KRAMER

USER MANUAL

MODEL:

Kramer Maestro
Complete Room Automation

P/N: 2900-301034 Rev 1

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Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 14 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format & Standards Converters; GROUP 5: Range Extenders & Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Mounting and Rack Adapters; GROUP 11: Sierra Video; GROUP 12: Digital Signage; GROUP 13: Audio; GROUP 14: Collaboration; and GROUP 15: KM & KVM Switches.

Overview

Kramer Maestro is a powerful software tool that enables you to configure trigger-based room element automation scenarios without the need for complicated programming. Choose prepared commands from a database, drag and drop the commands to form actions and execute the actions with predefined triggers. By minimizing user intervention, **Kramer Maestro** room automation saves meeting prep time and minimizes human error before presentations.

Different Kramer products may support different versions of **Kramer Maestro**. Visit the product pages on our website at www.kramerav.com to see if and which version of **Kramer Maestro** is supported by your product.

Multiple versions of **Kramer Maestro** are available. Learn more about:

- Using Kramer Maestro Version 1.0 on page 4).
- Using Kramer Maestro Version 1.5 on page 20).

New in Version 1.5

- Schedule-based Trigger – Schedule events and actions based on the time of the day. For example: turn on the light and projector during work hours and turn them off after work hours.
- Script Execution – Create and run a sequence of actions when a trigger event is detected.
- Support for additional ports, commands, actions, and trigger types.

Version 1.0

- Powerful Room Automation – Enables you to fully automate all your meeting room elements.
- Dynamic Device Driver Database – Enables easily configuring lights, shades, devices and more to be activated by specific triggers.
- Extensive Range of Triggers – Including input/output connectivity, routing, and button pressing.

- Supports a Variety of Control Formats – Including RS-232, Ethernet, GPI/O, relay, and IR.
- Easy to Configure and Manage – Intuitive and user-friendly browser-based user interface. **Kramer Maestro** can also be managed using **Kramer Network**, a powerful enterprise management platform for remotely managing and monitoring AV installations.

Using Kramer Maestro Version 1.0

Kramer Maestro Version 1.0 enables configuring automation scenarios in a simple 4-step process:

1. Configuring Ports on page 4
2. Creating Commands on page 5
3. Creating Actions on page 10
4. Setting a Trigger on page 12

The process described in this section is based on the DIP-31M and may slightly vary in other devices. To see an example scenario that shows the whole process, see Configuration Example on page 13.

Configuring Ports

The first step in defining a trigger-based room element automation scenario is to configure the ports used to control specific room devices, such as a projector.

Creating a New Port

To create a new port:

1. In the Ports section, click ⊕.
   A new port is displayed in the Editor:

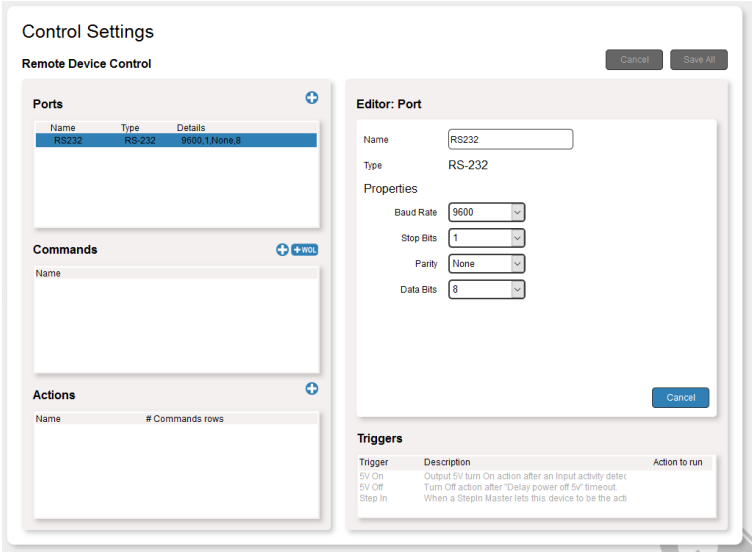


Figure 1: Configuring an RS-232 Port

2. In the Editor, name the port with an easily recognizable name such as, RS232_Projector.
3. Define properties by clicking the drop-down boxes and selecting or inserting the correct values:
   - For RS-232 select baud rate, stop bits, parity and data bits (Figure 1).

- For Ethernet select Type TCP/UDP, IP address and port number (Figure 2).

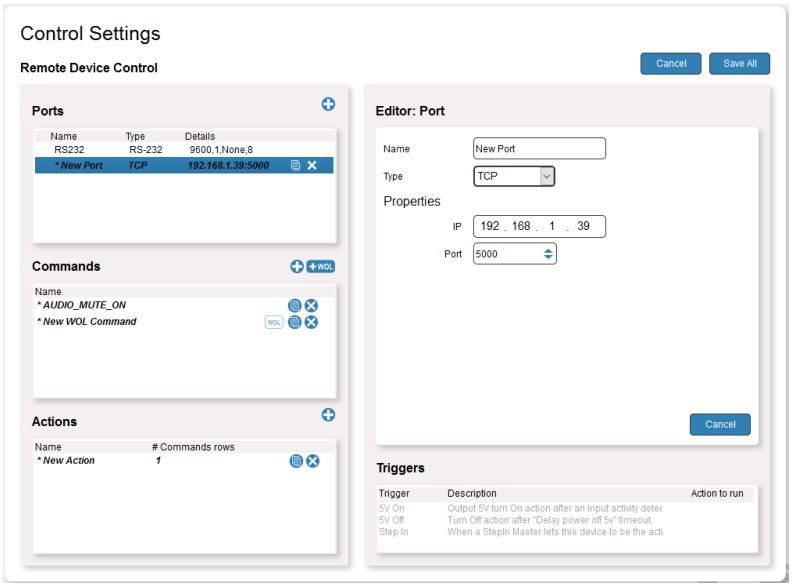


Figure 2: Configuring an Ethernet Port

4. Click **Save All**.
   The new port is created

Editing a Port

To edit a port:

1. In the Ports section, click a port. The port information is displayed in the Editor (Figure 2).
2. Edit the port information as necessary and click **Save All**.

Creating Commands

The second step in defining a trigger-based room element automation scenario is to create a group of commands that perform the automation activities. You can add commands manually by entering command code data or use ready-made commands from a database.

To create a command:

1. In the Commands section, click ⊕.
   A new command opens in the Editor.

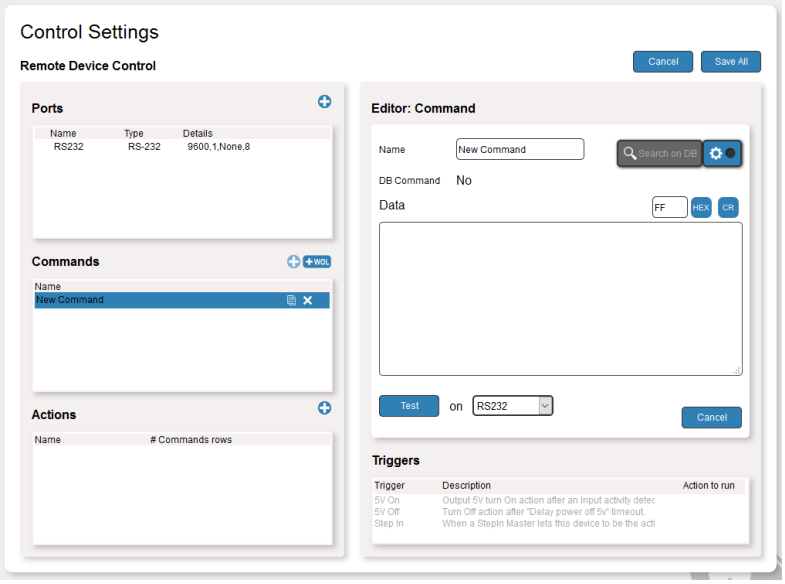


Figure 3: Creating a Command

2. Name the command using an easily recognizable name such as, Input_HDMI_1.
3. Manually enter a command in the Data box.
   Or

   Enter Protocol 3000 or custom device-specific commands.
   Or
   Choose from a wide selection of prepared Kramer and non-Kramer commands from the database (see Using a Command Database on page 6).
4. Optionally, test the new command: Specify the port to which the command is sent (choose from the drop-down box) and click **Test**.
5. Click **Save All**.
   The new command is created.

Using a Command Database

Maestro uses a command database to easily and quickly choose prepared commands with correct syntax. You must connect to the database to use it. Download and install **K-Config** version 3.5.17.0 and above that includes the drivers needed to access the database.

Find **K-Config** at k.kramerav.com/support/downloads.asp

Connecting to a Command Database

To connect to a command database:

1. In the Editor section, click  .
   The following screen appears:

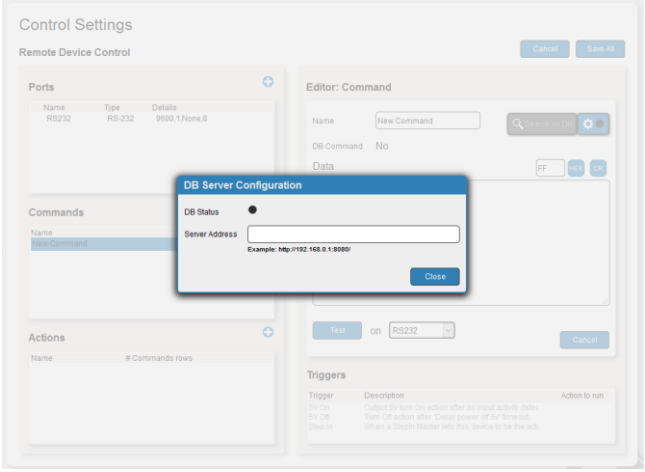


Figure 4: Entering a Command Database

2. Enter the IP address of the computer on which the database is installed.

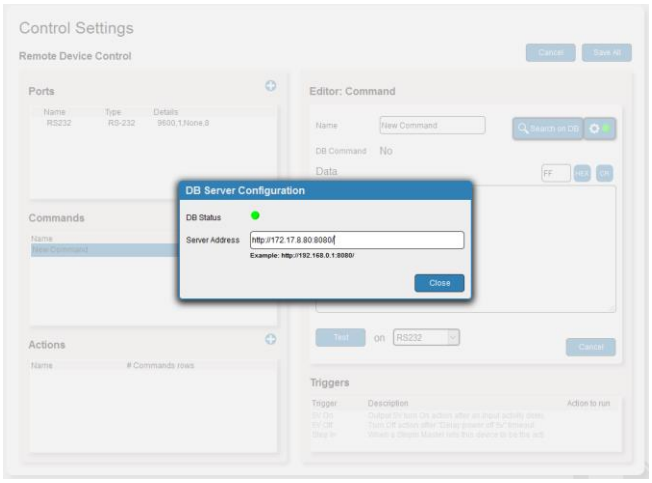


Figure 5: Connecting to a Command Database

When the server is found, the database automatically connects and the DB status indicator lights green. If a server is not found, the status indicator does not light green. Try another address or click **Close**.

3. Click **Close**.

Selecting Commands from the Database

Before you can use commands from a database, you must connect to it (see Connecting to a Command Database on page 6).

To select commands from the database:

1. In the Editor section, click **Search on DB**.
   The Find Command on Kramer Network Server window appears:

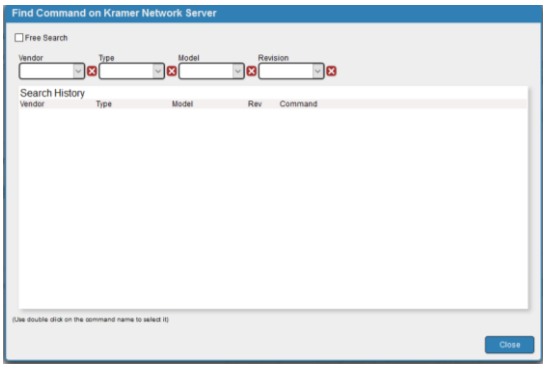


Figure 6: Find Command on Kramer Network Server Window

2. Click each drop-down box and select from the list of a vendors, types, models and revisions – if the revision is not known, select Revision **A**.
   When all search parameters are complete, a list of available commands appears:

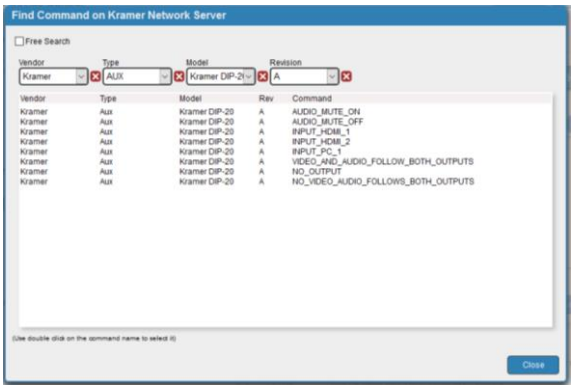


Figure 7: Device-Specific Commands Available in the Database

3. Double-click a command.
   The command appears in the Commands and Editor sections:

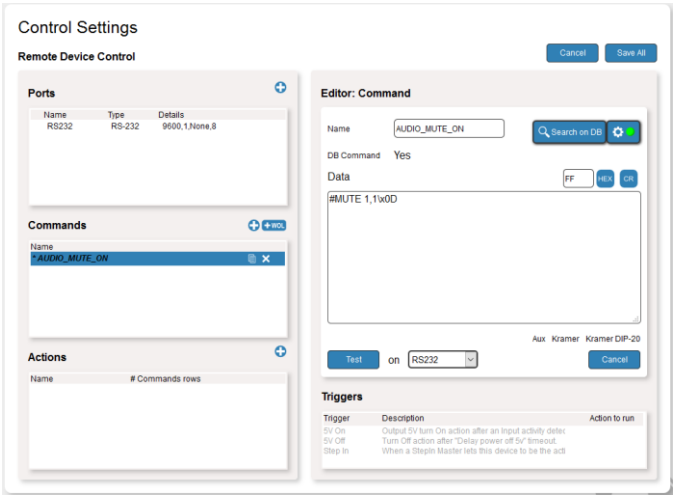


Figure 8: Adding a Command from the Database

Searching for a Command in the Database

If you are unsure of the exact command you need, you can search for commands in the database, by vendor, type, model, and/or revision. You can also limit the number of displayed search results.

To search for a command in the database:

1. Check the **Free Search** check-box.
2. Select values in any or all fields and set the maximum number of commands to display in the Search Limit field.
3. Click **Search**.
   The search results are displayed:

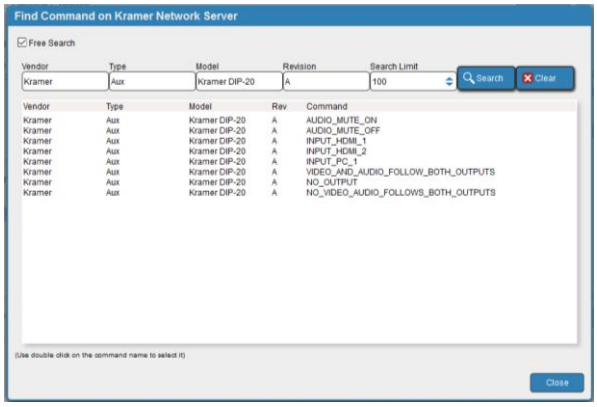


Figure 9: Free Searching in the Database

4. Double-click a command to select it or click **Clear** and enter new search criteria.

Adding a Wake on LAN Command

Wake on LAN (WOL) commands can be used for turning on sleeping devices.

To add a WOL command:

1. In the Commands section, click +WOL.
   A new WOL command opens in the Commands section:

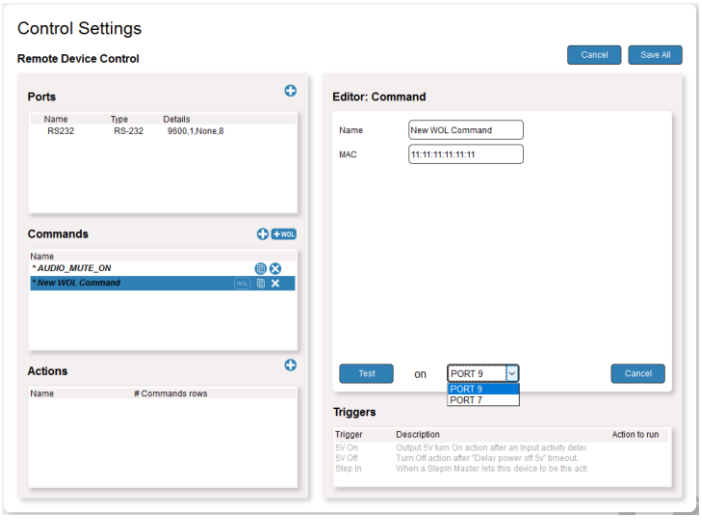


Figure 10: Adding a Wake on LAN Command

2. In the Editor section, name the command using an easily recognizable name.
3. Enter the MAC address of the device that receives the WOL command.
4. Select the port that connects to the device.
5. Click **Save All**.
   The new WOL command is created.

Creating Actions

The third step in defining a trigger-based room element automation scenario is to create an action. An action is a group of commands that is operated according to a trigger. The commands created in the previous steps listed in the Commands section can be dragged and dropped to the Editor section to form the action macro.

To create an action:

1. In the Actions section, click ⊕.
   A new action is opened in the Editor:

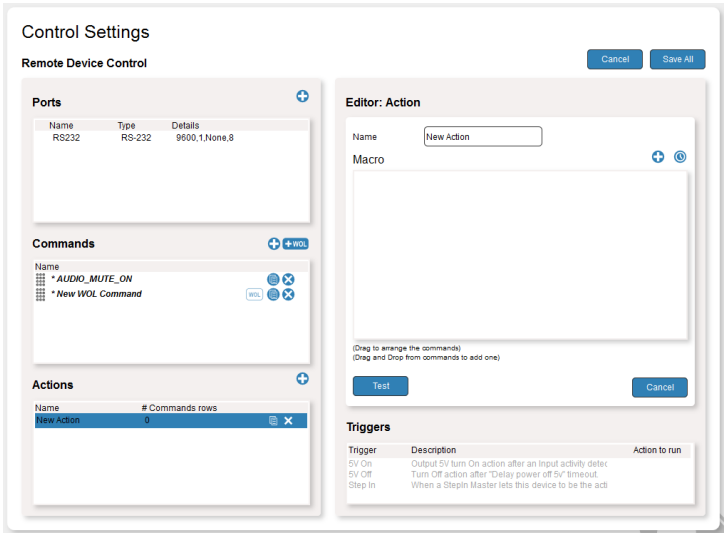
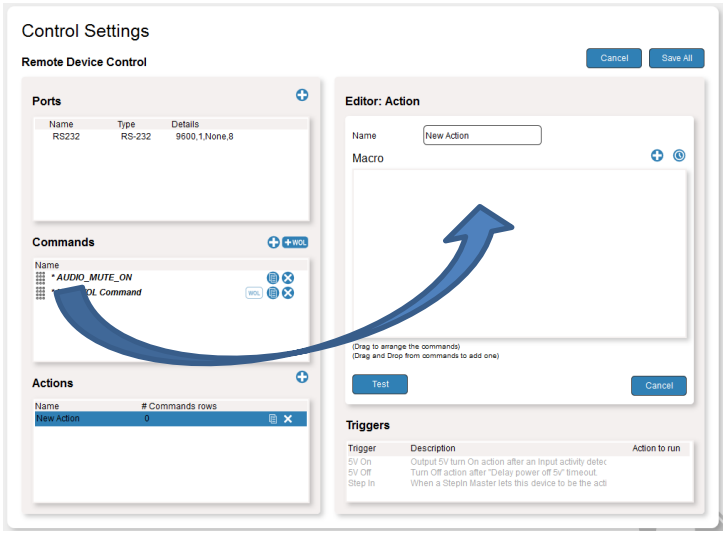


Figure 11: Dragging a Command to an Action

2. In the Editor section, name the action using an easily recognizable name such as, Mute_Audio.
3. Drag individual commands from the Commands section to the Macro box. You can change the order of the commands by dragging them up or down in the box:



4. Optionally, click and set the delay time between commands (from 0 to 999 seconds):

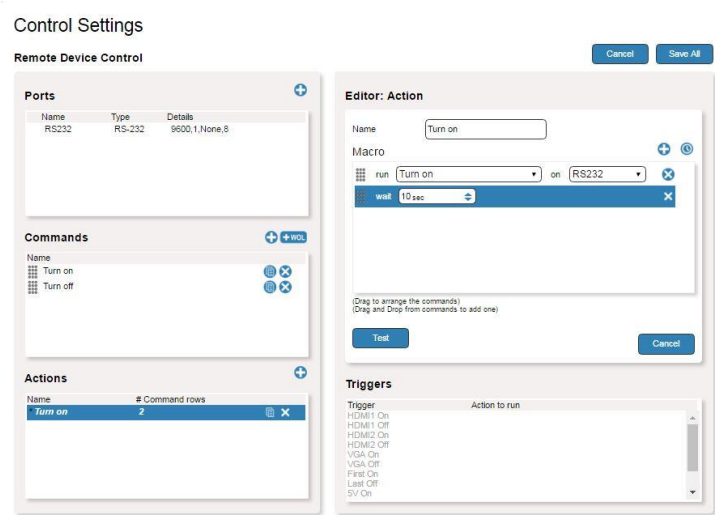


Figure 12: Adding a Delay

5. Optionally, test the new command: Specify the port to which the command is sent (choose from the drop-down box) and click **Test**..

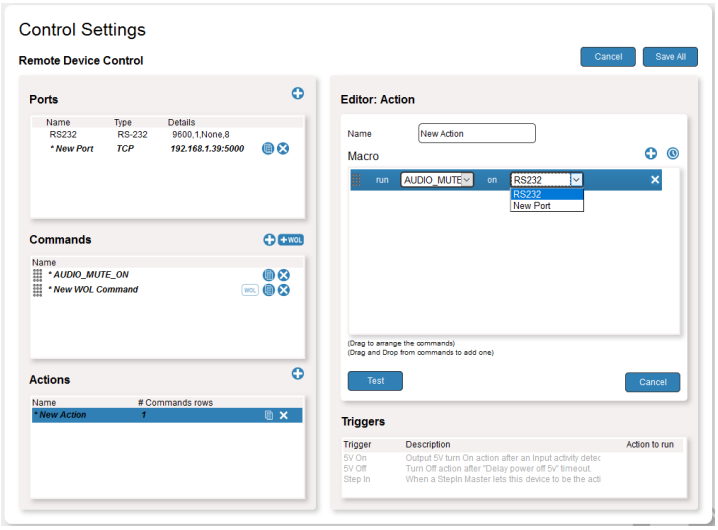


Figure 13: Testing an Action Command

6. Click **Save All**.
   The new action is created.

Setting a Trigger

The fourth and final step in defining a trigger-based room element automation scenario is to specify a trigger. Triggers are the events that cause actions (lists of commands) to run. Select a trigger and associate it with a previously defined action.

The following triggers are available:

HDMI1 On	When the 1st HDMI input is connected
HDMI1 Off	When the 1st HDMI input is disconnected
HDMI2 On	When the 2nd HDMI input is connected
HDMI2 Off	When the 2nd HDMI input is disconnected
VGA On	When the VGA input is connected
VGA Off	When the VGA input is disconnected
First On	When the first input is connected
Last Off	When the last input is disconnected
5V On (Input detected)	When input activity is detected
5V Off (No input detected)	After the "delay power off" timeout period has expired (default 900 seconds) following no input activity
Step In	When a Step-in master makes this device the active input
Power On	When the device is powered on

To set a trigger:

1. In the Triggers section, click a trigger.
   The trigger opens in the Editor.

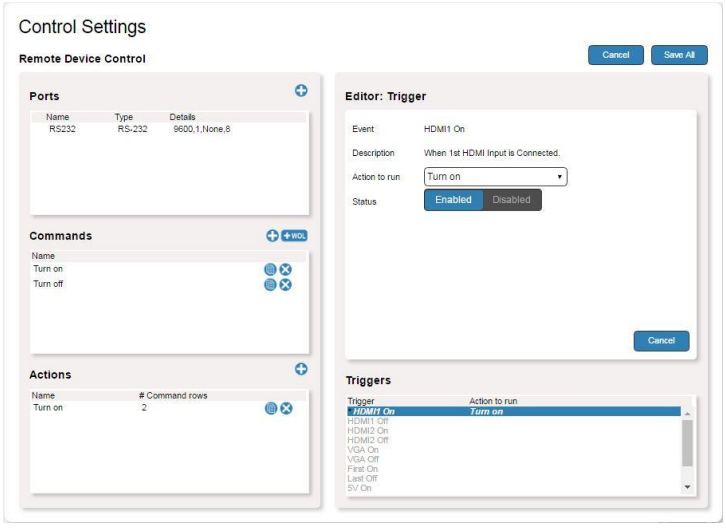


Figure 14: Setting a Trigger

2. In the Action to run dropdown box, select an action to associate to the trigger.
3. Click **Enabled** or **Disabled**.

When a trigger is enabled, all the commands in the specified action run when the trigger condition becomes active. When the trigger is disabled, none of the specified actions take place, even if the trigger becomes active.

4. Click **Save All**.
   The trigger is defined.

Configuration Example

This section provides an example for how to configure the following typical scenario:
A meeting room is frequently used for presentations and the customer wants to automate the meeting room elements at the beginning (and ending) of the presentation upon connecting the presenter's laptop, as follows:

- Lower the screen.
- Close the room shades.
- Turn the projector on.
- Turn the room lights off.

To accomplish this, the customer has installed the following Kramer equipment in the meeting room:

- **DIP-31M** – *Automatic Video Switcher* controls the room
- **FC-7** – *LAN Gateway* controls relay-activated blinds and the projection screen
- **RB-6** – *6-Channel Power Controller* controls power to the lighting system

In addition, the meeting room also contains:

- A Barco projector.
- A relay activated, motorized projection screen.
- Relay activated, motorized room blinds.
- A room lighting system.

Figure 15 illustrates the room setup and connections.

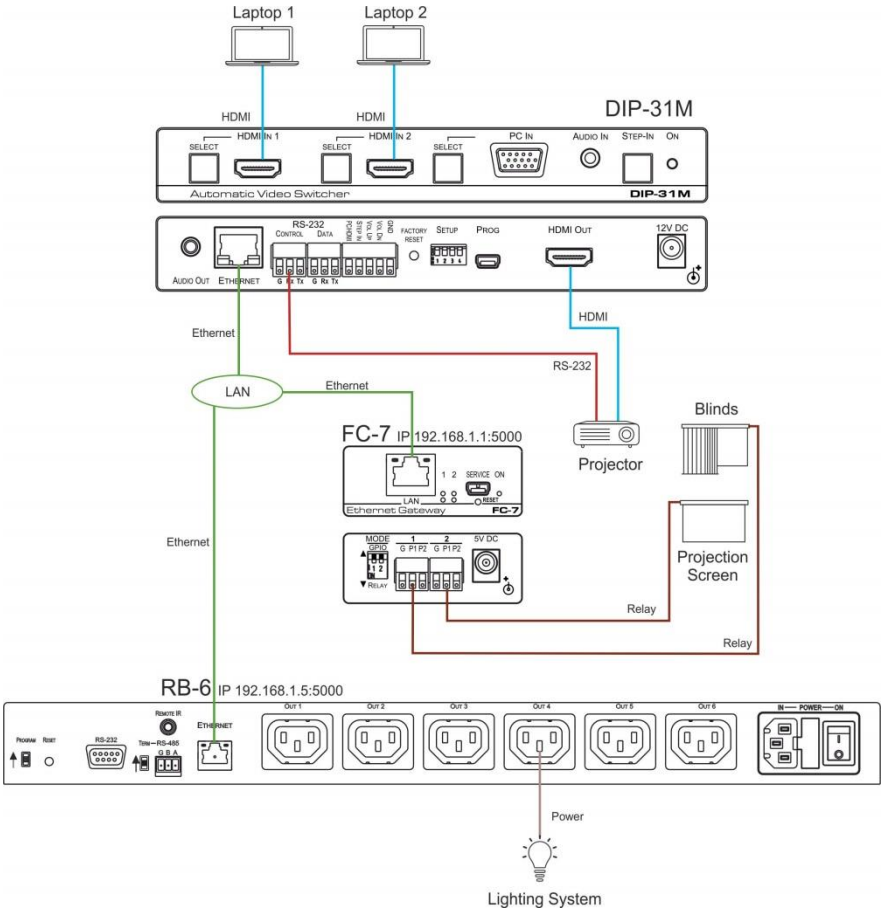


Figure 15: Example Room Control Scenario

Configuring the Ports

Click ⊕ to open each new port. Each port has a descriptive name and is configured as follows:

- The RS-232 port named *Projector* controls a Barco projector.
- The Ethernet port named *Screen/Blinds* connects to a Kramer **FC-7** (IP address: 192.168.1.1:5000) that operates two relays to control the screen and blinds.
- The Ethernet port named *Lights* connects to a Kramer **RB-6** (IP address: 192.168.1.5:5000) that powers the lights on port 4.

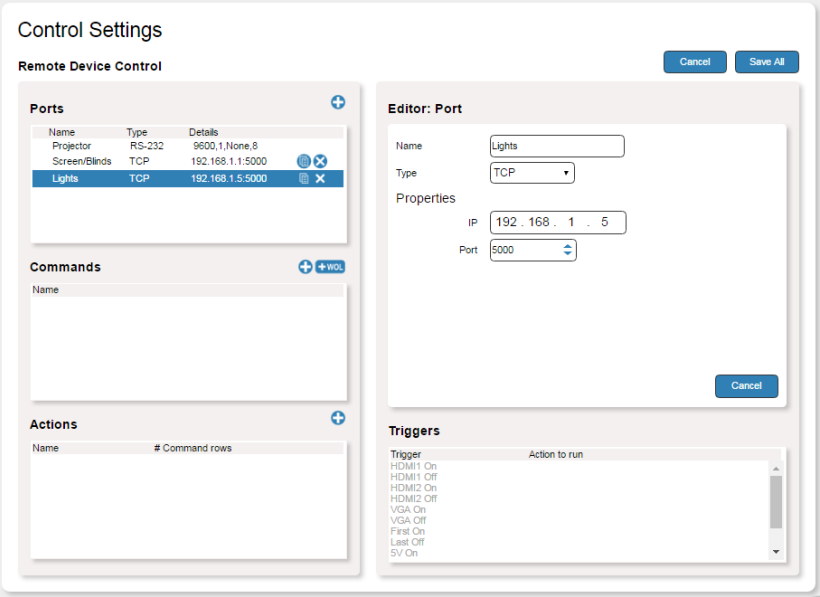


Figure 16: Configuring the Lights Ethernet Port

Creating Commands

Click ⊕ to open each new command. Each command has a descriptive name and is configured as follows:

The *Screen Down* and *Close Blinds* commands operate the screen (relay 2) and blinds (relay 1) over the **FC-7** (see Figure 15) using the Protocol 3000 RELAY-STATE command. The data for the commands was manually entered and not chosen from the database.

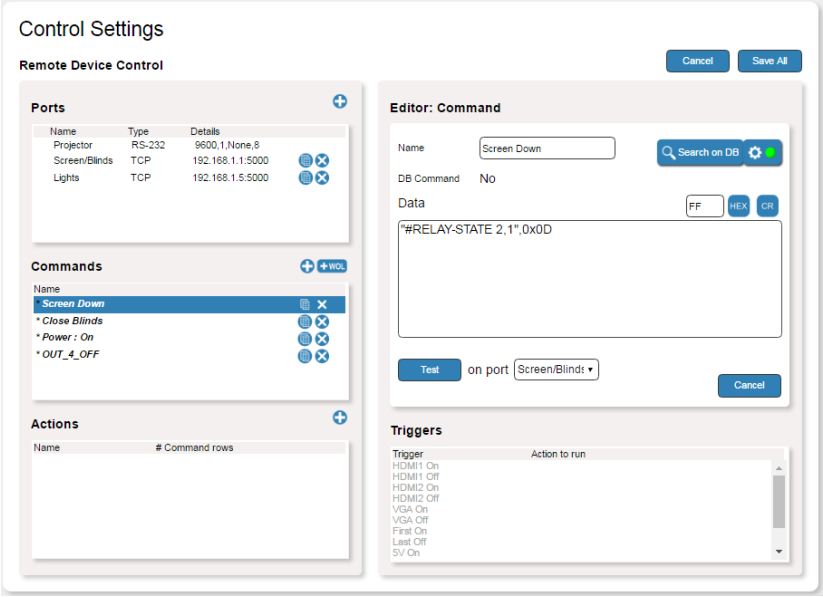


Figure 17: Screen Down Command in Protocol 3000

The *Projector* and *Lights* commands were taken from the database.

To use the command database, make sure the correct version of database is installed. To connect, enter the IP of the host computer (see Connecting to a Command Database on page 6).

Power : On is the default command name that turns on a Barco projector. The device-specific command was selected from the command database.

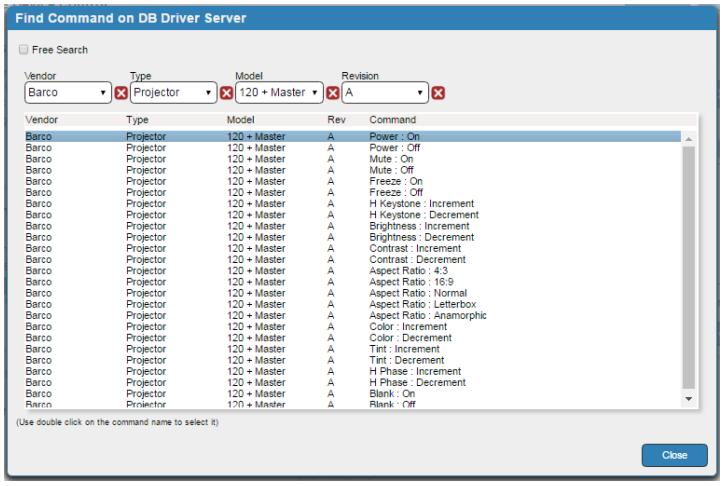


Figure 18: Barco Projector Command List

Double-click the command to add it to the list.

Note the device name in the lower-right corner of the Editor window.

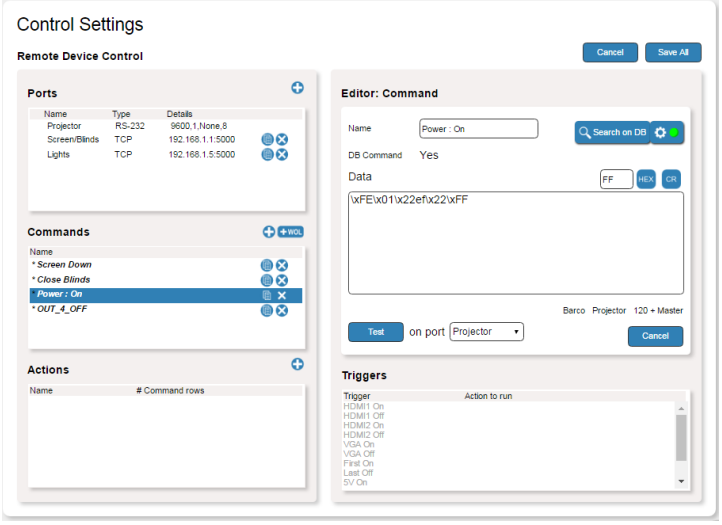


Figure 19: Projector On Command

Out_4_OFF is the default command name that **RB-6** uses to turn off the room lights. As shown in Figure 15, the lighting system is connected to output 4.

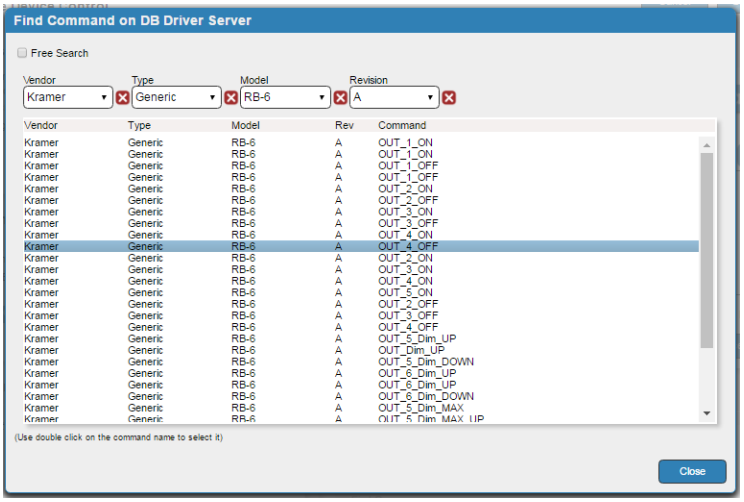


Figure 20: RB-6 Command List

Here, the command name *Out_4_OFF* was changed to *Lights Off*.

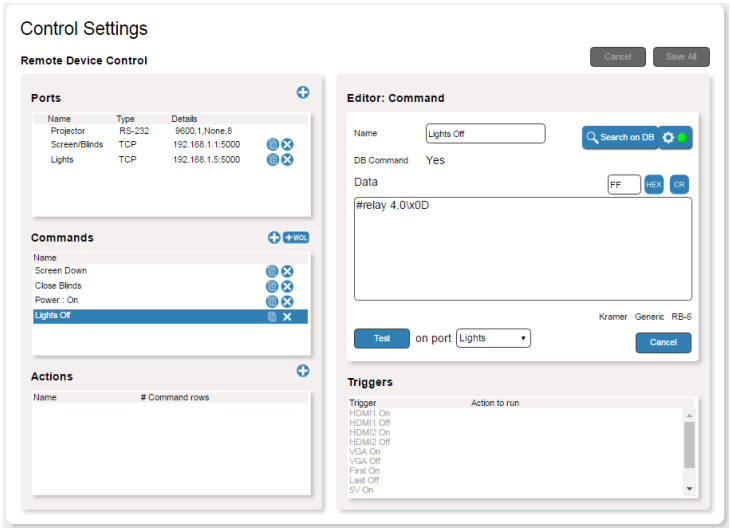


Figure 21: Lights Off Command

Creating Actions

Click ⊕ to open a new action. *Start Show* is the descriptive name and is configured as follows:

- Populate the macro by clicking and dragging commands from the command list to the Editor. The commands run in the order they appear in the action list.
- To change the order, click the command and drag it to a new position in the list.
- To enter a delay between commands, click the clock icon and adjust the delay time.
- Commands and ports can be changed by selecting a different item in the drop-down boxes of the command.

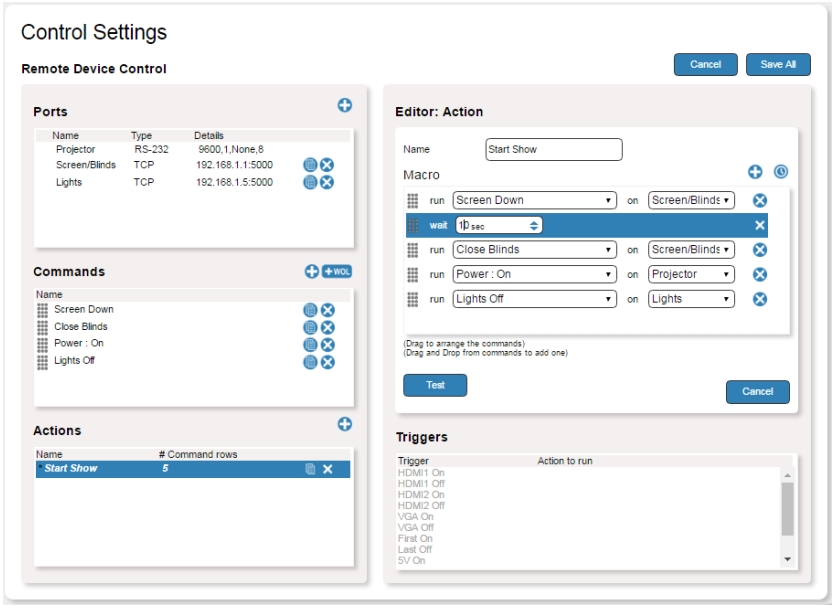


Figure 22: Adding a Delay to the Action Command List

Specifying a Trigger

- Click a trigger from the trigger list.
- Select the Action to run from the drop-down box in the Editor.
- Enable or disable the trigger in the status box.

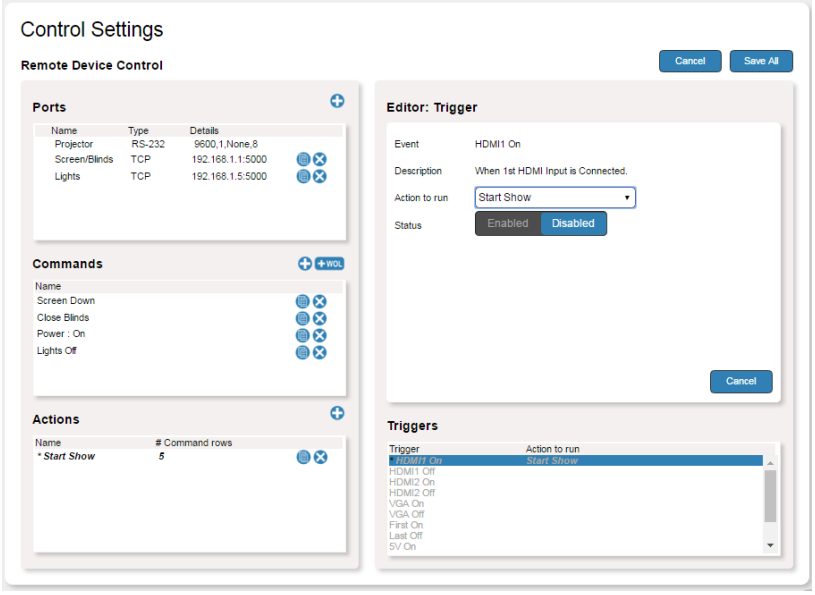


Figure 23: Specifying a Trigger for the Action

Using Kramer Maestro Version 1.5

Kramer Maestro Version 1.5 enables configuring automation scenarios in a simple 4-step process:

1. Setting the Port Parameters on page 20.
2. Adding and Configuring Actions on page 23.
3. Creating Scripts on page 37.
4. Configuring the Trigger on page 41.

The process described in this section is based on the **VS-622DT** and may slightly vary in other devices. To see an example scenario that shows the whole process, see Room Automation Example on page 44.

Setting the Port Parameters

Configure the physical ports that are connected to devices that you want to control. There are different types of ports in the Ports list, each with its specific parameters.

All the **VS-622DT** ports are listed in the Ports list. You can add additional peripheral device ports to this built-in list.

The following example shows how to configure the RS-232 port.

To configure the RS-232 port:

1. Click **Automation** to access the Room Automation configuration tab.
2. Click **Ports**.
   The Ports list area opens:

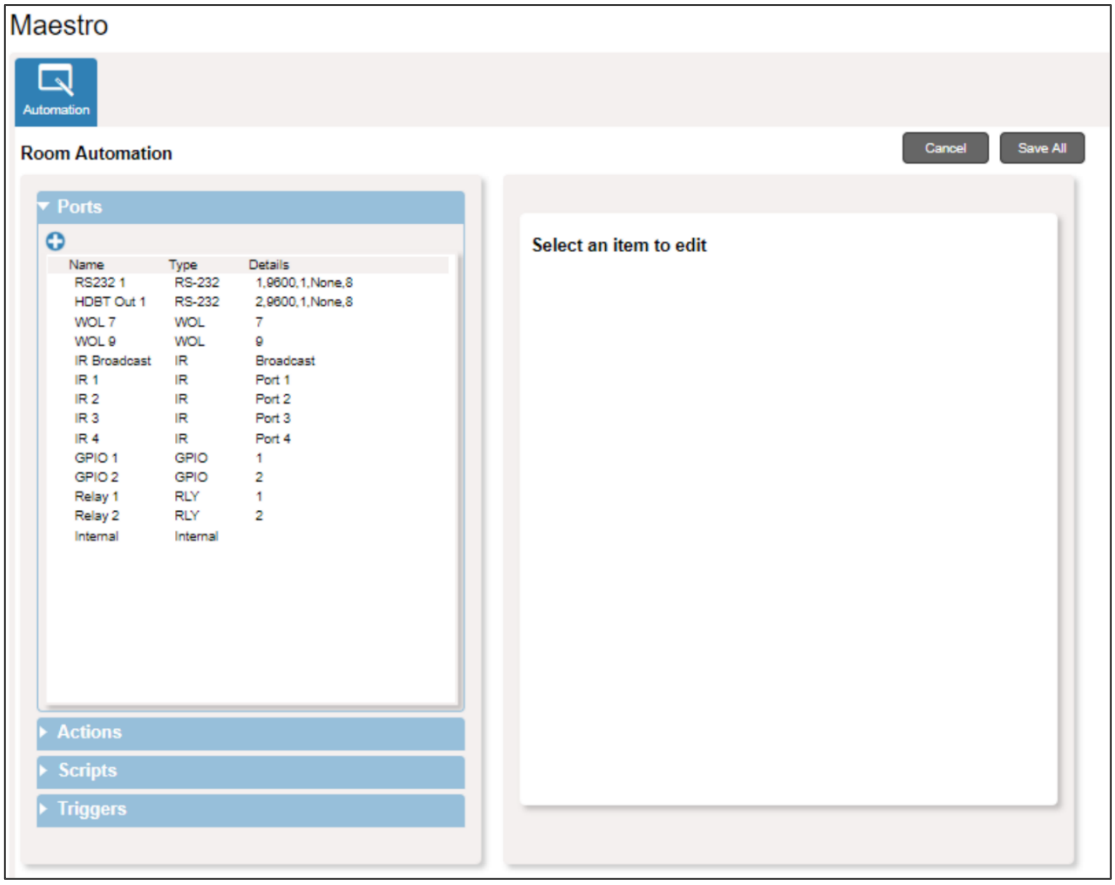


Figure 24: Automation Page – Maestro, Ports List

3. Click the port that is connected to a device you want to control. For example, click the **RS232 1** line.
   The Port configuration area displays the RS-232 port parameters.

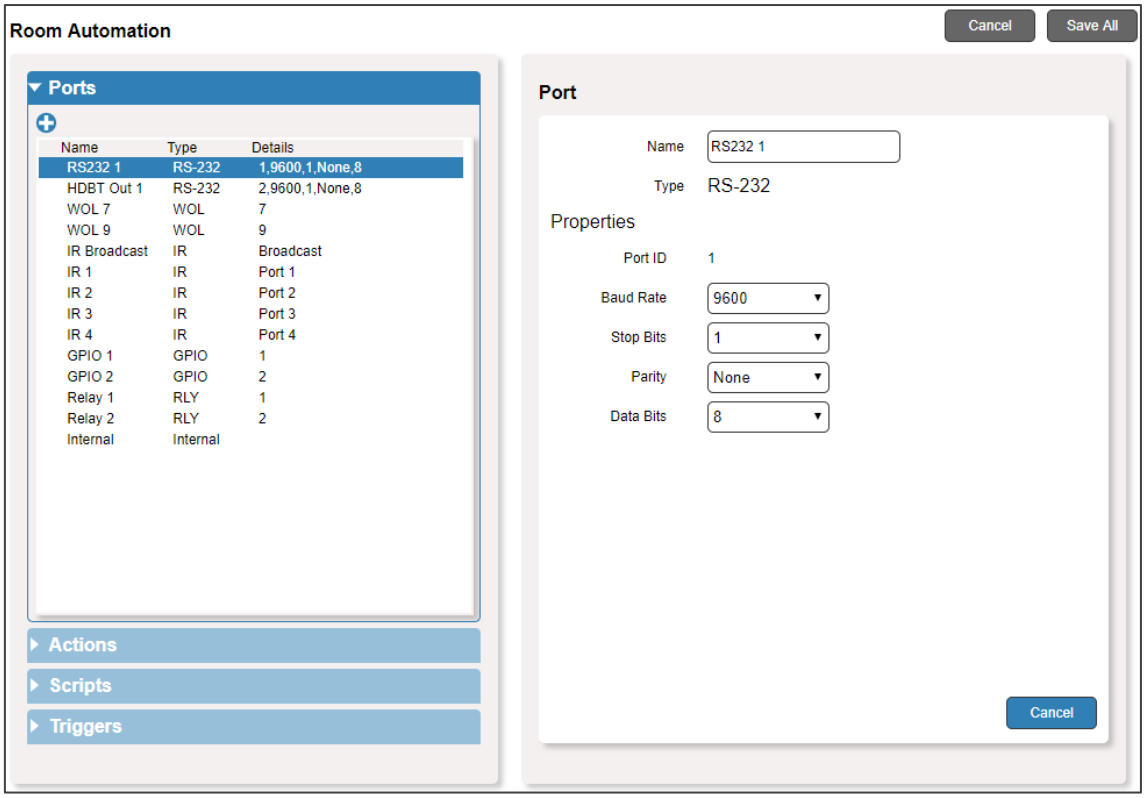


Figure 25: Maestro – Port Configuration

The Room Automation page includes two **Cancel** buttons: the lower **Cancel** button (in the configuration area) cancels the changes you made in the specific list. The top **Cancel** button cancels all the changes since the last save, in all lists.

4. In the Port area, you can:
   - Change the port **Name**.
   - Adjust the port **Properties** (e.g., Baud Rate, Stop Bits, and so on).

5. In the Ports list you can:
   - Click to add a peripheral device port.

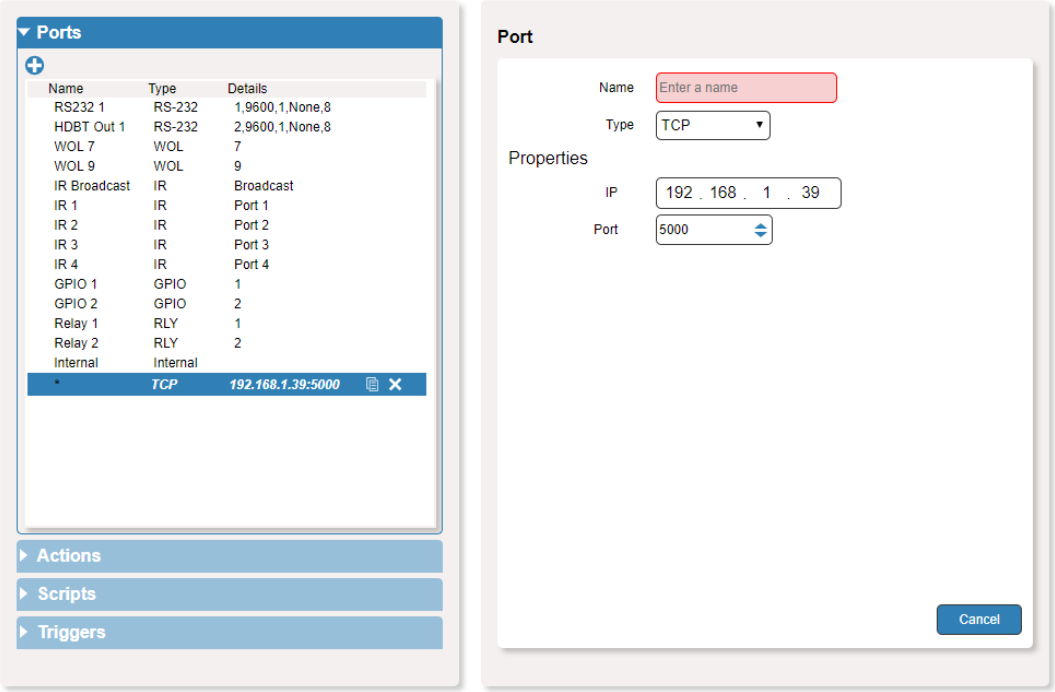


Figure 26: Maestro – Adding a New Port

   - Click to duplicate a peripheral device port (and then change its name and other parameters).

You can add an additional peripheral device port or duplicate an existing port.

   - Click to delete a peripheral device port.

6. Click **Save All**.

Adding and Configuring Actions

The Action list includes several basic built-in actions. These actions can be used as-is or can be modified or deleted. You can:

- Select an action from the list, view its details and, if needed, change them.
- Click to duplicate an action in the list (and then change its parameters).
- Click to delete an action.
- Click to create a new action (and enter all its parameters).

To access the Actions list:

1. Click **Automation** to access the room automation configuration tab.
2. Click **Actions**.
   The Actions list area opens:

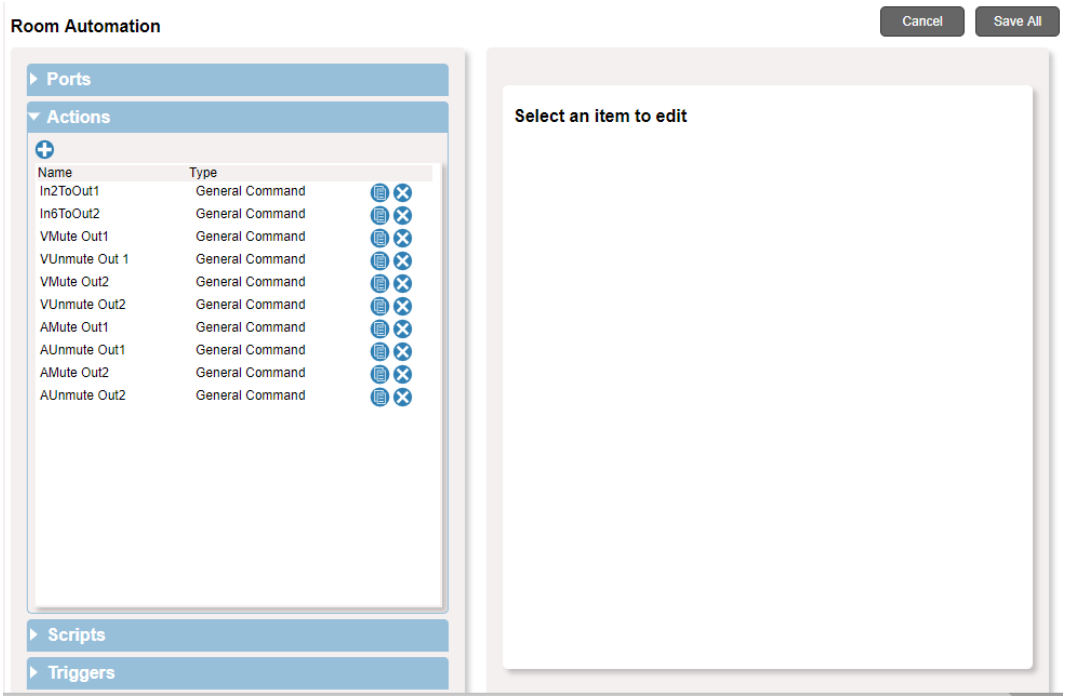


Figure 27: Maestro – Actions List

To view a built-in action:

1. Select the action from the Actions list.

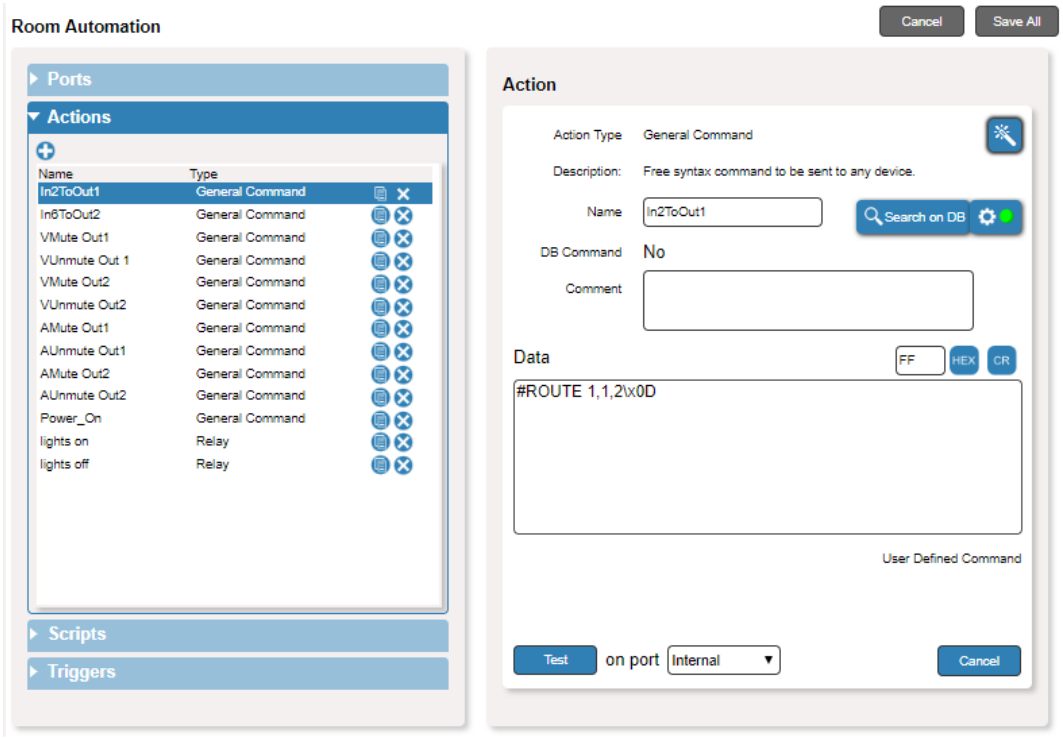


Figure 28: Maestro –Action Configuration

The Action details appear to the right:

Action Type:	Displays the type of actions available for the device: General Command, Wake on LAN, Relay, GPIO, Infrared and P3K Alert. Note that different devices have different port types and therefore different action types, accordingly.
Description:	Describes the action type.
Name:	View or change the command name.
Search on DB	Click to access Kramer/non-Kramer commands from the database. See Using the Database on page 33.
DB Command:	Indicates whether the source of the command is from the database.
Comment:	Add a comment that better explains the command.
Data:	Displays the command syntax and, if required, lets you easily modify it. Use the shortcuts on the top right-side of the Data text box  to easily add hex information to the command. If required, replace FF with other characters and click **HEX** to have them repeated in the Data text box. Click CR for carriage return.
Test:	Select the testing method via one of the ports that pass RS-232 signals, (for example, **RS-232 1**, **HDBT Out 1**) or select **Internal** to test the command internally via the device or any other port that fits the action being built. For example, a routing command can be sent to a peripheral device via HDBT out or tested internally by routing an input to an output on the device.
Cancel:	Within the Action configuration area, click to cancel a change to this specific action.
 :	Click to immediately create a script from the selected action. The Scripts list opens and you can modify it as needed. See Creating a Script from a Selected Action on page 36.

Adding a New Action

An action can be added in one of the following ways:

- Click  to create a new action (and enter all its parameters).
- Click  to duplicate an action in the list (and then change its parameters).

The following example shows how to add a new action. In the same way you can change the action details after duplicating an existing command.

To add a new action:

1. Click .

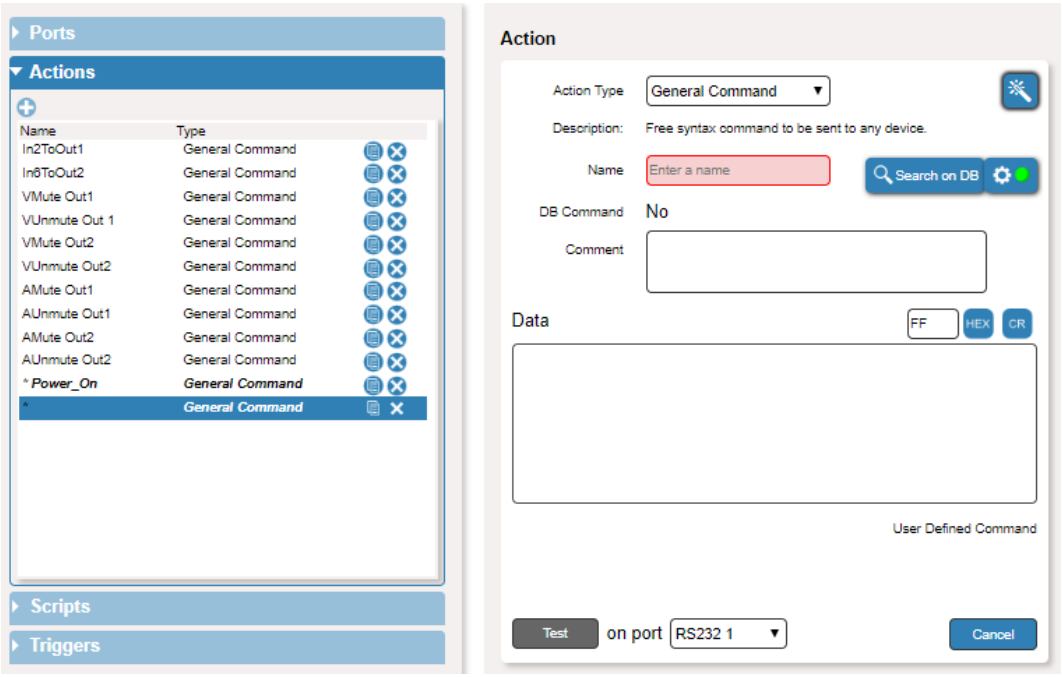


Figure 29: Maestro – Adding a New Action

2. Select the **Action Type** from the drop-down list, according to the type of trigger, port or command you want to use.
   The command description appears below.

Each Action Type requires different details.

3. Type the Command name.
4. Type a comment describing the command in more detail.
5. Fill in the details per **Action Type** and then test it:
   - General Command Action on page 27.
   - Wake on LAN Action on page 27.
   - Relay Action on page 28.
   - GPI/O Action on page 29.
   - Infrared Action on page 31.
   - P3K Alert Action on page 31.
   - Entering a Command Manually on page 32.
   - Using the Database on page 33.
   - Creating a Script from a Selected Action on page 36.
6. Click:
   - **Save All** on the top right to save all your changes or
   - Click **Cancel** on the lower part of the Action configuration area to cancel the current action.

General Command Action

A General command is any type of command for any type of device.

To add a General Command:

1. Select the **General Command** Action Type from the drop-down list.
2. Enter the Action Name, for example, Power On. The command name is added to the Actions list.

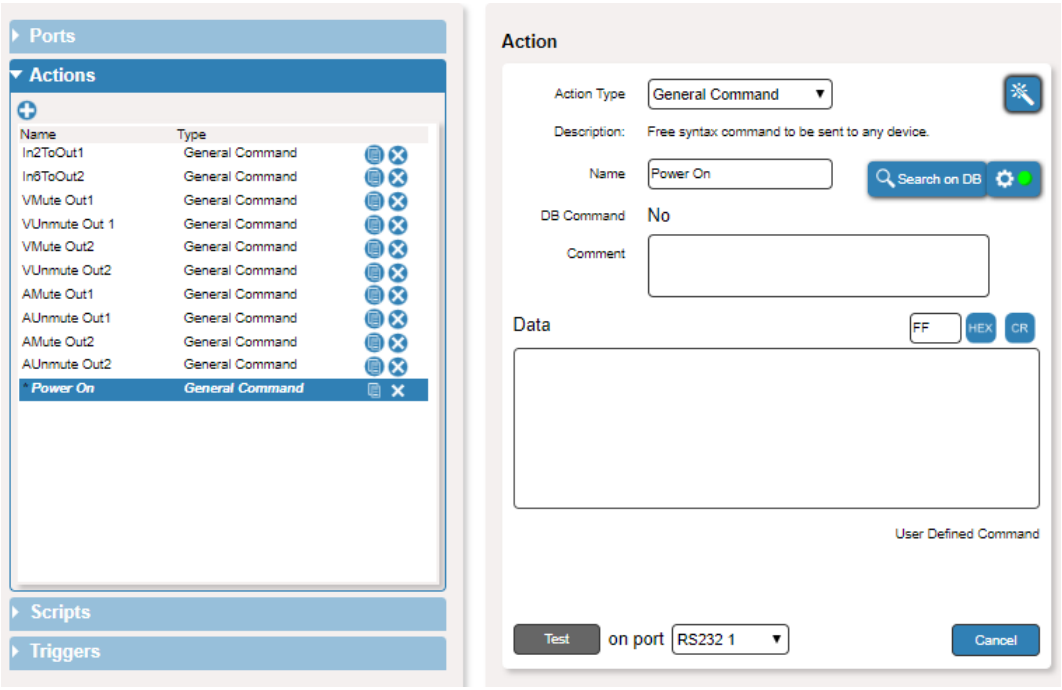


Figure 30: Maestro – Adding a General Command Action

New actions appear italic before saving them to the Action list.

3. Enter the command to the Data text box in any of the following ways:
   - Entering a Command Manually on page 32.
   - Using the Database on page 32.
   - Changing an existing command after duplicating a command.
4. Select a port from the drop-down list and click **Test**.
   The command is tested via the port to which the peripheral device is connected (for example a projector that is connected to the RS-232 port) or, if it is an internal command, test internally.

Wake on LAN Action

Wake on LAN wakes (from the sleep state) a designated device which supports WOL such as the Kramer **VIA**).

To add a Wake ON LAN Command:

1. Select the **Wake on LAN** Action Type from the drop-down list.

2. Enter the Action Name, for example, Wake Display. The Command name is added to the Actions list.
3. Add the MAC address of the device that will receive the WOL action.

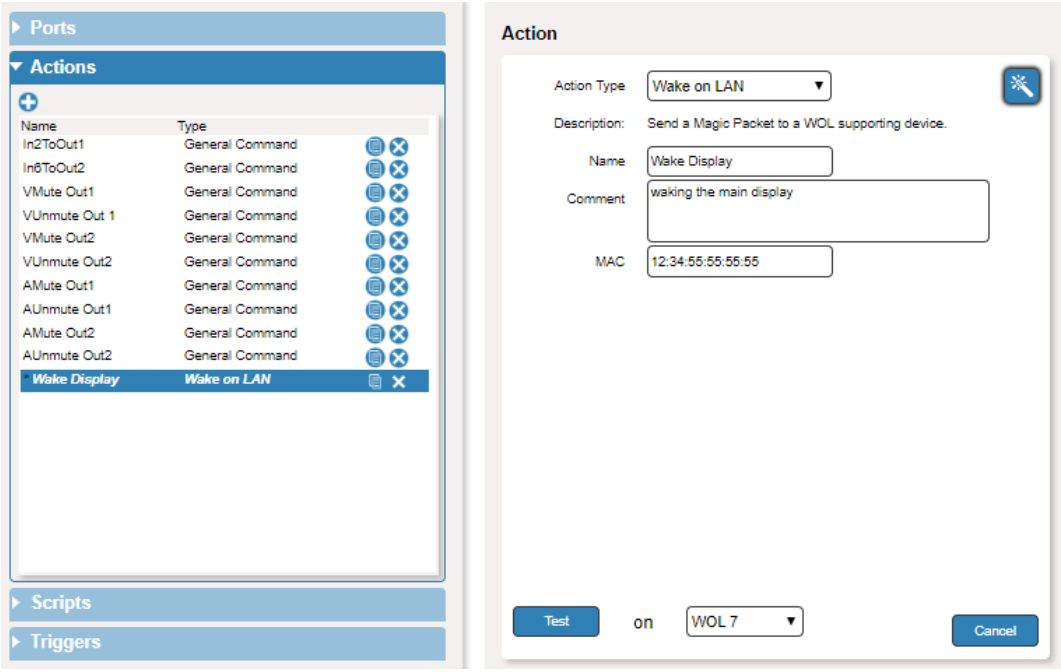


Figure 31: Maestro – Adding a Wake on LAN Action

New actions appear italic before saving them to the Action list.

4. Select a WOL channel from the drop-down list and click **Test**.
5. Click **Save All**.

Relay Action

The relay can turn a switch on or off.

To add a Relay Command:

1. Select the **Relay** Action Type from the drop-down list.
2. Enter the Action Name, for example, Lights On. The command name is added to the Actions list.
3. Select the status of the relay (**Open** or **Close**).

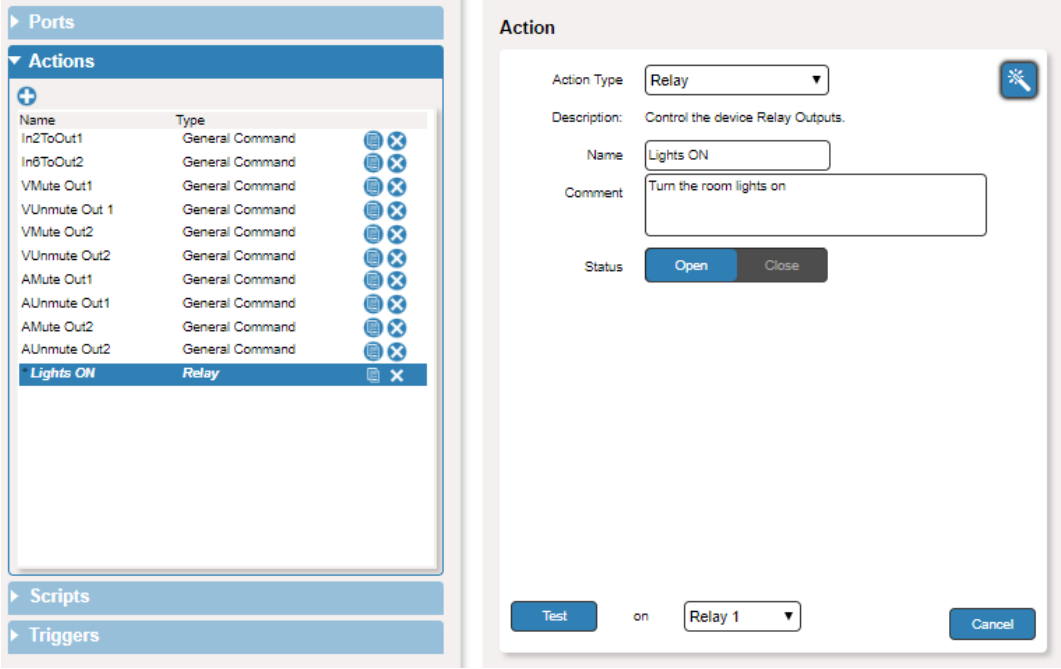


Figure 32: Maestro – Adding a Relay Action

New actions appear italic before saving them to the Action list.

4. Select a device relay port from the drop-down list and click **Test**.
5. Click **Save All**.

GPI/O Action

GPI/O pins can be used only if they are set as outputs.

To add a GPI/O command:

1. Select the **GPIO** Action Type from the drop-down list.
2. Enter the Action Name, for example, Screen Up. The command name is added to the Actions list.

3. Select the value of the GPI/O (**High** or **Low**).

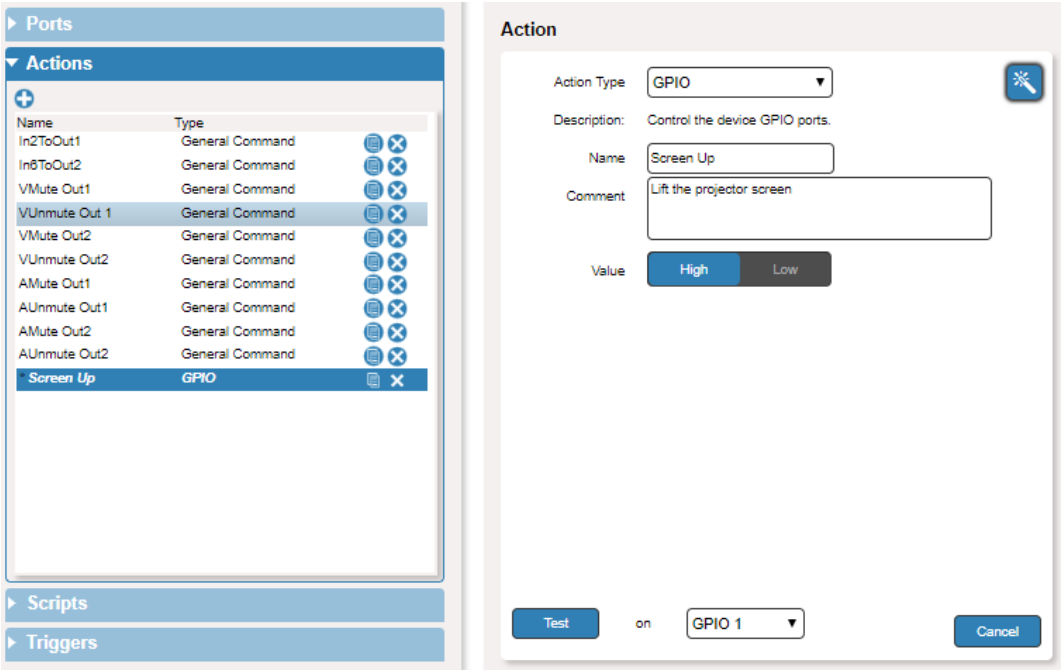


Figure 33: Maestro – Adding a GPIO Action

New actions appear italic before saving them to the Action list.

4. Select a device GPI/O port from the drop-down list and click **Test**.
5. Click **Save All**.

Infrared Action

To add an infrared command:

1. Select the **Infrared** Action Type from the drop-down list.
2. Enter the Action Name, for example, Power On. The command name is added to the Actions list.

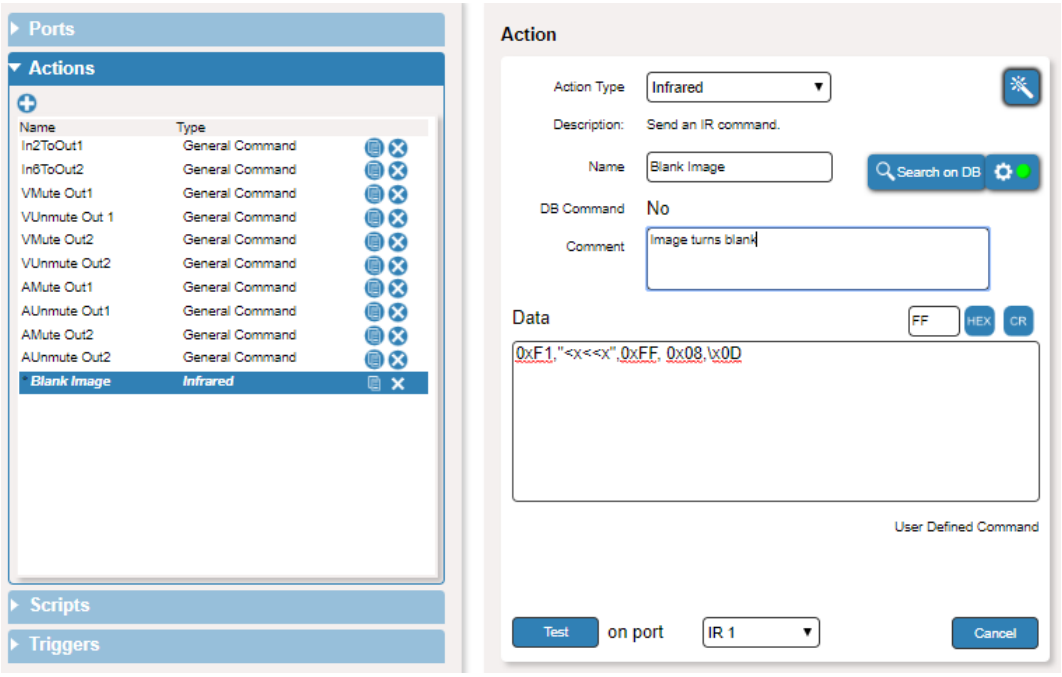


Figure 34: Maestro – Adding an Infrared Action

New actions appear italic before saving them to the Action list.

3. Enter the command to the Data text box by in any of the following ways:
   - Entering a Command Manually on page 32.
   - Using the Database on page 32.
   - Changing an existing command after duplicating a command.
4. Select IR port, or IR Broadcast (for the command to apply to all IR ports simultaneously) from the drop-down list and click **Test**.

P3K Alert Action

A P3K alert sends a Kramer Protocol 3000 notification to any port that receives protocol notifications: RS-232 control port, UDP port 50000 or TCP port 5000.

Alerts can be displayed and logged by applications such as **Kramer Network** and **Kramer Site-Ctrl™**.

To add a P3K Alert command:

1. Select the **P3K Alert** Action Type from the drop-down list.
2. Enter the Action Name, for example, Device Restart. The command name is added to the Actions list.

3. Enter the message.

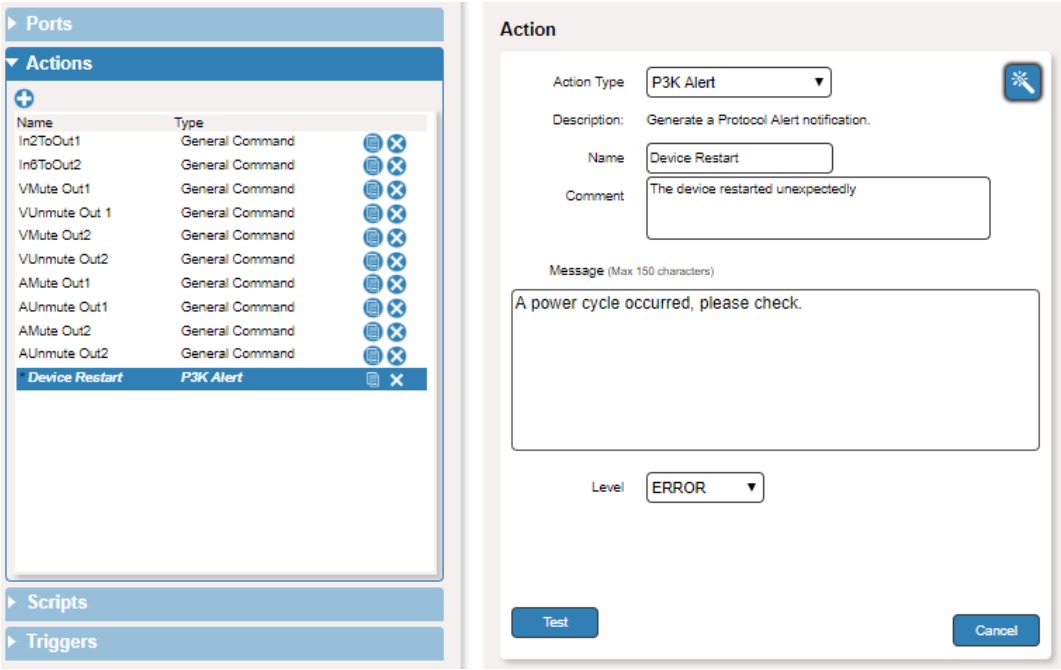


Figure 35: Maestro – Adding a P3K Alert Action

New actions appear italic before saving them to the Action list.

4. Set the alert Level (OK, WARNING, NOTICE or ERROR).
5. Click **Test** and verify that the command is OK.
6. Click **Save All**.

Entering a Command Manually

You can type the command manually and use the buttons on the top right of the Data text box to add the command easily.

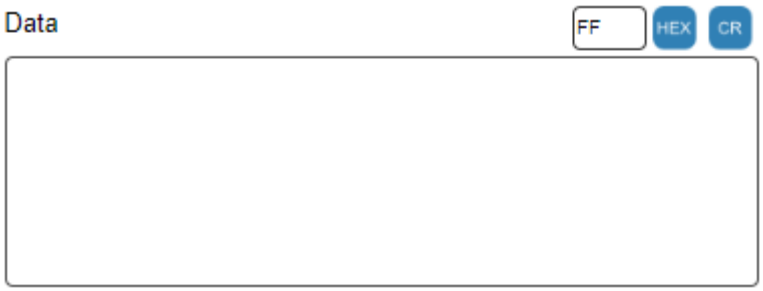


Figure 36: Using the Database – Data Text Box

If the command requires HEX-based syntax, you can use the small text box on the top right to enter the correct characters and then click **HEX** any time you need to add these characters to the command data.

Clicking the **CR** button adds a carriage return.

Using the Database

Maestro uses a command database to easily and quickly choose prepared commands with correct syntax. You must connect to the database to use it. Download and install **K-Config** version 3.5.17.0 and above, that includes the drivers needed to access the database.

Find **K-Config** on a device's webpage or go to:
www.kramerav.com/product/K-Config

To search for a command in the database:

1. In the Action area, click  .
   The following window appears.

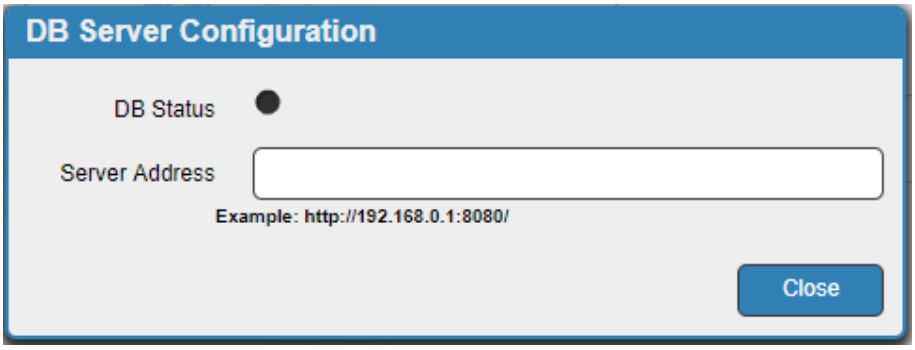


Figure 37: Using the Database – DB Server Configuration Window

2. Enter the IP address of the computer on which server is installed (for example, 172.17.8.40) and the port number (8080).

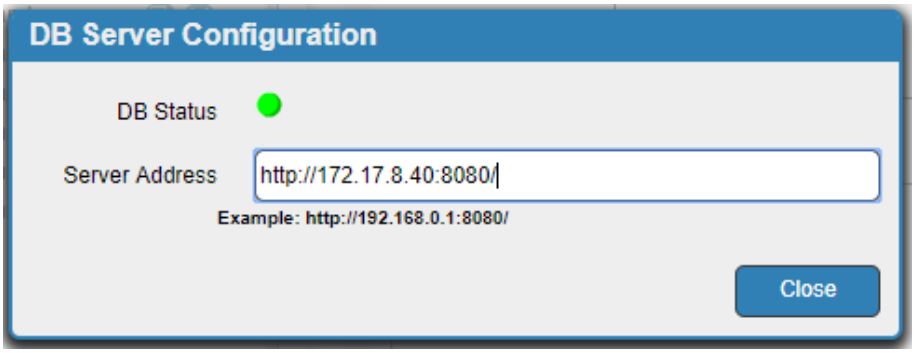


Figure 38: Using the Database – Entering the Server Address

When the server is found, the database automatically connects and the DB status indicator lights green. If a server is not found, the status indicator does not light green. Try another address or click **Close**.

To use the command database, make sure the correct version of the database is installed.

3. Click **Close**.
   You can now search the database.

Figure 39: Actions List – Database Available Indication

4. Click **Search on DB**.
   The Find Command on DB Driver Server window appears:

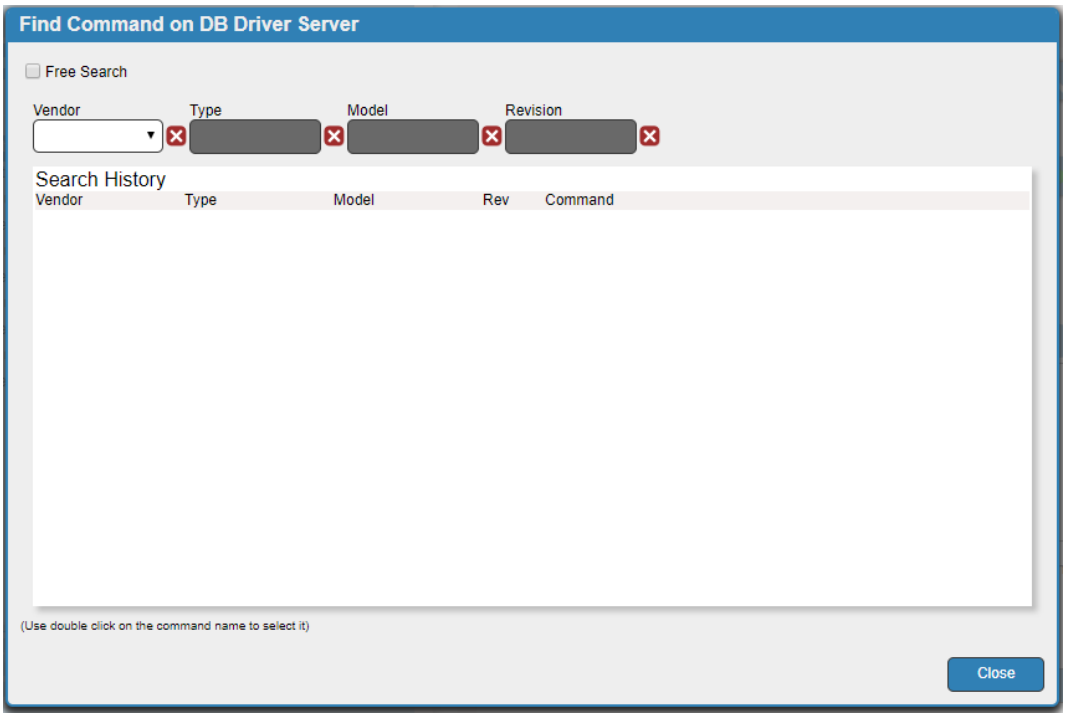


Figure 40: Using the Database – DB Driver Search

5. Click each drop-down box and select from the list of a vendors, types, models and revisions – if the revision is not known, select Revision **A**.
   When all search parameters are complete, a list of available commands appears.
   (Alternatively, check **Free Search**, enter the details, and click **Search**.)

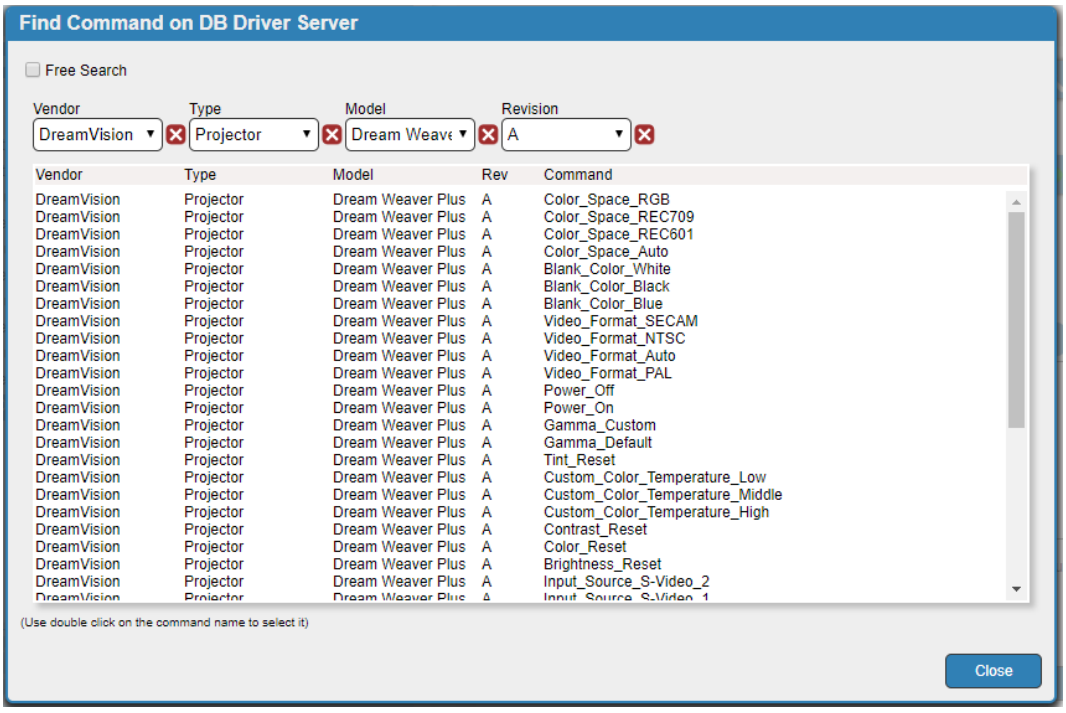


Figure 41: Using the Database – DB Driver Search Results

6. Double-click the desired command (for example, Power_On of the connected projector) to add it as an action to the Action List.

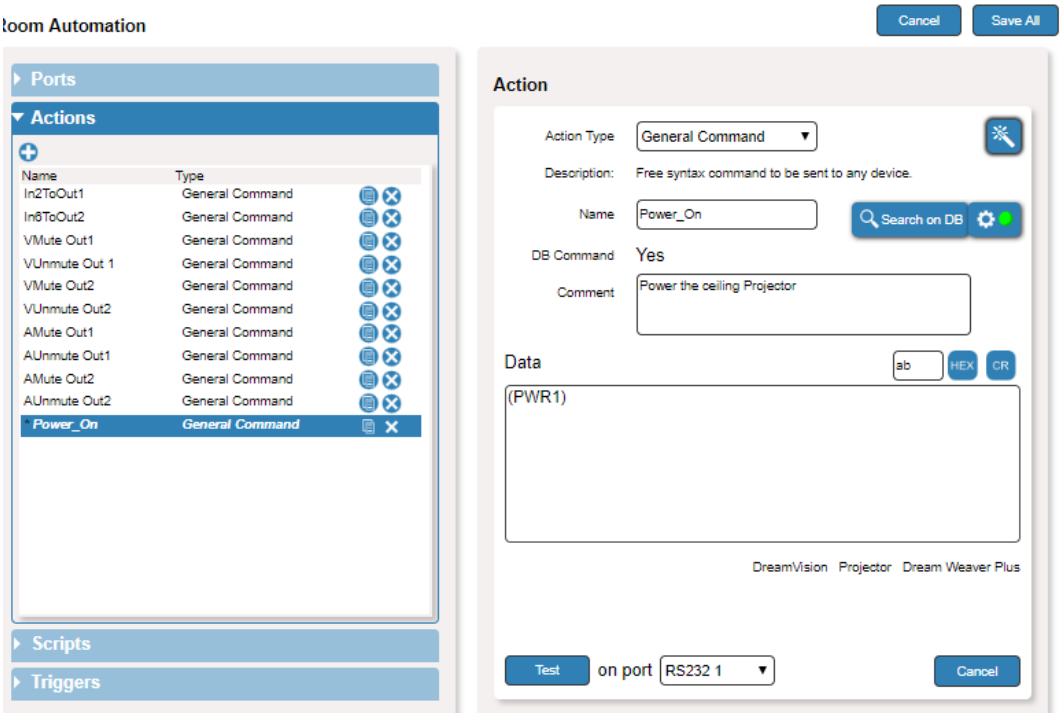


Figure 42: Maestro – Selected Command Added

The Name of the Action changes after adding a command from the database. Remodify it as necessary (see Figure 43).

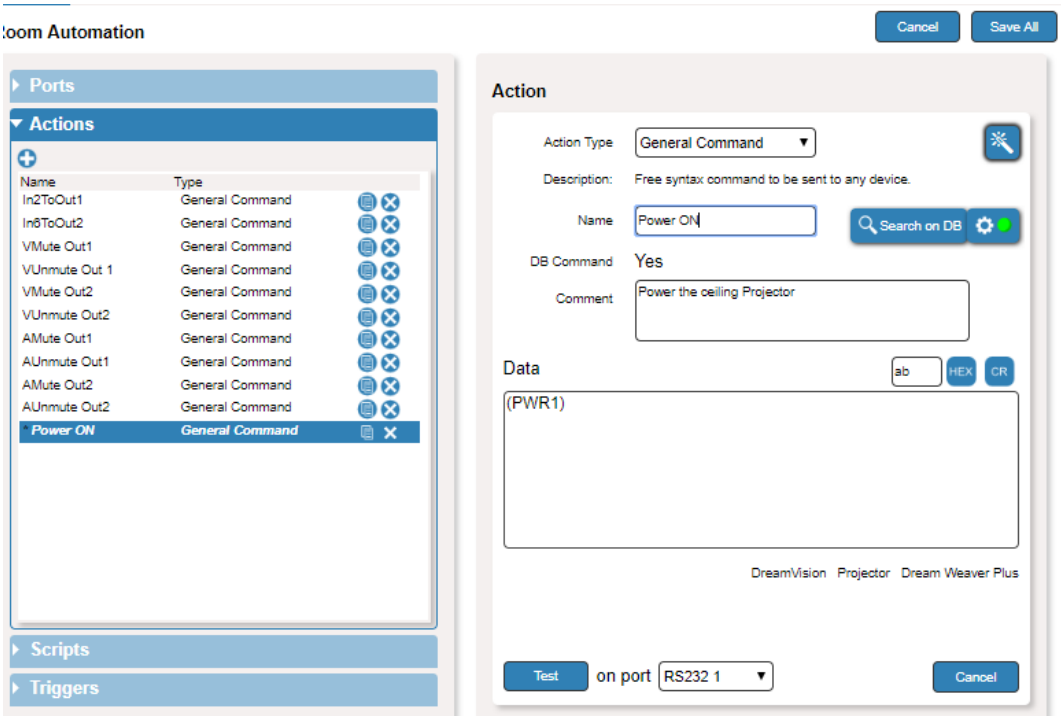


Figure 43: Maestro – Command Name Change

The DB Driver Server window keeps the search history, making it easy to add commands to the action list (see Figure 44).

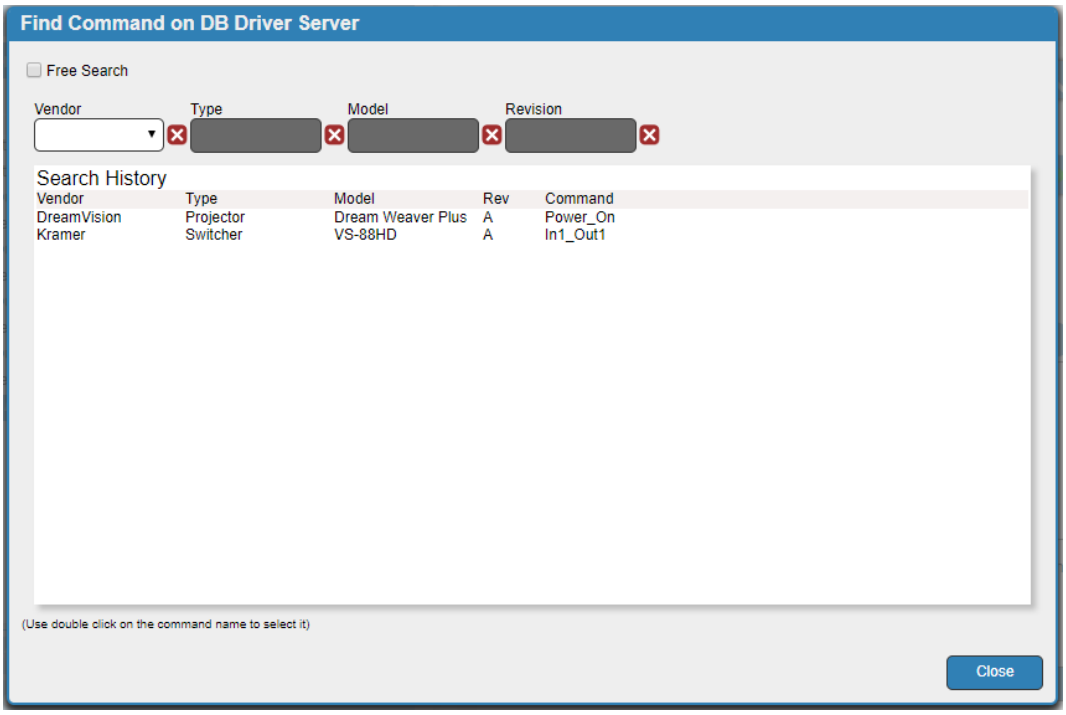


Figure 44: Actions List – DB Driver Search History

Creating a Script from a Selected Action

You can quickly and easily create a script from an action by clicking .

To create a script from a selected action:

1. Select an action from the Action list, or:
2. Click .
   The Scripts list opens.

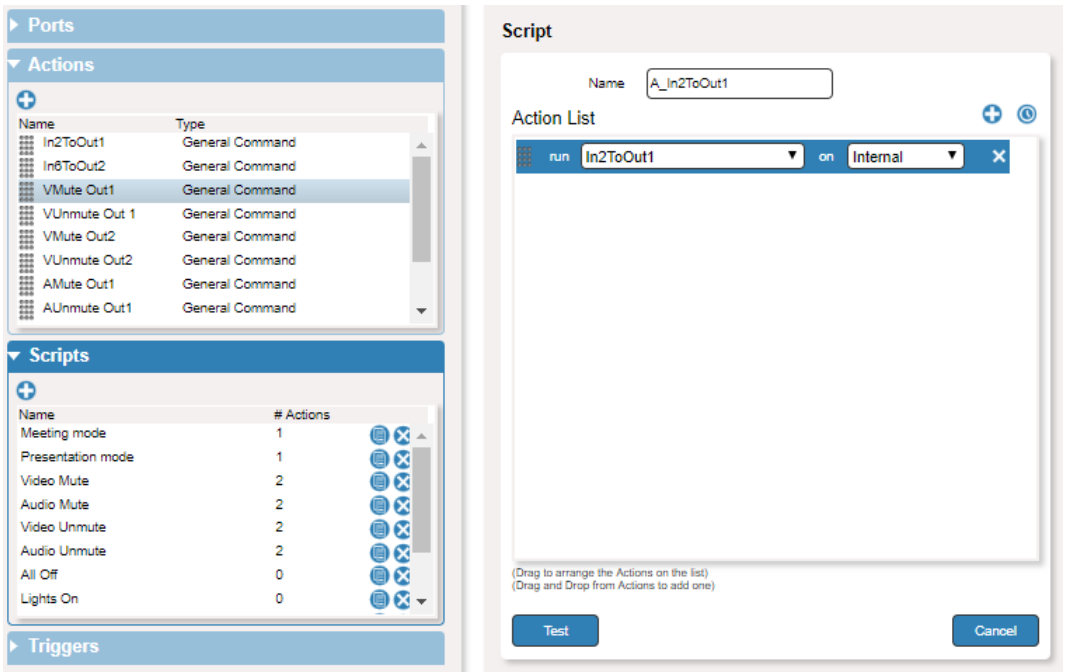


Figure 45: Actions List – Creating a Script from an Action

The name of the action becomes the script Name and it includes the selected command only.

3. You can use this script as is or:
   - Rename the script.
   - Add, move, or delete actions and delays from the list.

See Creating Scripts on page 37 for further details.

Creating Scripts

A script is a group of actions that is activated by a trigger. The actions in the Action list created can be dragged and dropped to the Script editor area to form the action list.

The Scripts list includes several built-in scripts which can be used as-is or modified. You can:

- Select a script from the list, view its details and, if needed, change them.
- Click to duplicate a script in the list (and then change its parameters).
- Click to delete a script.
- Click to create a new script (and enter the actions).

To access the Scripts list:

1. Click **Automation** to access the room automation configuration tab.
2. Click **Scripts**.
   The Actions list area opens:

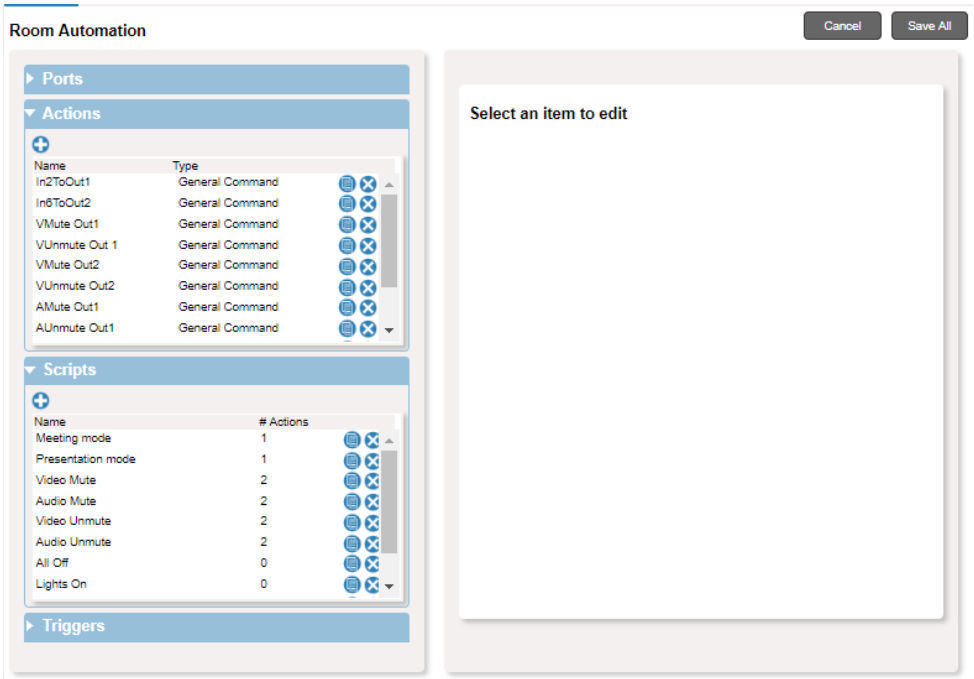


Figure 46: Maestro – Scripts

Both the Script and Action Lists are open.

To view a built-in script:

1. Select the script from the Scripts list.

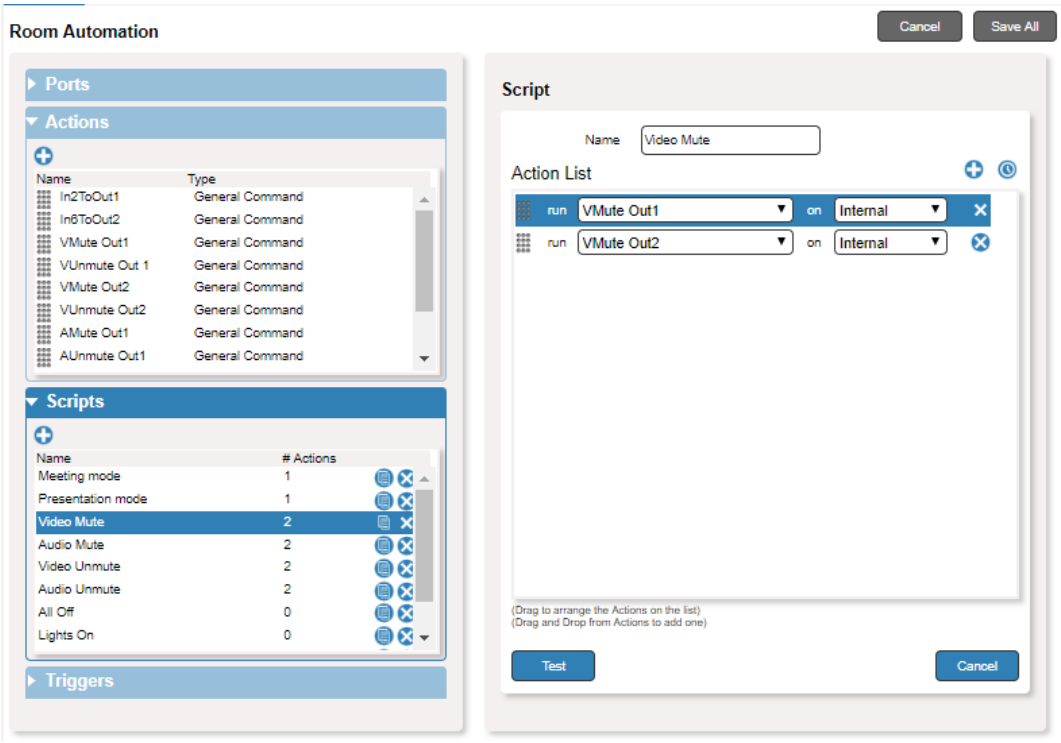


Figure 47: Maestro – Viewing a Built-in Script

The Script details appear to the right:

Name:	View or change the script name.
Action List:	View the lists of actions in the script.
	Click to add an action to the script.
	Click to add a time delay.

Creating a Script

A script can be created in one of the following ways:

- Click  to create a new script (and enter all its parameters).
- Click  to duplicate a script in the list (and then change its parameters).
- By clicking  in the Action details area.

The following example shows how to create a new script. In the same way you can change the script details of an existing Script (for example, after duplicating a script).

To create a script:

1. Click ⊕ in the Scripts list.

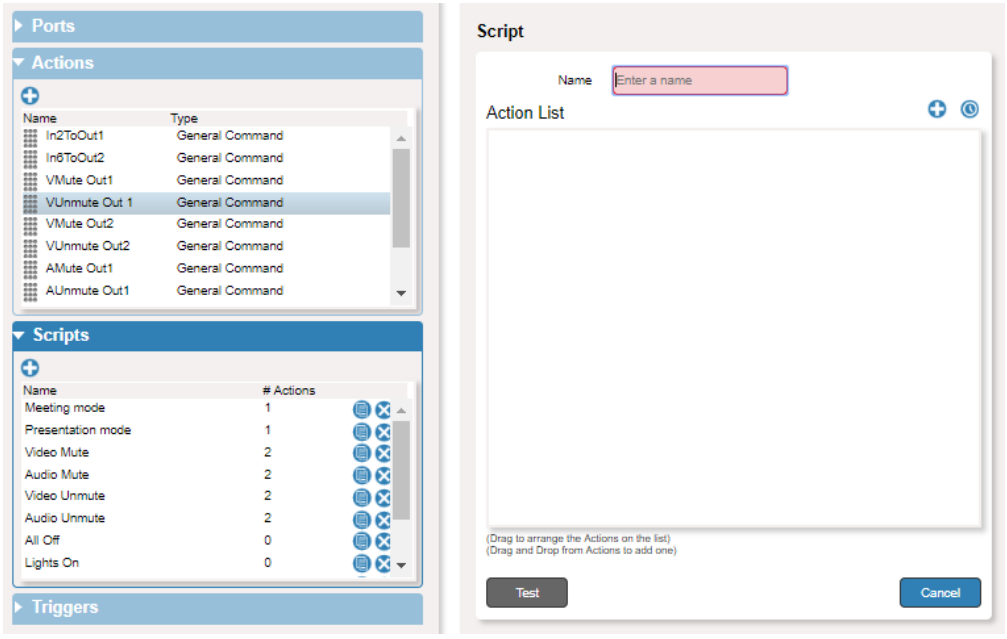


Figure 48: Maestro – Creating a New Script

2. Enter the script Name.
3. Add an action to the script in any of the following ways:
   - Click ⊕ next to the action list.
     An action line appears.

Figure 49: Scripts List – Adding a New Action to a Script

- Click and hold ⠿ next to the action in the open Action list and drag to the Script Action List.

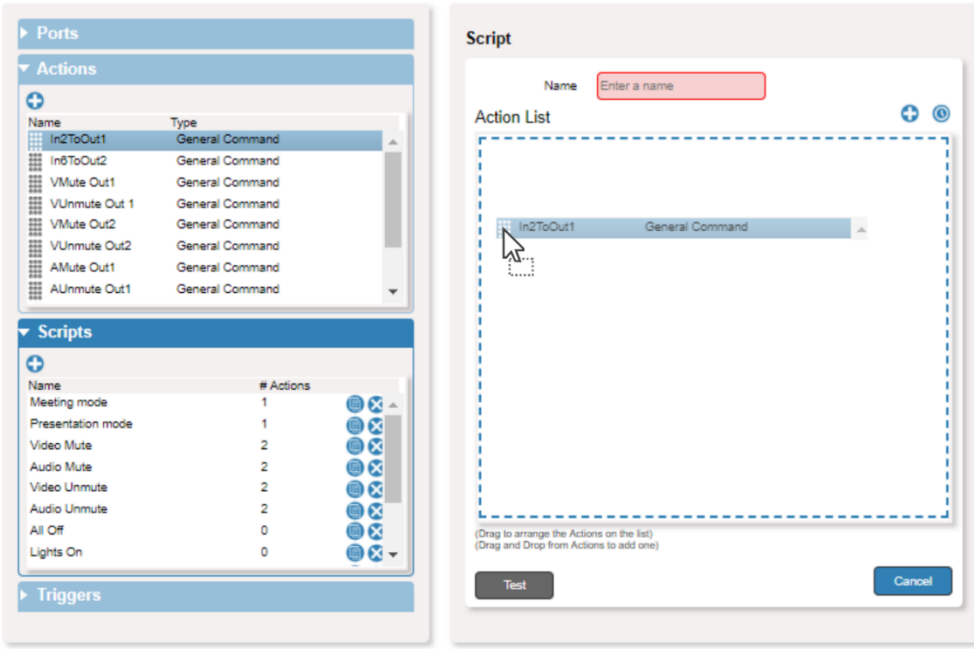


Figure 50: Maestro – Dragging and Dropping a New Action to the List

4. Open the **run** drop-down list to select the desired action.
5. Open the **on** drop-down list to select the relevant port.
6. Add all the desired actions and, if needed, click 🕒 and set the delay time between actions in the list (from 0 to 999 seconds):

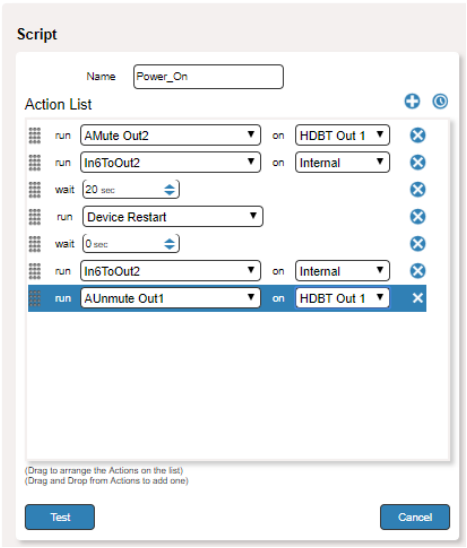


Figure 51: Scripts List – List of Actions in Script

7. If required, Click **Test** to test the script.
8. Click:
   - **Save All** on the top right to save all your changes, or
   - Click **Cancel** on the lower part of the Script area to cancel the latest changes to the Action List.

Configuring the Trigger

A trigger is a predefined event that, when activated, causes the script associated to it to run.

The trigger types are built into the system and are device-specific (not all the trigger types may apply to your device). In general, the following trigger types are available:

Trigger Type	The Trigger is Activated:
Power On	When the device is powered on.
Step In	When the device receives a Step-in request.
First On	When the first input is connected.
Last Off	When the last input is disconnected.
5V On	When input activity is detected.
5V Off	After the "delay power off" timeout period has expired (default 900 seconds) following no input activity.
Port Connectivity	When the port connectivity status of a selected input or output changes, for example when HDMI IN 3 is disconnected.
Route	When there is a signal routing change.
Digital GPIO	When there is a Digital GPIO High/Low status change.
Scheduling	At a prescheduled time and date.
Button Press	When one of the remote, momentary-contact closure-switches is activated.
IR Control Press	When the selected IR remote control button is pressed.

For each trigger type you need to enter slightly different settings.

To configure a trigger:

1. Click **Automation** to access the Room Automation configuration tab.
2. Click **Triggers**.
   The Triggers details area opens:

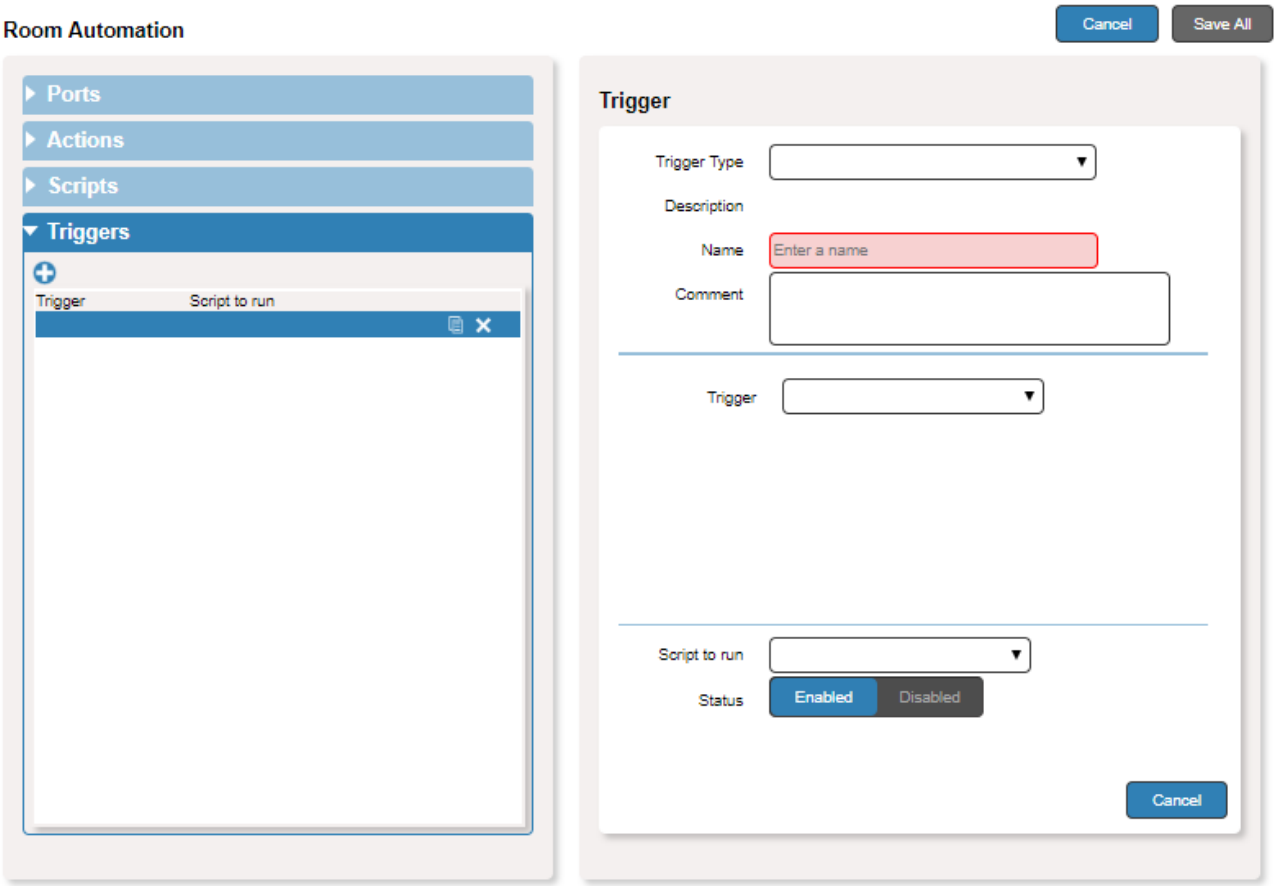
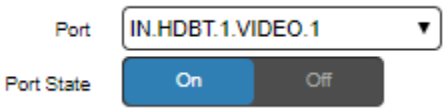


Figure 52: Maestro – Trigger Configuration Area

3. Enter the trigger Name (by-default, the trigger name is identical to the trigger type but you can change it).
4. Type a comment describing the trigger in more detail.
5. If needed, enter the trigger specific settings. Note the following:
   - Power On trigger type does not require additional settings.
   - Step In trigger type does not require additional settings.
   - First On trigger type does not require additional settings.
   - Last Off trigger type does not require additional settings.

- Port connectivity trigger type requires that you:

  Select an input/output port and define the port state (**On**/**Off**) that triggers the associated script.



  Ports are defined as follows:
  <direction_type>.<port_type>.<index>.<signal_type>.<channel_index>.

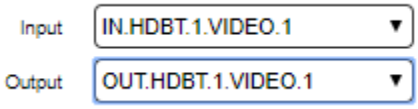
  For example:

  HDMI input 4 appears as: **IN.HDMI.4.VIDEO.1**.

  HDBT audio output 3 (channel 2) appears as: **OUT.HDBT.3.AUDIO.2**.

- Route trigger type requires that you:

  Select an input port to route to the output port that triggers the associated script.



  Inputs and outputs are defined as follows:
  <direction_type>.<port_type>.<index>.<signal_type>.<channel_index>.

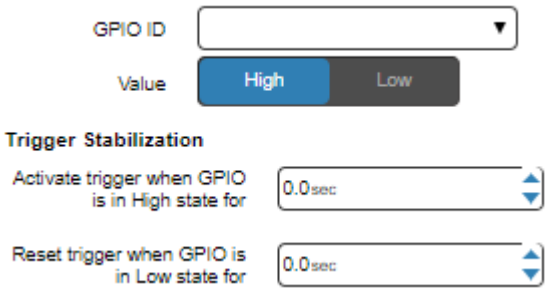
  For example:

  HDMI input 4 appears as: **IN.HDMI.4.VIDEO.1**.

  HDBT audio output 3 (channel 2) appears as: **OUT.HDBT.3.AUDIO.2**.

- Digital GPIO trigger type requires that you:

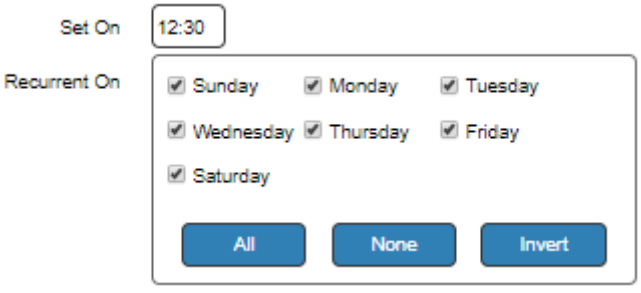
  Select a GPIO connector that is set to Digital IN.
  Add the value that creates the trigger and the trigger stabilization time for high and low states.



Trigger stabilization is set to prevent sudden peaks from activating this trigger.

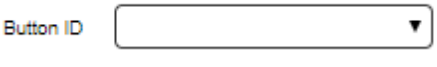
- Scheduling trigger type requires that you:

  Select the time and day/days that trigger the associated script.



- Button Press trigger type requires that you:

  Select the button ID that triggers the associated script.



- IR control trigger type requires that you:

  Select the IR command ID that triggers the associated script.

6. Open the **Script to run** drop-down box and select the associated script.
7. Click **Enabled** or **Disabled**.

When the trigger is enabled, the script associated to it runs when the trigger event occurs.

When the trigger is disabled, its associated script does not run when the trigger event occurs.

8. Click:
   - **Save All** on the top right to save all your changes or
   - Click **Cancel** on the lower part of the Action area to cancel the current action.

Room Automation Example

This section provides a basic example of how to configure the following typical scenario.
A meeting room is frequently used for presentations and/or meetings. The customer wants to:

- Automate the meeting room elements at the beginning (and ending) of the presentation/meeting.
- Turn the lights and AC on/off every working day.
- Set the room for meetings outside office hours.

To accomplish this, the customer has installed the following Kramer equipment in the meeting room:

- **Kramer Maestro – Complete Room Automation** controls the room.
- **PL-50** – 5-channel AC Power Controller Monitor to the lighting system.

In addition, the meeting room also has:

- A Barco projector.
- A relay-activated, motorized projection screen.
- A room lighting system.
- An air conditioning system.
- A motion detector.

Figure 15 illustrates the room setup and connections.

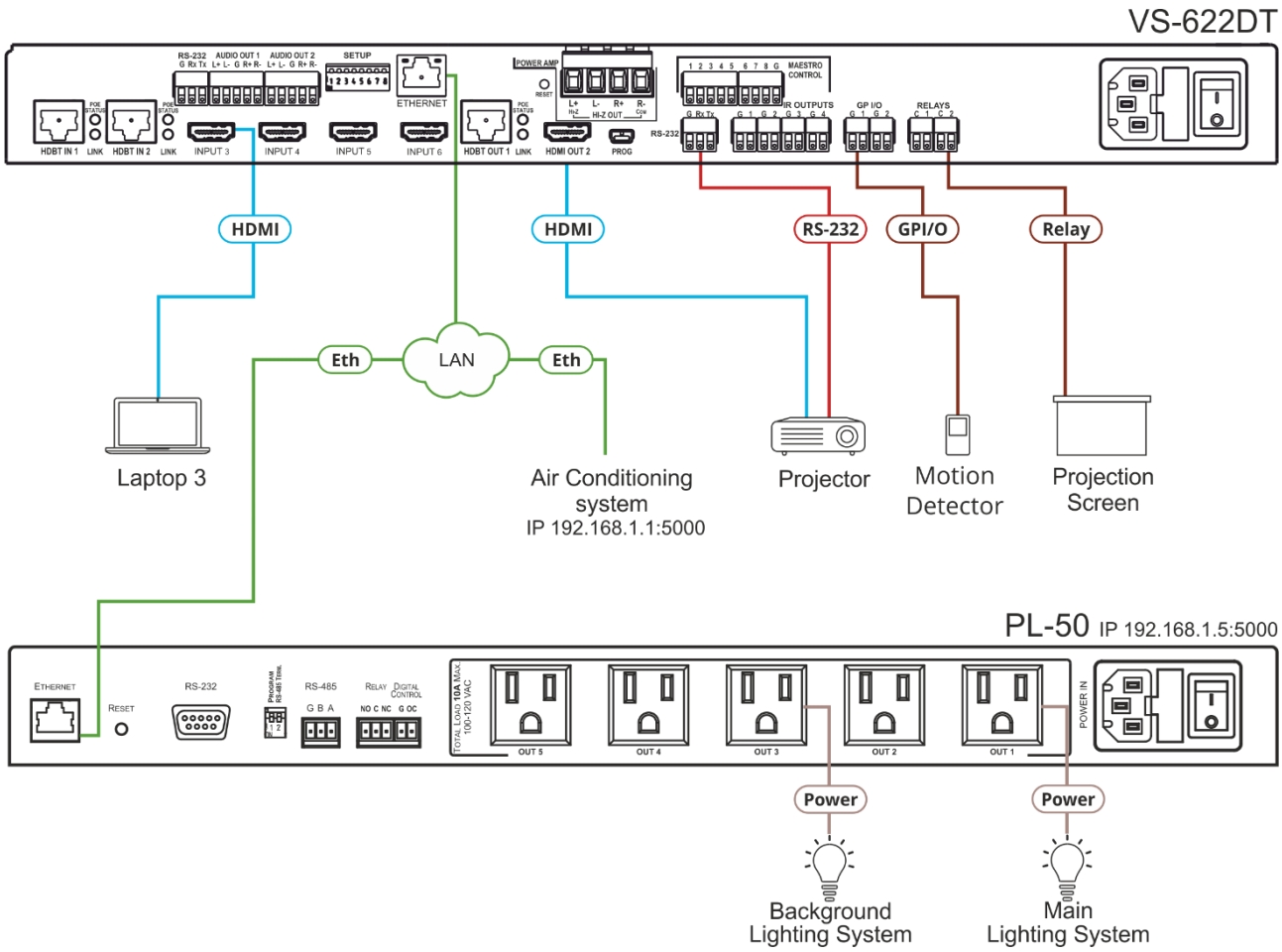


Figure 53: Room Control Scenario Setup

The list of ports, actions, scripts and triggers is carefully planned and summarized in the following table:

Trigger Name	Trigger Type	Scripts	Actions	Ports
Daily (Morning)	Schedule	Morning Schedule	Air system: on Background: lights on	Air conditioning (TCP)
Meetings Mode	Button Press	Meetings Mode	Lights on Projector off Screen up	PL-50 (TCP) Projector (RS-232)
Presentation Mode	First On	Presentation	Projector on Main lights off Background lights off Screen down	PL-50 (TCP) Projector (RS-232) VS-622DT (Relay 1)
Presentation End	Last Off	Presentation End	Background lights on Projector off Main lights on Screen up	PL-50 (TCP) Projector (RS-232) VS-622DT (Relay 1)
Daily (Evening)	Schedule	Evening Schedule	Air system off Background Lights off Main lights off Projector off	PL-50 (TCP) Projector (RS-232) Air conditioning (TCP)
Unscheduled meeting	Digital GPIO	Meetings Mode	Air system on Background lights off Main lights on	PL-50 (TCP) Projector (RS-232)

Trigger Name	Trigger Type	Scripts	Actions	Ports
Unscheduled meeting end	Digital GPIO	Evening Procedure	Air system off Background Lights off Main lights off Projector off	PL-50 (TCP) Projector (RS-232) Air conditioning (TCP)

Note that devices with Maestro capabilities may have varying port types.

To define the triggers, enter the Automation page and work through the following sequence:

- Assigning the Ports on page 47.
- Creating Actions on page 10.
- Creating Scripts on page 54.
- Creating the Triggers on page 59.

Assigning the Ports

Assign the ports to the following external items:

- A projector.
- An air conditioning system.
- A lighting system.
- A projection screen.
- A motion detector.

To assign the ports:

1. Click the RS-232 port and rename it.
   The RS-232 port controls a projector.

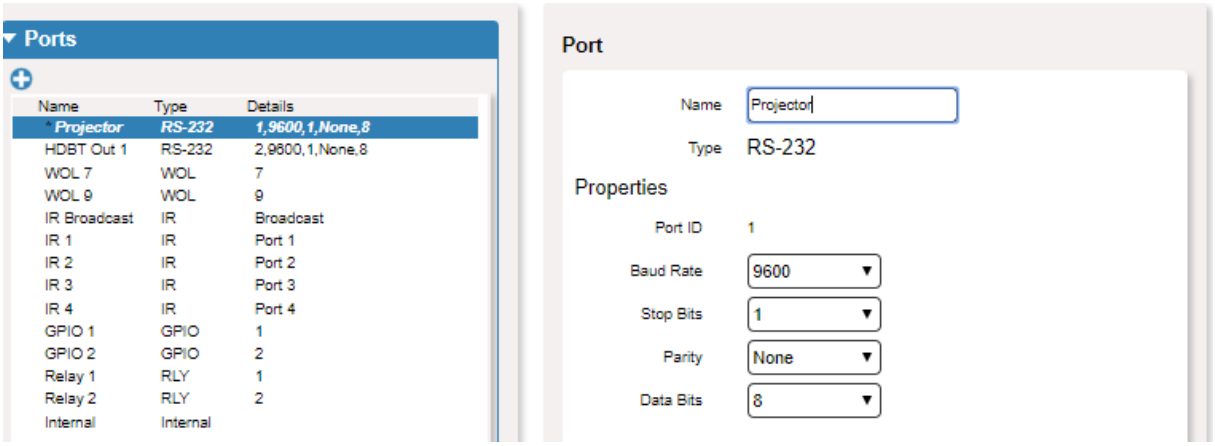


Figure 54: Ports – Assigning the RS-232 Port to the Projector

2. Click ⊕ to assign a TCP type port to the air conditioning system:
   - Name the port.
   - Set its IP address.

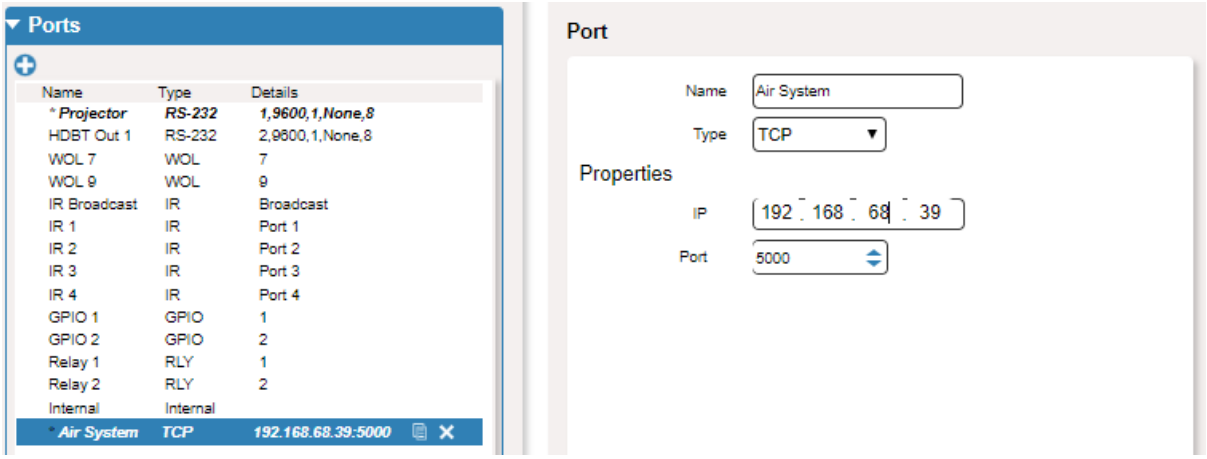


Figure 55: Ports – Creating a Port for the Air System

3. Click ⊕ to assign a TCP type port to the Kramer **PL-50** power controller:
   - **Name** the port.
   - Set its **IP** address.

- Set the **Port** number.

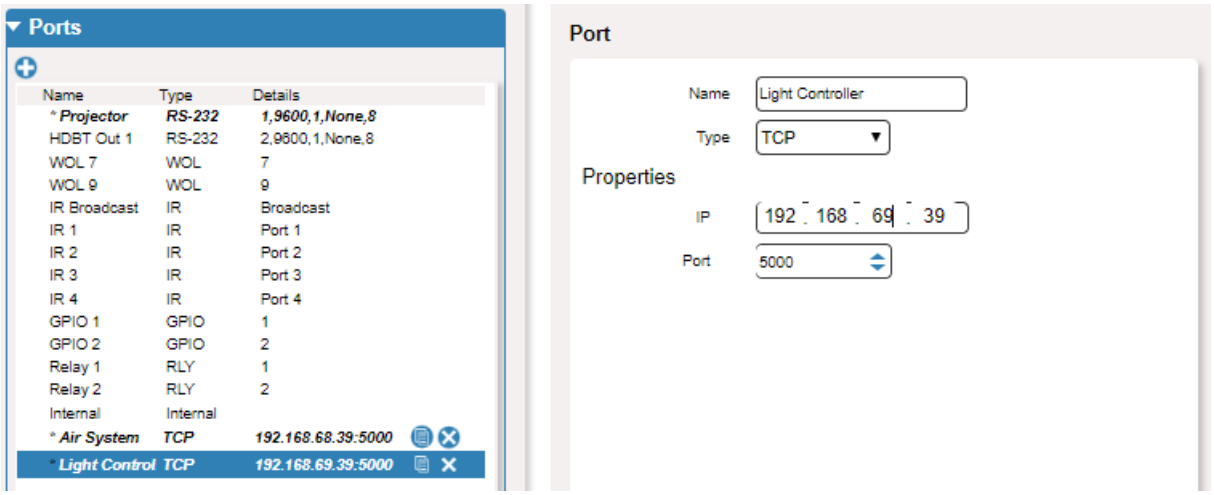


Figure 56: Ports – Creating a Port for the Lighting System

4. Select the GPIO 1 port type, assign it to the motion detector and name it.

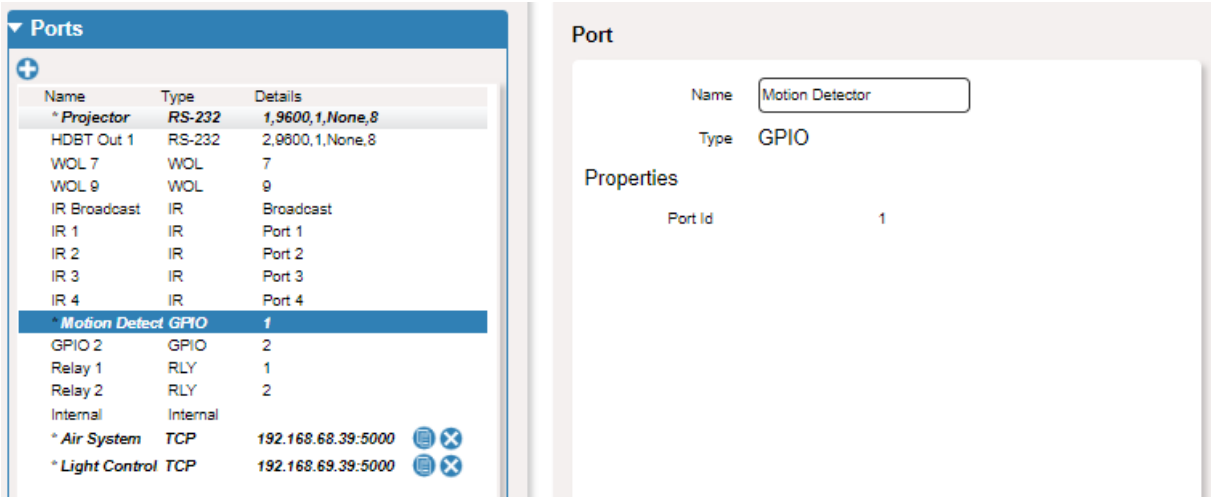


Figure 57: Ports – Assigning the GPIO Port to the Motion Detector

5. Select the Relay 2 port type to assign the projector screen and name it

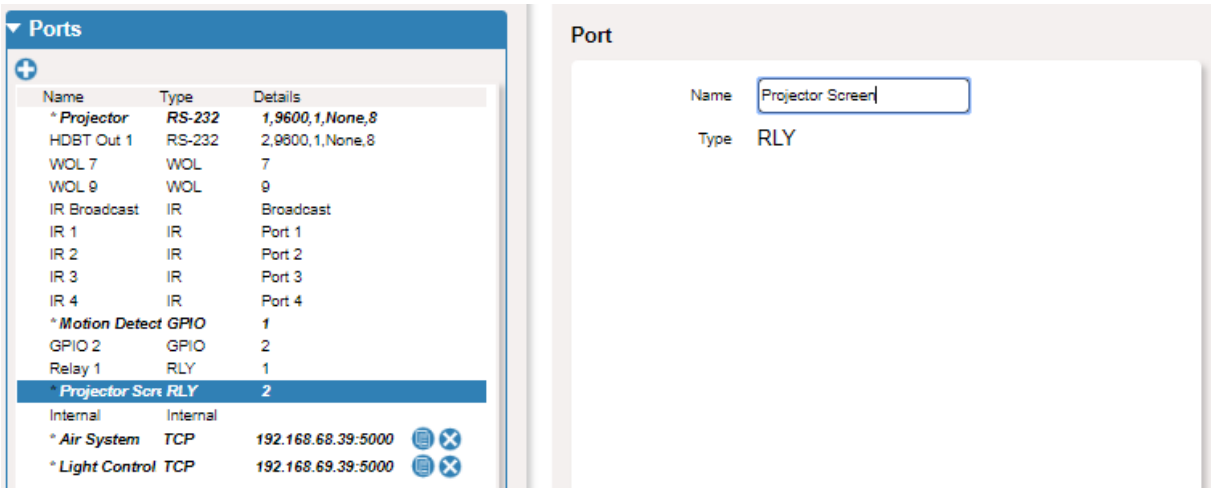


Figure 58: Ports – Assigning the Relay Port to the Projector Screen

6. You can click **Save All** to save the changes or save later.

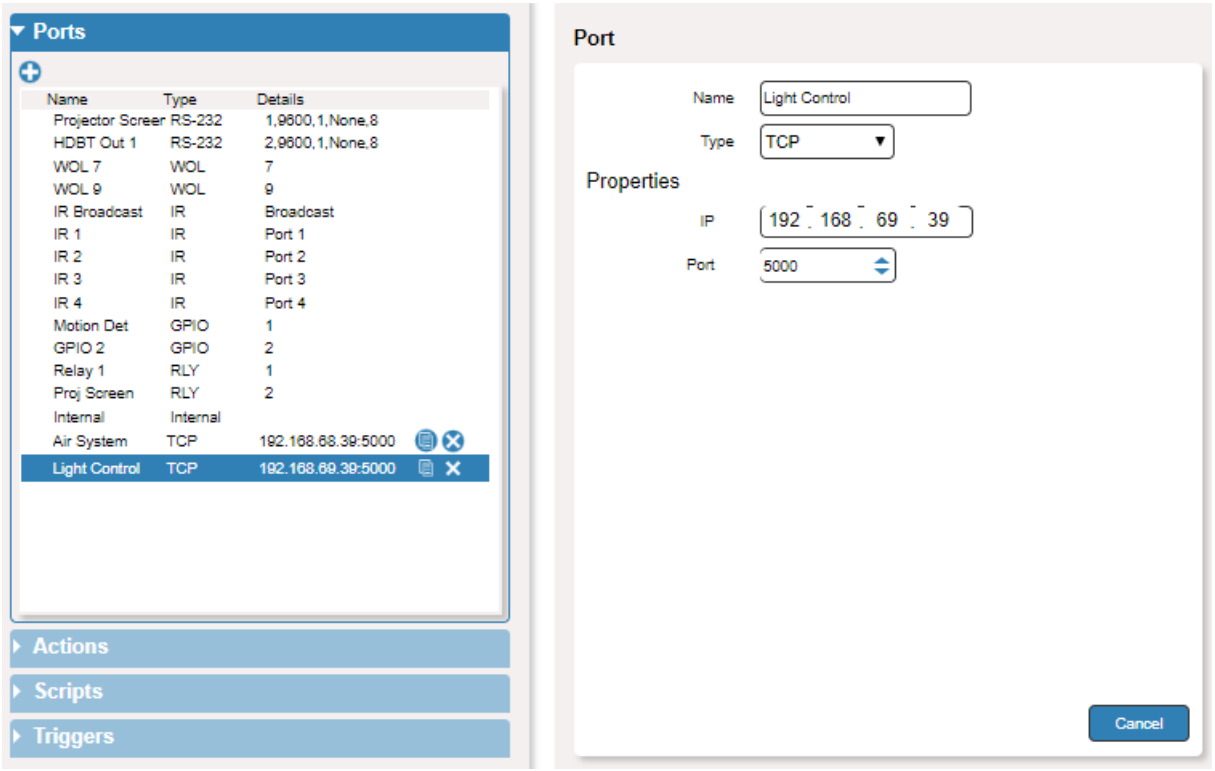


Figure 59: Ports – Assigned Port Types

If you want to keep the changes, make sure that you save the changes before leaving the Automation page.

7. Click **Save All**.

Creating Actions

Before creating Scripts, configure and add actions. This example adds the following actions:

- Projector on.
- Projector off.
- Air system on.
- Air system off.
- Main light on.
- Main light off.
- Background light on.
- Background light off.
- Projector screen down.
- Projector screen up.

To create the Projector On action:

1. In the Automation page, open the Actions list.
2. Click to create a new action.
3. Select the **Action Type** (General Command).
4. Type the **Name** (Proj On) or name it later.
5. Click to access the projector commands from the database. See Using the Database on page 33.
6. Once you are connected to the database, click **Search on DB**.
7. Enter the Projector details.

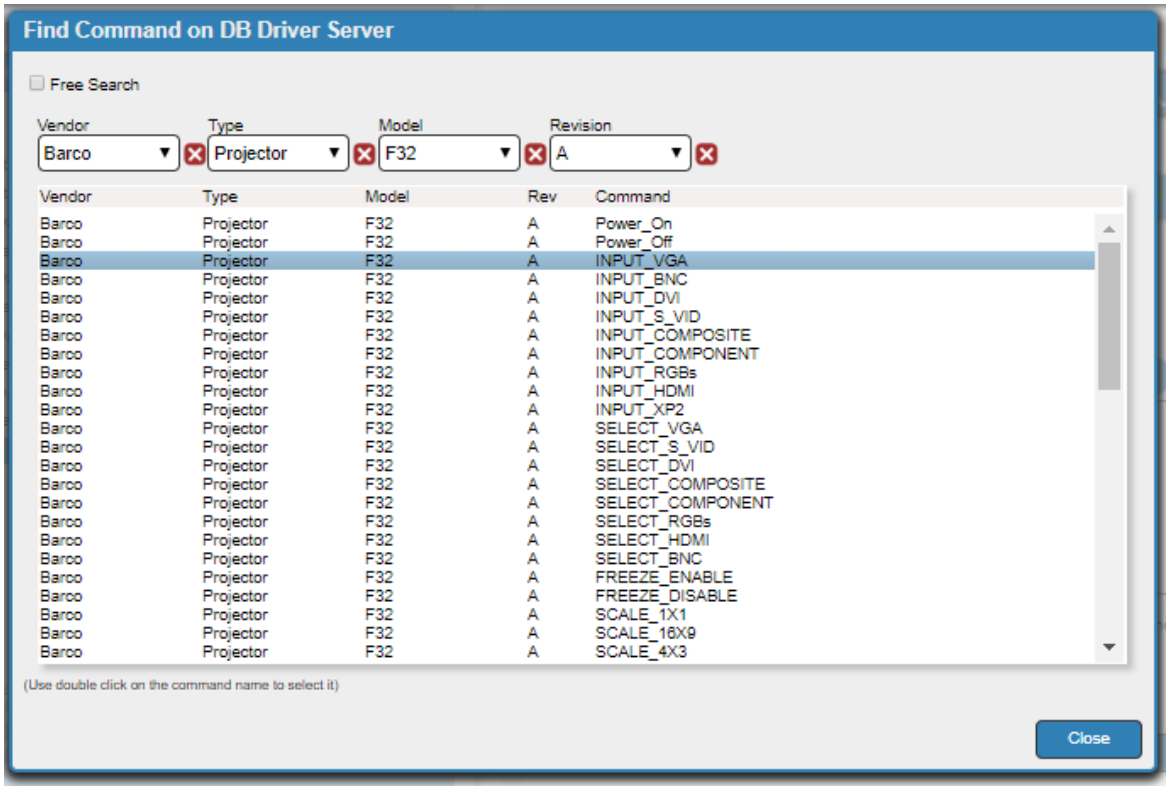


Figure 60: Projector Database

8. Double-click the Power_On command.
   The database window closes, the command appears in the Data textbox.
   The **Name** changed to the command name (rename, if required).
9. If required, add a comment.
10. Click **Save All**.

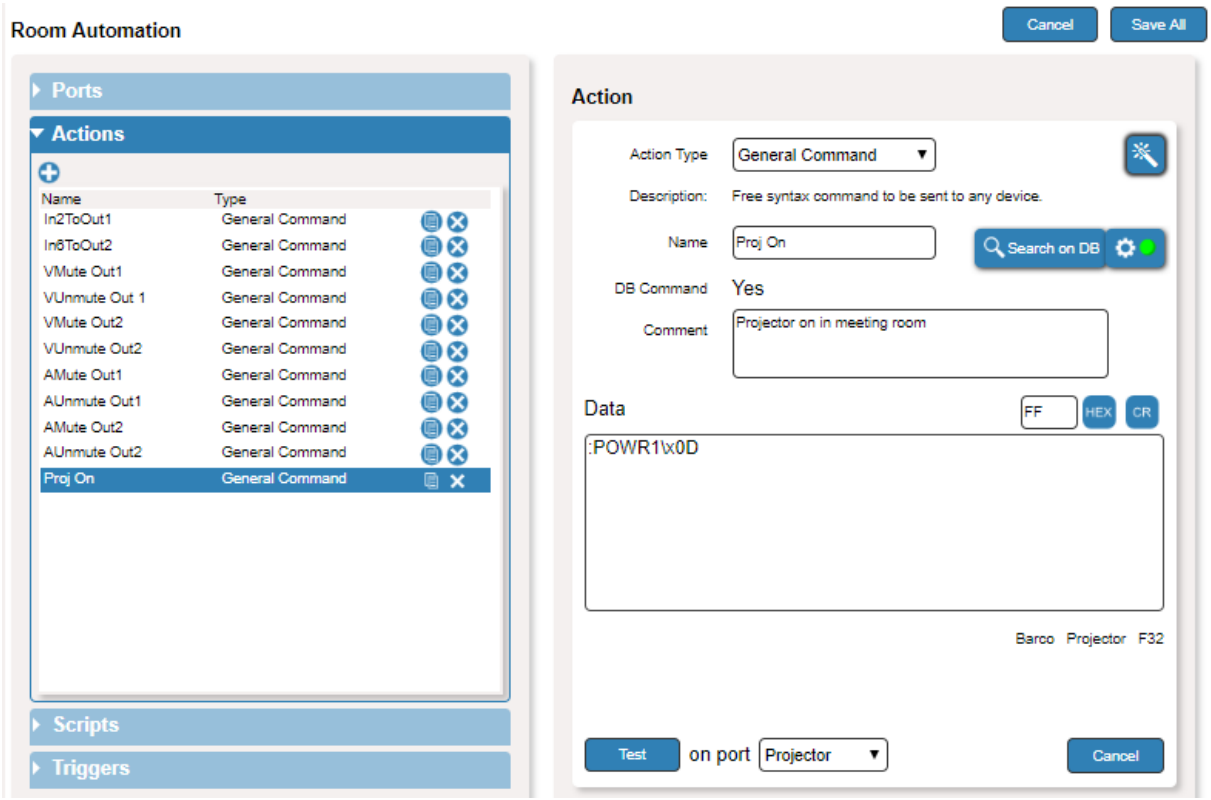


Figure 61: Actions – Projector On Action

11. Click **Test** to verify that the action is OK.

In the same way, add the Projector Off action.

To add the air system actions:

1. In the Automation page, open the action list.
2. Click to create a new action.
3. Select the **Action Type** (General Command).
4. Type the Name (AC On) or name it later.
5. Enter the data manually (since the AC device does not appear in the database).
6. If required, add a comment.
7. Click **Save All**.

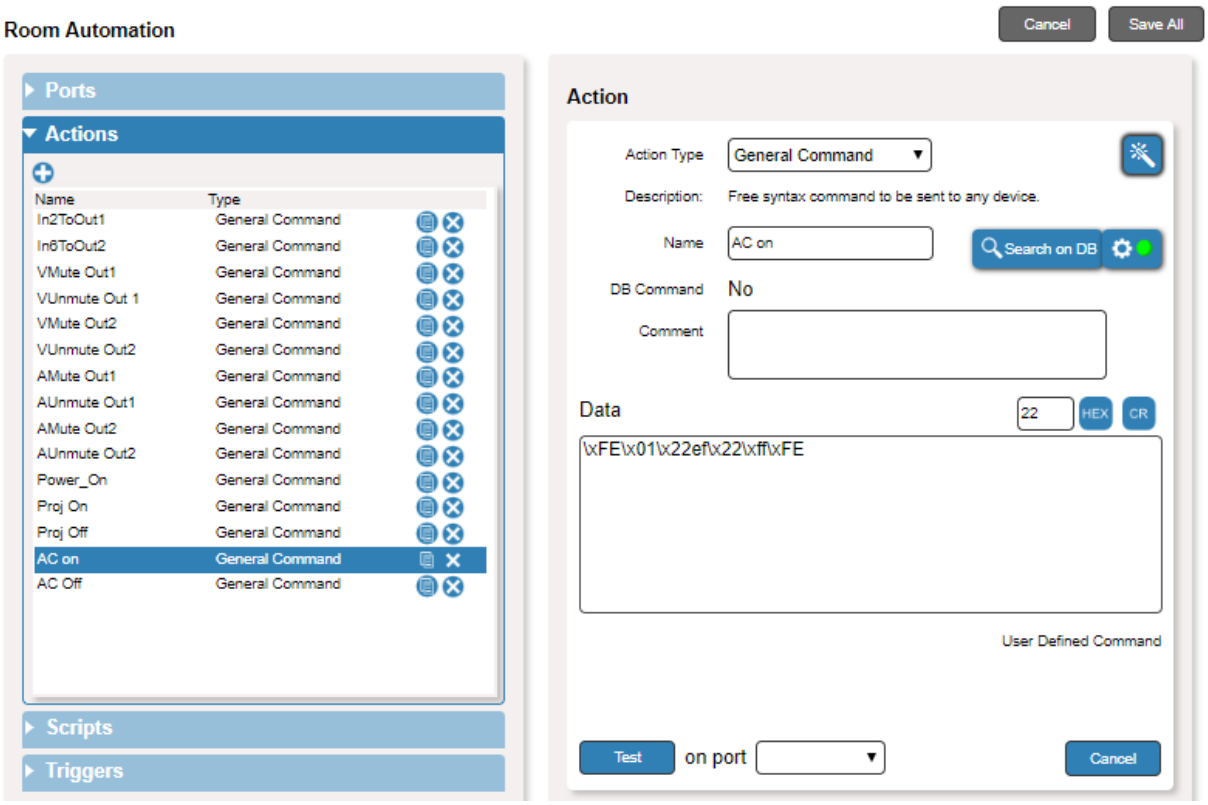


Figure 62: Actions – AC Actions

8. Click **Test** to test this action (select the Air System port).

In the same way, create the AC Off action.

To add the Relay actions:

1. In the Automation page, open the action list
2. Click ⊕ to create a new action.
3. Select the **Action Type** (Relay).
4. Type the Name (Screen down) or name it later.
5. Set the relay status.
6. If required, add a comment.
7. Click **Save All**.

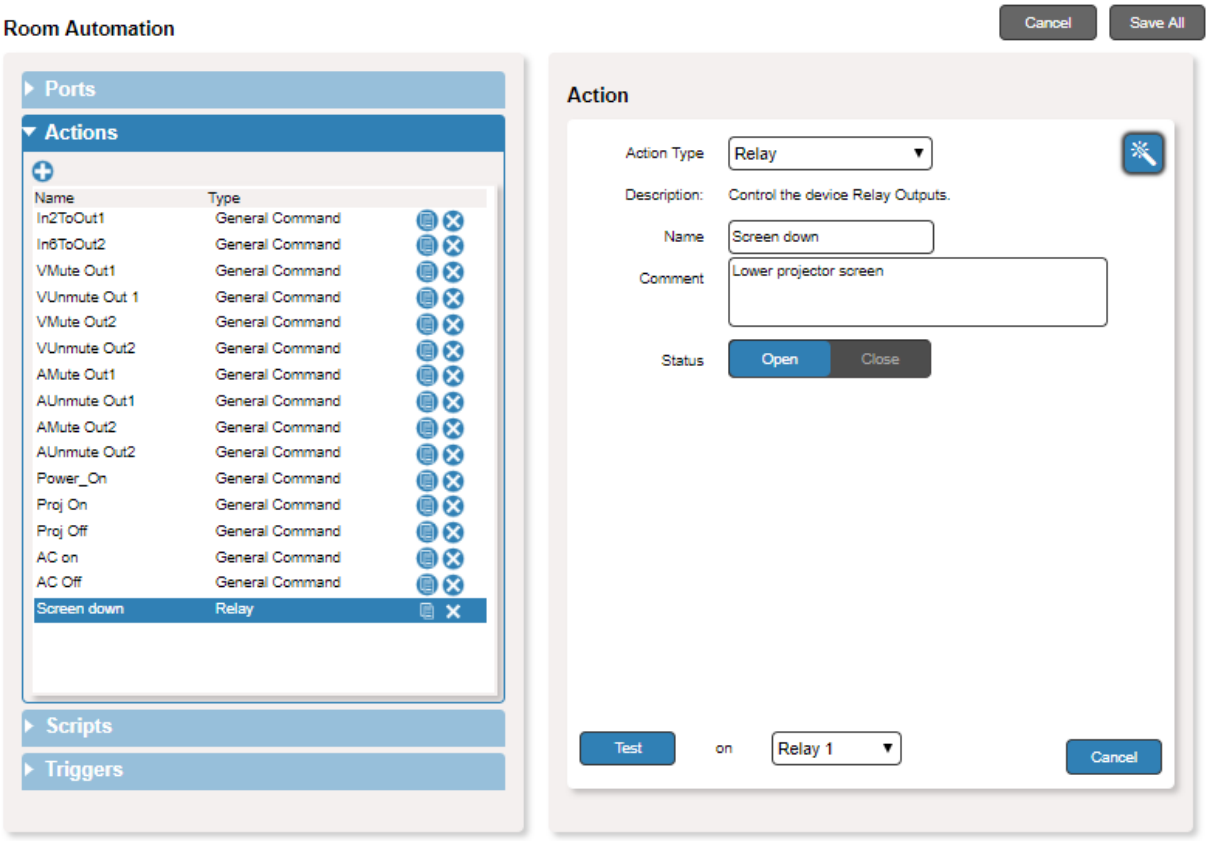


Figure 63: Actions – Relay Actions

8. Click **Test** to test this action.
9. Click **Save All**.

To add lighting actions:

1. In the Automation page, open the action list.
2. Click ⊕ to create a new action.
3. Select the **Action Type** (General Command).
4. Type the Name (main light on) or name it later.
5. Enter the data (available in the database).
6. If required, add a comment.
7. Click **Save All**.

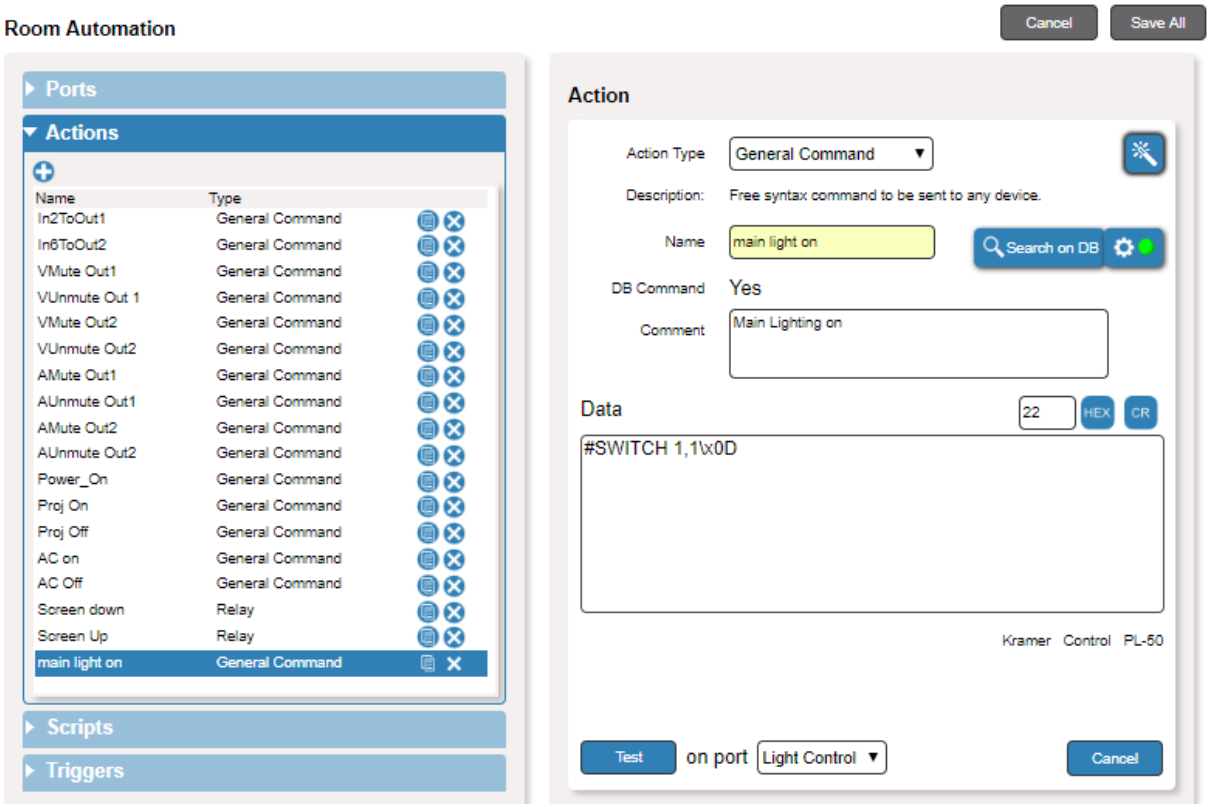


Figure 64: Actions – Lighting Actions

8. Click **Test** to test this action.
9. Click **Save All**.

In the same way create all other main and background light actions.

Creating Scripts

The following scripts need to be composed of the actions created previously:

- Morning procedure – air system on, background light on.
- Meetings – main lights on, screen raised, Projector off.
- Presentation – screen lowered Projector on, main lights off, delay, background light off.
- Presentation end – projector off, background lights on, main lights on.
- Evening procedure – air system off, main lights off, background lights off, projector off, motion detector enabled.
- Unscheduled meeting – air system on, background light off, main light on, projector off, Screen up.

To create the morning procedure:

1. In the Automation page, open the Scripts list.
2. Click ⊕ to create a new action.
3. Type the **Name** (Morning procedure).
4. Click ⊕ in the Script configuration area (on the right) to add an action to the list.
5. Open the **run** drop-down box to select the **AC on** action.

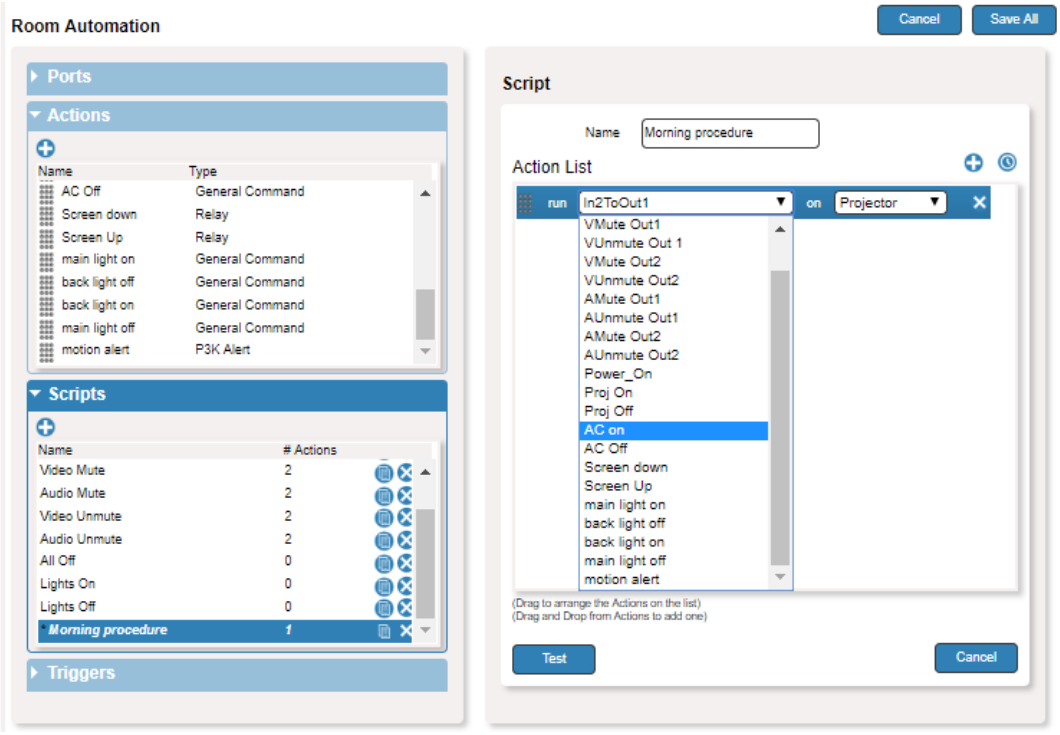


Figure 65: Scripts – Creating a Script

6. Open the **on** drop-down box to select the port on which the action will be executed.

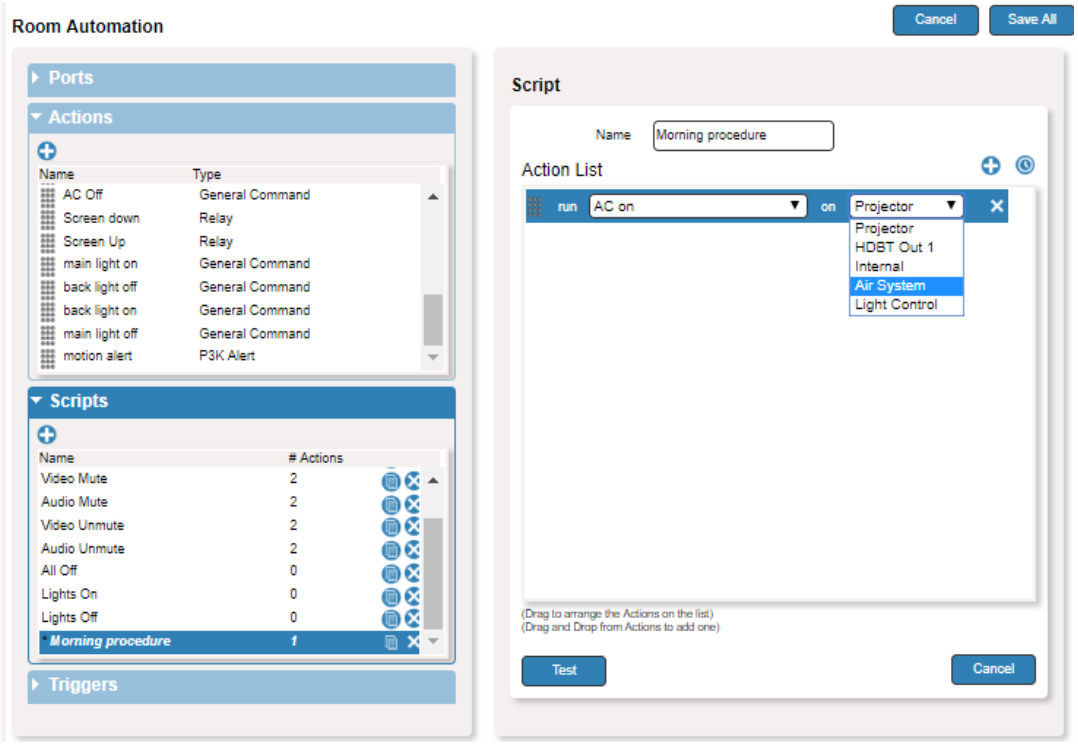


Figure 66: Scripts – Adding an AC Action to the Script

7. Click  to add a 30 second delay.

8. Add the background-lights-off action in the same way you added the AC action.

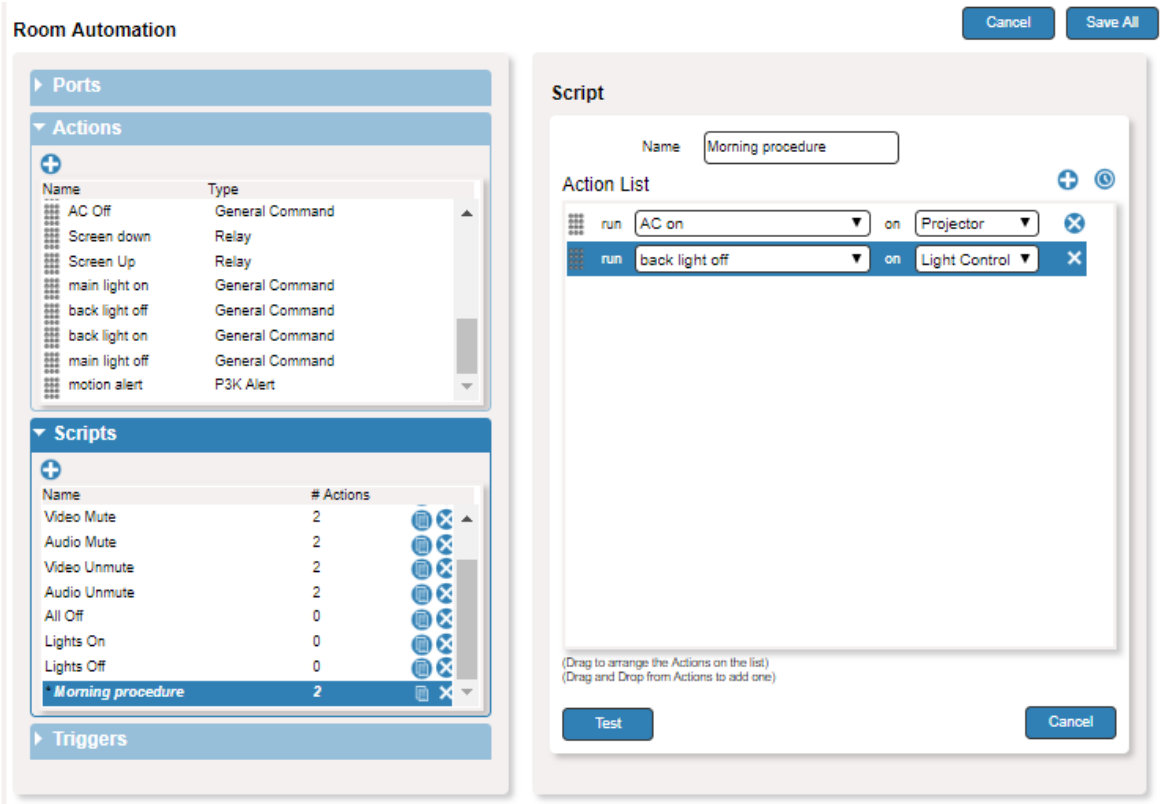


Figure 67: Scripts – Adding a Light Action to the Script

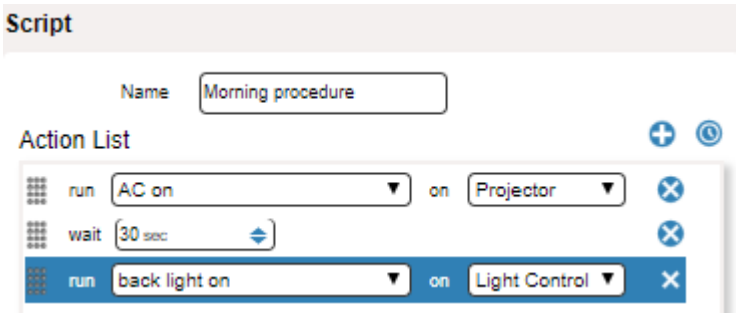
9. Click **Save All**.

In the same way create all the scripts. You can:

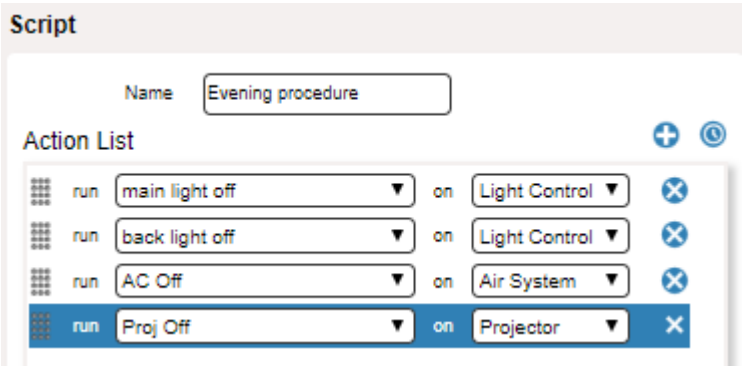
- Add actions to a script by clicking and dragging commands from the command list to the Editor. The commands run in the order they appear in the action list.
- Change the order by clicking the command and dragging it to a new position in the list.
- Enter a delay between commands by clicking the clock icon and adjusting the delay time.
- Change commands and ports by selecting a different item in the drop-down boxes of the command.

Once complete, the list contains the following scripts:

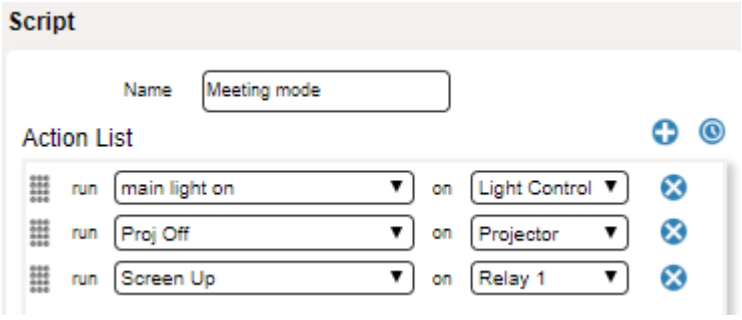
- Morning procedure:



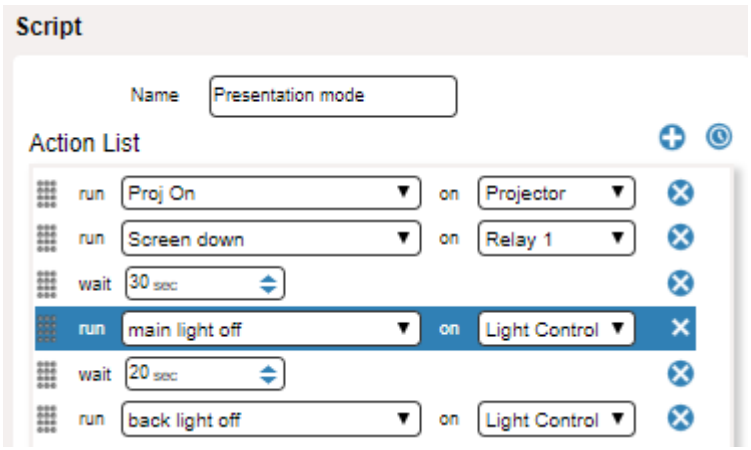
- Evening procedure:



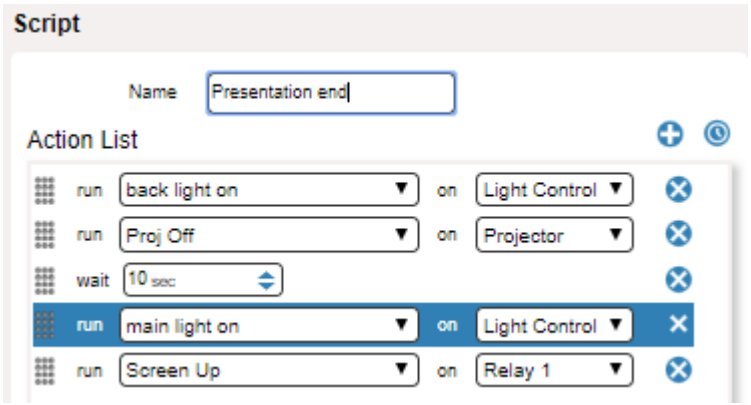
- Meeting mode:



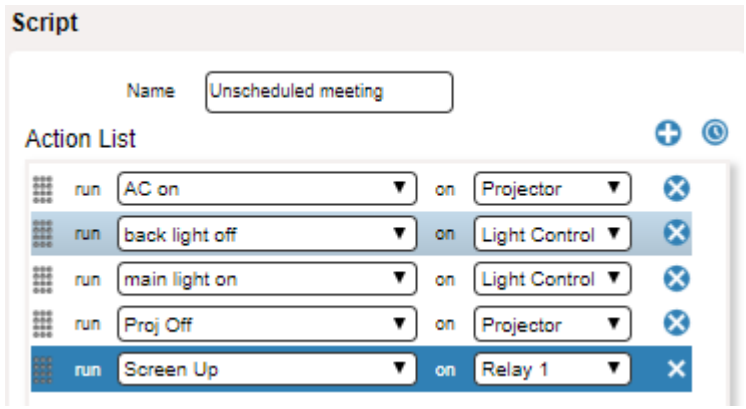
- Presentation mode:



- Presentation end:



- Unscheduled meeting:



Creating the Triggers

Once the scripts are ready, you can assign scripts to triggers.

To assign a schedule trigger:

1. In the Automation page, open the Triggers list.
2. Click to create a new trigger.
3. Select a **Trigger Type** from the drop-down list (Scheduling).
4. Type the **Name** (Morning Daily).
5. Enter a comment.
6. Set the time and days to schedule the trigger.
7. Select the **Script to run** from the drop-down list.
8. **Enable**/**Disable** the trigger.
9. Open the **on** drop-down box to select the port on which the action will be executed.
10. Click **Save All**.

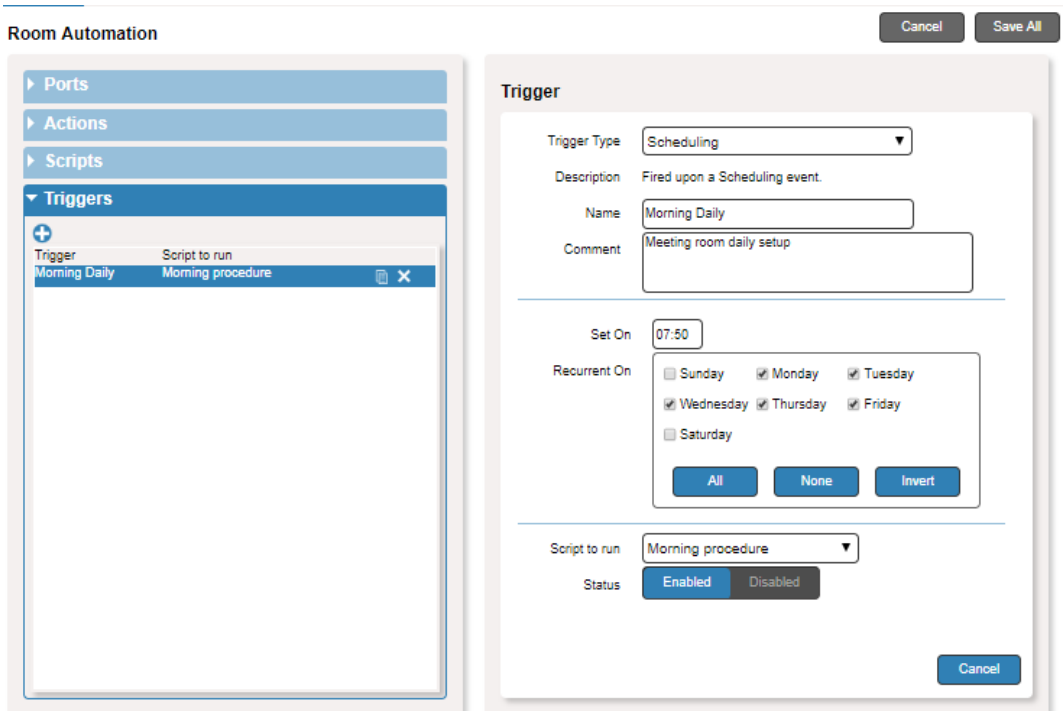


Figure 68: Triggers – Assigning a Script to the Scheduling Trigger

In the same way, set the Evening Daily Trigger.

To trigger the Meetings mode:

1. In the Automation page, open the Triggers list.
2. Click to create a new trigger.
3. Select a **Trigger Type** from the drop-down list (Button Press).
4. Type the **Name** (Meetings Mode).
5. Enter a comment.
6. Select the **Button ID** (REAR BUTTON 1).
7. **Enable/Disable** the trigger.
8. Click **Save All**.

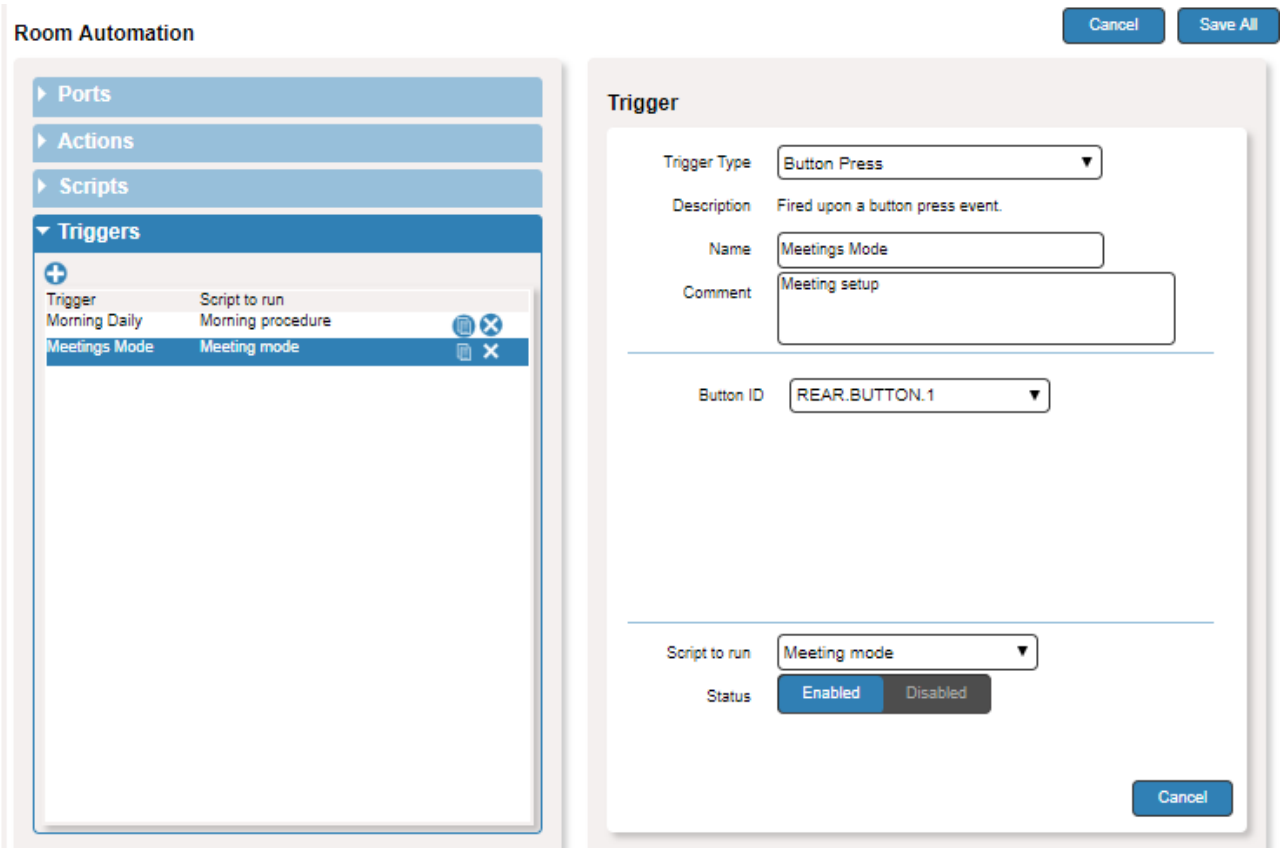


Figure 69: Triggers – Assigning a Script to the Button Press Trigger

To assign the Presentation mode:

1. In the Automation page, open the Triggers list.
2. Click to create a new trigger.
3. Select a **Trigger Type** from the drop-down list (First On).
4. Type the **Name** (Meetings Mode).
5. Enter a comment.
6. Select the **Script to run** (Presentation mode).
7. **Enable/Disable** the trigger.
8. Click **Save All**.

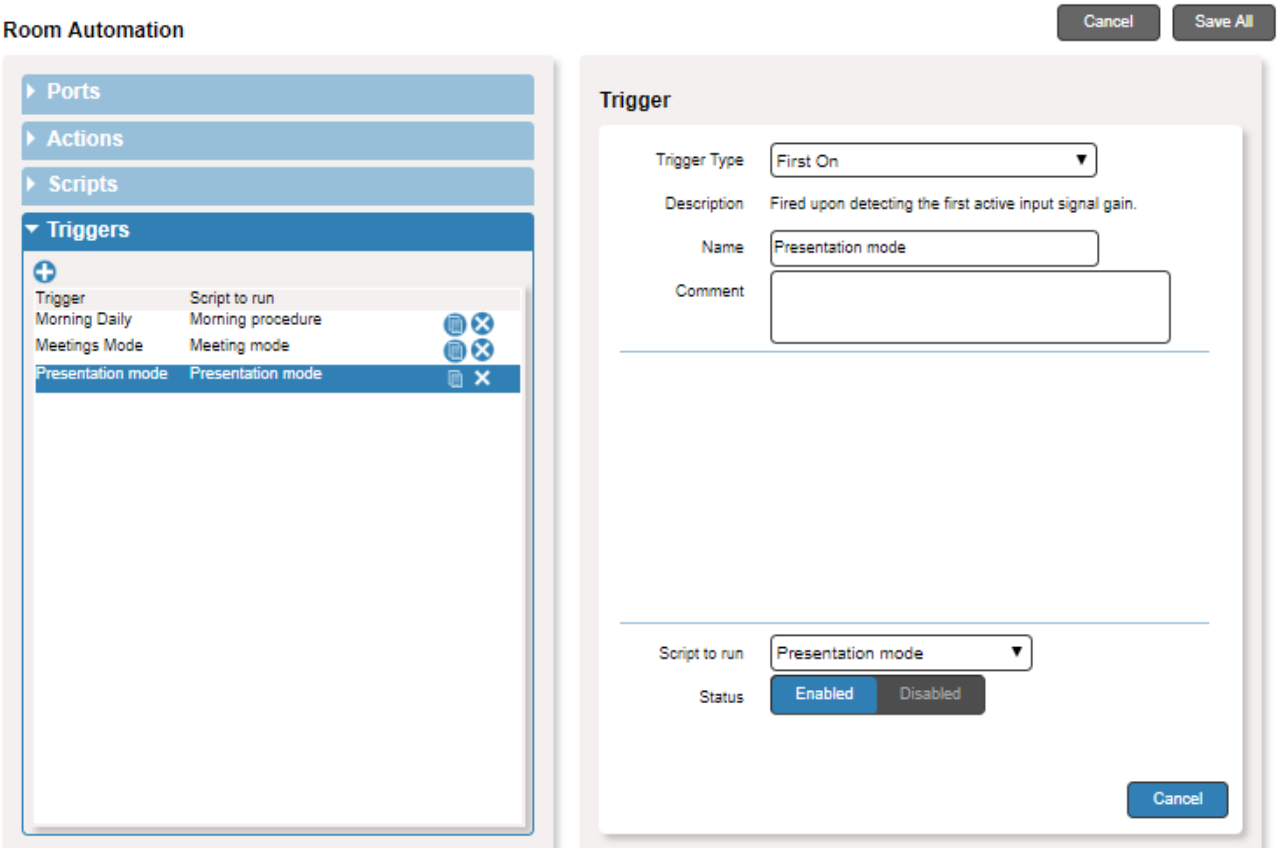


Figure 70: Triggers – Assigning a Script to the First On Trigger

To assign the Presentation end trigger:

1. In the Automation page, open the Triggers list.
2. Click ⊕ to create a new trigger.
3. Select a **Trigger Type** from the drop-down list (Last off).
4. Type the **Name** (Presentation end).
5. Enter a comment.
6. Select the **Script to run** (Presentation end).
7. **Enable/Disable** the trigger.
8. If required, click **Save All**.

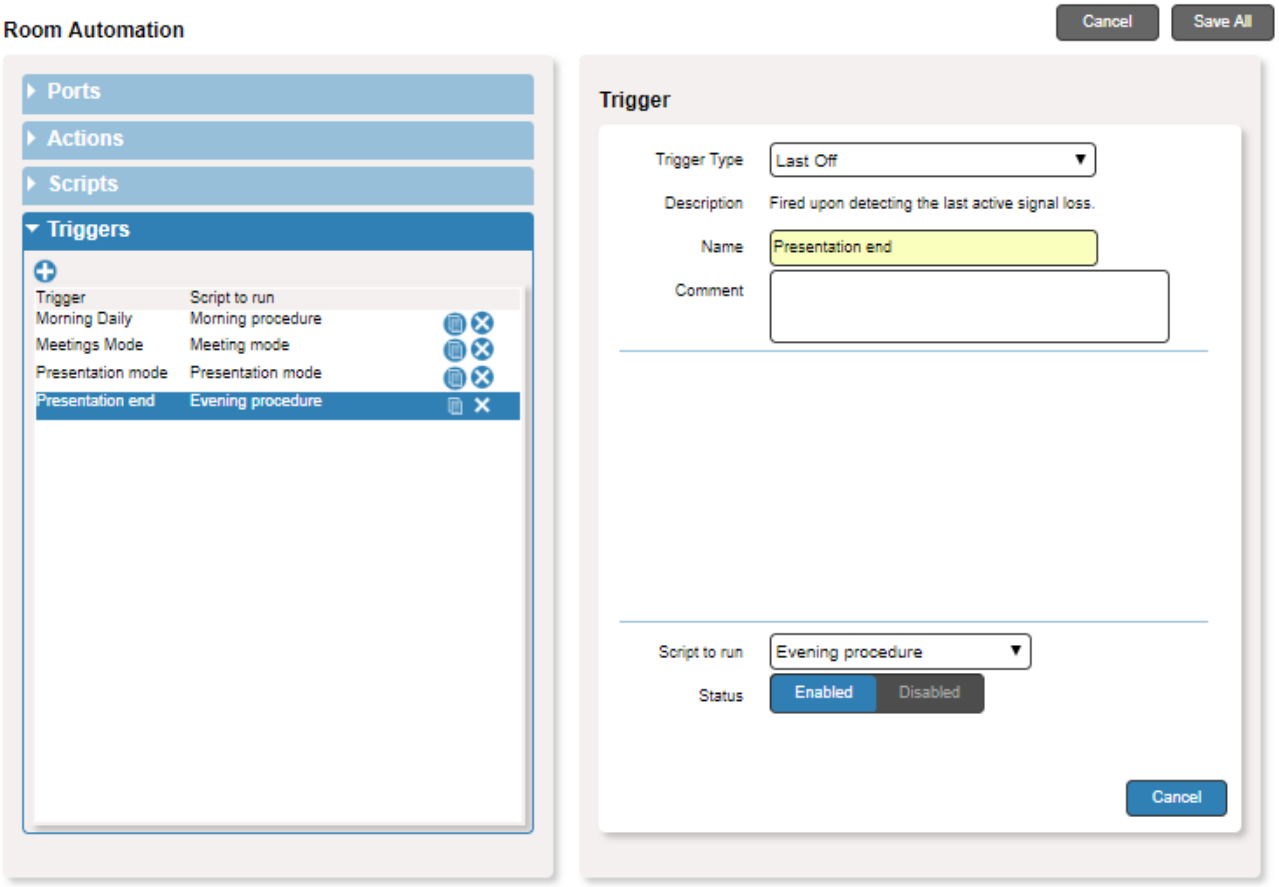


Figure 71: Assigning a Script to the Last Off Trigger

To use the room outside working hours, use the Digital GPIO trigger type.

To prepare the room for a meeting when motion is detected:

1. In the Automation page, open the Triggers list.
2. Click ⊕ to create a new trigger.
3. Select a **Trigger Type** from the drop-down list (Digital GPIO).
4. Type the **Name** (Unscheduled meeting).
5. Enter a comment.
6. Select the **Script to run** (Meeting mode).
7. **Enable**/**Disable** the trigger.
8. Click **Save All**.

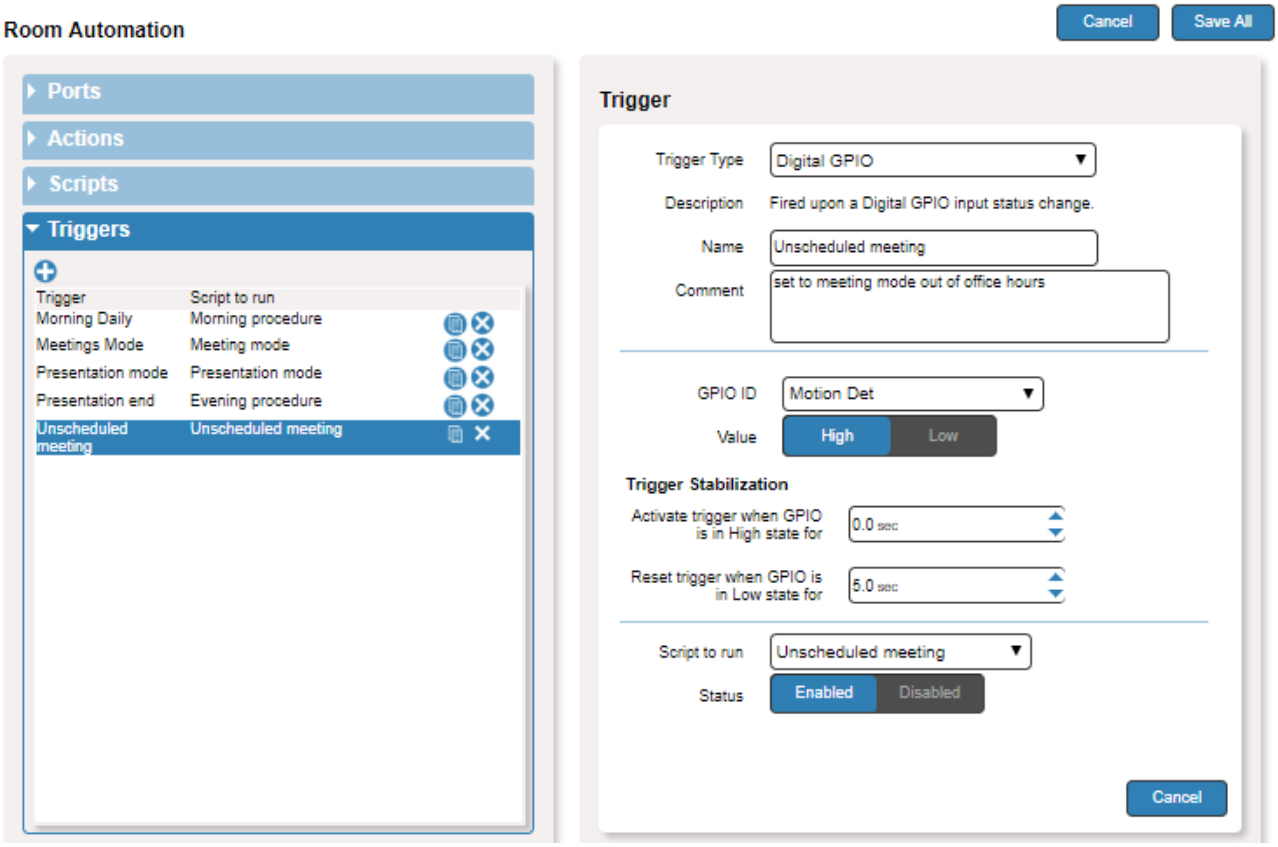


Figure 72: Triggers – Assigning a Script to the Digital GPIO Trigger

When the meeting ends and no motion is detected, the room enters the evening mode.

To enter evening mode once the unscheduled meeting ends:

1. In the Automation page, open the Triggers list.
2. Click ⊕ to create a new trigger.
3. Select a **Trigger Type** from the drop-down list (Last off).
4. Type the **Name** (Presentation end).
5. Enter a comment.
6. Select the **Script to run** (Presentation end).
7. **Enable**/**Disable** the trigger.
8. Click **Save All**.

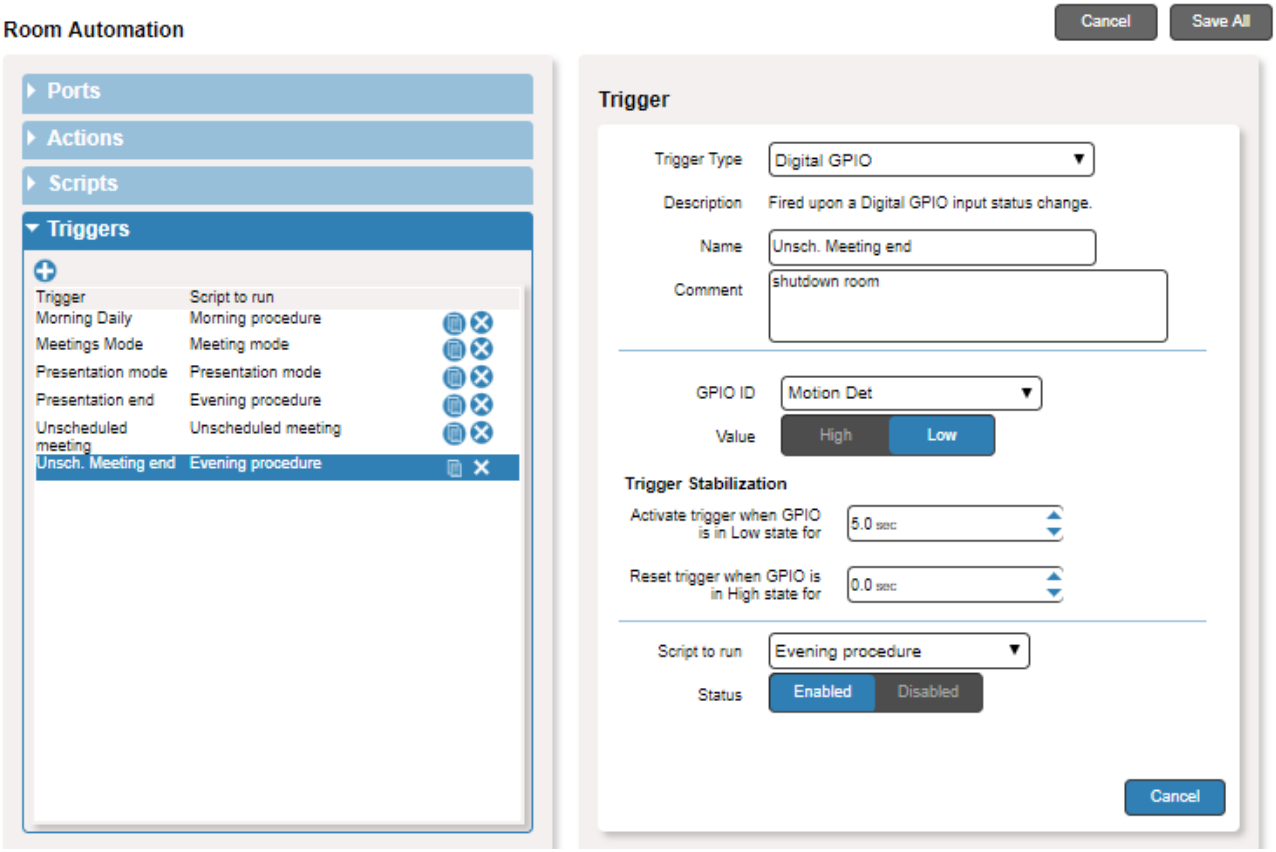


Figure 73: Triggers – Assigning a Different Script to the Digital GPIO Trigger

All the triggers are ready to use.

KRAMER

P/N: 2900- 301034 Rev: 1

SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

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