Introduction

This document describes the process for controlling and monitoring a RAPIX Lighting Control System from the EisBär software using the DGCM interface to a RAPIX Zone Controller.

This document is not intended as a general-purpose guide to using the RAPIX Integrator software or EisBär software. For general information about using the RAPIX or EisBär software, refer to the software documentation.

This document assumes a basic knowledge of both the RAPIX Lighting Control System and the EisBär software.

RAPIX

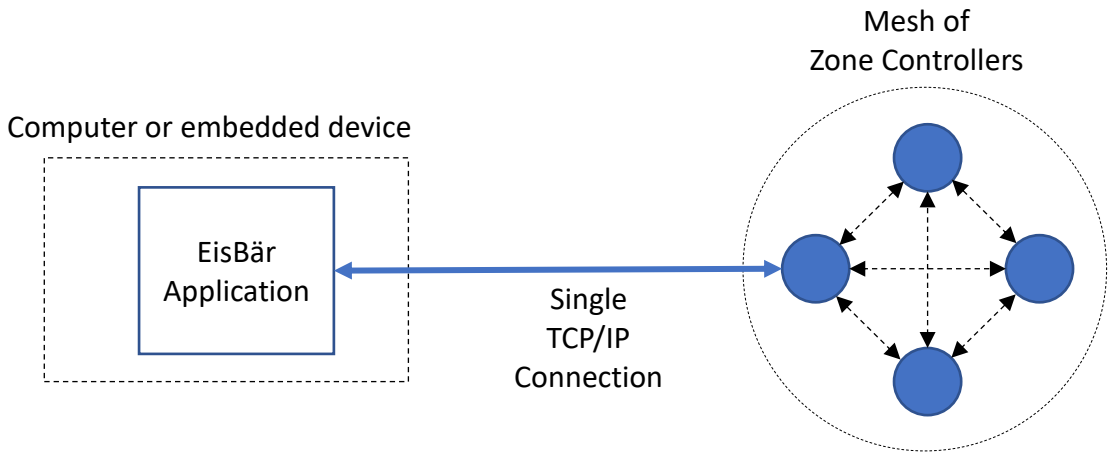
The RAPIX Lighting Control System is a suite of products from Ozuno which provide a DALI based building automation solution.

EisBär

The EisBär software from Alexander Maier GmbH is a general-purpose visualisation software which provides control of many automation systems, including RAPIX.

Zone Controllers

A single TCP/IP connection is required to interface the EisBär software and the RAPIX Lighting Control System as shown below. The connection can be made to any one of the Zone Controllers; they all contain the complete system status and exchange control and monitor messages as required.



Levels

In DALI, levels are expressed as a value 0 – 254. In the EisBär software, the default levels are 0 – 255. The Zone Controller automatically converts the DALI Levels to a range suitable for the EisBär software.

Definitions

Term	Meaning
Colour	The colour of the light in a Zone. The colour may be expressed as a colour temperature, or RGB, RGBW, RGBWAF or XY colour.
DALI	Digital Addressable Lighting Interface (DALI) DALI is an International Standard (IEC 62386) for the control of electronic ballasts, transformers, LEDs, emergency lights and exit signs.
Datapoint	An EisBär software entity that can be controlled or monitored.
DGCM	Distributed General Communication Message. A protocol for communicating with a RAPIX Zone Controller.
Diginet	A brand name for RAPIX used in Australia and New Zealand.
Fade Time	A Fade Time is the time taken to go from one level to a new level. It is independent of the level change. If the level change is large, then it will result in a faster ramp rate.
Level	The brightness setting of a Zone. The level is 0 – 255, but is also expressed as 0% - 100%
Load	A Load is an electrical device which can be controlled. For the RAPIX Lighting Control System, loads are generally lighting fixtures.
Off, On	A Zone is “off” if the level = 0. A Zone is “on” if the level > 0
Scene	A Scene is a combination of Loads and their corresponding Levels
Set	To “set” a Scene involves setting all of the Loads in the Scene to their pre-defined Levels. A scene is said to be “set” when the levels of the Loads matches the levels defined in the Scene.
Xiene, Xi Scene	An Xi Scene is more flexible than a DALI Scene in that it can span multiple DALI Lines, can have a mixture of fade times and the fade times can be longer.
Zone	A RAPIX Zone is a series of related Loads which can be controlled together. Examples include: • An office • One floor of a building • An entire building

RAPIX Integrator Usage

Good Practices

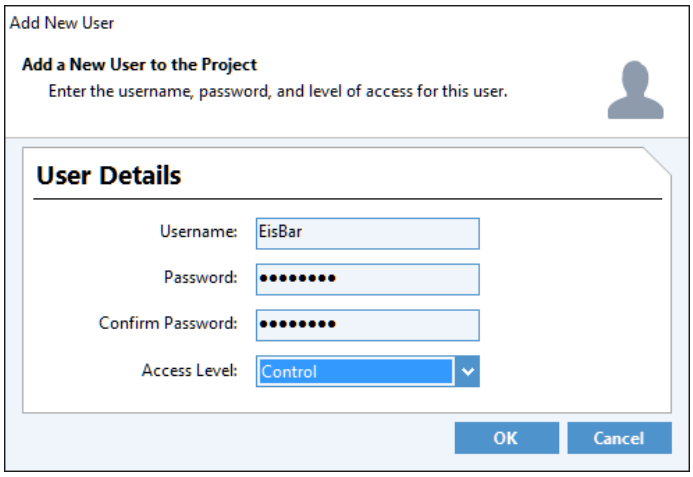
Structured naming of Zones and Scenes simplifies finding them when using the EisBär software. The EisBär software sorts names alphabetically, so it will help if they are named in a way such that they will be displayed in a structured layout. For example, the names of Zones may contain the name of the floor, then the area and sub-area, such as:

- Floor 1 All
- Floor 1 Corridor
- Floor 1 Lobby
- Floor 1 Meeting Room A Back
- Floor 1 Meeting Room A Centre
- Floor 1 Meeting Room A Front
- Floor 1 Meeting Room A Wall Lights
- Floor 1 Meeting Room B
- Floor 1 Office 1
- Floor 1 Office 2
- Floor 1 Office 3
- Floor 1 Office 4
- Floor 2 All
- Floor 2 Corridor
- Floor 2 …

Add user

To allow the EisBär software to connect to the Zone Controllers, a “user” needs to be added to the RAPIX Project:

1. Open the project in RAPIX Integrator.
2. Select the Site Setting tab.
3. Click on **Edit User List** button then the **Add** button.
4. Enter a user name and password.
5. Select the **Control** access level.
6. Click on **OK.**



To complete this operation, the project must be transferred to the Zone Controller.

Export

The method for getting the RAPIX Project information into the EisBär software depends on whether there are RAPIX Zone Controllers present.

If there are no Zone Controllers present, the RAPIX project information needs to be exported to a file so that the data can be imported by the EisBär software. To do this:

- Open the project in RAPIX Integrator.
- Open the **Options** form.
- Select the **Export** tab.
- Click the **Export Project Details** button.
- Select a file location and name.
- Click the **Save** button.

This file will be imported into the EisBär software if required.

EisBär Usage

Project

Create Project

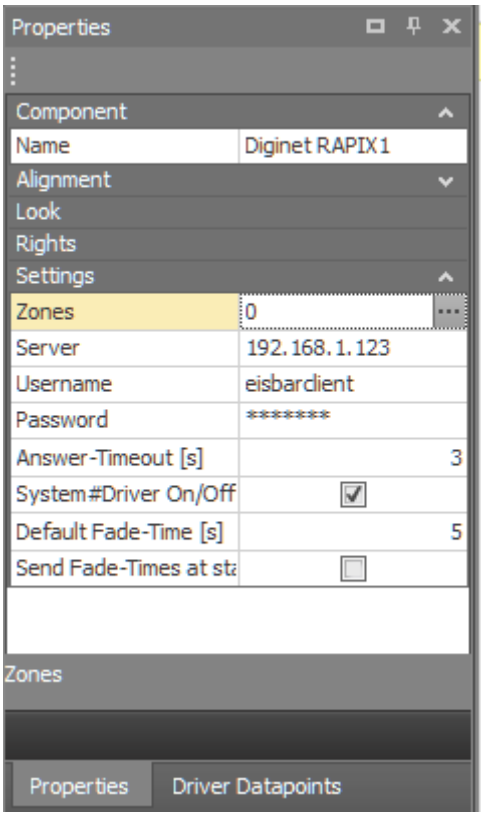
Run the EisBär SCADA Editor and create a new solution. Add a project and a page.

Add RAPIX Driver

Drag the Diginet RAPIX driver onto a page. This will not be visible to the end user so it doesn't matter much where it is placed.

Connection Details

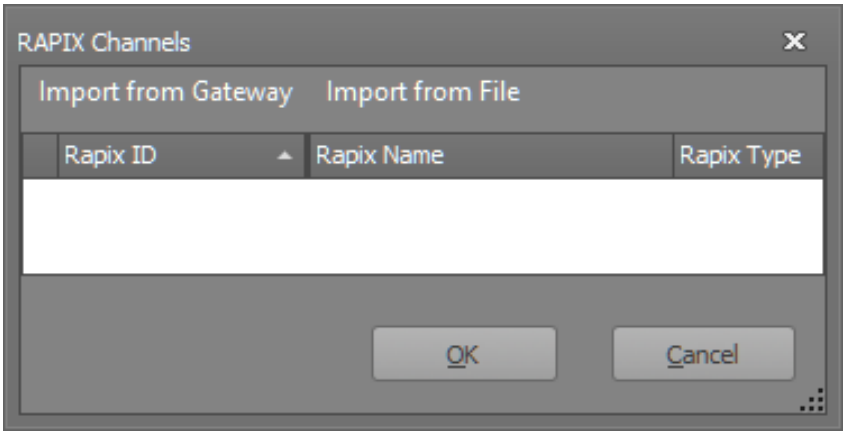
Select the RAPIX Driver and enter the IP Address of a Zone Controller and the user name and password as created above:



The IP Addresses of the Zone Controllers can be found in RAPIX Integrator. All Zone Controllers are equivalent, so it does not matter which Zone Controller IP Address is used.

Import Data

In the RAPIX driver properties (shown above), click on the ellipsis (the …) in the Zones section.



Import From Zone Controller

If there are Zone Controllers present, click the **Import From Gateway** button. The RAPIX Zones and Scenes will be listed. Click on **OK**.

Import From File

If there are no Zone Controllers present, click the **Import From File** button. Select the file exported in step 0 and click on the **Open** button.

The RAPIX Zones and Scenes will be listed. Click on **OK**.

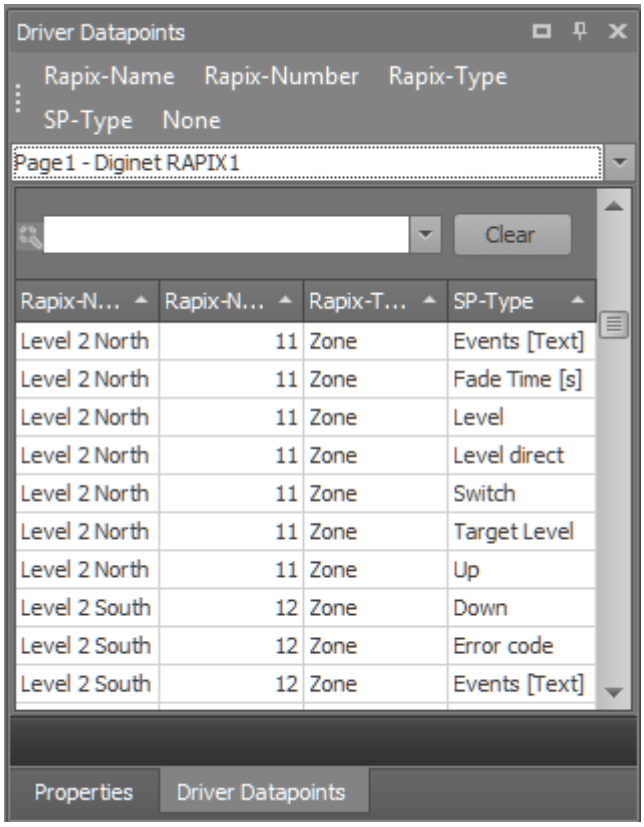
Update Project

If at any stage the RAPIX project is updated, the import steps shown above need to be repeated.

Note that the EisBär software stores references to Zones and Scenes using their “id”. The names are only displayed for user convenience. If a Zone or Scene is renamed in RAPIX Integrator, then it will still work correctly within the EisBär software.

Datapoints

To see the RAPIX datapoints, select the RAPIX driver icon. Select the Driver Datapoints tab:



Connecting

To connect the EisBär software to the RAPIX Lighting Control System:

1. Ensure that the computer running EisBär and the Zone Controller are on the same LAN and Ethernet subnet.
2. Click the EisBär software **Simulation** button.
3. On the Zone Controller LCD, you can check to see that a Client has connected by viewing the diagnostics menu. Refer to the Zone Controller manual for details of navigating the menu system.

Zones

Datapoints

The datapoints for each Zone are listed below.

Datapoint Type	Usage
Down	Nudge (adjusting) the level of a Zone downwards.
Events (Text)	This can be used to display DGCM messages related to the Zone for debugging. Not normally required.
Fade Time	Show or set the fade time of a Zone (in seconds)
Level	Show or set the level of a Zone using the current fade time
Level Direct	Show or set the level of a Zone immediately (no fade) *
Switch	Show or set the state (on/off) of a Zone
Target Level	Show or set the level of a Zone immediately (no fade) *
Up	Nudge (adjusting) the level of a Zone upwards.

Zone Level Datapoints

** The difference between the Target Level and the Level Direct datapoints is that the Target Level reports the requested level of a Zone, whereas the Level and Level Direct report the actual (average) level of the Zone. For example, if a Zone is set to a level of 80%, but some of the devices in the Zone have a maximum level of 50%, then the actual Zone level will be less than 80%. If there are relay devices in the Zone (which can only have levels of 0% or 100%) and the Zone is set to 80%, then the actual level will be more than 80%.*

Datapoint Type	Usage
Color – Color Temperature	Show or set the **Colour Temperature** of a Zone
Color – RGB(WAF) (A)	Show or set the **Amber** colour component of a Zone
Color – RGB(WAF) (B)	Show or set the **Blue** colour component of a Zone
Color – RGB(WAF) (F)	Show or set the **Free** colour component of a Zone
Color – RGB(WAF) (G)	Show or set the **Green** colour component of a Zone
Color – RGB(WAF) (R)	Show or set the **Red** colour component of a Zone
Color – RGB(WAF) (W)	Show or set the **White** colour component of a Zone
Color – RGBW	Show or set the **RGBW** colour of a Zone
Color – XY (X)	Show or set the **X** colour component of a Zone
Color – XY (Y)	Show or set the **Y** colour component of a Zone

Zone Colour Datapoints

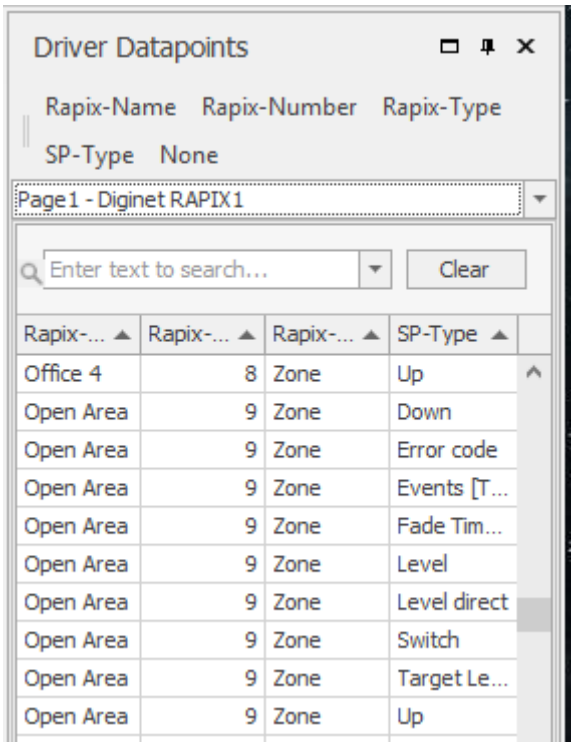
Datapoint Type	Usage
Error – DALI Line	Show if there is a DALI Line error within the Zone
Error – Device	Show if there is a device error within the Zone
Error – Device not responding	Show if there is a device not responding within the Zone
Error – emergency light	Show if there is an emergency device error within the Zone
Error – lamp	Show if there is a lamp failure within the Zone
Error – level unknown	Show if there is an unknown level within the Zone
Error – OK	Show if the Zone has no errors
Error – Zone Controller	Show if there is a Zone Controller error within the Zone
Error Code	Show the Zone error condition value (number).

Zone Error Datapoints

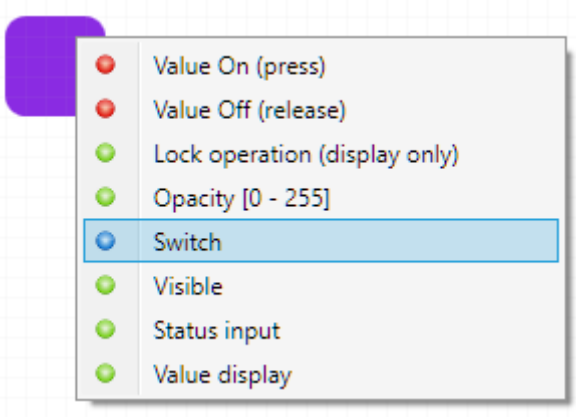
Control Zone State

To control the state (on/off) of a Zone:

1. Place a Button Switch on a page.
2. Navigate to the required Zone in the Driver Datapoints list.



3. Drag the “Switch” datapoint of the Zone onto the button.
4. Select the "Switch" property of the button.



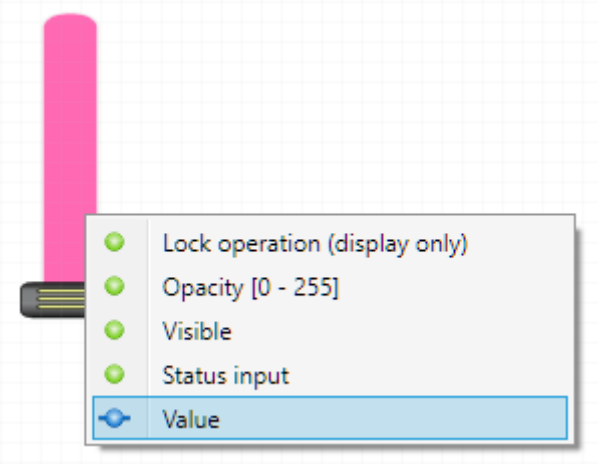
5. The link between the button and the Zone is now complete.
6. Click the **Simulation** button.
7. Click on the button to toggle the state between on and off.

Control Zone Level

Slider

To control the level of a Zone:

1. Place a "Controller" on a page.
2. Drag the "Target Level" or "Level Direct" datapoint of the Zone onto the Controller.
3. Select the "Value" property.



4. The link between the slider and the Zone is now complete.
5. Click the **Simulation** button.
6. Drag the Controller slider to adjust the Zone level.

The "Target Level" and "Level Direct" datapoints control the Zone level in the same way. There are differences in how they show the Zone level.

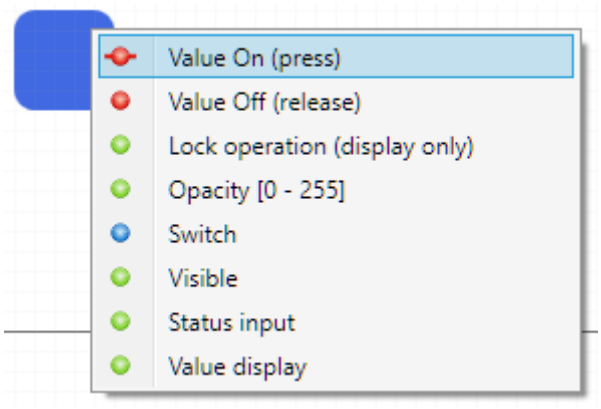
Data Point	What it shows	When to use it
Level Direct	The real-time average Zone level. If the Zone is fading, it will keep changing while the Zone is fading.	If you want to show the Zone level as it is fading.
Target Level	The requested Zone level. If the Zone is fading, it will be the level that the Zone is fading towards.	If you don't want the slider to jump to a different value after you click on it. This can happen if the Zone has relays or devices with min/max values set.

Deciding which datapoint to use

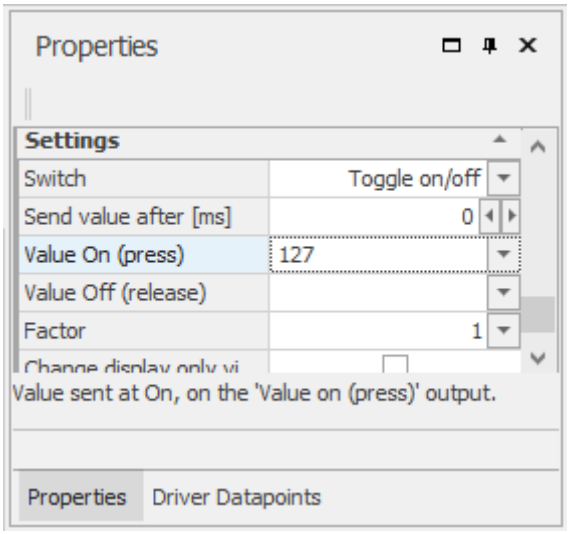
Preset

To set a Zone to a particular level with a button:

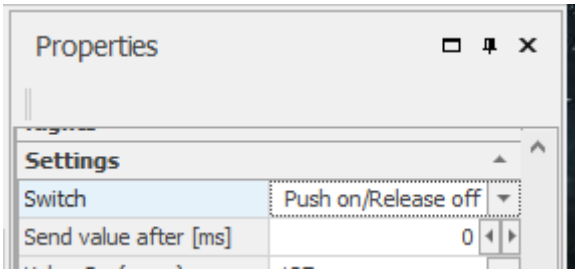
1. Place a Button Switch on a page.
2. Drag the “Level Direct” datapoint of the Zone onto the button..
3. Select the “Value On (press)” property



4. Enter the required level in the “Value On (press)” property of the button. The value type should be "DPT 5.* 8-Bit Unsigned Value (EIS 06)".



5. Set the button settings to “Push on/Release Off”.

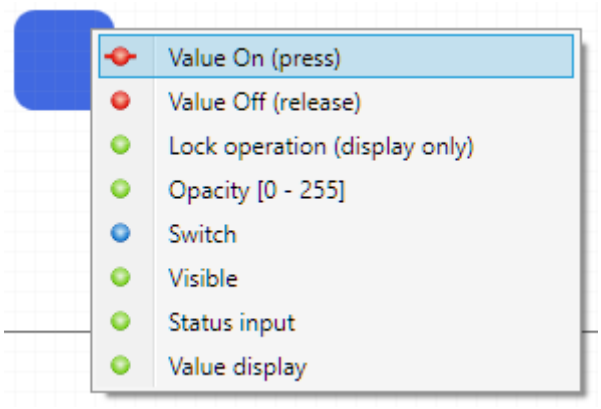


6. Click the **Simulation** button.
7. Click on the button to set the Zone to the level.

Nudge

To nudge a Zone up or down by a particular level with a button:

1. Place a Button Switch on a page.
2. Drag the “Nudge Up” or “Nudge Down” datapoint of the Zone onto the button.
3. Select the “Value On (press)” property.



4. Enter the nudge amount as the “Value On (press)”.
5. Set the button settings to “Push on/Release Off”.
6. Click the **Simulation** button.
7. Click on the button to nudge the Zone.

Monitor State/Level

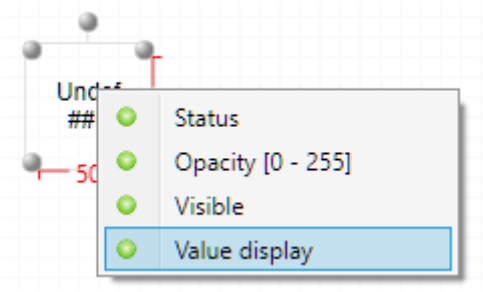
Button State

A button controlling a Zone will show the state (on, off or undefined) automatically using the colours defined for the button.

Numeric Level

To show the numeric level of a Zone:

1. Place a Value Driven Text on the page.
2. Drag the “Target Level” datapoint from the zone of interest onto the "Value Display" property of the numeric level.



3. Change the text properties to something meaningful (only need to edit "undefined text"):

On text	On ##0
Off text	Off ##0
Undefined text	Level ##0

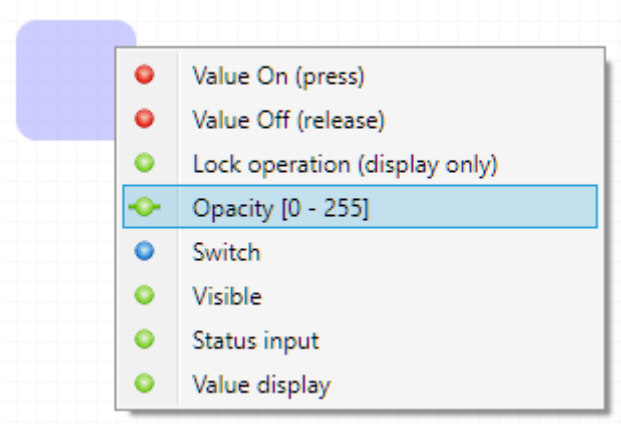
4. To show the level as a percentage, a scaling factor of 1/255 (0.003922) is required:

On text	On ##0
Off text	Off ##0
Undefined text	##0%
Rights	
Settings	
Factor	0.003922

Showing Level with Colour Variation

To show the level of a Zone by the intensity of a colour:

1. Place a Button Switch on a page.
2. Drag the “Target Level” datapoint of the Zone onto the button.
3. Select the Opacity property.



The button will vary between invisible when the Zone is off, through various levels of transparency to a solid colour when the Zone is at 100%.

Controlling Zone Colours

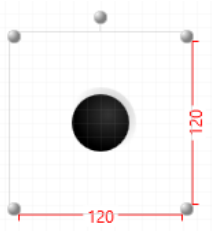
RAPIX allows the Zone colour to be controlled in one of three ways, depending on the hardware installed in the Zone:

- Colour Temperature
- RGB, RGBW or RGBWAF
- XY

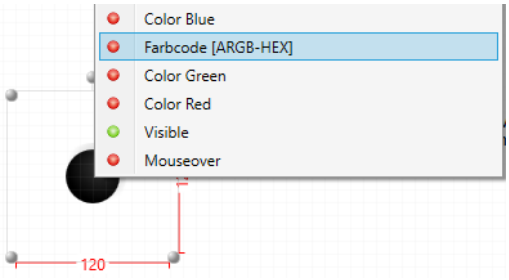
Colour Picker

To use the Colour Picker:

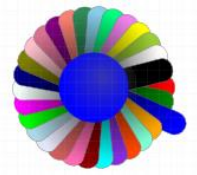
1. Drag a colour picker onto the page:



2. Drag the Zone "Color – RGBW (Farbpacket – Bytes)" datapoint onto the colour picker Farbcode:



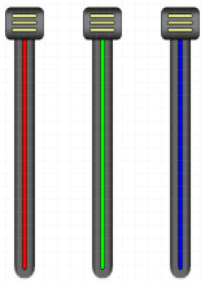
3. When running, click on the colour picker to expand it and allow the selection of a colour:



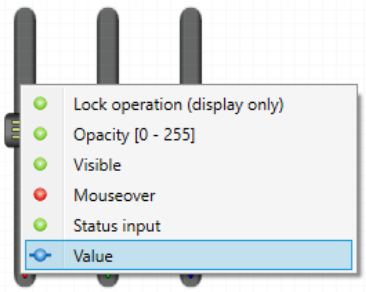
RGB Colour Components

To allow RGB colour to be set using the Red, Green and Blue components:

1. Drag three "controllers" onto the page and set their "background indicator" colour to red, green and blue respectively:



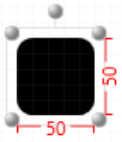
2. Drag the Zone "Color – RGB(WAF) (R)", "Color – RGB(WAF) (G)" and "Color – RGB(WAF) (B)" datapoints onto the slider values:



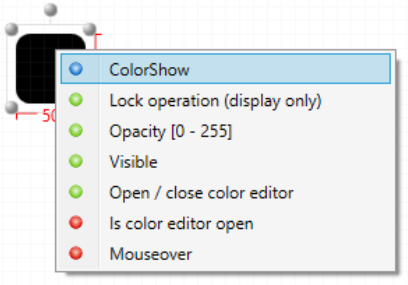
Showing Colour

To show a Zone RGBW colour:

1. Drag a Colour Show Editor component onto the page:



2. Drag the Zone "Color – RGBW (Farbpacket – Bytes)" datapoint onto the colour show editor Color Show:



Error Status

Each Zone has an error status which is a bit-field reporting zero, one or more error conditions as shown in the table below:

Bit	Hex Value	Decimal Value	Meaning
0	0x01	1	Zone level is unknown
1	0x02	2	Lamp Failure
2	0x04	4	Device Failure
3	0x08	8	Device Missing
4	0x10	16	DALI Line Failure
5	0x20	32	Zone Controller Communication Failure
6	0x40	64	Emergency Device has a failure
7…31			Unused

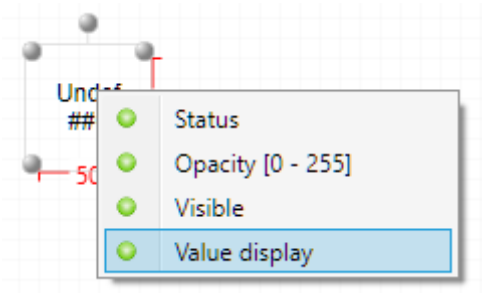
Examples of Zone error code values:

Value	Meaning
0	Zone is OK
17	Zone Level is Unknown (1) + DALI Line Failure (16) = 17
2	Lamp Failure (2), but zone level is known
33	Zone Level is Unknown (1) + Zone Controller Communication Failure (32) = 17

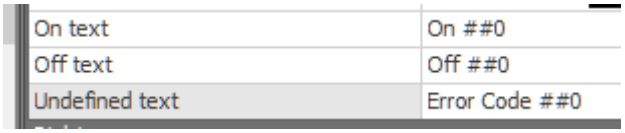
Display Error Code

To display the error code for a Zone:

1. Place a Value Driven Text on the page.
2. Drag the “Error Code” datapoint from the zone of interest onto the Value Display.

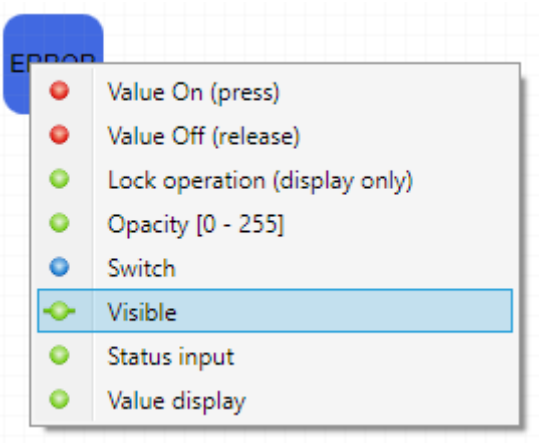


3. Change the text properties to something meaningful (only need to edit "undefined text"):



Show Error Presence

To make a button visible if there is an error (i.e. the error code is not zero), drag the Error Code datapoint onto the button Visible property:



Show Specific Error

To make a button visible if there is a specific error type, use the relevant error type datapoint instead of the "Error Code" datapoint. For example, if you want to show that there are emergency devices in the Zone with an error, drag the "Error – emergency light" datapoint onto the button Visible Property.

Xi Scenes

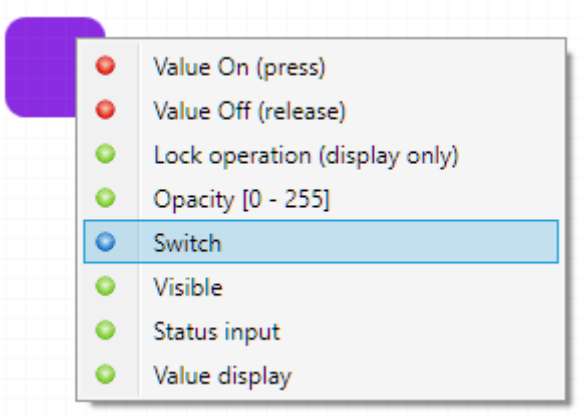
Datapoints

Datapoint Type	Usage
Adjust	Nudging a Scene level up or down.
Message	This can be used to display DGCM messages related to the Xi Scene for debugging. Not normally required.
Off	Switching all loads in a Scene to off.
Offset	This can be used to offset a Scene by a specific amount. Not normally required.
Set	Setting a Scene

Setting

To set a Scene:

1. Place a Button Switch on a page.
2. Drag the “Set” datapoint of the Scene onto the button.
3. Select the "Switch" property.



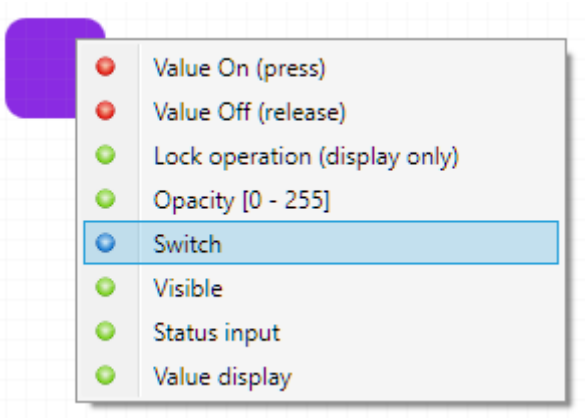
4. Click the **Simulation** button.
5. Click on the button to set the Scene.

Switching Off

To switch off all loads in a Scene, it is common to have another Scene with all loads set to level 0. This “off” Scene can then be set using the same method as any other Scene.

An alternative method to switch off all loads in a Scene:

1. Place a Button Switch on a page.
2. Drag the “Off” datapoint of the Scene onto the button.
3. Select the "Switch" property.



4. Click the **Simulation** button.
5. Set the Scene.
6. Click on the button to switch off all loads in the Scene.

Note that this button will show its “on” state when the Scene is “off”.

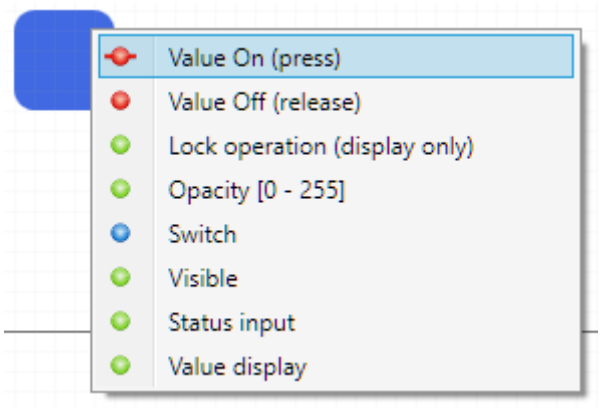
Monitor

A button set-up to set a Scene will also show the state using the button colour and text.

Adjusting

To nudge a Scene up or down by a particular level with a button:

1. Place a Button Switch on a page.
2. Drag the “Adjust” datapoint of the Scene onto the button.
3. Select the “Value On (press)” property.



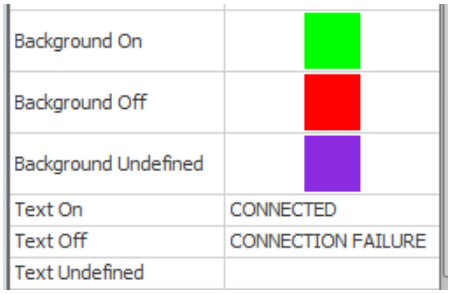
4. Enter the nudge amount as the “Value On (press)”. A positive value will nudge upwards (brighter). A negative value will nudge downwards (dimmer).
5. Set the button settings to “Push on/Release Off”.
6. Click the **Simulation** button.
7. Set the Scene.
8. Click on the button to nudge the Scene (note that the Scene cannot be nudged unless it has been set first).

Other Datapoints

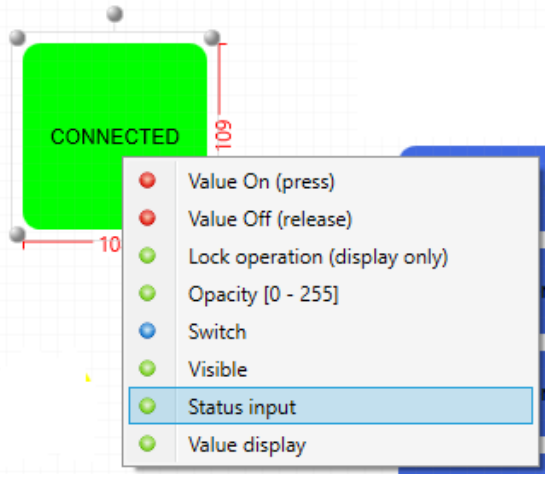
Datapoint Type	Usage
Connection Status	Show whether the EisBär software is connected to the RAPIX Lighting Control System
Debug Messages	This can be used for showing RAPIX driver messages for debugging. Not normally required.
Driver on/off	This can be used to switch the RAPIX driver on or off. Not normally required.
Get Status All Zones	This can be used to initiate a request to update the status of all Zones. Not normally required.
Send Answer	This can be used for showing RAPIX driver DGCM messages for debugging. Not normally required.
Update Message	This can be used for showing received DGCM status messages for debugging. Not normally required.

To display the Connection Status:

1. Place a Button Switch on a page
2. Set the on and off colours to green and red respectively and add some descriptive text:



3. Drag the “Connection Status” datapoint onto the button “status input”:

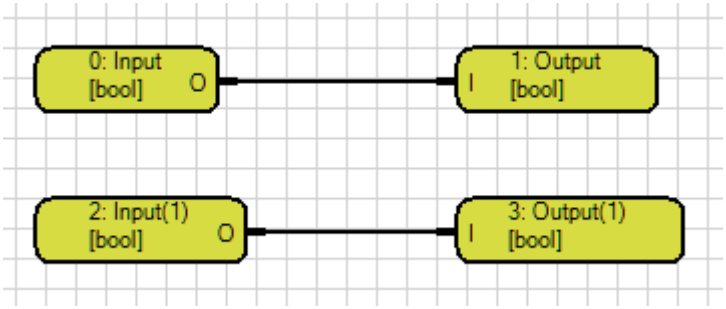


If you want this warning indicator to appear on every page of the project, just add it to a “master page” and use the master page for all pages in the project.

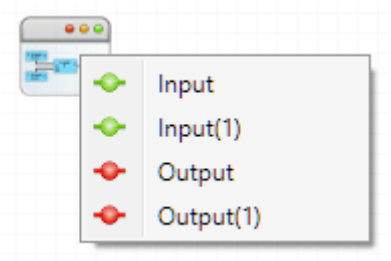
Interfacing to Other Systems

To allow a RAPIX Zone to control something in a different automation system (or vice versa):

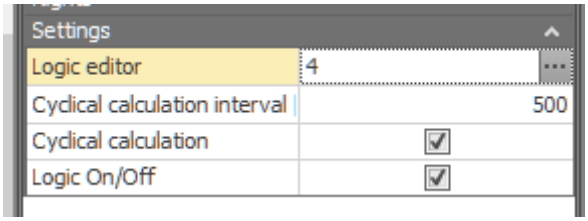
1. Create a new solution as described above (Project section).
2. Add a driver for the other system and import the datapoints.
3. Add a Graphical Logic component to the page.
4. In the Graphical Logic, add inputs and outputs connected together:



5. Drag the datapoints from the RAPIX driver and the other system driver onto the Graphical Logic properties to link them up:



6. Make sure the logic is running in the Graphical Logic properties:



7. Check that both systems are connected and the drivers are running.
8. Click the **Simulation** button.
9. Control the Zone in the RAPIX Lighting Control System and it should be mapped to the other system and vice versa.

Change History

Rev	Date	Updated By	Comment
A	18 Mar 2016	D. S.	Draft Release
1	28 Jun 2016	D.S.	First Release
2	11 Nov 2019	D.S.	Updated to Ozuno format
3	3 June 2021	D.S.	Added new datapoints. Added more details for using sliders. Updated information about displaying Zone error state. Added section about using Zone Colours.

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APN-RAPIX-005-03 June 2021