

Wireless RAK system set-up guide

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1 What you need to get started

This guide is for programming a system using the Rasoft Pro software (available for download at <http://www.rakocontrols.com/rasoftpro/>).



Classic Rasoft



Rasoft Pro

To use original Rasoft please refer to the Rasoft programming guide (available for download at http://www.rakocontrols.com/files/4313/3769/0573/Wireless_module_system_setup_guide.pdf). It is strongly advised to download and use the new software as some new features are not supported by Rasoft classic.

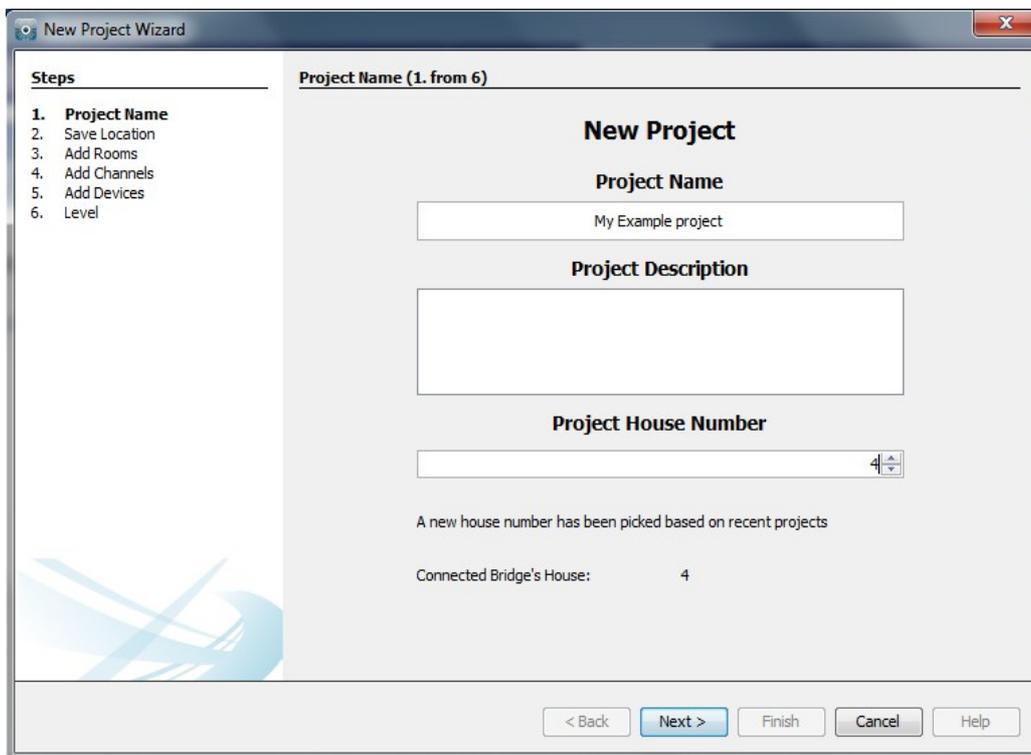
Programming the system will require a communication device to be connected: either a RAUSB/RAMPI or Bridge Module to a laptop or mac. It may also be useful to have a full list of the rooms and circuits that will be included in the project so these can be entered when using the new project wizard.

2 Create a new Rasoft Pro Project File

Open the Rasoft Pro programming software and click “File” - “New Project” to bring up the new project wizard. Each step of the process of creating the file is prompted in the software but further detail is provided here.

2.1 Project name and House numbers

Choose a suitable project name, typically the name of the property, a description for the project can also be added.



The screenshot shows the 'New Project Wizard' dialog box. On the left, a 'Steps' list shows: 1. Project Name, 2. Save Location, 3. Add Rooms, 4. Add Channels, 5. Add Devices, 6. Level. The main area is titled 'Project Name (1. from 6)' and contains the following fields:

- New Project** section with a 'Project Name' field containing 'My Example project'.
- Project Description** section with a large empty text area.
- Project House Number** section with a spin box containing the number '4'.

Below the spin box, there is a message: 'A new house number has been picked based on recent projects' and a label 'Connected Bridge's House:' followed by the number '4'. At the bottom, there are buttons for '< Back', 'Next >', 'Finish', 'Cancel', and 'Help'.

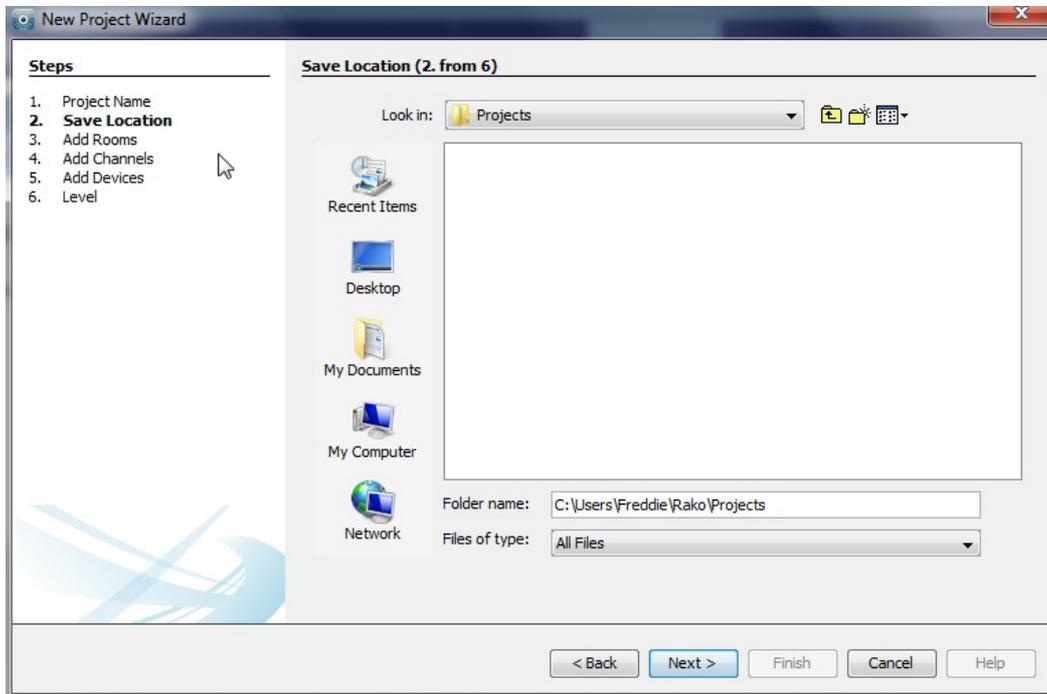
Every Rako system must be assigned a House number. Rasoft Pro will suggest a House number based on previous projects by default, a custom House number can be selected if preferable.

NB

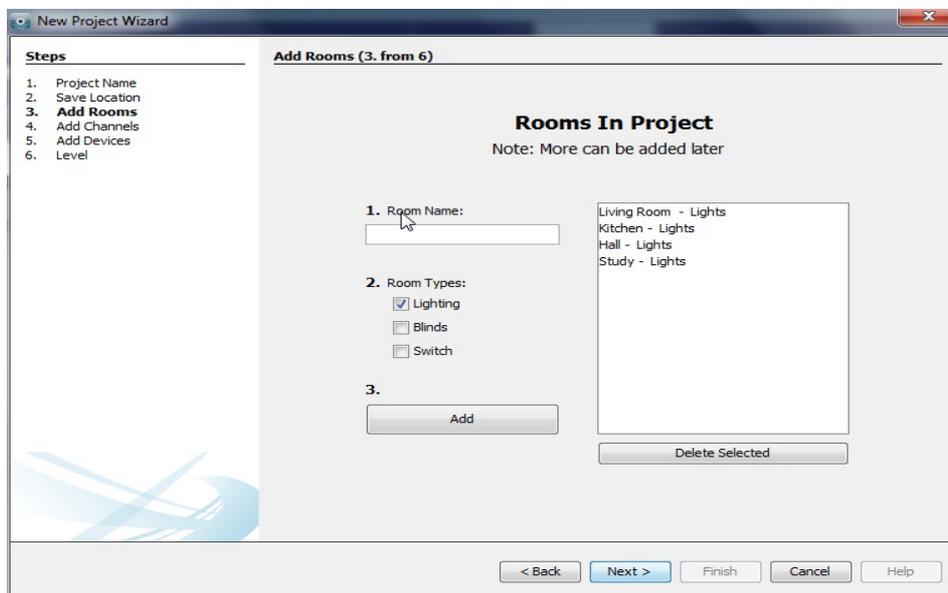
Rako products have a factory default House number of 1 so it is strongly recommend that this is not used. This will avoid interference with other systems also left on the default house address.

2.2 Save Locations

Select the Save Location for the project file. It is best to use the default save location ([C:/Users/\[user\]/Rako](#)). Files saved at this address will appear in recent projects on the Rasoft Pro home screen when it is reopened.



2.3 Adding rooms



To add rooms to the project, type in the room name, select the room type (lights, blinds or switched) and click add.

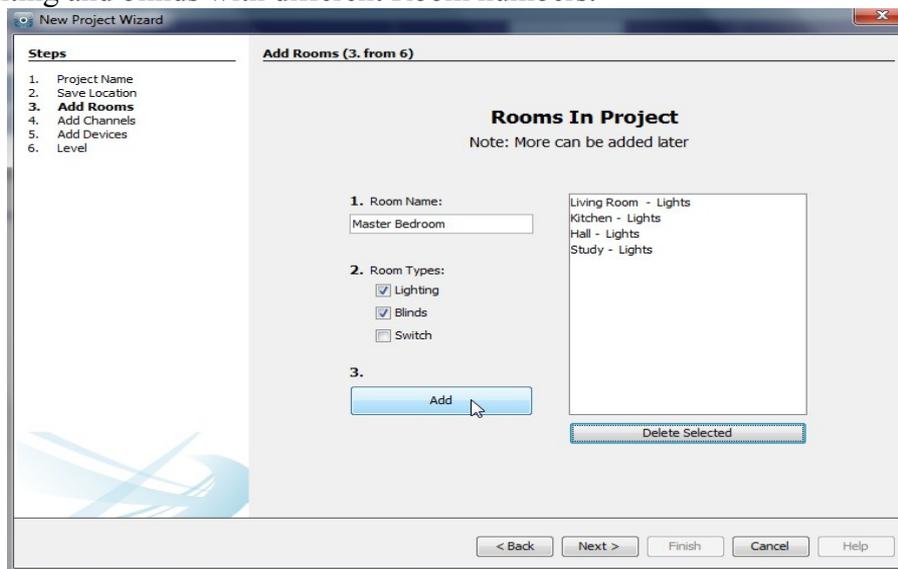
Setting the correct room type is important at this stage as it will determine how certain pages of the software and App are displayed. The switched option should only be used when rooms contain switched circuits only. For a room where a combination of dimmed and switched circuits are present select lighting.

NB

Rako rooms do not necessarily directly relate to physical rooms. For example a physical room with lighting and blind control is usually set as two Rako rooms. This is because the mode of control of lighting and blinds are quite different and for ease of programming not normally linked.

Once a room is added it will appear under the room list heading with an automatically assigned room number. Continue adding until the box on the right hand side is populated with all the rooms in the property. Rooms can be deleted at any time by highlighting them and clicking “delete selected”.

More than one room type can be selected per room. In this example for the master bedroom both lighting and blinds have been selected. Rasoft pro will automatically will create separate Rako Rooms for lighting and blinds with different Room numbers.

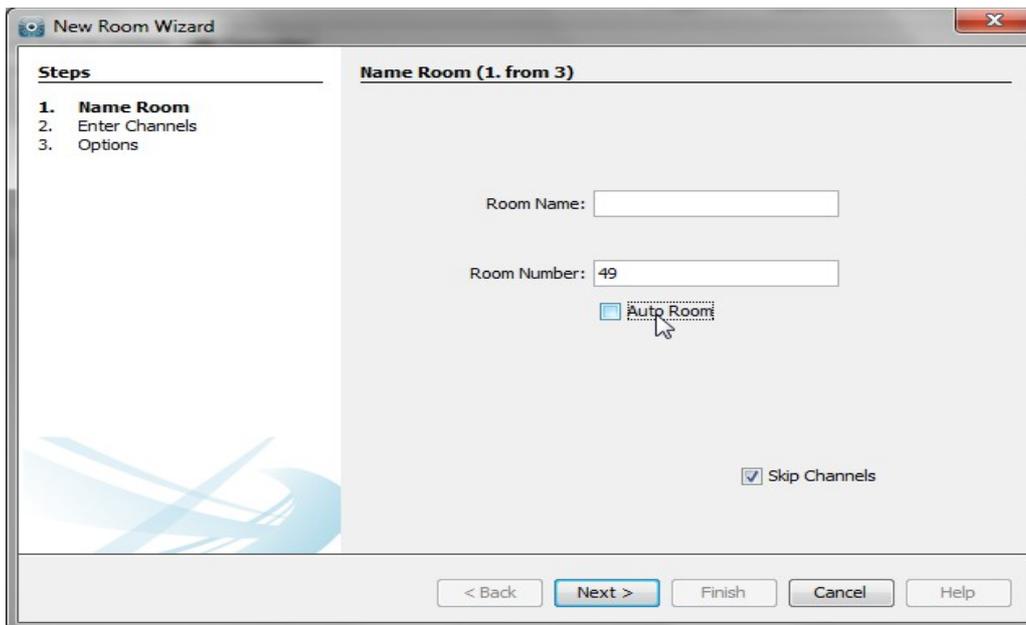


Adding rooms for group features:

Although in most cases the automatically assigned Room numbers are adequate sometimes it may be preferable to manually select Room numbers. This will mainly be necessary when “Group” features are being used (see Appendix 3).

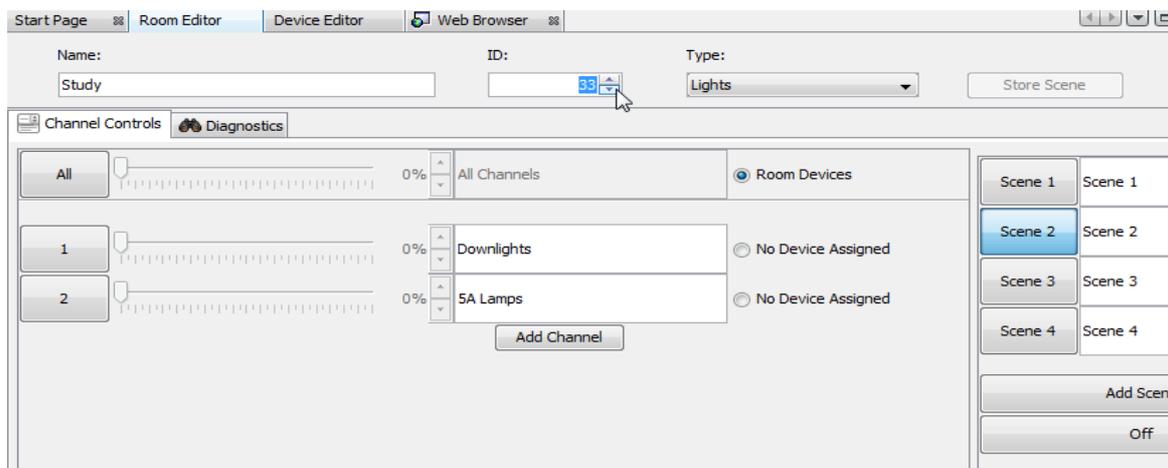
Also note that the Rx-Links themselves will be assigned a room and channel number. By default Rasoft Pro will allocate Rx-Links to Room 255 so this number should be avoided when choosing room numbers for the project.

There are two methods of setting a custom Room number. For a new Room in an existing project select “File” – “New Room” to bring up this menu:

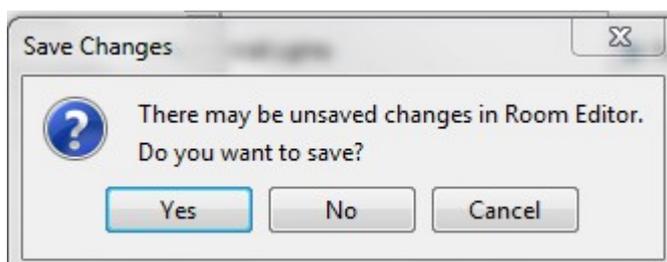


Un-check the “Auto-Room” box and enter the desired Room number.

Alternatively an existing Room number can be changed from the “Room Editor” tab. Select ID and change the value:



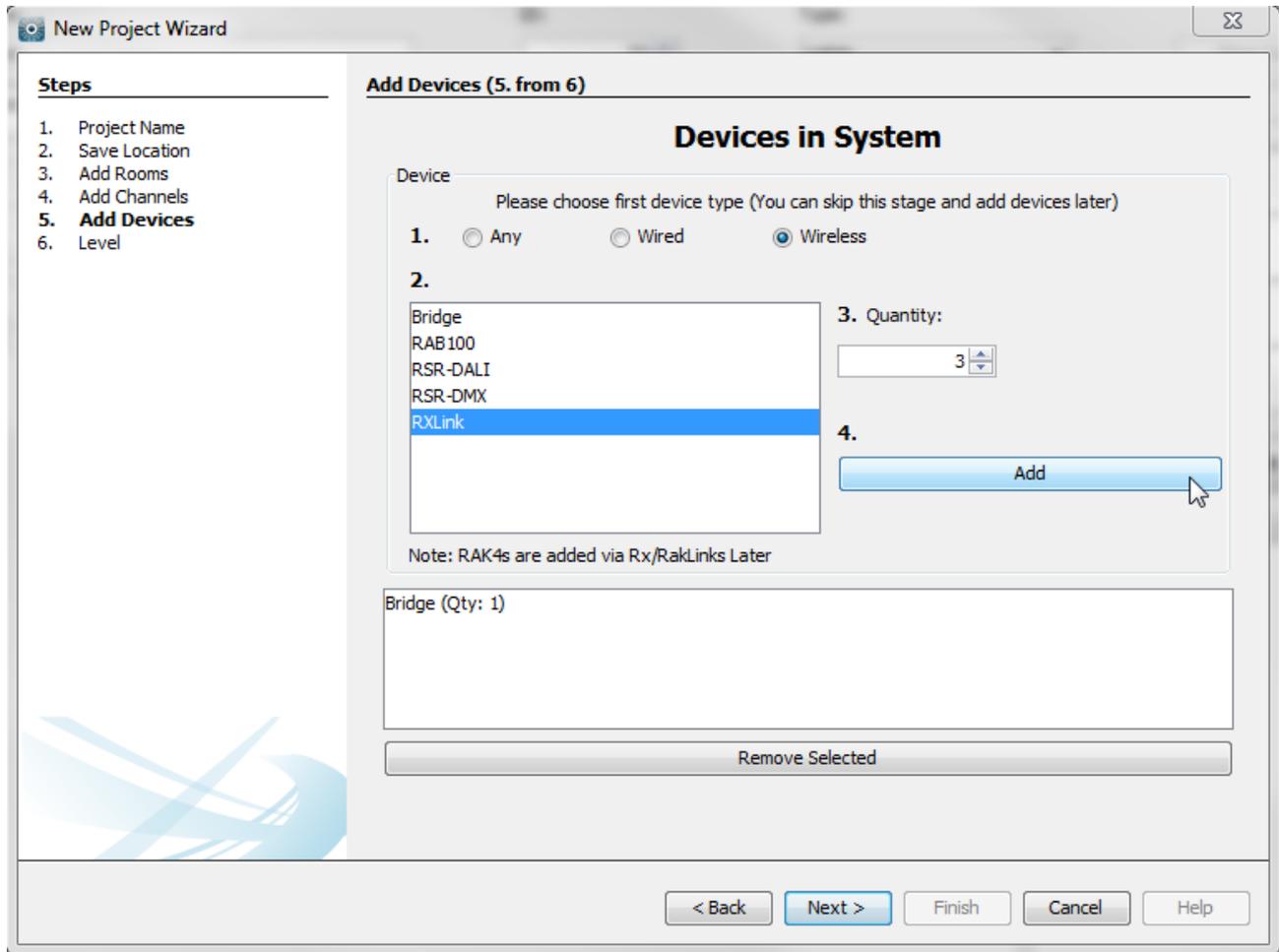
It is best to do this before any devices are assigned to this Room. If circuits are already mapped to the Rx-Link you will be prompted in the software:



Select “Yes” to both options. These will change the room numbers in the mappings page for the Rx-Link to the new room numbers. The mappings will have to be uploaded again once these changes have been made.

2.5 Adding devices

The devices to be programmed are added using this page, for a wireless RAK system this will usually just be Rx-Links. Select the number of Rx-Links in the system and click add. Adding devices using this page will create them as “virtual devices” in the Device Editor once the project has been generated.



If a Bridge is being used to programme the system add it in the same way. If an RAMPI/RAUSB is being used it does not need to be added as a device.

2.6 Selecting a level

There are three user levels available in Rasoft Pro. In general the intermediate level should be used, this will give full access to all menus while still providing help options if required.

The beginner mode excludes a small number of menus such as: fade rates per scene, profile editor and the change type function.

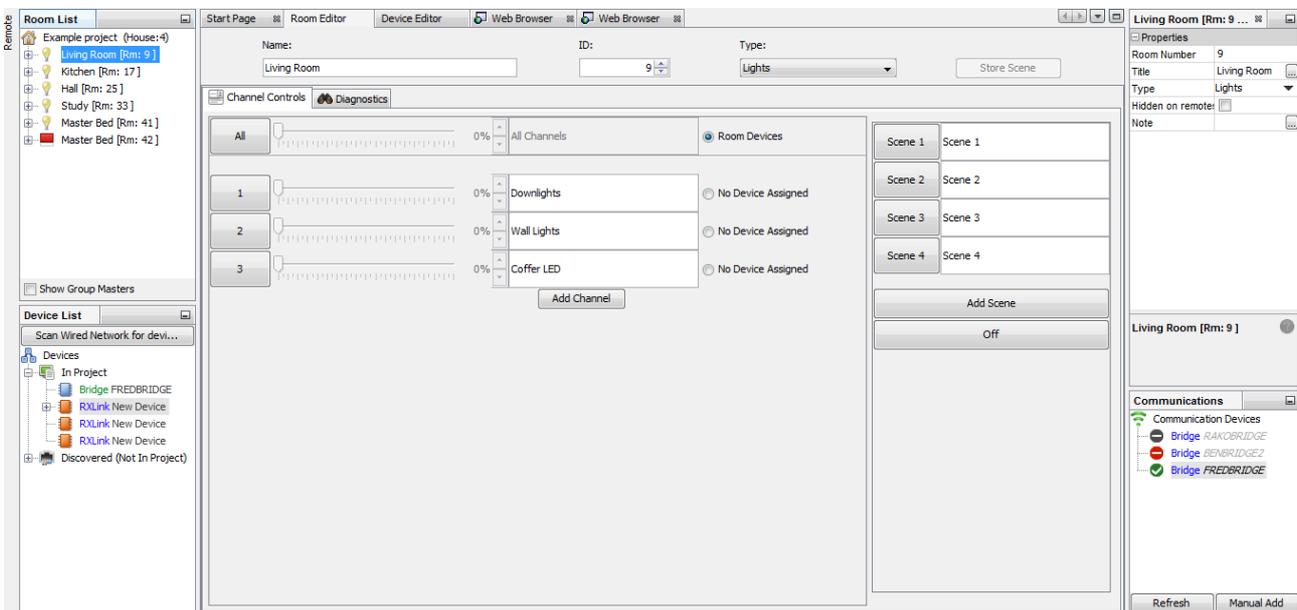
The expert mode allows access to all debug menus which are only required when programming a wired system.

3 Communication devices

Before starting to assign circuits to channels the computer must be connected to a communication device. When a communication device can be found by Rasoft Pro it will appear in the communications window in the bottom right of the screen. For information on how to connect to a communication device see Appendix 1.

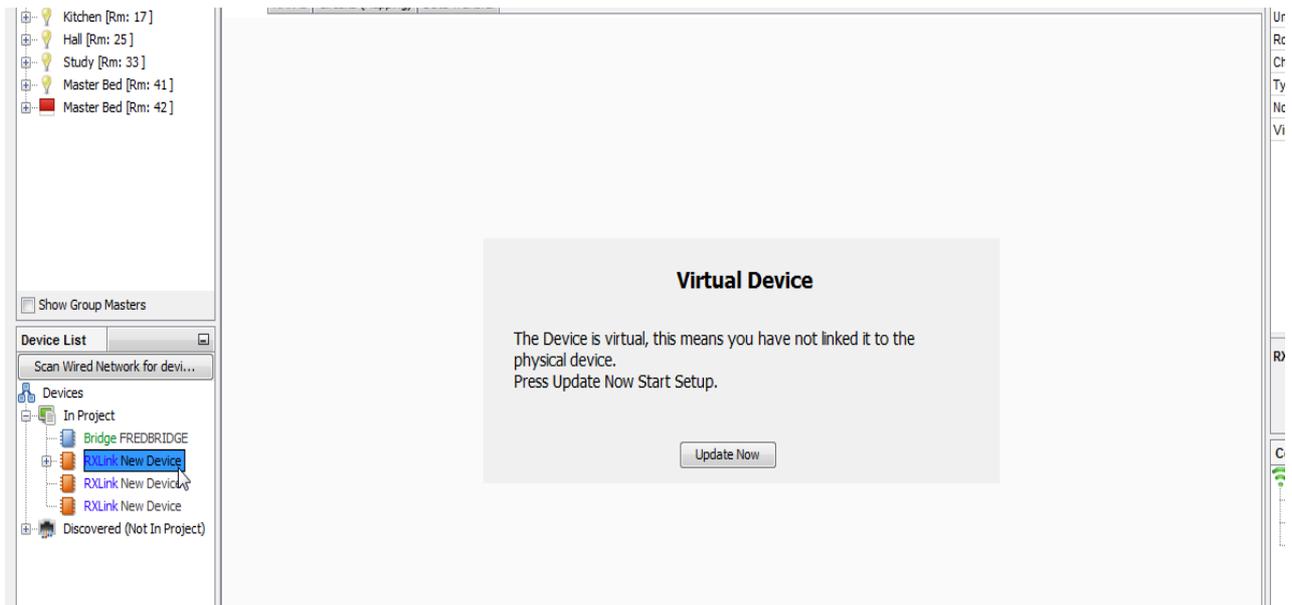
4 Addressing the RX-Link

Now that the file has been generated using the new project wizard and a suitable communication device has been connected the system is ready to be programmed. If devices and rooms have been added the page will look like this:

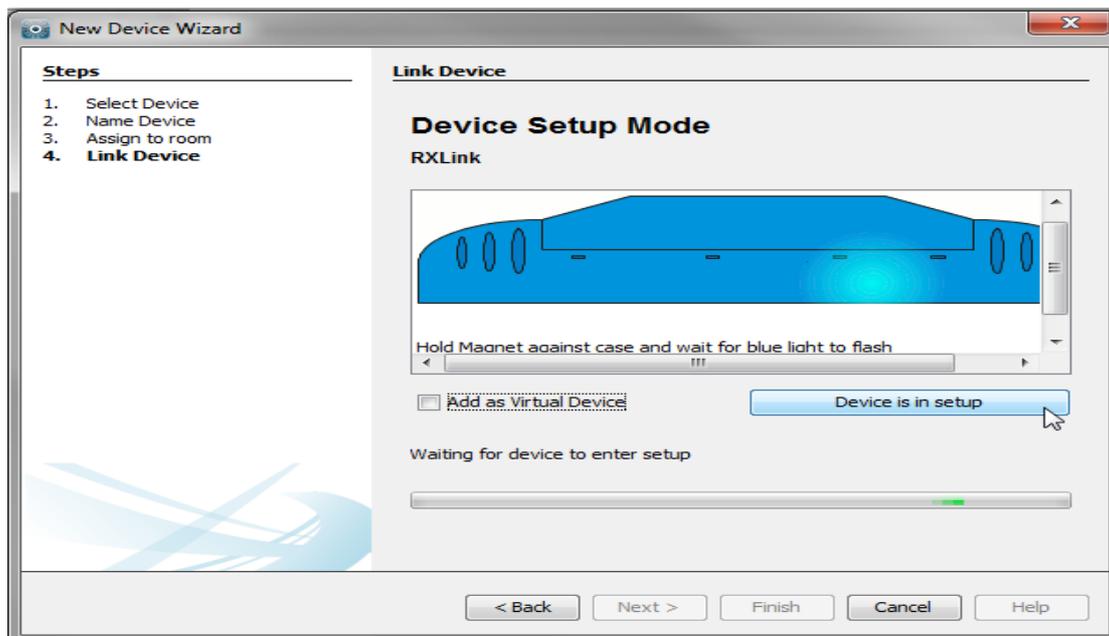


Notice the orange icon next to the RX-Links in the device list, this means this device is virtual and still requires programming. The Bridge has already been assigned as a device , for how to program the Bridge see Appendix 1.

To program the Rx-Link select it in the device list in the bottom left corner of the screen. This will bring up a message in centre of the screen stating that the Rx-Link is still a virtual device. Select “Update Now” to continue.



This will bring up the “New Device Wizard” for the Rx-Link:



Put the Rx-Link into setup mode and then click “Device is in setup”. This will send the Ident signal to the Rx-Link. Depending on the age of the Rx-Link it will be setup with either a button or magnet.

5.1 Rx-Links with button setup



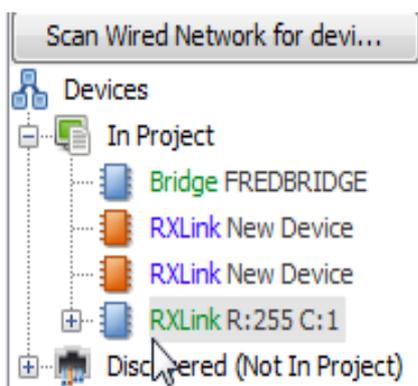
Press and hold the button on the module until the internal LED begins to flash periodically. When the button is released it should continue to flash. While it is flashing press “device is in setup” to send the Ident addressing signal. If the addressing signal has been successfully received the Rx-Link will stop flashing.

5.2 Rx-Links with magnet setup

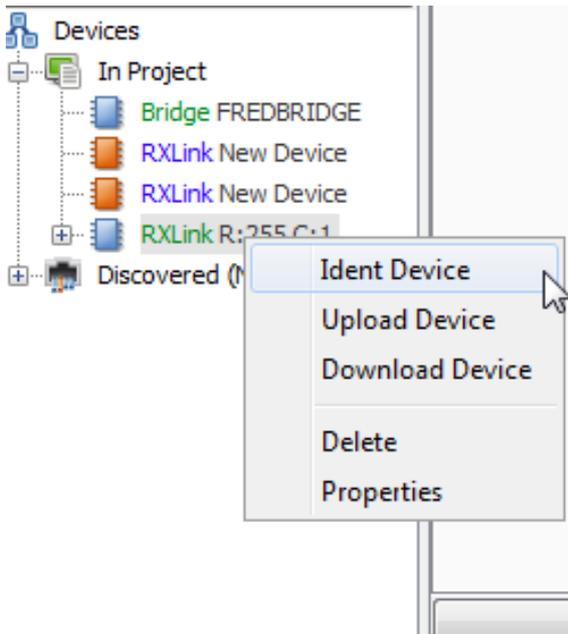


To put the unit in setup mode hold a magnet steady against the side of the Rx-Link next to the location of its internal LED. When the magnet is in the correct location the LED will illuminate. Keep the magnet in position for a few seconds until the LED starts to blink periodically showing the device is now in setup mode. Remove the magnet and the Led should continue to blink. While it is flashing press “device is in setup” to send the Ident addressing signal. If the addressing signal has been successfully received the Rx-Link will stop flashing.

Once the addressing signal has been sent the Rx-Link in the device list will no longer be shown as a virtual device:



If you have multiple Rx-Links repeat the process until all units have been addressed. If more Rx-Links need to be added to the project select “File”- “New Device” to bring up the new device wizard.



NB As there is no feedback for wireless devices it is possible for the software to show the device as programmed when it is not.

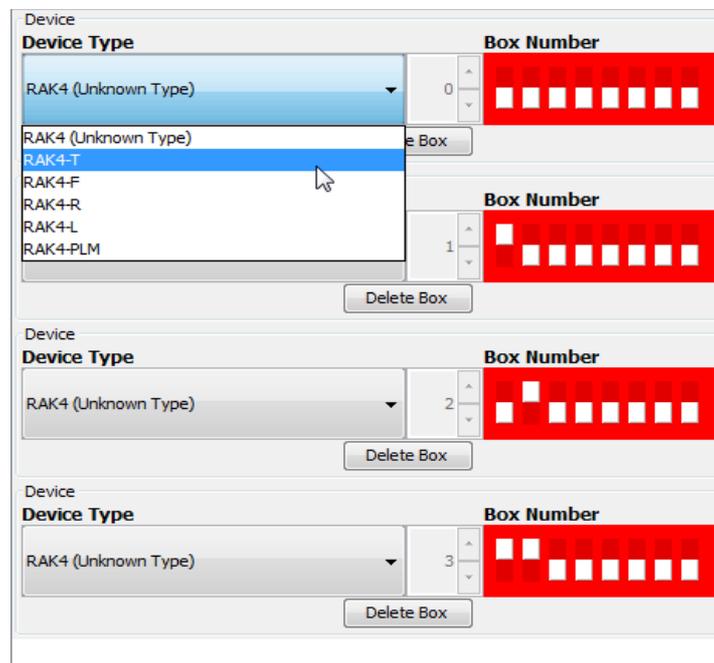
If after programming and mapping the Rx-Link it is not responding it may mean it has never been successfully addressed. Try putting the device in setup mode again then right click on the device and select “Ident Device” to resend the addressing signal. Any mappings previously sent to the Rx-Link will also have to be re-uploaded.

6 Mapping the RAK Circuits

6.1 Setting Device types and Box numbers

Select the Rx-Link to be programmed in the Device List to open it in the Device Editor. The “RAK4s” tab should open. Click “Specify extra RAK4” until the number of RAKs connected to the Rx-Link are displayed.

The type of each RAK is also set using this screen, it is important to set these as some of the settings available vary between different types of RAKs. Changing the type of RAK in this menu does not need to be uploaded, it only changes the options in the software.



Each Rx-Link can be used to interface with up to four RAK4 cards these will be numbered “Box 0” - “Box 1” . Each RAK4 needs to be given a different Box Number to any other RAK-4 that is connected to the same Rx-Link.

The addresses are set by the dip-switches on each RAK4. These switches are easily seen near the top edge of each RAK card. The software provides the dip-switch settings required depending on how many RAKs are being used with the Rx-Link.

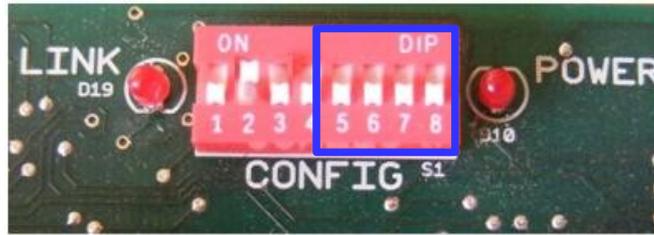
NB

The Box number of the RAKs can be set in any order. The RAK connected directly to the Rx-Link does not need to be 0.

6.2 Mappings

Having addressed the Rx-Links it is now possible to upload mappings. Mappings correspond Rooms and Channels previously created on the software to the physical Rak Circuits by assigning them different Box and Circuit numbers. Usually the installer will provide a list of which circuits are wired into each RAK4 and this can be used to input the mappings into the software.

However if this information is not available it is possible to identify circuits using the dip-switches. Switches 5,6,7 and 8 can be used to toggle the RAK outputs on and off.



Switch 5 equates to circuit one of the RAK, 6 to circuit two etc. Moving the dip-switch up will turn on the corresponding circuit moving it down will turn it off. By using this method it is possible to discover exactly what is wired into each circuit of the RAKs.

NB

***CAUTION!** To perform this test the RAKs need to be powered up, do not touch any part of the circuit board including heatsinks. If in any doubt ask the installing electrician to do this.*

To access the mappings screen select the Rx-Link to be mapped in the Device List and select “Circuits (Mapping)” from the Device Editor tabs.

Box	Circuit	Room	Room#	Channel	Channel#
0	1				
0	2	Living Room [Rm: 9]			
0	3	Kitchen [Rm: 17]			
0	4	Hall [Rm: 25]			
1	1	Study [Rm: 33]			
1	2	Master Bed [Rm: 41]			
1	3	Master Bed [Rm: 42]			
1	4				
2	1				
2	2				
2	3				
2	4				
3	1				
3	2				
3	3				
3	4				

The Box and Circuit numbers will already have been filled in to match the RAK4s added previously. Starting with Box 0 Circuit 1 click on the empty box under the “room” heading to bring up the drop down menu. Select the previously created Room and Channel that is supplied by this Rak Circuit. If all the rooms and channels have been added into the project already repeat the process for the channels and continue until all maps have been added.

NB

If a room does not appear on the mapping screen then it needs to be added into the project by selecting File-New room to bring up the new room wizard.

If a channel does not appear on the mapping screen it can be added directly from the mappings page.

Box	Circuit	Room	Room#	Channel	Channel#
0	1	Living Room [Rm: 9]		9 Downlights [Ch: 1]	1
0	2	Hall [Rm: 25]		25 Wall Lights [Ch: 2]	2
0	3	Study [Rm: 33]		33 Downlights [Ch: 1]	1
0	4	Hall [Rm: 25]		25 Chandeir [Ch: 1]	1
1	1	Master Bed [Rm: 41]		41 Pendant [Ch: 2]	2
1	2	Master Bed [Rm: 41]		41	
1	3				
1	4				
2	1			Downlights [Ch: 1]	
2	2			Pendant [Ch: 2]	
2	3			Bedside 5A (left) [Ch: 3]	
2	4			Bedside 5A (right) [Ch: 4]	
2				Assign to new channel	

Open the channel drop down menu and select “Assign to new Channel”. Enter the name of the new channel, it will automatically be assigned to the next unnamed channel in that room.

Continue mapping circuits in this way until all used circuits associated with Rx-Link are mapped to channels. Click “Save For Upload” at the bottom of the mapping page to upload the mappings to the Rx-Link

NB

If a room is selected but the channel box is left blank then this circuit will remain unmapped. This means it will not respond to commands even from the assigned room number.

Once all the mappings are filled in it is a good idea to check for any “multiple device” errors. This is a good way of discovering any circuits that have been entered twice by accident.

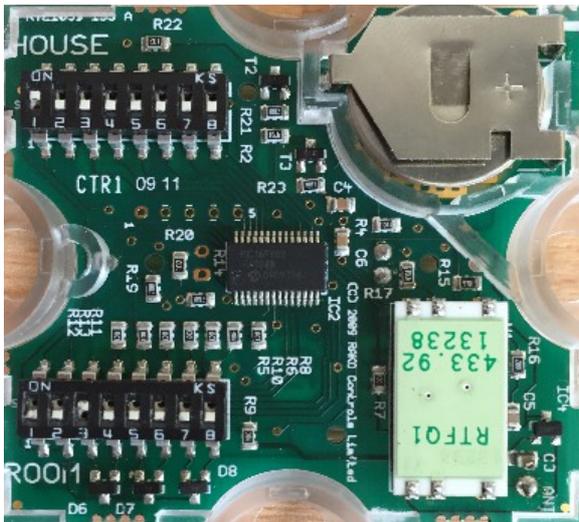
The screenshot shows a control interface with a list of rooms and their associated channels. Each room has a '0%' indicator and a channel name. Room 2's 'Pendant' channel is highlighted in red with the text 'Multiple Devices!' indicating a conflict. Below the list is an 'Add Channel' button.

Room	Channel	Assignment
All	All Channels	Room Devices
1	Downlights	Rak Circuit
2	Pendant	Multiple Devices!
3	Bedside 5A (left)	Rak Circuit
4	Bedside 5A (right)	Rak Circuit

Check through all of the rooms, any channels which have been mapped to more than one circuit will display as above. Check the mappings to find where the channel has been duplicated.

8 Setting wall-plates

Once all the modules have been addressed via the software the wall-plates need to be paired to the desired room. On the reverse of the wall-plate are two sets of dip-switches one each for the room and house address, Examples below:



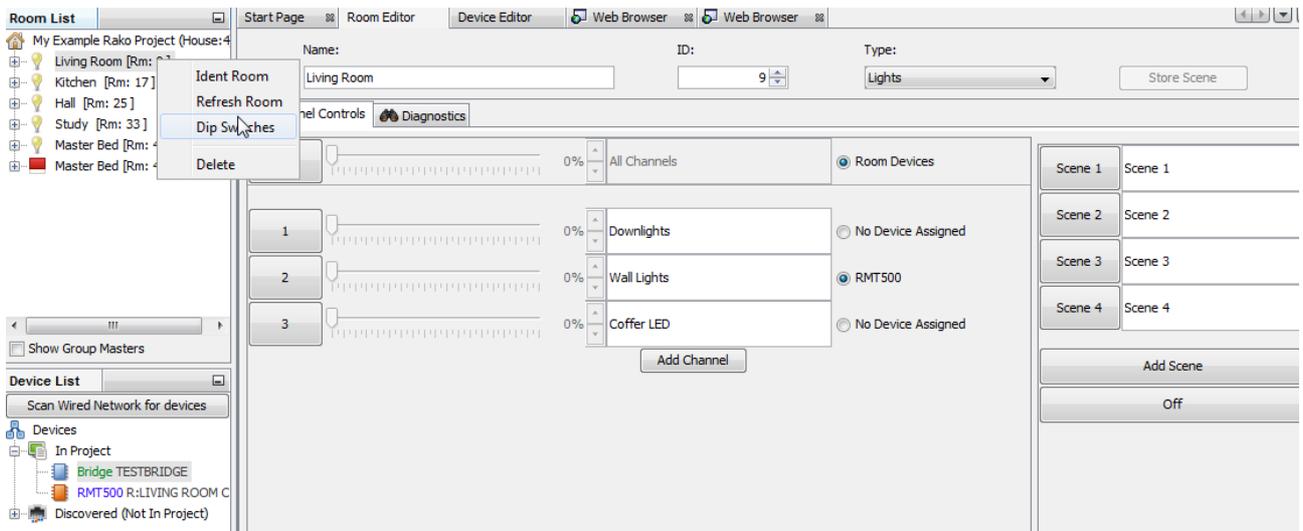
RCP
House:1
Room:4



RCM
House:98
Room:17

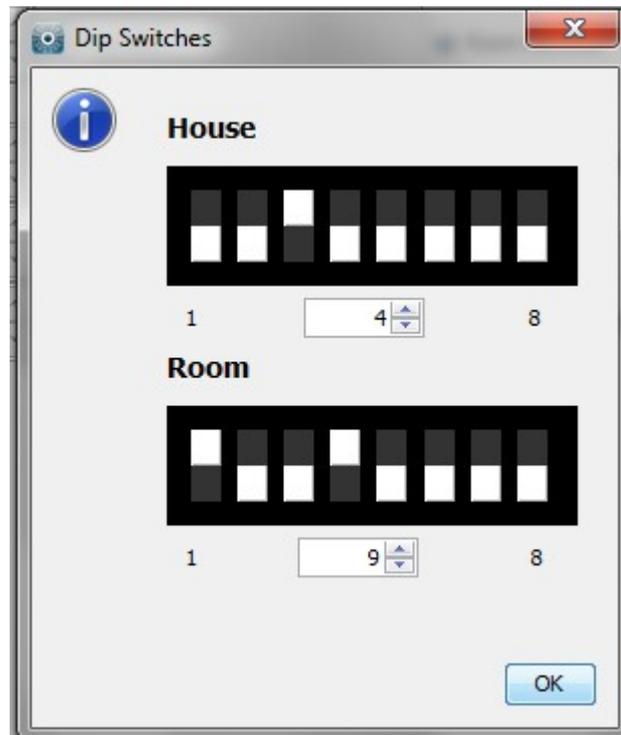
If the module looks like an RCM but there are no dip-switches fitted then this module is an RNC module and cannot be addressed manually. See appendix 6 for details.

The dip-switches work using a binary number system, if unfamiliar with binary the switch settings can be read from the software. Right click on the room of the keypad to be programmed and select “dip-switches”.



This will bring up a menu indicating which switches need to be up for this room. Set the wall-plates dip switches as indicated and repeat for all controllers around the system.

9 Setting scenes



With all the modules addressed and wall-plates set up the system should be fully functioning. At this stage the scene settings will be on default:

- Scene 1 – All on 100%
- Scene 2 – All on 75%
- Scene 3 – All on 50%
- Scene 4 – All on 25%

While this is fine it does not provide particularly imaginative mood settings for the room. To set scenes:

- Click on the room to bring up the room editor tab
- Select a scene (the selected scene will turn blue)
- Move the slider for each channel to the desired light level
- Press “save scene”

Scenes can be given names rather than numbers. This will change how they are displayed on the Rako App.

To set more than 4 scenes click the add scene button. Up to 16 scenes are programmable on the modules with button setup although the number of scenes accessible from a wallplate is determined by the button layout.

Appendix

1 Setting up communication devices:

RAUSB/RAMPI:

To connect to the RAUSB/RAMPI simply plug the module into the USB port on your computer. Rasoft should find the device, right click on “RAUSB/RAMPI” in the communications box and select connect. If the “RAUSB/RAMPI” icon does not appear click refresh below the communications box.

Bridge:

Step 1: Connect the Bridge to a router:

The RA & RTC-Bridges are supplied with an RJ45 network cable. Connect this to an unused port on a wireless router. Connect the Bridge power supply to a convenient ac socket and switch it on. A Blue light should flash continuously within the Bridge. Connect your PC to the same router, either by wireless network or by fixed Ethernet cable.

Step 2: Set the Bridge to the same House ID number as your Rako system:

Every RAKO wireless system has a House ID number between 1 and 255. It is necessary to tell the Bridge which house ID number has been chosen so that it talks to the correct house. The RASOFT configuration file gives the chosen House ID number at the top of the room list. Alternatively, look at the DIP switches settings on the rear of the lighting control wall plates and decode the house ID number from those. The dip-switch information panel (right click on room in room list select dip-switches) can be used to decode the binary settings. Move the switches on the screen to match those of the wall-plate to show the House and Room **number**.

To configure the Bridge House number:

On a laptop, start the Web Browser (e.g. Windows Internet Explorer). In the URL line type: [HTTP://RAKOBIDGE](http://RAKOBIDGE) and press Enter.

Alternatively in Rasoft Pro in the bottom right communications window right click on the Bridge and select “Open in Browser”. When successfully loaded the Webpage will appear as below:



The screenshot displays the Rako Bridge web interface. At the top left is the Rako logo, and at the top right is the text "Rako Bridge". A navigation menu on the left includes "Overview", "Remote Control", "Hardware", and "Configuration". The main content area is titled "Welcome To RAKO Bridge" and lists system status information:

Running:	•
Version:	2.1.8 WA
Build Date:	Apr 23 2015 13:07:03
Bridge Time:	6/24/2015, 11:43:56 AM
Bus Status:	Active
Dawn:	04:45
Dusk:	21:16

At the bottom, a copyright notice reads: "Copyright © 2010-2015 Rako Controls. V2.2.9"

Click on the Configuration Button.

The default User Name is *admin*
The default password is *microchip*

When successfully logged in, the screen below will be displayed:

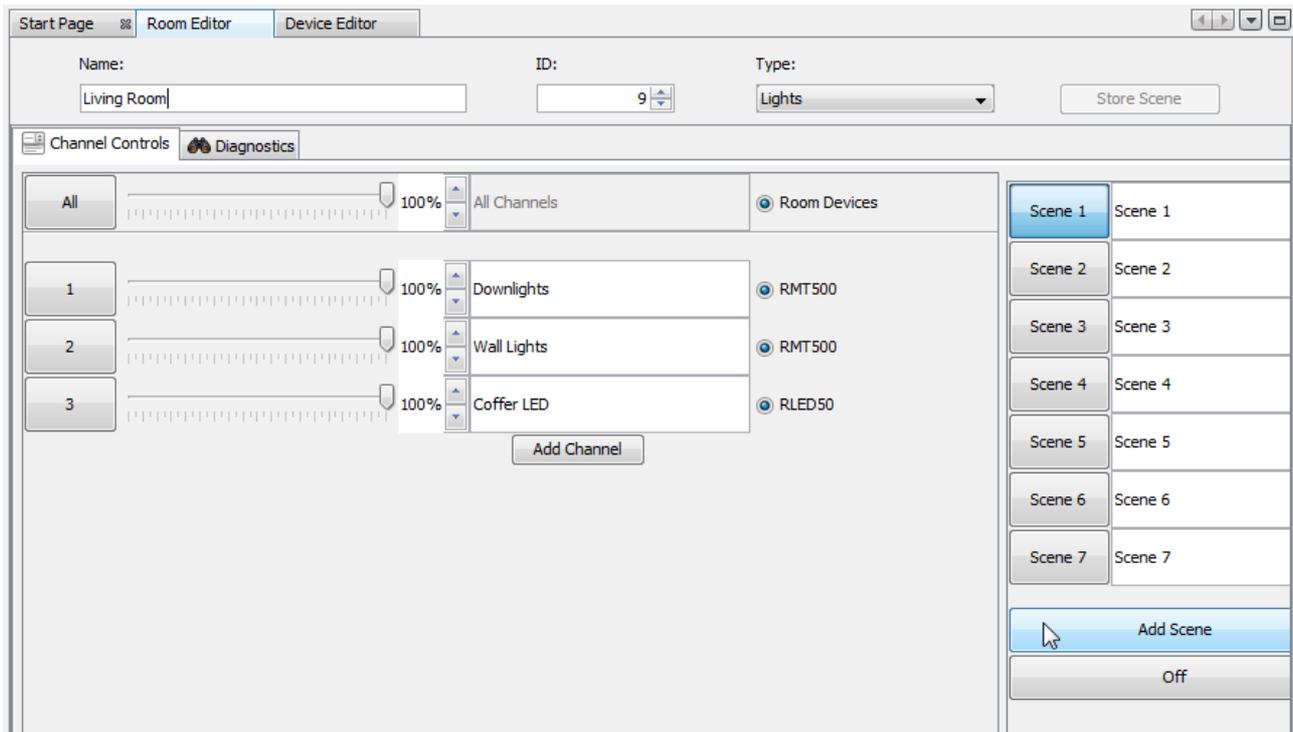
The screenshot shows the Rako Bridge Configuration web interface. At the top left is the Rako logo. A navigation menu on the left includes: Overview, Remote Control, Hardware, Configuration (highlighted), Events, Macro States, Holiday States, and Dip Switch. The main heading is "Rako Bridge Configuration". Below it, a text box states: "This page allows the configuration of the bridge's network settings." A red-bordered box contains a "CAUTION" message: "Incorrect settings may cause the bridge to lose network connectivity. Recovery options will be provided on the next page." Below this, it says "Enter the new settings for the bridge below:". A form contains the following fields: MAC Address (00:1E:C0:9A:08:24), Host Name (RAKOBIDGE), Wireless House Address (1), UID (1), Bridge Address (1000), Bridge Channel (1), and Password (microchip). Below the form are several checkboxes: Disable Wireless (unchecked), Wireless Rate Mode (checked, with note "(Disable Fade Rate Info)"), Wireless Booster Mode (unchecked, with note "(Disable RAB100)"), Wireless Link Mode (unchecked, with note "(Link bridges via Wireless)"), Enable EtherBridge (unchecked, with note "(connect Bridges by Ethernet)"), Disable Auto Detect (unchecked, with note "(Hide from smartphone)"), and Require smartphone (unchecked, with note "Requires iPhone V2.5.0/Android V1.1").

Change the “Wireless House Address” to the house number in the project file (default will be 1). Scroll to the bottom of the screen and press “save config”. The following message will be displayed if the settings are successfully changed:

Reboot In Progress...

Your settings were successfully saved, and the bridge is now rebooting to configure itself with the new settings.

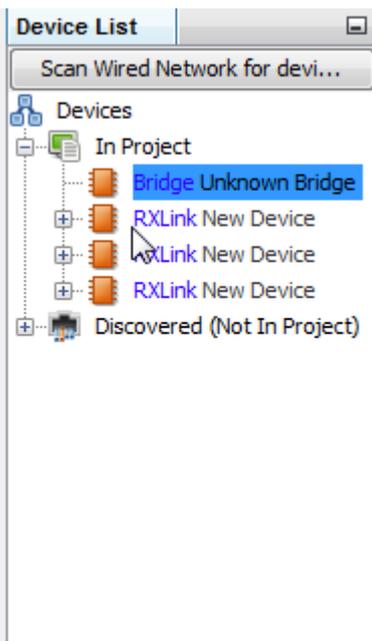
Your bridge is now located at: <http://RAKOBIDGE/>



Some firewall programs will prevent access to the Bridge. Temporarily turning off the firewall will allow Bridge configuration. Remember to re-enable the firewall afterwards.

If it is not possible to make connection to the Bridge from the laptop, it could be due to IP addressing in the router. Try connecting the Bridge directly to the laptop using an RJ45 cable. This will allow the Bridge to be configured. Connect the Bridge back onto the router afterwards in order to enable the iPhone to work with it.

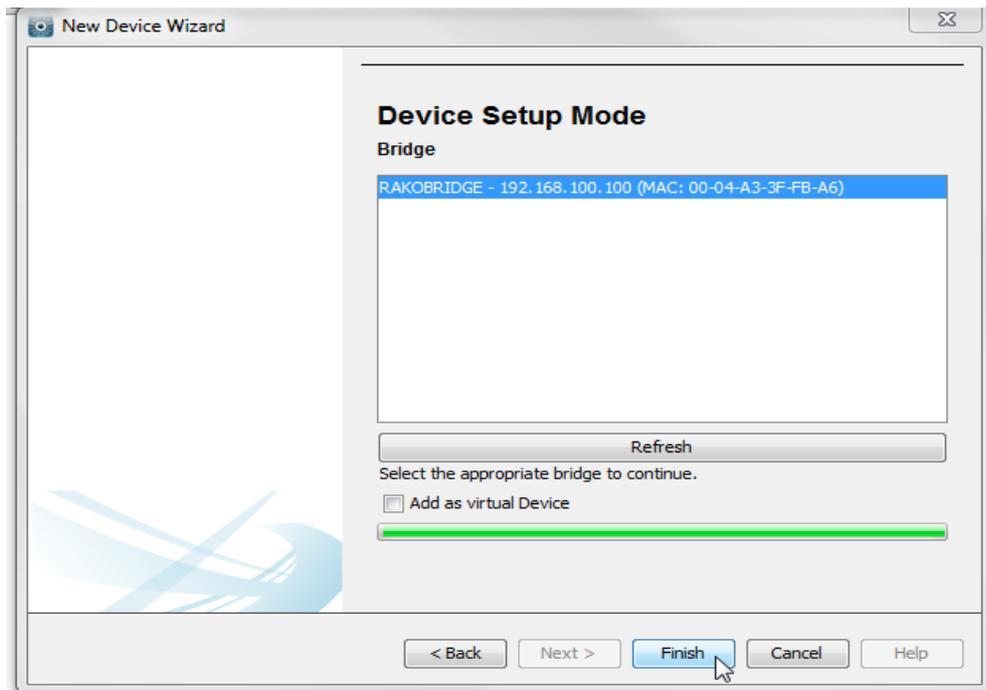
Once the Bridge is successfully connected and the House number has been set the Bridge is ready to talk to the system. The communications window in the bottom right of the screen will say if the Bridge is connected or not. When Rasoft can see the Bridge a green tick will appear next to it.



Although the bridge is now connected it still needs to be added as a device. Add it using file-new device and then select the Bridge in the device list. In the centre of the screen it will be described as a virtual device, select "Update Now".

This will bring up the screen as below. The Bridge you are connected to will appear followed by its IP and MAC address. Select it and click "finish". The icon in the device editor will change from orange to blue and the text will change to green.

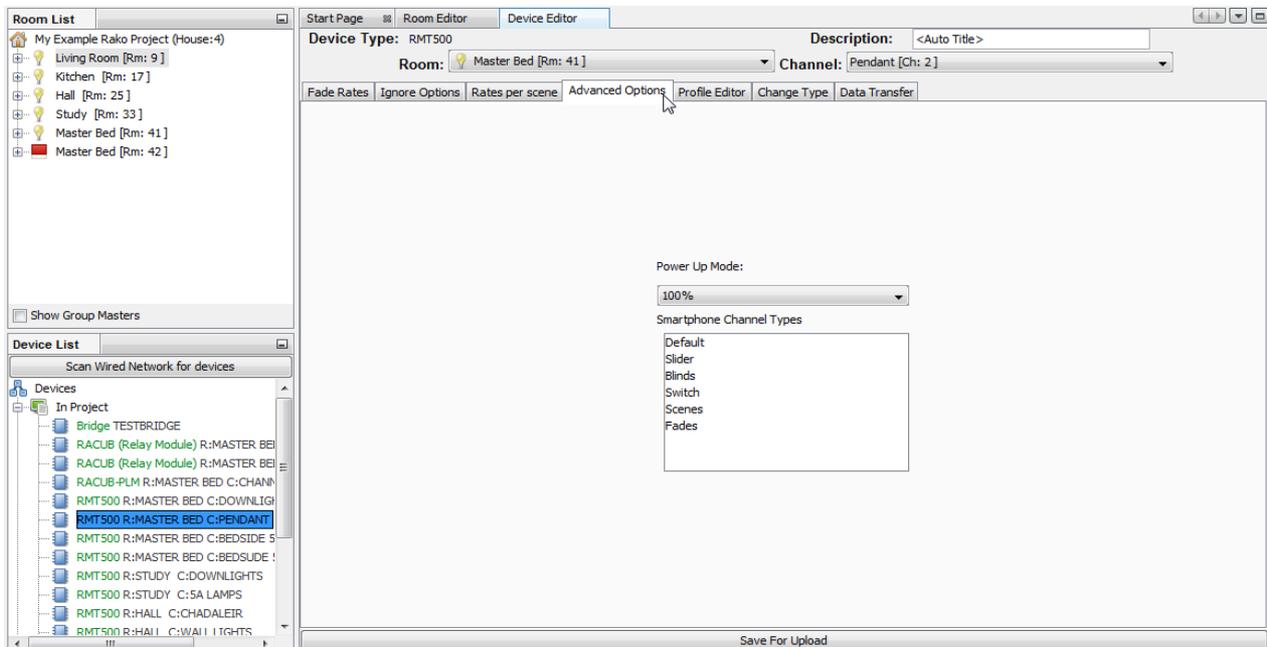
Now this device is assigned on the software all Bridge functions will be accessible via tabs in the device editor. For more information on the Bridge functions please see the Bridge instructions contained within the Bridge box.



2 Power up modes

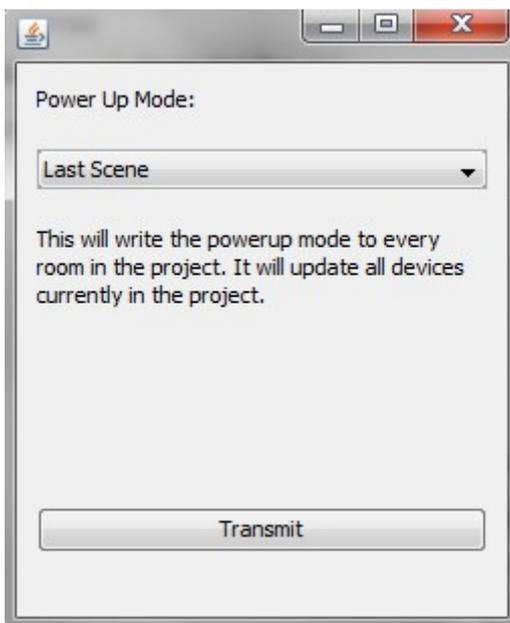
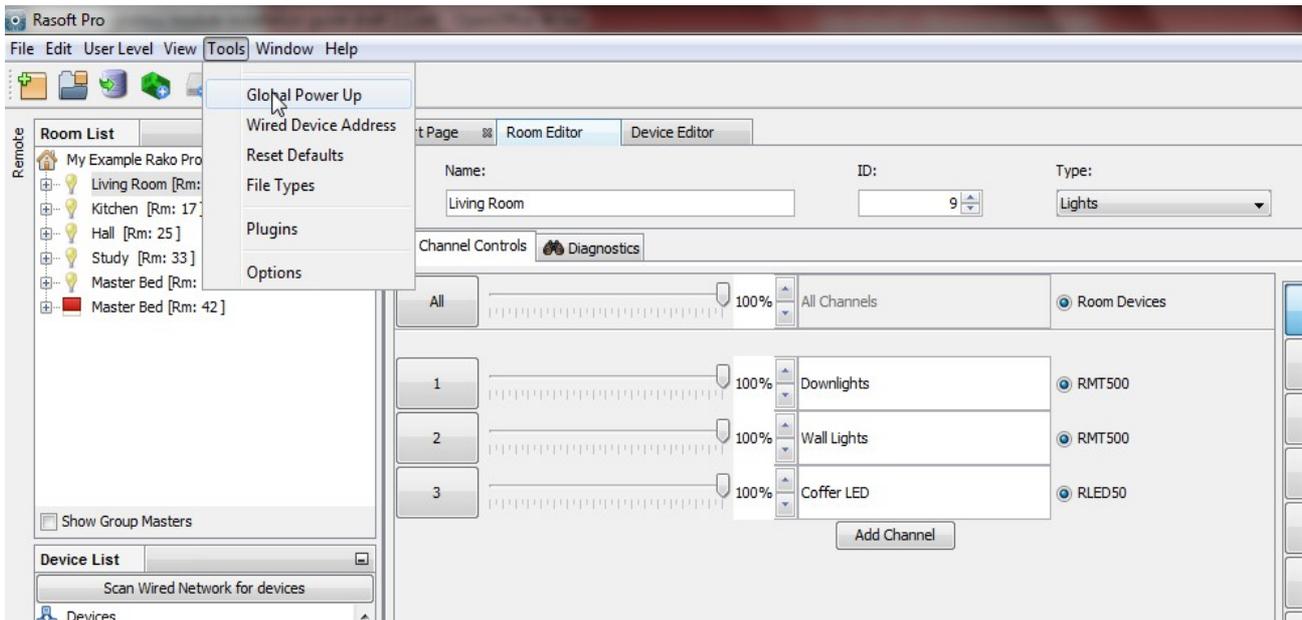
The power up mode dictates the output of a circuit on power restoration. While still on factory default settings all Rako products will have a power up mode setting of 100%.

When dimmer modules with a setup button are addressed to a House number that is not the default of one then the power up mode will automatically change from 100% to Off. For all other Rako products the power up mode must be changed using the software.



To manually change the power up mode of a specific circuit click on it in the device list. This will bring up the device editor tab in the centre of the screen. Click on “advanced options” tab to show the power up mode options.

It is possible to set the power up modes “globally” for the entire system. To access this menu select “tools” - “global power up”. This will send a House master power up mode to all modules.

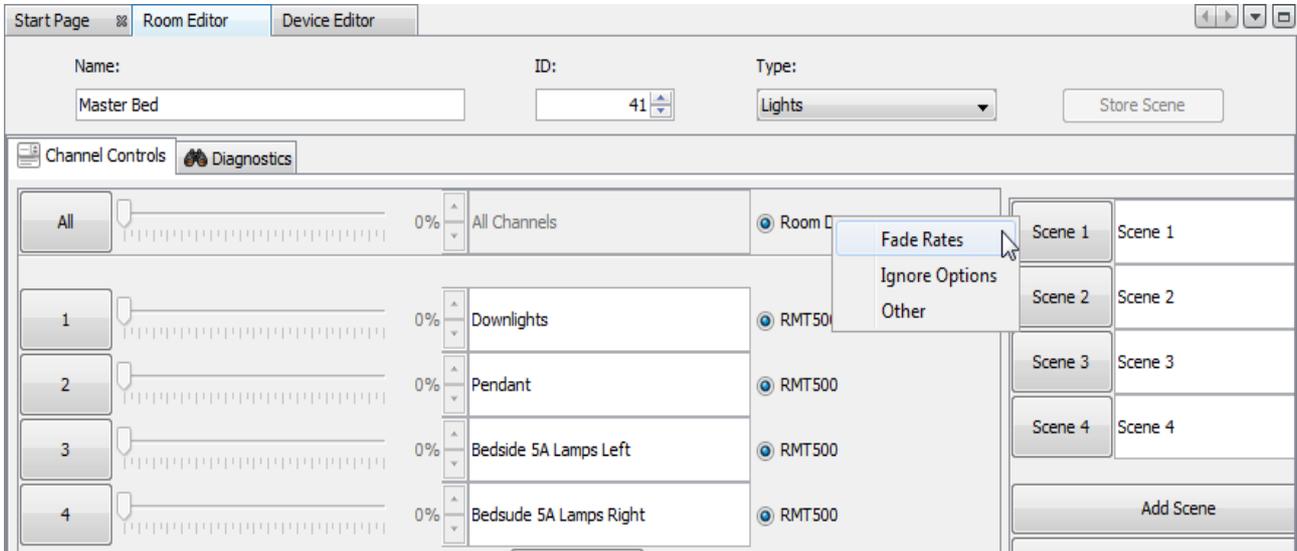


It is advised that the power up mode is either left on “off” or set to “last scene.” In general it is not a good idea to have the lights come on after a power cut so a scene or percentage power up mode is usually best avoided.

To test the power-up modes it is a good idea to turn off Rako circuits from the MCB to make sure that the desired power-up modes have been set correctly.

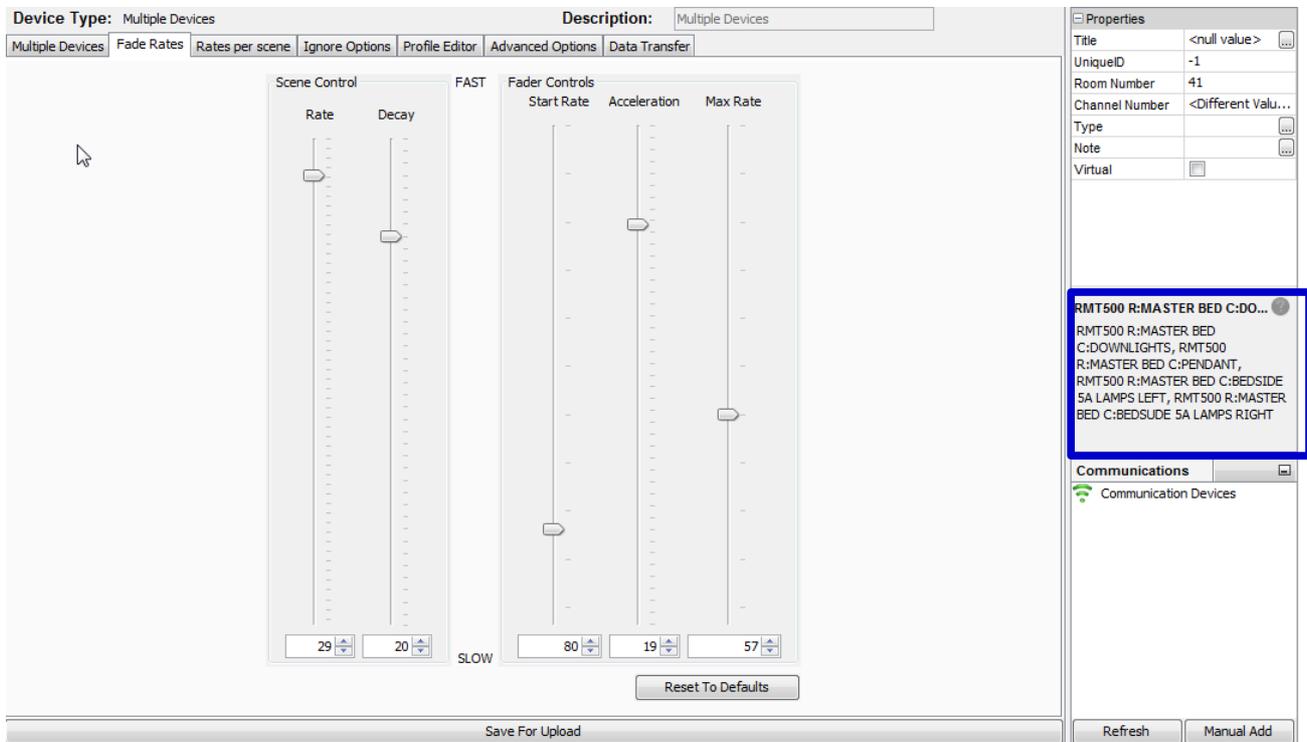
3 Fade rates

Using Rasoft pro it is possible to edit the rate at which Rako modules move between different lighting levels. To change the fade rates for the entire room right click on “room devices” in the top right of the room editor.



NB

This will set fade rates for every device in the master bedroom. To set fade rates for a specific device select it in the device list and click on the fade rates tab in the device editor.



The fade rates menu will be displayed as above. Notice the window on the right hand side (highlighted above) lists the circuits that will be affected by these changes are listed.

There are two types of fade rates that can be adjusted:

Scene controls will change the rate at which circuits move between scenes (including Off).

Fader controls will change the rate at which circuits dim up or down when the fade buttons (raise/lower) are used.

NB

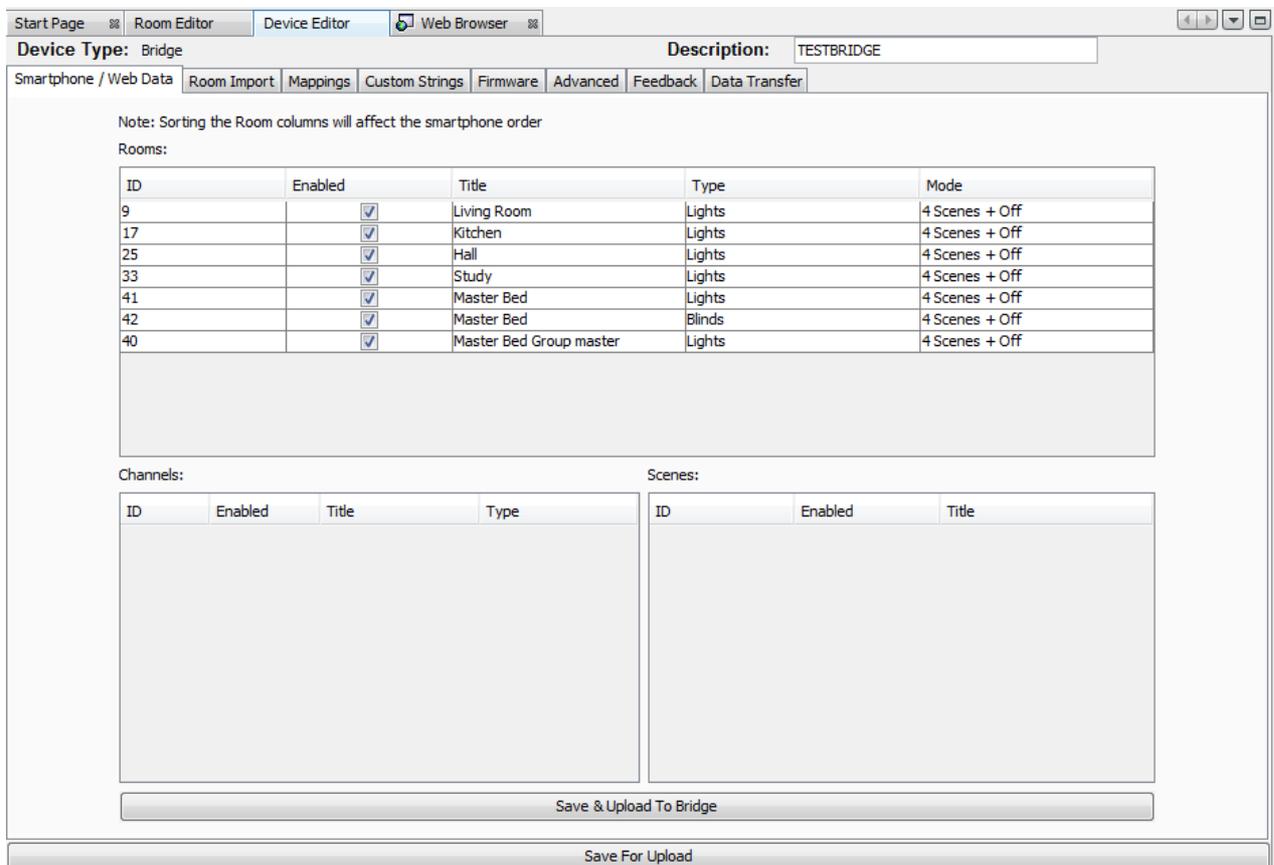
Setting all of the fader controls to max. speed will make it almost impossible to dim the lights from the fade up/down buttons.

4 Uploading to a Bridge and App setup

Once programmed the last thing required is a Bridge upload. This ensures that the programming data on the computer matches that on the Bridge. This is important even if the Rako App is not being used as it will enable the project file to be downloaded by anyone accessing the Bridge without the need for the original file.

To upload to the Bridge select the bridge from device list, opening the Bridge options in the device editor tab. Go to the “data transfer” tab and click “upload”.

There are several settings that can be altered to change the appearance and functionality of the Rako App. Select the “Smartphone/Wed Data” tab. This should display all the rooms that have been added to the project:



From this page the various setting to define how the App will appear are set. To bring up the channels and scene settings to be uploaded highlight the desired room:

Smartphone / Web Data | Room Import | Mappings | Custom Strings | Firmware | Advanced | Feedback | Data Transfer

Note: Sorting the Room columns will affect the smartphone order

Rooms:

ID	Enabled	Title	Type	Mode
9	<input checked="" type="checkbox"/>	Living Room	Lights	4 Scenes + Off
17	<input checked="" type="checkbox"/>	Kitchen	Lights	4 Scenes + Off
25	<input checked="" type="checkbox"/>	Hall	Lights	4 Scenes + Off
33	<input checked="" type="checkbox"/>	Study	Lights	4 Scenes + Off
41	<input checked="" type="checkbox"/>	Master Bed	Lights	4 Scenes + Off
42	<input checked="" type="checkbox"/>	Master Bed	Blinds	4 Scenes + Off
40	<input type="checkbox"/>	Master Bed Group master	Lights	4 Scenes + Off

Channels:

ID	Enabled	Title	Type

Scenes:

ID	Enabled	Title
1	<input checked="" type="checkbox"/>	Scene 1
2	<input checked="" type="checkbox"/>	Scene 2
3	<input checked="" type="checkbox"/>	Scene 3
4	<input checked="" type="checkbox"/>	Scene 4

Save & Upload To Bridge

Save For Upload

Enable – When this box is checked this room/channel/scene will appear on the app. If it is not desirable to have all rooms accessible from every device with the App certain rooms can be restricted from within the App using the restrictive rooms feature. See App user guide for further details.

Title – This will be the label given to this room/channel/scene on the App. Changing this will also change the room name in the room list of the project file.

Type – This will change the screen layout of the channels section in the App.

Mode - This will change how the on screen keypad in the App is displayed. It can represent either a 7 or 10 button keypad. It can also be displayed as a scrolling menu showing all 16 scenes.

It is also possible to change the order in which the rooms will appear in the App. To do this just click and drag the rooms to the desired position.

NB

The Master Bed Group Master is unchecked, typically Group Masters or “dummy rooms” will be excluded as they do not have channels associated with them directly.