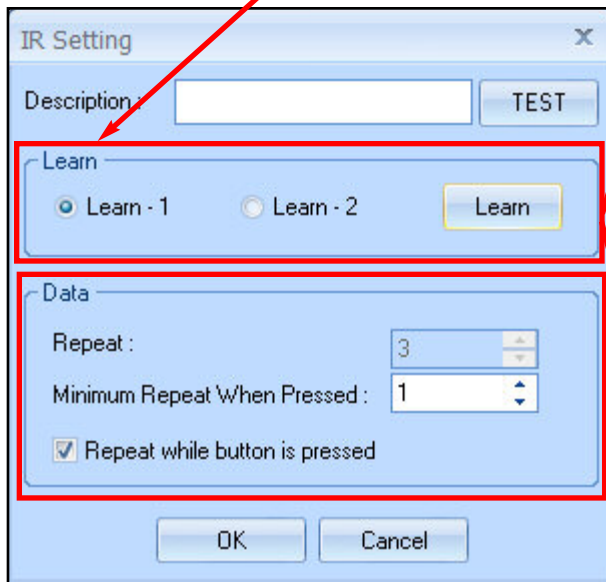*Click and drag a command from the IR database window into the macro area.*
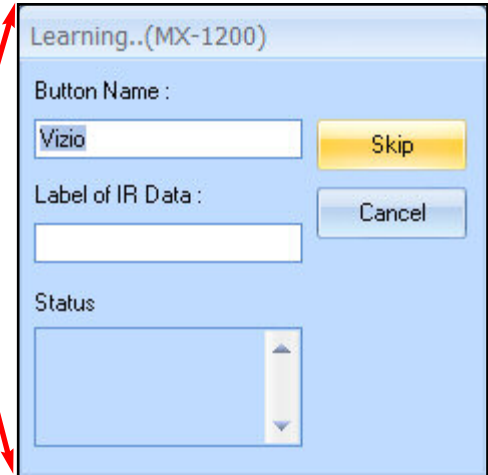
Learn

Refer to the *Learning* and *Advanced IR Code Manipulation* sections found in the **Programming in CCP** manual.

Provides quick access to learn a command.

Adjust the repeat rate of a command.

Sleep Timer

This feature allows the user to determine WHEN the recorded macro executes. To add a Sleep Timer setting to a button, simply press the icon within the macro window.

*When the user presses a button containing the **Sleep Timer** function, the MX-890 displays a sliding bar with choices from a minimum of 5 minutes to a maximum of 90 minutes.*

*The user can tap the screen to increase or decrease the sleep timer OR use the left/right hard buttons. Whenever the **Sleep Timer** runs out, the macro is issued (unless the user hits the cancel button).*
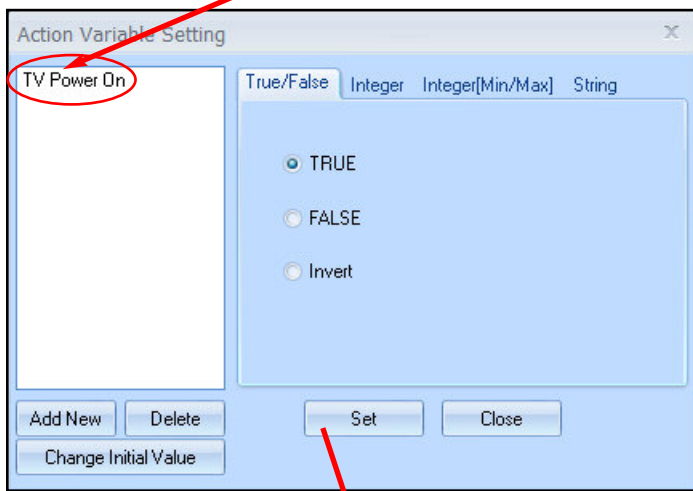
Variable

A variable is a placeholder for a value. In CCP, this value can be one of four categories: **True/False, Integer, Integer[Min/Max],** or **String.** Clever use of variables can enable you to add all kinds of elegant improvements to operation.

<u>Add a Variable to the Macro</u>
Follow the steps below to include a variable in a macro.

*Press the **Variable** icon to open the Action Variable Setting window.*

*__Highlight__ one of the previously created variables listed in the field on the left . **Modify** the state of the variable, i.e. **True, False** or **Invert**, to include in a macro.*

*For example: When a television is off, modify the state of the **TV Power On** variable to False. Send a power on command and modify the variable to **TV Power On** is true.*

*Press **Set** to include the variable in the macro.*

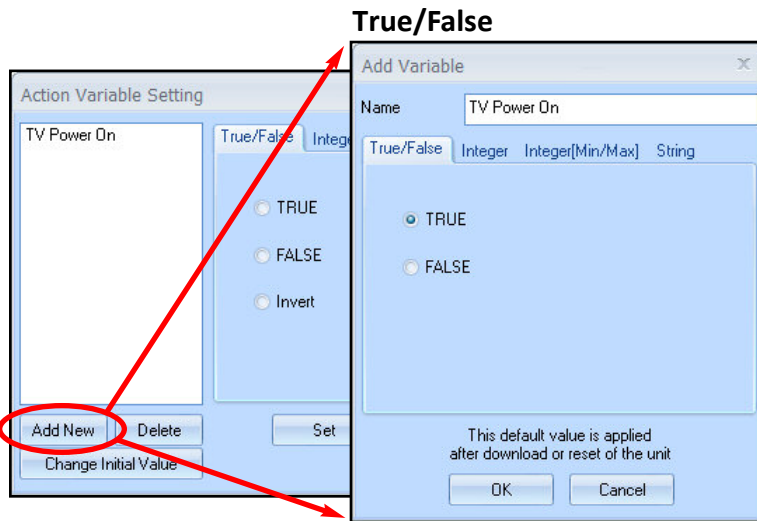*If you need to create a new variable, refer to **Add New** section on the next page.*
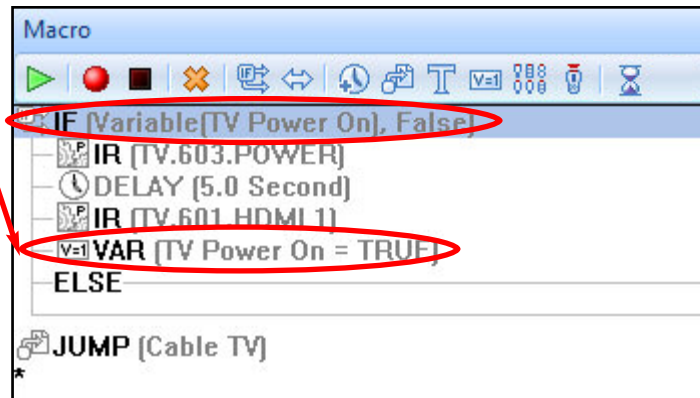
Add New

Create a variable using one of the four options below: **True/False, Integer, Integer: Min/Max** and **String.**

True/False

*Click on **Add New.** Type in a **Name** to create a variable.*

*To delete a variable, first **highlight** it then press **Delete**.*

*Select one of the tab options: **True/False, Integer, Integer [Min/Max],** and **String.***

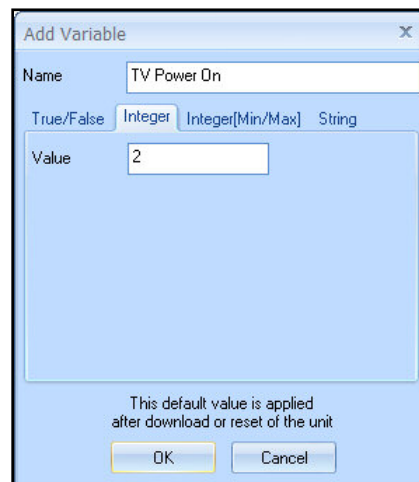*After you are done making the selection, select **OK** to add it to a project.*

True/False

The name says it all, this type of variable has one of two values...either True or False.
TV Power ON = True when the television is on, when TV Power On = False then it is off.
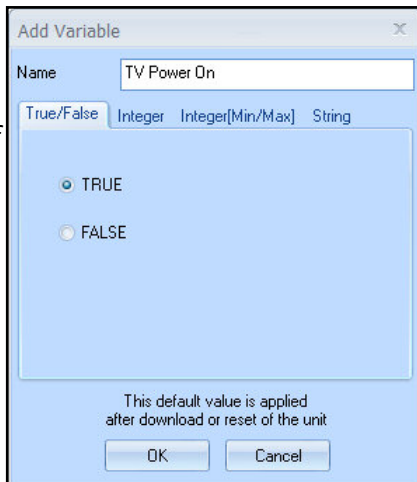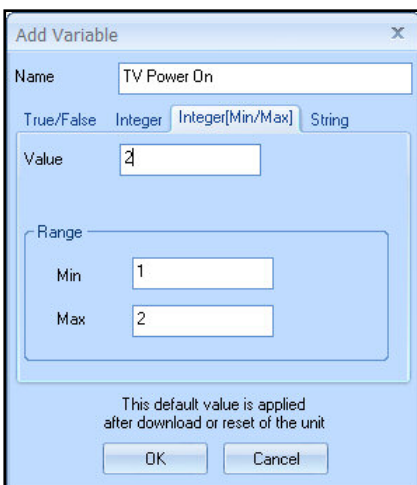

Integer

Allows a numeric value to be stored to a variable.
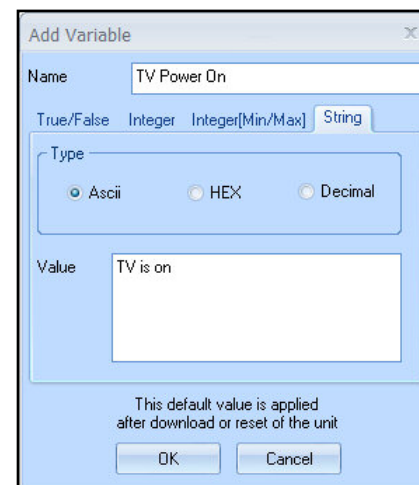

Integer: Min/Max

Allows a numeric value (similar to integer) to be assigned to a variable. However, this variable has a min/max point set.
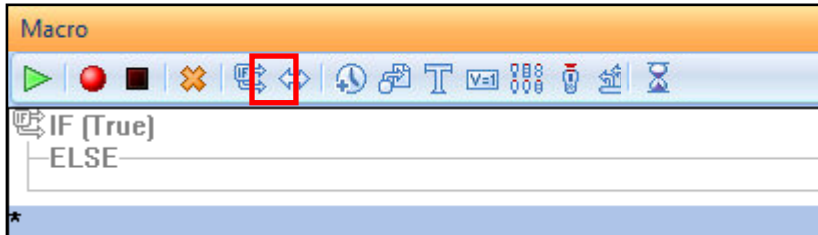

String

Allows a character set (ascii, hex, decimal) to be assigned to a variable.

14

If/Else

There are two If/Else methods; **Press Time** and **Variable**. Press Time executes based on how long the button is pressed. Variable performs different actions depending on the value of the variable.

An If/Else statement, enables you to create a conditional macro.

If [condition] is True,
*   Do [action]*
Else
*   Do [action]*

Setting an If/Else method

To set an If/Else method, double-click anywhere in the IF/Else statement to open the **IF Setting** window.

The IF Setting window appears

True Mode

This should NOT be used. This default setting is included to prevent programming errors. In this mode, the IF portion will ALWAYS execute.

Press Time Mode

When **Press Time** mode is selected, the branch (If/Else) is determined by how long the button is pressed. The "IF" macro is issued if the button is pressed **Less than (<)** or **Greater than / Equal to (>=)** the specified time. The "ELSE" statement executes when the IF condition is not met.
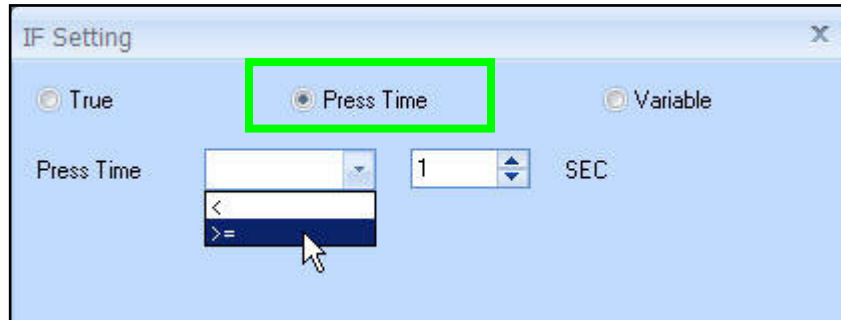

In the example below, the "Navigation Down Arrow" is using **Press Time** mode with two branches of actions associated with it. If the button is held down for one second or more (Press Time >= 1 Second), the button will issue a **"Cable *Page Down*" IR command**. If it is held down for less then one second, it will issue a **"Cable Down" IR command.**
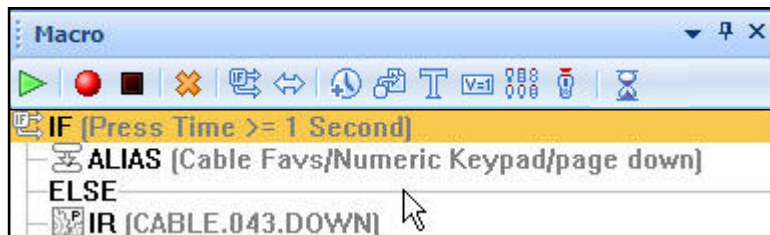
Variable Mode

Selecting this mode allows the IF/Else statement to evaluate the variable (True/False, Integer) and to execute either the **If** or **Else** portion of the statement based upon on the variable value.
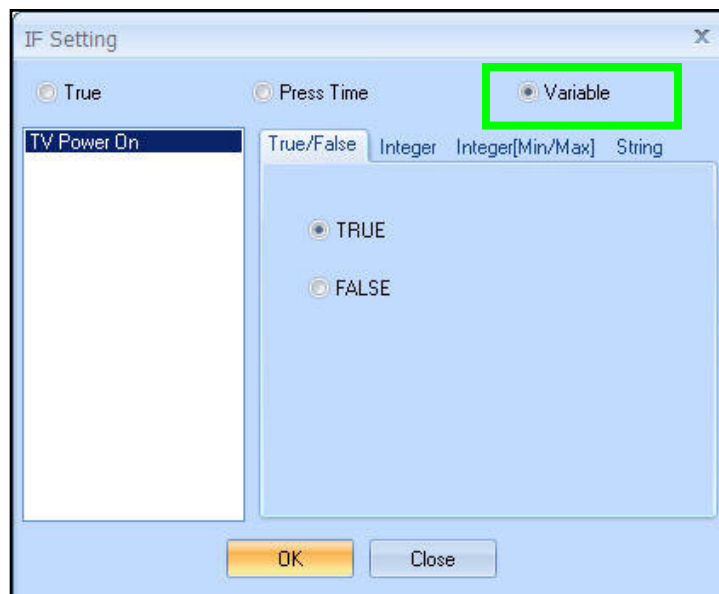
A common use for variables

In the following example, we track the power state of a television and eliminate potential delays a customer can face.

Watch Cable macro:

Typically, when this macro is executed, four things happen:

1. A command is sent to turn the TV **On**
2. A **5 second delay** is added to allow time before the television can accept the next command
3. **HDMI1** command sets the TV to the correct input
4. A **Jump** command takes the user to the cable page
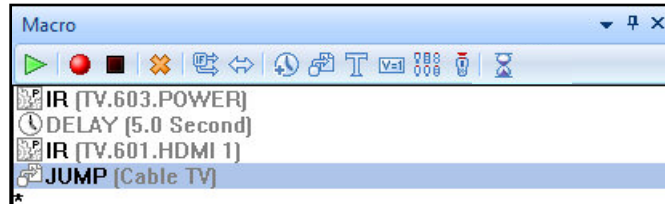
The problem: Although this works when the TV is initially turned on, what if the TV is already ON? In this case the user would need to wait 5 seconds before he/she is presented with the Cable page.

The fix: Use a variable to track the TV's power state, by creating a variable named **TV Power On** and set its initial value to **False** (meaning the TV is OFF). The new macro should look like this:

1. We look at the variable named **TV Power On,** and take one of two paths:
    a. If (TV Power On=False)
        i. A command to turn the TV **On** is sent
        ii. A **5 second delay** is added to allow time before the television can accept the next command
        iii. **HDMI1** command sets the TV to the correct input
        iv. The variable is then set to **True** (ON)
    b. Else (TV Power On=True)
        i. Do nothing
2. A **Jump** commands takes the user to the cable page
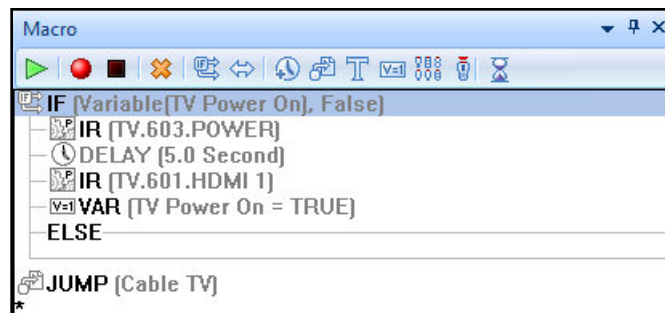
In this case, if the TV is already ON, the button simply JUMPS to the correct page and does not waste the user's time by inserting the delay.

For step by step detail, refer to "Using Variables for Devices that have Power Toggle" within the Appendix section of this manual.

Toggle

This feature enables you to create a list of commands that the button will cycle through when pressed.

*Take discrete commands and add them to a **Toggle** macro to create a psuedo toggle button.*

For example, in the image above, locate the user's TV model number and drag over inputs Video 1 - 6 into a Toggle macro. Now when the Toggle macro button is pressed, the button will cycle through each of the video inputs.

Common uses for toggle macros are:
- *aspect ratio*
- *inputs*
- *surround modes*

Appendix: Examples of Common Macros

Programming a Power On Macro

Before programming a Power On macro, set up your laptop with the connected remote within operational range of the home audio video equipment. Power On macros usually require extensive testing of delays and you can expect to do a lot of experimenting. Take a look at the **Main** page(s) and decide which components you want to power on.

1 Select the **System Power On** button on the **Main** page. (Create a **Power On** button if necesssary.)

2 Click on the **Record** icon.

3 Navigate to each device and add their **Power On** commands to the list by navigating to the device and page where the codes are located and clicking on the buttons with the Power On commands. Select the device by clicking its button on the **Main** menu or by clicking on an expanded tree view page.

**4** Now, click on the button with the device's **Power On** command. The new step appears in the Macro window.
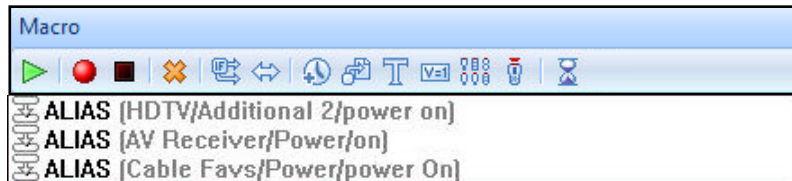
5 After adding all of the chosen **Power On** commands, re-arrange them as desired by clicking and dragging them into whatever order you want.

6 Ask the client what they think they will watch most often (TV, satellite, DVD, etc.). Program steps to select the correct TV and Receiver input for that activity. In this example, both the television and the receiver have discrete input codes and the client's favored activity is watching Satellite.

Select the **Rcvr** by clicking its button on the **Main** menu. Now, click on the button with the SAT input command. The new step appears in the list.

7 Select the **TV** by clicking its button on the **Main** menu. Now, click on the **button** with the correct **input command**. The new step appears in the list. Press the **Stop** button to stop recording "aliases."

8 Optional - Program a jump to the **Device** and **Page** they use for their favorite activity. Click on the **Jump** icon. Select the correct device and page from the Jump window.
The jump appears in the Macro window in the column under Jump.
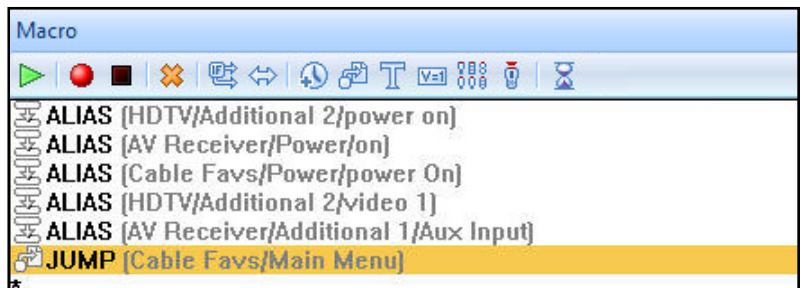
9 First, turn the TV and the Receiver to the wrong input, then turn off everything in the theater. Point the connected MX-890 at the system. Select the first step in the list by clicking on it. Now, click on the **Test** ▷ button. Observe the television and the receiver. Did they both switch to the correct input?

10 Programming additional delay in the macro is sometimes necessary. Each macro step usually takes some time, so there may be enough built in delay for the television and the receiver to both be fully active by the time the input commands are sent. Sometimes the component is not fully awake. It is fashionable for many modern televisions and receivers to require 5 or more seconds of warm up time before they are responsive to new commands. In a case like that, you will need to add more delay between steps.

11 Select the **Delay** icon. Now, click on the preset amount of delay or enter any time between **.1 second** and **30 seconds** in the delay setting window.
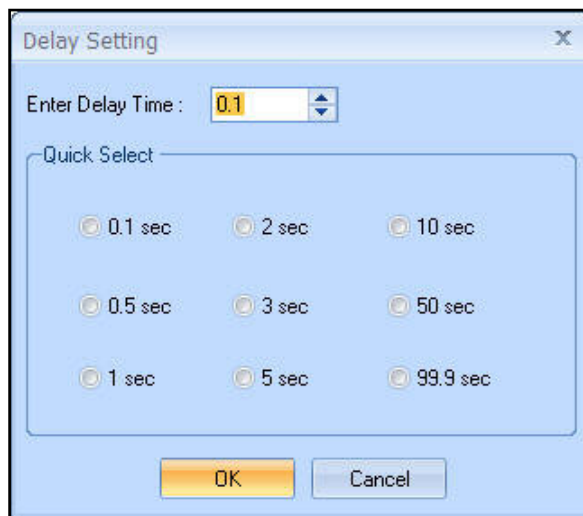

**12** The new step appears in the list. Now, drag the delay step to the correct location.

> Sometimes a change in order can provide the delay you need.

13 Again, turn the TV and the Receiver to the wrong input, then turn off everything in the theater. Point the connected MX-890 at the system. Select the first step in the list by clicking on it. Now, click on the **Test** button. Observe the television and the receiver. Did they both switch to the correct input? Continue to revise the macro with delays or changes in order and test until the macro ALWAYS correctly turns everything on and switches the surround sound receiver and television to the correct input. When the macro is perfect, click on the **Save** in the File Menu.
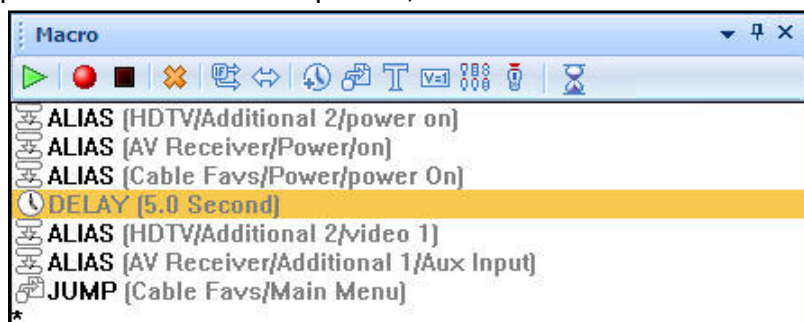
Programming a Power Off Macro

A Power Off macro is much simpler than a Power On macro, since there are rarely any delays to test, etc. Usually, to give the client some feedback that the macro is working, the TV is turned off first.
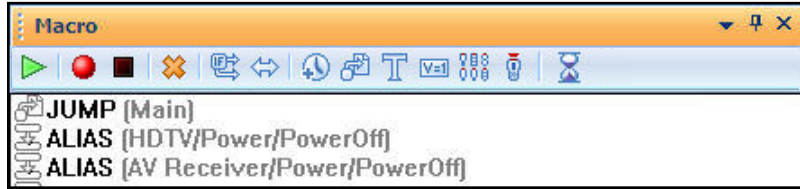
When you are forced to use a workaround for a DVD player or VCR without a discrete off command, you will make the macro more reliable if you place the time consuming anchor (the play command) at the beginning. Make sure to turn off the DVD player before testing this kind of workaround. You are testing the worst case, you know that a toggle type power command will turn the DVD player off, you are concerned about an event that might happen. The DVD player is already off, but the client presses the MAIN Power Off to turn everything else on. If you only programmed a toggle Power command, everything else would turn off, but the DVD player would turn on. This workaround ensures that the DVD player turns off.

**Programming Activity Macros on MAIN Page LCD "Device" Buttons**

An Activity Macro is typically programmed to be as fast as possible. They simply select the correct input on both the television and the surround sound receiver, since all the components have already been powered on by the Power On macro.

There is no need to program a JUMP to a page in a MAIN "Device" button created by Create and Name Devices. They are automatically programmed to JUMP to the Device.

Sometimes activity macros will share the same input settings. Here, a DVD player doubles as a CD player. The programmer has copied the DVD device, named it CD, so that there are two identical devices (with the same DVD player IR codes). The only difference between them is the Activity Macros you see below. The DVD Activity Macro selects THX Surround Sound with 5 speakers with the TV on, while the CD Activity selects Stereo with 4 speakers and forces the TV off. For components that have play commands it is typically ok to have a "Play" command in the macro. Watch out for components with toggle type play/pause buttons. That kind of "Play/Pause" command should not be placed in an Activity Macro without a preceding "Stop" command, to make sure that the toggle can only play the component!

One DVD Player - Two Devices and Two Activity Macros
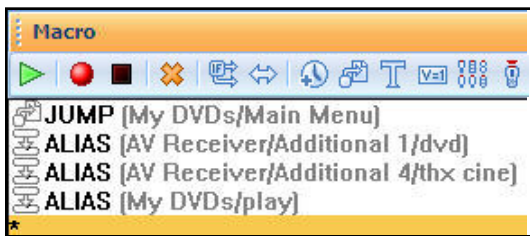
DVD Activity Macro   **CD Activity Macro**
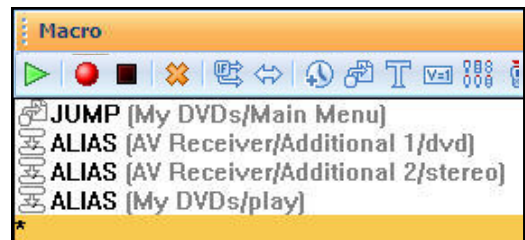
Note how the programmer is using the same DVD input on the surround sound receiver for both activities, the macro simply changes the surround sound settings.

Don't OVER AUTOMATE, make sure that every step is truly useful!

Using Variables for Devices that have Power Toggle

The key to using this technique is reliable RF communication between the MX-890 and the MRF Base Station. If the Base Station is placed carefully, and is receiving no RF interference, the variable technique is very reliable. This is typically used to track Power ON devices that do not have discrete power commands (i.e. toggle-only). Fundamentally, you are going to program the MX-890 to track whether the component (a Cable Box in this example) is ON or OFF, and only issue the toggle type Power command when needed. Note: The system can get out of sync if the client turns on the TV with another remote control or by hand.
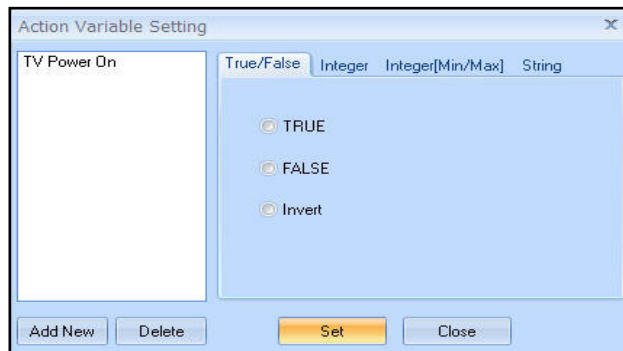
1 Open the **Cable Box Power page**.

2 Click on the Cable Box **Power On** button first.

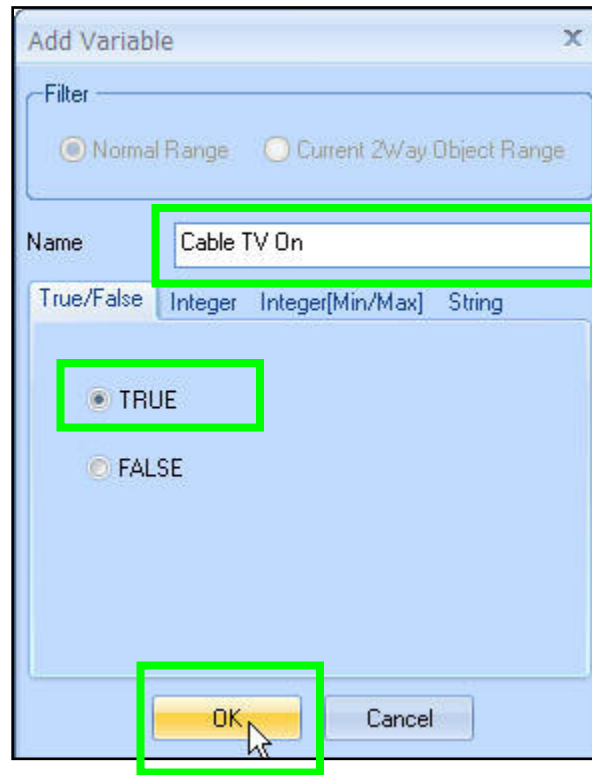**3** In the Macro window, click on the **Variable** icon button.
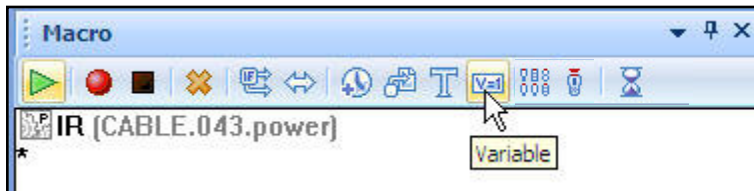
4 The Action Variable Setting window opens up.

U
S
I
N
G

C
C
P

E
D
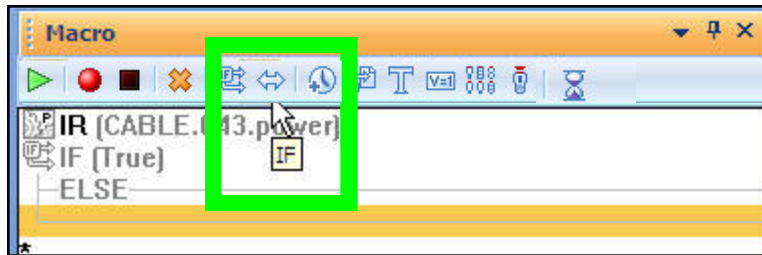I
T
O
R

T
O

P
R
O
G
R
A
M

5 Click on the **Add New** variable button .

6 The **Add Variable** window opens up. Type **Cable TV On** in the name field and give the new variable a value of **True** in our example, and then click **O**K..


7 Next, go back to the Macro window and click on the **IF/ELSE** icon to add as a macro step.

8 Double click on the **IF (True)** line of the IF /Else statement to open the **If Setting** window. Select **Variable** to open the Variable mode view. Highlight **Cable TV On** in the variable list, click on the **False** radio button and then click on the **OK** button.
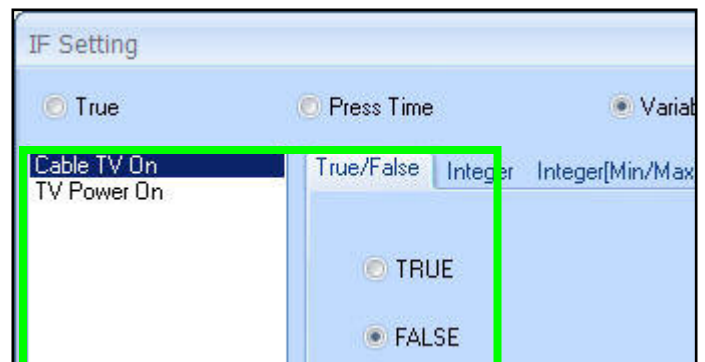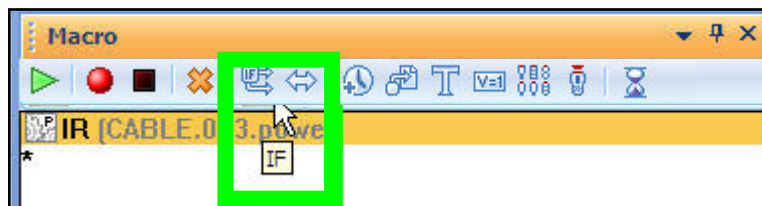
9 Use the existing IR **Power** command and the new variable you just created to build the IF / Else statement: If, the <Cable TV Power On> is **FALSE** (Which means the Cable Box is turned Off) , issue the Cable TV Power IR command to turn it On, Else, do nothing (Leave the **Else** section blank). Then add the **Cable TV On** variable as another macro step and change the state to **True**, (Because the Cable Box has been turned On).
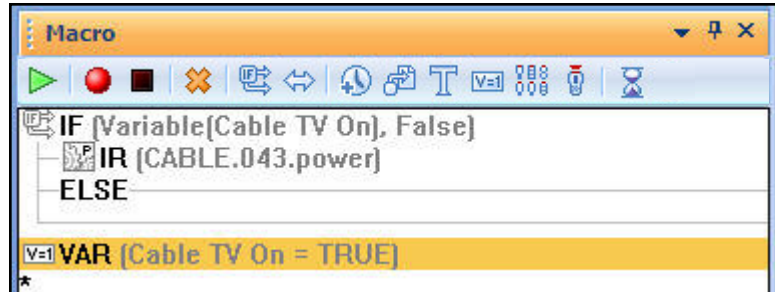
Now let's set up the Cable Box Power Off button.

10 Click on the Cable Box **Power Off** button.

11 In the Macro window, click on the **IF/ELSE** icon.

12 Use the existing IR **Power** command and the new variable you just created to build the IF / Else statement: If, the <Cable TV Power On> is **True,** (Which means the Cable Box is turned On) , issue the Cable TV Power IR command to turn it Off, Else, do nothing (Leave the Else section blank). Then add the **Cable TV On** variable as another macro step and change the state to **False**, (Because the Cable Box has been turned Off).
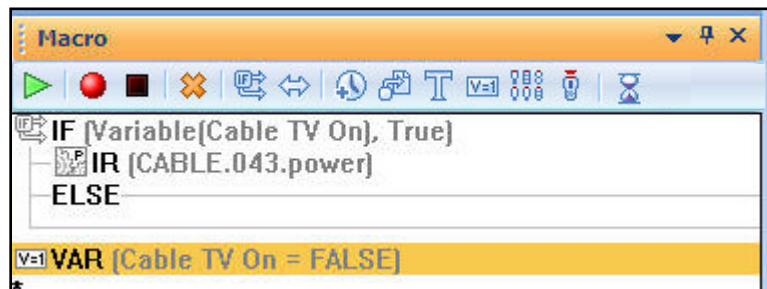

You've essentially created Discreet **Power On** and **Power Off** buttons for the Cable Box that track their state. Program all buttons you want to turn the Cable Box on, with the **Cable Power On** button. Program the **System Off** button to turn the Cable box off with the **Cable Power Off** button.

M
X
-
8
9
0

P
R
O
G
R
A
M
I
N
G

M
A
N
U
A
L

URC ™

Control the Experience.

500 Mamaroneck Avenue
Harrison, NY 10528
Phone: (914) 835-4484
Fax: (914) 835-4532
www.universalremote.com