PHILIPS

dynalite

Multiroom System Manager

Commissioning

Version 2.11, 2025-07-11

Table of Contents

This section describes the commissioning process for Multiroom System Manager projects.

Chapter 1. Target Audience

Commissioning Engineers

Chapter 2. Prerequisites

A System Builder Technician License is required to configure a Multiroom system.

Before commissioning, you should have completed the following Learning@Signify learning paths:

- Dynalite - System Builder Foundation Training
- Architecture STR - Commissioning & Deployment

This document also references the Architecture STR - System Architecture & Design learning path.

Chapter 3. Design Verification

System commissioning starts after the hotel developer has agreed to the features, design, and commercial details. This involves configuring the required mockup room jobs so that the devices can be programmed in the factory and installed with a standardized approach.

Commissioning then progresses to a temporary hotel job to allow end-to-end verification of all features. Commissioning is completed by creating a single hotel job file that is loaded into the onsite System Manager Server.

3.1. Recommended Process

This section outlines the tasks and *tools* for each phase of the commissioning process.

Phase	Task	Tools
Commercial	Identify customer requirements	• *Project intake form* • *Room alerts configuration intake form*
System Design	Translate requirements into hardware design	• *Device Specification Sheets* • *Room Bill Of Quantities (BOQ)* • *Network Architecture and Site BOQ*
	Provide quote	• *Proposal Pricing Tool* • *Quotation*
Mockup Room Commissioning	Prepare mockup room	• *Room layout* • *Hardware BOQ* • *Hardware single-line drawing* • *Circuit allocation table* • *Luminaire schedule* • *Room profile floor plan* • *Electrical drawings with indicative wiring arrangement* • *Device Installation Instructions*

Phase	Task	Tools
	Define room logic	• *STR Template Library* • *Mockup room job files* • *Panel design and engraving* • *Preset scene definitions* • *Integration descriptions* • *Mockup room features table* • *Room controller IP address table** • *Room mapping table* * The room controller IP address table is not required when using DHCP (**Port Editor > Use static IP** address is set to False).
	Test interoperability	• *Third-party luminaire Interoperability test report and waiver*
	Complete Hotel Job file	• *Mockup room sign-off sheet* (release for manufacturing) • *Mockup room job files* • *Hotel job file* • *Notional energy load sign-off sheet* • *Room controller IP address table** • *Floor gateway IP address table* • *DIP switch settings table* • *Site private key text file (must be kept secure)* * The room controller IP address table is not required when using DHCP (**Port Editor > Use static IP** address is set to False).
Deployment	Installation testing	• *System installation guide* • *Room layout* • *Electrical drawings* • *Gateway IP address table* • *Snagging list*
	System Manager setup	• *System Manager installation files* • *Room mapping table* • *Hotel job file*

3.2. Commercial phase

In the Commercial phase of the project, the System Designer identifies the customer requirements by completing the *Project intake form* and the *Room alerts configuration intake form*.

The Intake Forms are simple Excel spreadsheets to help gather the customer requirements or summarize a tender request. The step-by-step format allows you to review all the available features together with the customer. Guided by system features and hotel room profiles, it helps you align features with customer needs and focus on value rather than specification.

3.2.1. Project reference tools

- *Project intake form*
- *Room alerts configuration intake form*

3.3. System design phase

In the design phase, the System Engineer translates the customer requirements into a specific feature set to be included in the quotation. They decide on the network architecture and produce a hardware BOQ for each room profile and for the site. To complete the design phase, the Proposal Manager prices the hardware design and feature offerings to produce a quotation.

Front-of-house, back-of-house, and architectural lighting can also be offered as part of the project.

3.3.1. Project reference tools

- *Device Specification Sheets*
- *Room BOQ*
- *Network architecture and site BOQ*
- *Proposal pricing tool)*
- *Quotation*

Before proceeding, refer to the Architecture STR - System Architecture & Design learning pathway to ensure the design is STR compliant.

3.3.2. System building blocks

Ethernet gateway

An Ethernet gateway connects the SM server to a group of up to 25 rooms. Although they are referred to as floor gateways, they are centrally located in the server room.

Room controller

- The design of every room must include one DDRC-GRMS-E controller.
- Additional Dynalite load controllers may be added if more circuits are required.
- If eight or fewer dimming circuits are required a DDRC-GRMS-E paired with a DDMC802 is often the best choice.

Expansions

- Depending on the required control protocols you can add one or more expansion controllers:
  - DDRC810DT-GL relay controller.
  - DDMC802 multipurpose controller with the appropriate control modules.
  - DDBC120-DALI or DDBC320-DALI for DALI Addressable control.

- DDBC1200 for 1-10V/DSI/DALI Broadcast control.
- DDFCUC fan coil unit controller for controlling air conditioning.

Sensors

- A core function of the system is determining real-time occupancy. This is used to move the room between states (Occupied/Unoccupied), which have parameters attached for temperature, lighting, power, curtains, etc. To achieve this, we need adequate sensor coverage combined with our tasking logic.
- We recommend using a DUS360 sensor for cost and coverage balance, but any Dynalite sensor may be used.
- In most standard rooms, two sensors are sufficient: Bedroom and Bathroom. In suites and large rooms, you can expand the design with additional sensors as required.
- The AntiStumble feature uses the standard sensor with a lens cover, recessed into the wall or bedside table.

User Interfaces and Additions

- One AntumbraDisplay is recommended for HVAC control. Other user interfaces can be added in accordance with the design requirements.
- If you have wake-up lighting or are supporting multiple languages, AntumbraDisplay is a good choice for beside panels.
- We recommend separating status/service and lighting control functions for guest clarity. In most cases it is good practice to use four button panels, especially where used as master panels at the entrance. Just because we can add a lot of functions to one panel doesn't mean we always should.
- A DLLI8I8O or DDRC-GRMS-E is required to drive the room status indicators on a corridor panel/doorbell and for any third-party panels.
- We can source additional third-party environmental sensors such as a humidity sensor, if specified.

Control cable power

- In a Dynalite network, all the controllers contribute power, and all other devices consume it.
- We recommend that you calculate the network current in guestrooms to check that there is sufficient power available on the DyNet loop for all panels and sensors.
- Our room BOQ template includes this calculation and allows you to build multiple room profiles easily.
- Where required, you can add a DyNet power supply. It is better to not need one as it adds cost with no additional features for end users.

HVAC

There are two main types of HVAC control commonly found in hotels:

1. **FCU + Piped Water (Chilled/Heated)**
   - Most commonly found in larger hotels (200+ rooms), this consists of central coolers/heaters and piped water around the building.
   - Valves in the room allow the water to pass through a Fan Coil Unit which cools/heats the air and blows it in to the room.
   - Our FCU controllers provide everything needed for these requirements:
     - Hot and Cold Valve control – power + (open/closed or variable 0-10 V or 0-24 V).

- FCU fan motor control (Off/Low/Medium/High).
- Configurable internal dead band logic to manage the achievement and maintenance of temperature setpoints.
- Dry contact inputs for balcony doors, drip trays, filter sensors, etc.

2. **VRF/Split Units**
   - Most commonly found in smaller hotels, these are often closed systems from consumer brands.
   - Fortunately, they almost always offer BACnet integration at the server level. With this link, we can either:
     a. Still provide the thermostat and pass setpoint and actual temperatures back for them to manage.
     OR
     b. Only send room state changes to trigger their system to shift between presets.

Example luxury room BOQ

Quantity	Device	Description
Relay Controllers		
1 x	DDRC-GRMS-E Room Controller	• 7 switched lighting circuits. • 2 x 20 A switched circuits for GPO and Air Conditioning. • 2 dual curtain control relay channels. • 64 DMX Tx lighting channels. • 18 Dry contact inputs • 4 Digital outputs • UL924 input • Ethernet Port
Multipurpose Controllers		
1 x	DDMC802	• 8 channel multipurpose controller supports switched and dimmable loads up to 16 A total. • 8 Dry contact inputs
Integration Devices		
1 x	DDFCUC	• 0-10 V or 0-24 V control of the FCU hot and cold-water valve
Sensors		
4 x	DUS360CR	• Recessed 360° multifunction sensor for guest detection in bedroom and bathroom. Also used for AntiStumble in combination with DUS180WR cover plate.
2 x	DUS180WR	• Wall-mounted cover plate enabling 180° multi sensor for AntiStumble night lighting.
User Interfaces		

Quantity	Device	Description
4 x	AntumbraButton & DACM	• 6-button backlit panel with temperature sensor, proximity sensor, and indicators to show which scene is active. For entrance, bathroom, bedside left and bedside right.
1 x	AntumbraDisplay & DACM	• 6-button backlit panel with LCD screen, temperature sensor, proximity sensor, and indicators used for HVAC control, displaying the current and set temperature, or the time and alarm status.
1 x	Corridor panel	• Third-party panel with Doorbell and DND/MUR indicators.

Example Site BOQ

Quantity	Device	Description
Gateways		
10 x	PDDEG-S Ethernet Gateway	• Ethernet gateway to connect floors to building trunk network.
Computers		
1 x	Windows Server with licensed Multiroom System Manager.	• Central management and monitoring software to run on Windows Server or permanently running PC. • Browser-accessible dashboard providing real-time visibility of room status, system health, alerts, and event timeline.

3.3.3. Architecture

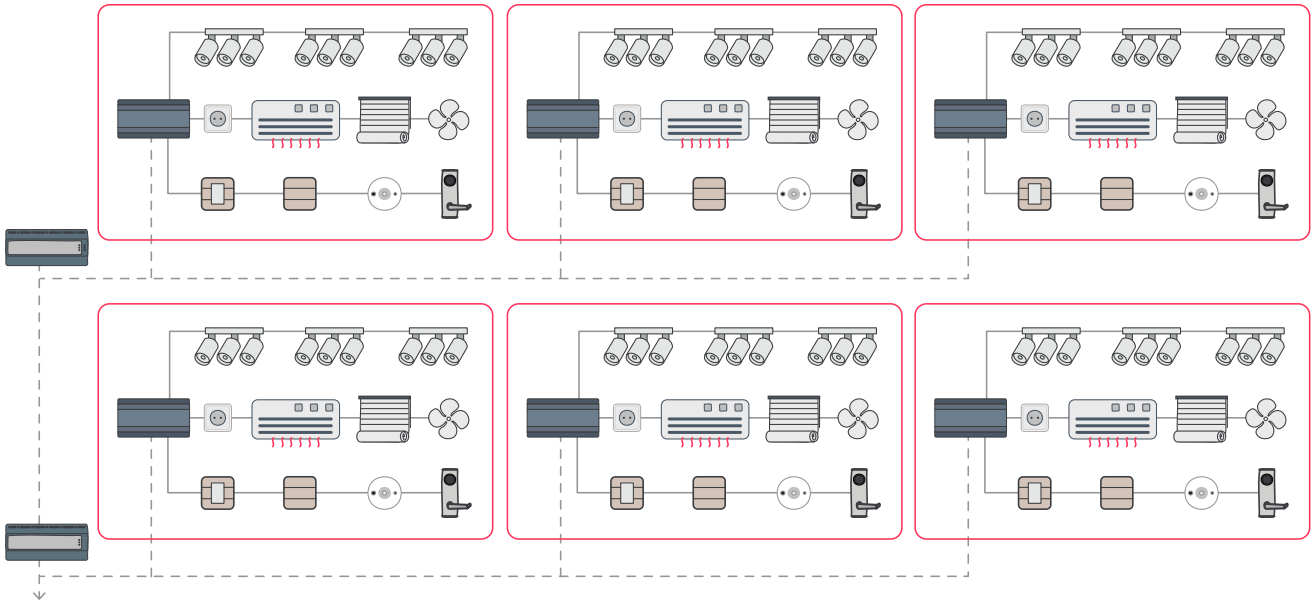
The system is comprised of room devices connected to a room controller in each guestroom. The rooms are then connected via floor Ethernet gateways to the System Manager server, which also integrates with other hotel systems.

Fast deployment is achieved with templated room configurations. By setting the DIP switches on the underside of the DDRC-GRMS-E, the installer can easily configure a unique box number. This also sets the box number range and area number range for devices in the room.

Floor gateways and DDRC-GRMS-E room controllers are given a unique IP address (IPv4 or IPv6) within a site-specific address range made available by the building's IT administrator. This is recorded in the *Room IP address table*.

Ethernet to the room controller

One  Ethernet gateway per floor is connected via Ethernet/fibre to a  DDRC-GRMS-E room controller, then via an RS-485 sub-network to the room devices.



Fibre connection requires an Optical Network Terminal (ONT).

DyNet addressing

The room controller DIP switch selects the following DyNet addressing:

- Box number for the room controller.
- Box number offset within the room.
- Area offset within the room.

Area Distribution Example

Default Area Offset Multiplier = **20**

20 areas per room x 50 rooms per floor = **1,000 areas** per floor
1000 areas per floor x 64 floors = **64,000 areas** total

50 rooms per floor x 64 floors (or other combinations): **3,200 rooms**

The example would only have 48 rooms per floor due to not using DIP Switch setting 0 (zero) and the formula:
Offset = (DIP switch + 1) x Multiplier, meaning that Room 1 is allocated to areas 40 - 59.
Hence, Areas 0 - 19 and 20 – 39 are not used.

Within each room the first two areas are not used (Area 0 = all areas, Area 1 = unassigned area)

Twenty areas are recommended for typical guestrooms and forty or more areas for larger suites.

You can choose other floor ranges to suit different sized hotels.

Each floor Ethernet gateway supports connections for 25 DDRC-GRMS-E controllers.

The DDRC-GRMS-E has two sets of DIP switches labelled ID1 and ID2.

- ID1 sets the DyNet addressing (room offset).
- ID2 sets the Floor Gateway IP addressing in accordance with the Gateway Mapping.

Example DyNet addressing

The standard trunk-and-spur architecture employs address ranges with floor offsets and room offsets as in the below example (assuming floor offset = 1000 and room offset = 20):

- Highest room number per floor = 48
- Highest area number range per floor = 980-999

Floor	EG Offset	Parameters										
1	1000	GRMS Rm#	L1 - Rm1	L1 - Rm2	L1 - Rm3	L1 - Rm4	L1 - Rm5	L1 - Rm6	L1 - Rm7	L1 - Rm8	L1 - Rm9	L1 - Rm10
		DIP Switch	1	2	3	4	5	6	7	8	9	10
		Area Range	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200-219	220-239
		Area Range with Offset	1040-1059	1060-1079	1080-1099	1100-1119	1120-1139	1140-1159	1160-1179	1180-1199	1200-1219	1220-1239
2	2000	GRMS Rm#	L2 - Rm1	L2 - Rm2	L2 - Rm3	L2 - Rm4	L2 - Rm5	L2 - Rm6	L2 - Rm7	L2 - Rm8	L2 - Rm9	L2 - Rm10
		DIP Switch	1	2	3	4	5	6	7	8	9	10
		Area Range	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200-219	220-239
		Area Range with Offset	2040-2059	2060-2079	2080-2099	2100-2119	2120-2139	2140-2159	2160-2179	2180-2199	2200-2219	2220-2239
3	3000	GRMS Rm#	L3 - Rm1	L3 - Rm2	L3 - Rm3	L3 - Rm4	L3 - Rm5	L3 - Rm6	L3 - Rm7	L3 - Rm8	L3 - Rm9	L3 - Rm10
		DIP Switch	1	2	3	4	5	6	7	8	9	10
		Area Range	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200-219	220-239
		Area Range with Offset	3040-3059	3060-3079	3080-3099	3100-3119	3120-3139	3140-3159	3160-3179	3180-3199	3200-3219	3220-3239
4	4000	GRMS Rm#	L4 - Rm1	L4 - Rm2	L4 - Rm3	L4 - Rm4	L4 - Rm5	L4 - Rm6	L4 - Rm7	L4 - Rm8	L4 - Rm9	L4 - Rm10
		DIP Switch	1	2	3	4	5	6	7	8	9	10
		Area Range	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200-219	220-239
		Area Range with Offset	4040-4059	4060-4079	4080-4099	4100-4119	4120-4139	4140-4159	4160-4179	4180-4199	4200-4219	4220-4239
5	5000	GRMS Rm#	L5 - Rm1	L5 - Rm2	L5 - Rm3	L5 - Rm4	L5- Rm5	L5 - Rm6	L5 - Rm7	L5 - Rm8	L5 - Rm9	L5 - Rm10
		DIP Switch	1	2	3	4	5	6	7	8	9	10
		Area Range	40-59	60-79	80-99	100-119	120-139	140-159	160-179	180-199	200-219	220-239
		Area Range with Offset	5040-5059	5060-5079	5080-5099	5100-5119	5120-5139	5140-5159	5160-5179	5180-5199	5200-5219	5220-5239

IP addressing

When an IPv4-based architecture is selected for the project:

1. The floor IP address is programmed into the Ethernet gateway (PDDEG-S) on the floor.

2. The room IP address is programmed into the DDRC-GRMS-E controller in the room.

IPv4 Example

Ethernet gateway	**Floor IPv4 address**
Ground Floor	192.168.0.x
First Floor	192.168.1.x
Second Floor	192.168.2.x
Ground floor room	**Room IPv4 address**
Room 1	192.168.0.1
Room 2	192.168.0.2
Room 3	192.168.0.3

When an IPv6-based architecture is selected for the project:

1. The floor IPv6 multicast address is programmed into the Ethernet gateway (PDDEG-S) on the floor.
2. The DDRC-GRMS-E IPv6 address is automatically set based on its MAC address.

IPv6 Example

Ethernet Gateway	**Multicast IPv6 address**
Ground Floor	FF12::4479:2:0:1
First Floor	FF12::4479:2:0:2
Second Floor	FF12::4479:2:0:3

The gateway mapping feature enables the IP address of every floor gateway to be programmed into every DDRC-GRMS-E so the connection can be selected by the ID2 DIP switches.

Chapter 4. Off-Site Configuration

4.1. Mockup room commissioning process

Multiroom System Manager offers a range of core features and additional feature options. The features chosen by the customer form the basis of the mockup room job file, which contains the configuration for all devices in the specified room profile (mockup room). The STR Template Library job file is considered a starting point and variations are likely in each project.

A single mockup room can cater for different types of rooms if the rooms only have minor variations. Alternatively, you could configure the room and save the job as Room Profile A, then make the appropriate configuration changes and save the job as Room Profile B, etc.

Before preconfiguring room devices, it is important to identify the installation capabilities and limitations for each room profile. This ensures that all features and options work as expected when installed on site.

Configure mockup room job

1. Prepare mockup room.
2. Create mockup room job.
3. Assign channels and devices to areas.
4. Define room logic (features, status, lighting, wake-up, HVAC, UIs,sensors, monitoring).
5. Save configuration to each device in the mockup room (and create Antumbra multiconfiguration devices).
6. Test each feature and adjust configurations as necessary.
7. Test interoperability.

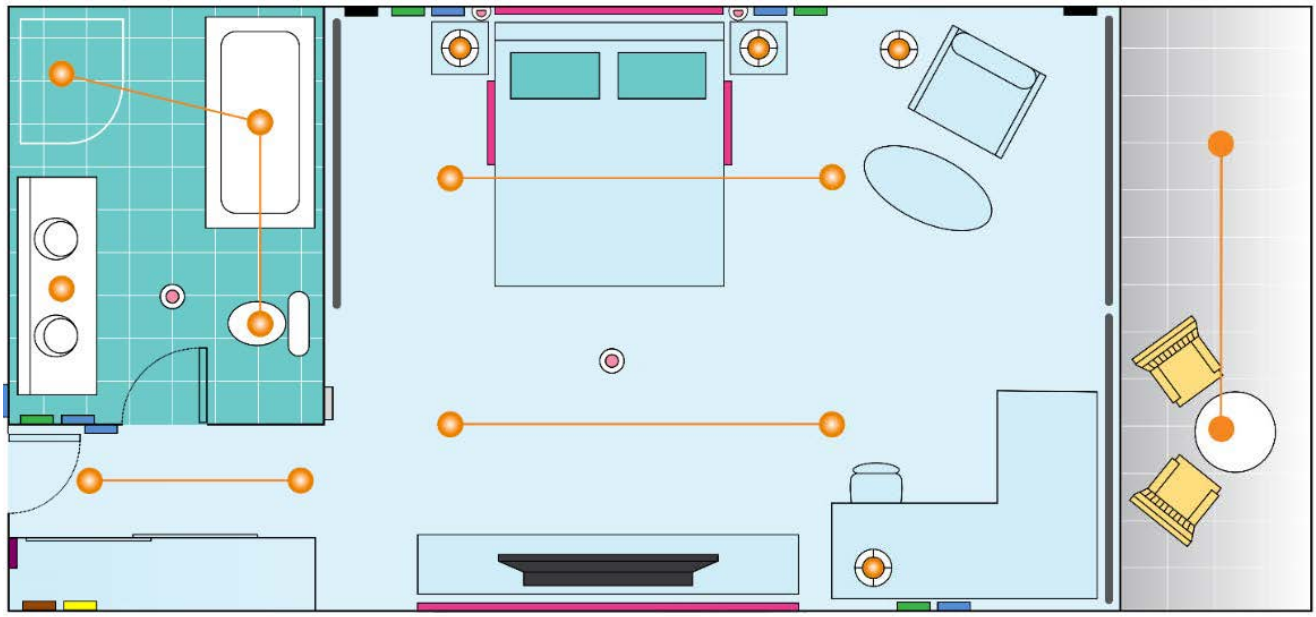
4.1.1. Project reference tools

- *Room layout*
- *Hardware BOQ*
- *Hardware single-line drawing*
- *Circuit allocation table*
- *Luminaire schedule*
- *Room profile floor plan*
- *Electrical drawings with indicative wiring arrangement*
- *Device Installation Instructions*

4.2. Prepare mockup room

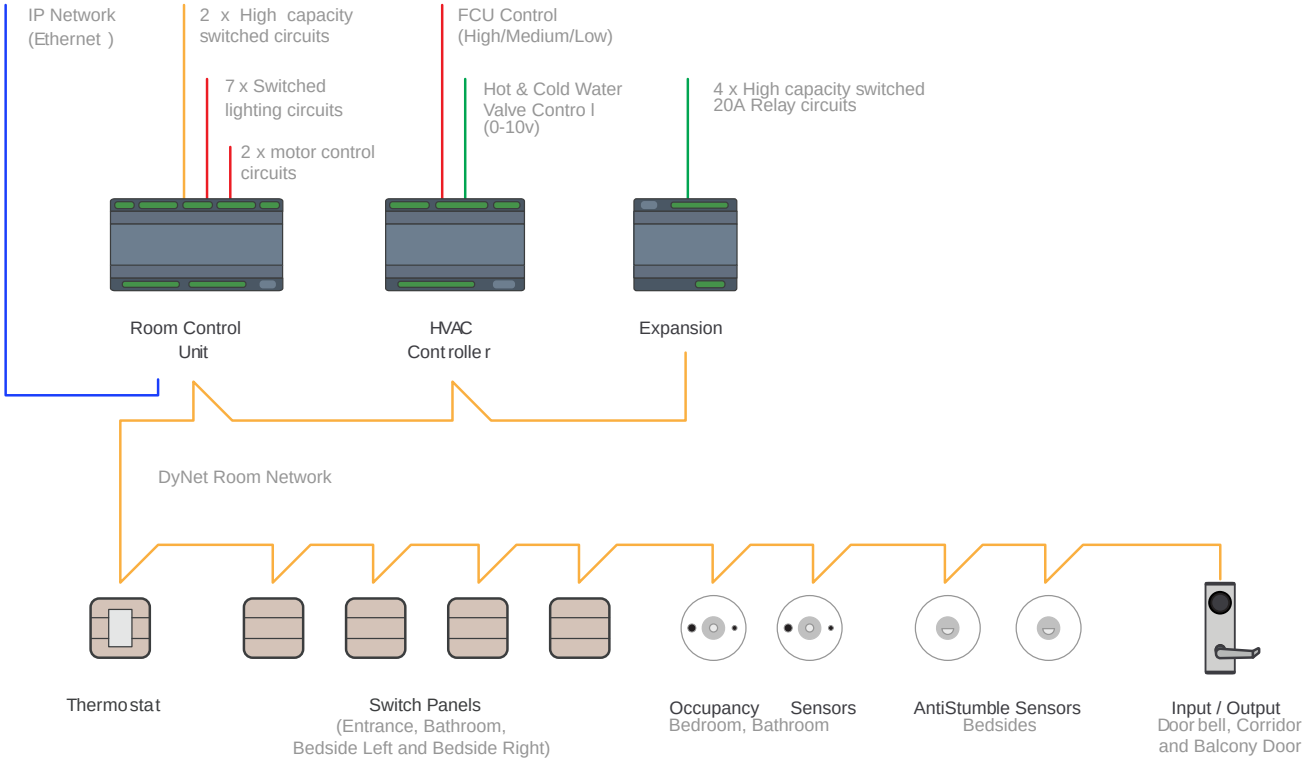
The Electrical Contractor installs the devices in each mockup room, including all network, power, and load connections. Once installed, the System Engineer programs the control features.

4.2.1. Example Mockup Room



	Switched luminaire		Occupancy sensor
	Dimmed luminaire		AntiStumble sensor
	GPO		HVAC Integration
	Curtain control motor		Dry contact
	Doorbell		AntumbraButton
	DMX lighting		AntumbraDisplay

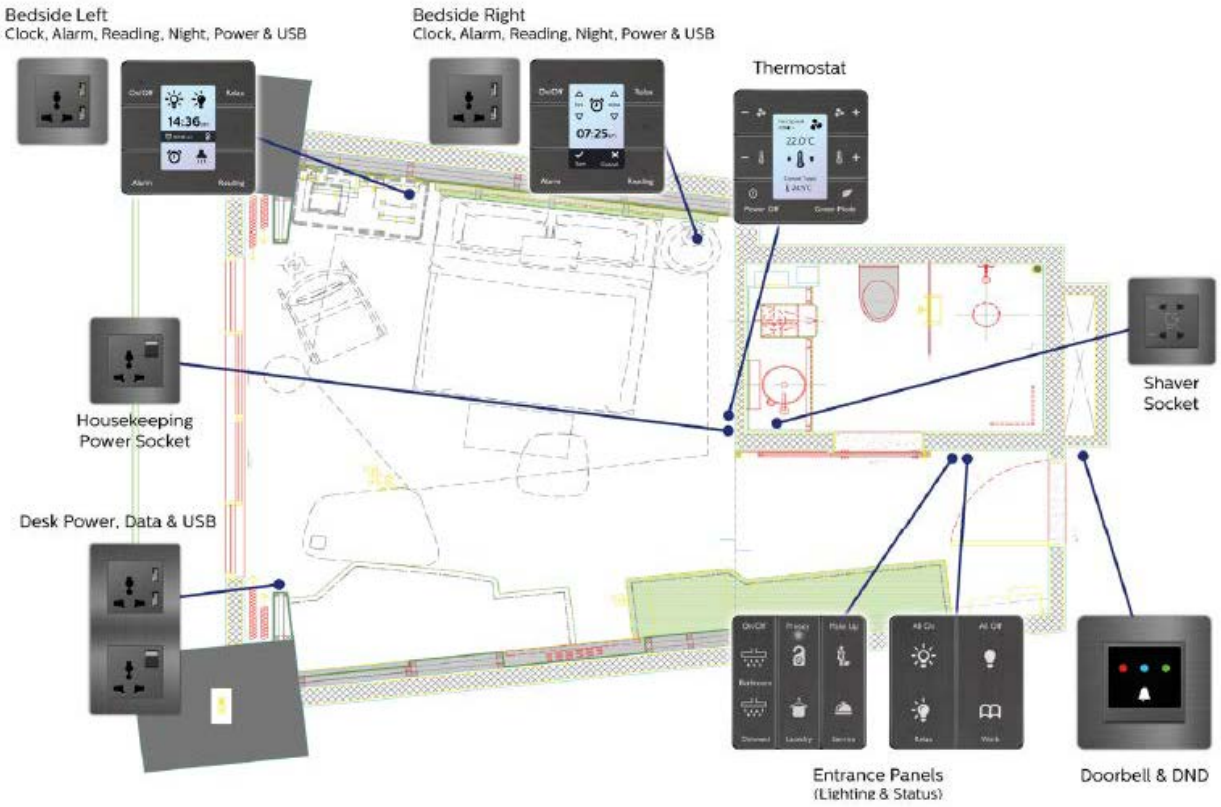
Example hardware single line drawing



Example circuit allocation table

Controller	Channel Number	Description	Circuit Label	Switched	Phase-Cut	DMX
General						
DDRC-GRMS-E	**R1**	Power Sockets	GPOs & TV	1		
DDRC-GRMS-E	**R10**	Doorbell Chime	n/a	1		
Entrance						
DDRC-GRMS-E	**R2**	Entrance Downlights x2	L1			3
Bathroom						
DDRC-GRMS-E	**R3**	Bathroom Cove	L14	1		
DDMC802	**R6**	Downlights x2 & Pendant	L2, L3, L4		1	
Bedroom						
DDRC-GRMS-E	**R4**	Bedroom Cove (high)	L13	1		
DDMC802	**R5**	Bedroom Downlight x5	L1		1	
DDRC-GRMS-E	**R7**	Bedroom Cove (low)	L12			3
DDMC802	**R8**	Bedside Left Reading	L8		1	
DDMC802	**R9**	Bedside Right Reading	L9		1	
DDRC-GRMS-E	**R12, R13**	Curtain Power & Direction	L15	1		
DDMC802	**E1**	Night Lights	L10	1		
DDMC802	**E2**	Floor Lamp	L6	1		
DDMC802	**E3**	Table Lamp	L7	1		
DDRC-GRMS-E	**E4**	Wall Sconce x2	L5, L11			2
		Type Count		**8**	**4**	**11**
		Available		**4**	**14**	**64**
		Spare		**6**	**0**	**53**

Example room layout with user interfaces and electrical accessories



4.2.2. Fixed outputs

Lighting control

A DDRC-GRMS-E load controller has several fixed switched outputs with various relay ratings. It is recommended to connect the fixed outputs to the following loads:

- GPOs (General Purpose Outlets)
- Switched Room HVAC
- Lighting circuits
- Curtain/blind motors

Please check the capacity of the relay you plan on using to make sure it is fit for purpose. Room status indicators can be driven by the GRMS digital outputs or a DLLI8I8O. Curtain control channels may also be used for lighting control as required.

Motor control

For direct motor control, channels are connected to mains. For PLC-based motor control, channels can be connected to mains, low voltage, or dry contacts. There are two dedicated motor control relay channels:

- When selected as a single relay, the output can provide an additional switched lighting circuit.
- When selected for curtain control, outputs are designed to work in pairs and are interlocked in firmware. First channel energizes/deenergizes the circuit and second channel changes the direction of travel.

When wiring, note the location of the Normally Open and Normally Closed terminals.

Modular outputs

As well as controllers with fixed lighting control outputs, multipurpose controllers such as the DDMC802 have modular outputs. Insert the appropriate control modules for the dimmable or switched channels and connect the outputs to their respective loads:

- Curtain control (interlocked switching)
- Fan control (variable speed switching)
- Relay (switching)
- Driver (ballast) (1-10V/DSI/DALI Broadcast or Addressable dimming, DALI 209 Tunable White)
- Trailing edge (phase-cut dimming)
- Leading edge (phase-cut dimming)

For control modules, you must select the protocol in the **Outputs editor > Output Type**.

To configure the modular output channels, install the specified modules and then click the **Query Modules** (or **Load from device**) to set the corresponding lighting protocols. When loads are connected, you can test the connections by sending presets 1 and 4 when channels are still unassigned (in Area 1).

4.2.3. Network connections

Dry contact inputs

Connect each volt-free contact to the dry contact inputs. To test that the dry contact input switches are functioning correctly, close the volt-free contact and check with a multimeter at the controller.

UL924 input

Connect the input switch to the UL924 input. To test that the dry contact input switch is functioning correctly, close the contact and check with a multimeter at the controller (UL924 settings are located in **Device Properties**).

Digital outputs

Connect the outputs to the relevant status indicators. Flash the output channels and check the response with a multimeter.

DMX

Connect the DMX Tx output to the network connection on the DMX fixtures. On the DDRC-GRMS-E there are 64 DMX Tx channels. To check the connection, you must have a load connected to the DMX network and DMX addresses must be within the range of the controller. For more information, refer to the USITT standard on the DMX512 protocol.

Ethernet

Connect the Ethernet cable to the DDRC-GRMS-E controller.
From SB, check that you can discover the controller and receive a sign-on message.

DyNet

Connect the DyNet control cable using a daisy chain connection from the DDRC-GRMS-E **Room** port to each device in the room.

From SB, connect via Ethernet or RS-485 to the DDRC-GRMS-E and check that you can receive a sign-on message from the room controller and each room device.

Check network integrity by pressing the buttons on the last UI in the daisy chain to send preset 1 and preset 4. Note successful device communication by observing the load controller service indicator flashing rate. New unconfigured sensors respond by blinking faster when receiving an Area 1 message. If lighting loads are connected, they will turn on and off.

In-room third-party integration

Check third-party integration connections, if applicable:

- AV
- HVAC
- Curtains
- Access control
- Operations/Housekeeping app

For system-level integration to function you must have both System Manager and the integrated systems installed and configured. Refer to Install System Manager for the mockup room and Integration.

When designing a room, you must consider power consumption on the control network. If the design does not include enough controllers, an additional power supply is required to power the sensors and UIs within the room.

Ensure the network cable current does not exceed 2 amps.

Device	Device current @ 12 VDC
DDNP1501	+1500 mA @ 230 V, +1000 mA @ 120 V
PDDEG-S	+300 mA
DDRC-GRMS-E	+300 mA
DDFCUC	+200 mA
DDMC802	+200 mA
DDRC810DT-GL	+120 mA
DDRC420FR-GL	+120 mA
DDBC120-DALI	+120 mA

Device	Device current @ 12 VDC
DDBC320-DALI	+300 mA
PDEG/PDEB	-100 mA (+200 mA with external supply)
AntumbraDisplay	-60 mA
AntumbraTouch	-40 mA
AntumbraButton	-35 mA
Revolution (PDRxE)	-120 mA
DLLI8I8O	-30 mA
Multifunction Sensor	-10 mA
Ultrasonic Sensor	-80 mA
Humidity Sensor	-20 mA

Values are subject to change. Please refer to the latest device specification sheets for current values.

4.2.4. Fan Coil Unit Controller

To control the HVAC, guestrooms are likely to use an integrated HVAC system or a DDFCUC.

For more information, refer to the *Fan Coil Unit Controller Commissioning Guide* and *DDFCUC Installation Instructions*.

The FCUC has the following connections:

- **Dry contact inputs (selectable x3):**
  - Airflow sensor
  - Custom
  - Dirty air filter
  - Drip tray overflow
  - Energy hold-off for window switch
    (Not used. Instead, send the balcony door open/close message.)
  - Hot water on cold valve
  - Preset
- **Input (Dedicated):**
  - Temperature sensor
- **Outputs:**
  - Hot valve actuator (open/close)
  - Cold valve actuator (open/close)
  - Hot valve actuator (0-10 V)
  - Cold valve actuator (0-10 V)

- Auxiliary feed through relay output (for electric heat relay)

The FCUC temperature sensor input is not used. Instead, temperature sensing is achieved through the Antumbra user interfaces. Please refer to Configuring HVAC and Multi-temperature aggregation.

4.3. Create mockup room job

The STR Template Library SB job file contains the standard configuration and tasking for the different room controllers and room devices. The System Engineer customizes the library for each specific room profile to reflect the design of the mockup room. You can place custom tasking in devices other than the room controller.

The STR GRMS Task can support a single bedroom and bathroom and up to three HVAC areas natively. The HVAC Object task allows up to 17 additional zones of HVAC control. To create additional HVAC areas, you will need to change the Area Offset Multiplier and Box Number Offset Multiplier to a number greater than 20.

For larger suites, more bedrooms are configured by placing an AntiStumble task in a sensor for additional AntiStumble zones. Other additional zones can be configured by changing the Area Offset Multiplier and Box Number Offset Multiplier to a number greater than 20.

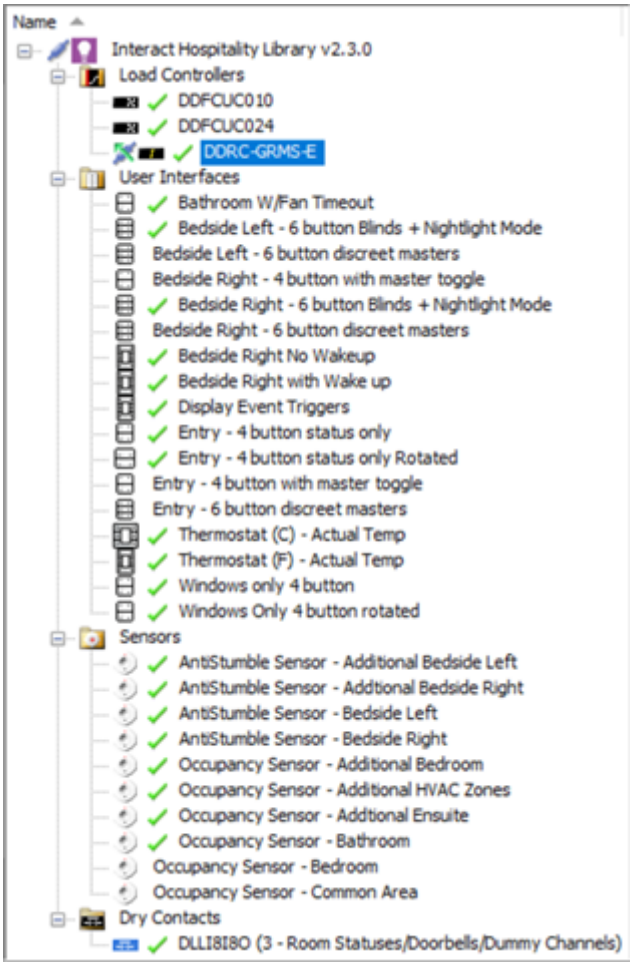
4.3.1. Project reference tools

- *STR Template Library*
- *Button text/icon images*
- *Preset scene definitions*
- *Integration descriptions*
- *Mockup room features table*
- *Room IP address table*
- *Room mapping table*
- *Floor gateway IP address table*
- *Room profile floor plan*

4.3.2. Select preconfigured room devices:

1. Open the latest STR Template Library job file.
2. In **System View**, delete any room devices you do not need.
3. Add more devices to the room controller as required.
   - To change a device type, select **Change Device Type** and select the required device from the list.
   - To make a copy of a device, select copy and paste. In the **Paste** dialog box, select the **Include Task Data** checkbox and click the **OK/Yes** button.
4. Enter the mockup room job properties.

5. Click **Save As Job File** and enter a name for your mockup room job.



4.4. Assign channels and devices to areas

Load controller and device programming follows standard Dynalite programming procedures. The electrical plan indicates the location and type of electrical services in the room, such as user interfaces, sensors, power outlets, blinds/curtains, and lights. From the plan, you can then define the location of logical areas and channels in the room. Interact Hospitality logic relies on assigning circuits and devices to the standard area numbers as shown in the STR Template Library.

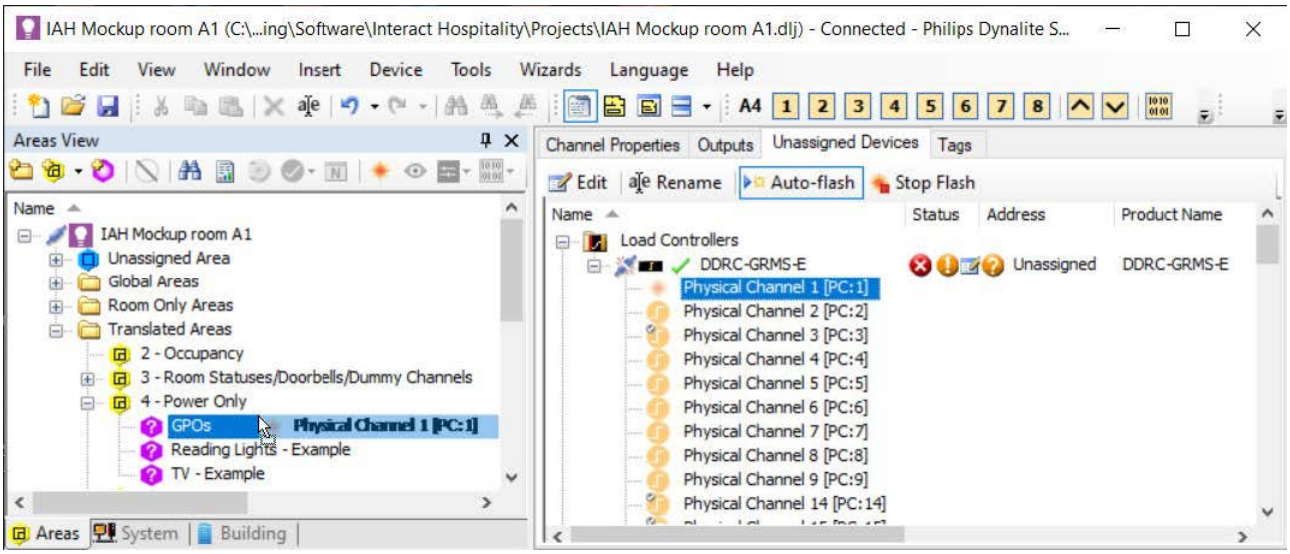
The prebuilt logical offsets in the room controller are defaulted to 20 areas. They are allocated to the most common requirements for a guestroom. Although you can customize and change these, we recommend you try to work within this framework to help standardize configuration across projects and to simplify support requests.

There are also a few areas outside of the standard room range:

- Areas 65000-65005 are used as global areas broadcasting to all rooms.
- Areas in the 200 range are used as room-only messages that do not leave the room.

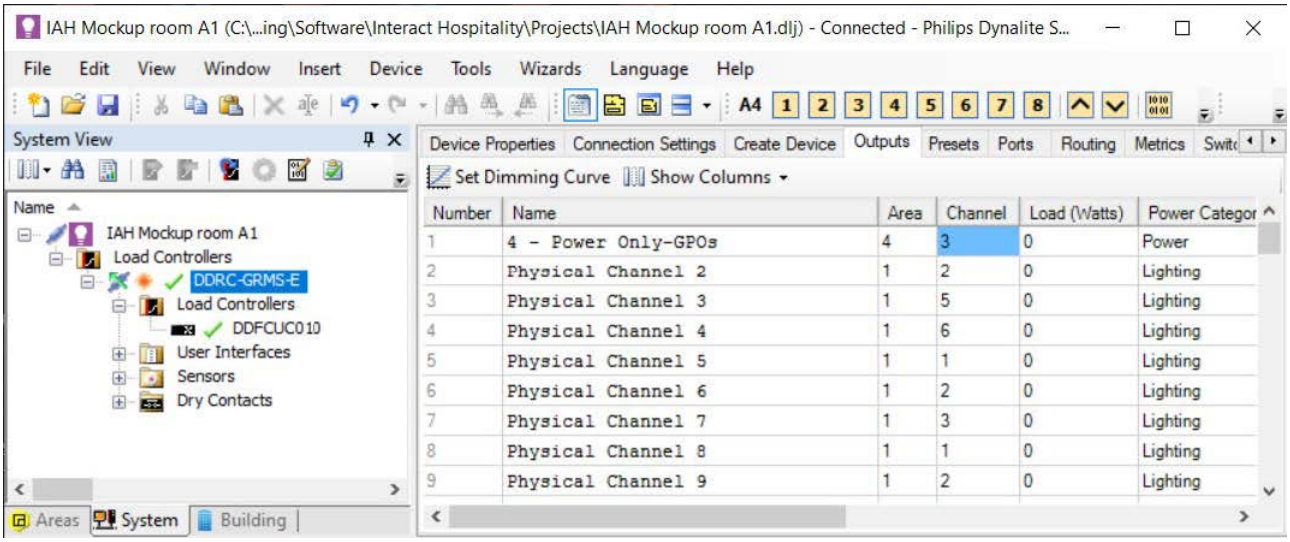
4.4.1. Assign circuits to an area:

1. In the **Areas** view **Unassigned Devices** editor, drag the controller circuits (physical channels) to a channel in an area or to an area to create a new channel.



OR

2. In the **System** view room DDRC-GRMS-E **Outputs** editor, enter the Logical Area and Logical Channel number.

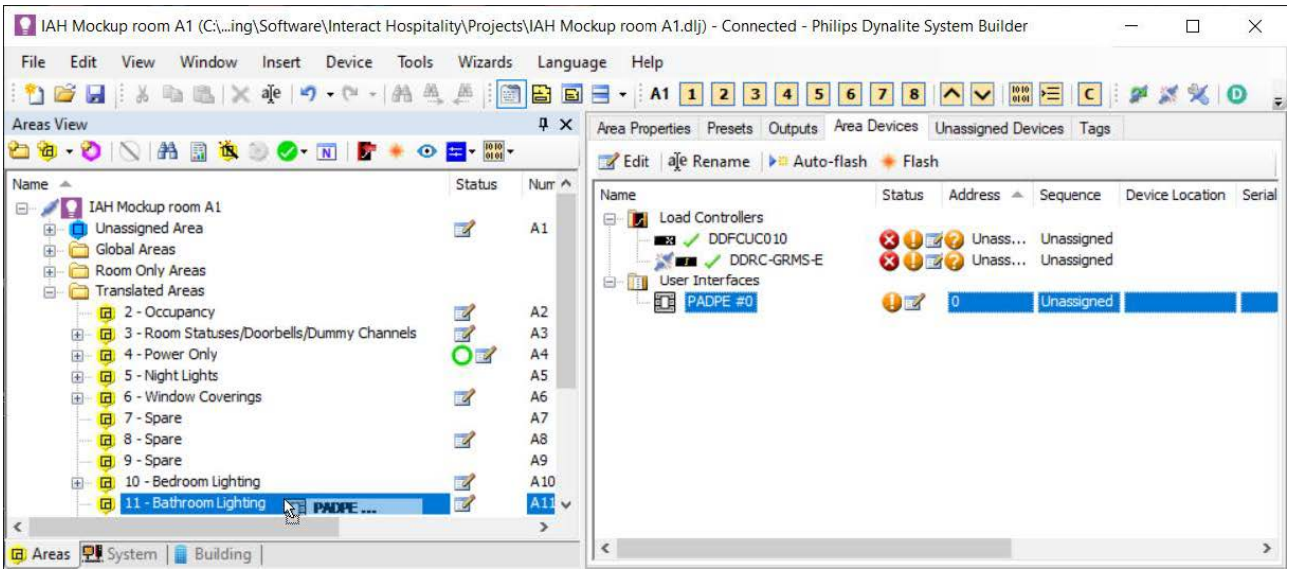


This is easier to do in precommissioning, before the DDRC-GRMS-E has a box number and offsets are in place.

Floor plans are not currently supported in the Multiroom Dashboard but may be used to assist programming.

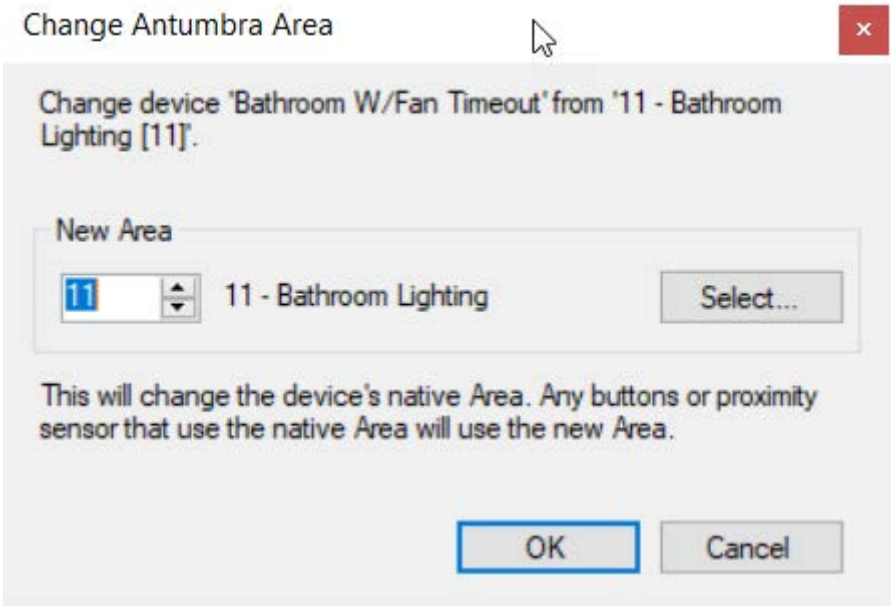
4.4.2. Assign devices to an area:

1. In the **Areas** view, select the **Unassigned Area** (A1) **Unassigned Devices** editor and drag a user interface, dry contact, or sensor device to an area



OR

2. Right-click the device and select **Change Area...**.



The STR Template Library has devices already assigned to the correct area.

If you intend to use preset scenes, you must have a room controller or expansion controller with dimming channels.

Ensure that you have allocated all required channels.

4.4.3. Standard area numbers

Global Areas

Area	Channel	Preset
65000 - Day Night Tracking (System)		1. Day 2. Dawn 3. Dusk 4. Night

Room Only Areas

Area	Channel	Preset
200 - Wake Up Display Area (Hidden)	1. Minute Unit 2. Minute Tens 3. Hour 4. AM PM	Refer to Preset Table in SB
201 - Dummy Trigger Area (Hidden)		1. Initialize devices 2. Resume Trigger 3. HVAC Resume Trigger 4. Suite Wide All Off 5. Master Toggle 1 Press 6. Master Toggle 2 Press 7. Master Toggle 3 Press 8. Master Toggle 4 Press 9. Unoccupied Trigger 10. Goodnight Trigger 11. Leaving Trigger
202 - HVAC Events (HVAC)	1. Default Guest Settings Update 2. Staff Settings Update 3. Checked Out Unoccupied Settings Update 4. Checked In Unoccupied Settings Update 5. Green Mode Settings Update	1. Guest Preference 2. Staff 3. Checked In Unoccupied 4. Checked Out Unoccupied 5. Precondition
217 - HVAC Area 1 (HVAC)		1. Fan Manual 2. Fan Auto Occupied 3. Fan Auto Unoccupied 4. Off
218 - HVAC Area 2 (HVAC)		1. Fan Manual 2. Fan Auto Occupied 3. Fan Auto Unoccupied 4. Off
219 – HVAC Area 3 (HVAC)		1. Fan Manual 2. Fan Auto Occupied 3. Fan Auto Unoccupied 4. Off

Areas 65000 - 65005 are reserved for receiving building-wide System Manager messages.

Areas 200 - 220 are reserved for Room Only Areas. These messages do not leave the room.

Translated Areas

Area	Channel	Preset
2 - Occupancy (System)		1. Guest Occupied 2. Guest Motion check 3. Staff Occupied 4. Staff Motion check 5. Unoccupied 6. Recovery 7. AntiStumble Listen 8. AntiStumble Room Trigger 9. AntiStumble Bath Trigger 10. AntiStumble Room Return Trigger 11. AntiStumble Listen Motion Check 12. AntiStumble Trigger Motion Check
3 - Room Statuses/Doorbells/Dummy Channels (System) **Note:** these channels are mandatory. More channels can be added as required.	1. Doorbells 2. DND Indicator Channels 3. MUR Indicator Channels 4. LPU Indicator Channels 5. Service Indicator Channels 6. Occupancy Indicators 7. AntiStumble Mode 8. Safe Status 9. GPOs/Plug Loads 10. Balcony/Window Switches Primary 11. Balcony/Window Switches Secondary 12. Balcony/Window Switches Tertiary	1. On/Closed 2. On Mode 3. Auto Mode 4. Off/Open
4 – Power Only (Lighting) **Note:** these channels are suggestions only for controlling the power to loads based on the room mode.	1. Reading Lights TV – Example	1. Checked In/Occupied 2. Checked In/Unoccupied 3. Checked Out/Occupied 4. Checked Out/Unoccupied
5 - Night Lights (Lighting)	1. Bedside Left Nightlight – Example 2. Bedside Right Nightlight – Example 3. Bathroom Nightlight – Example	1. All On 2. Right On 3. Left On 4. Off
6 - Window Covering 1 Blackouts (HVAC)	1. Blackout 1 2. Blackout 2	1. Open 2. Preset 2 3. Preset 3 4. Close

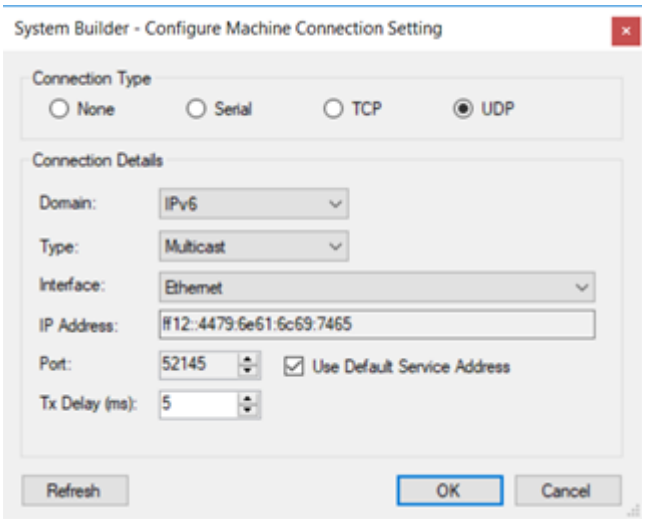
Area	Channel	Preset
7 - Window Covering 2 Sheers (HVAC)	1. Sheers 1 2. Sheers 2	1. Open 2. Preset 2 3. Preset 3 4. Close
8 - Spare (Custom)		1. High 2. Medium 3. Low 4. Off
9 - Spare (Lighting)		1. High 2. Medium 3. Low 4. Off
10 - Bedroom Lighting (Lighting) **Note:** All channel assignments are flexible. The library contains typical assignments only. **Bold = Mandatory Presets**	1. Entry Downlight – Example 2. Bedroom Downlights – Example 3. Bedside Left – Example 4. Bedside Right – Example 5. Desk Lamp – Example 6. Floor Lamp – Example	**1. Bright** **2. Relax** **3. Work** **4. Off** 5. Preset 5 6. Preset 6 7. Preset 7 8. Preset 8 **9. Bright (Night)** **10. Relax (Night)** **11. Work (Night)** **12. Off**
11 - Bathroom Lighting (Lighting)	**Note:** Channels can be added as required.	1. High 2. Low 3. Very low 4. Off
12 - Spare (Lighting)		1. High 2. Low 3. Very low 4. Off
13 - Spare (Lighting)		1. High 2. Low 3. Very low 4. Off
14 - Spare (Lighting)		1. High 2. Low 3. Very low 4. Off
15 - Spare (Lighting)		1. High 2. Low 3. Very low 4. Off

Area	Channel	Preset
16 – Lighting BLA		1. High 2. Low 3. Very low 4. Off
17 - HVAC Area 1 Fan Speed (HVAC)		1. High 2. Medium 3. Low 4. Auto 5. Off 6. 10% 7. 20% 8. 30% 9. 40% 10. 50% 11. 60% 12. 70% 13. 80% 14. 90% 15. 100%
18 - HVAC Area 2 Fan Speed (HVAC)		1. High 2. Medium 3. Low 4. Auto 5. Off 6. 10% 7. 20% 8. 30% 9. 40% 10. 50% 11. 60% 12. 70% 13. 80% 14. 90% 15. 100%
19 – HVAC Area 3 Fan Speed (HVAC)		1. High 2. Medium 3. Low 4. Auto 5. Off 6. 10% 7. 20% 8. 30% 9. 40% 10. 50% 11. 60% 12. 70% 13. 80% 14. 90% 15. 100%

4.4.4. Connect System Builder

Connect over Ethernet to a GRMS controller:

1. Connect power to the device(s).
2. Plug the commissioning PC into the Ethernet socket connected to a Gateway, Bridge or Controller with an Ethernet port (either directly or via a switch).
3. If applicable, configure the router to allow IPv6 multicast addresses.
4. Launch SB and connect using the default IPv6 multicast service address or connect using a TCP IPv4 address.
5. Check that you have selected the correct Interface adapter on your PC and make sure it is on the same subnet as the gateway.
6. Click **OK**. You should see the word **Connected** in the bottom right of the System Builder window.

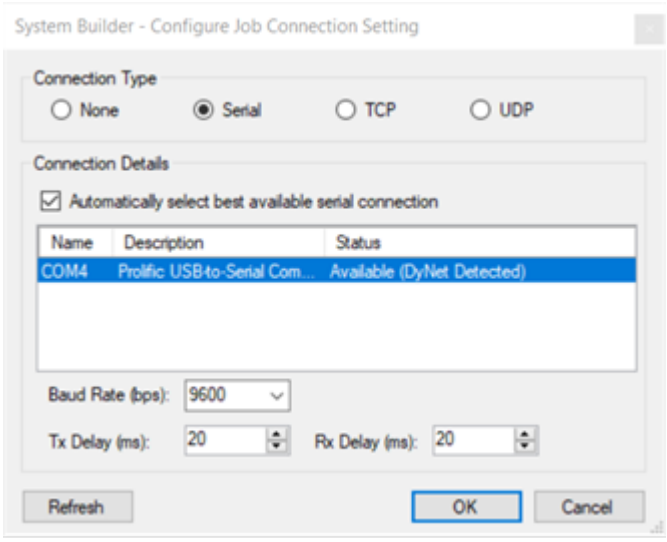


Devices arrive from the factory with an existing IPv4 address typically based on the hotel's IT specification.

For security purposes, the UDP Multicast default service address is being replaced. To connect to Ethernet devices, click **Insert Devices from Network** and select **Discover Network > Discover Devices over Ethernet**. This function finds Ethernet devices even when SB is disconnected.

Connect over RS-485 to a GRMS controller:

1. Connect power to the device(s)
2. Plug the commissioning PC into a USB PC node, then plug the USB PC node into a DyNet socket that is connected to the RS-485 network serial port.
3. Launch SB, select the GRMS and connect using a serial connection.
4. Click **OK**. You should see the word **Connected** in the bottom right of the System Builder window.

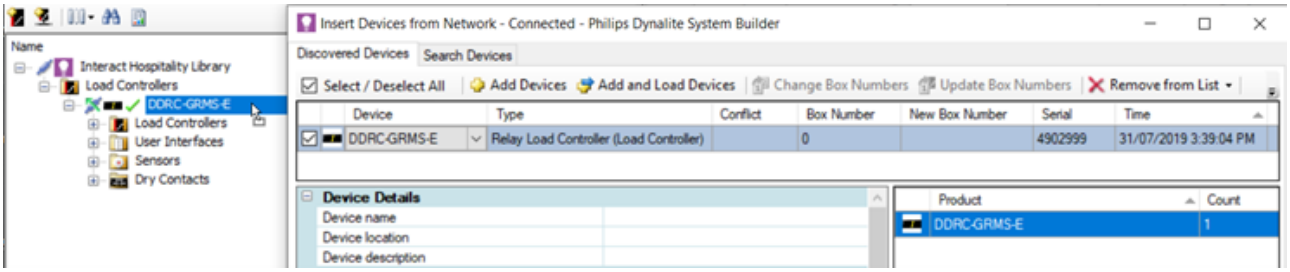


Pay attention to whether SB is connected to the room or floor port to ensure you have the matching connection settings.

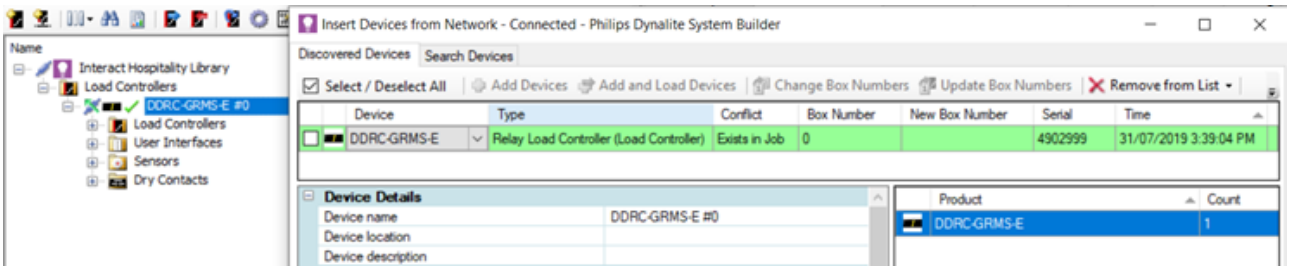
4.4.5. Assign mockup room devices

Insert devices from network:

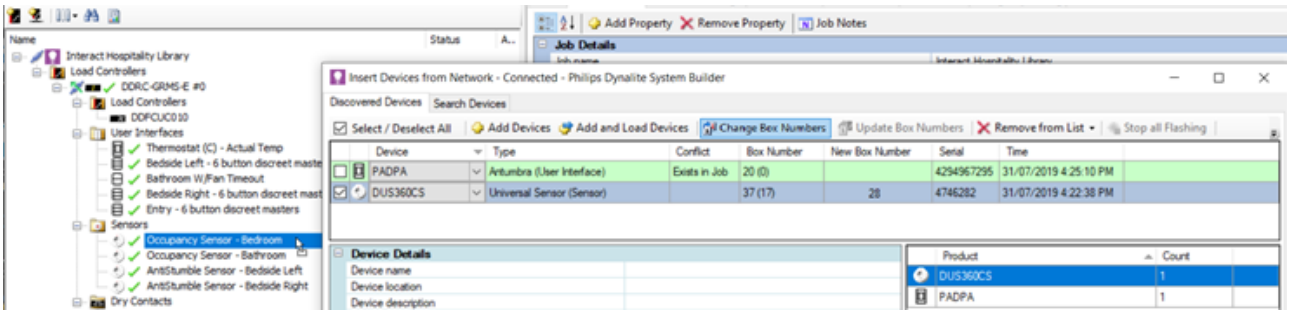
1. Set the DDRC-GRMS-E **Room** DIP switch to 0 (Zero) and reset the device.
2. In System view, select the top of the tree and click **Insert Devices from Network**.
3. Press the service switch on the room controller or search by device code (0x4E). The room controller now appears in the **Discovered Devices** list.



4. Click and drag the mockup room controller from the **Discovered Devices** list onto the room controller icon. The room controller in the job adopts the box number of the mockup room controller.



5. Click **Save to Device**.
6. Select the room controller.
7. Press the service switch on a room device or search by device code. The room device now appears in the **Discovered Devices** list.



8. If applicable, you can change box numbers for each room device to be in the range 20-39 by entering the new box number in **New Box Number** and clicking **Change box numbers**. The **Apply New Box Numbers** window opens and saves the new box numbers to the listed devices.
9. Click and drag the mockup room device from the **Discovered Devices** list onto the device in **System** view. The room device icon adopts the box number of the mockup room device.
10. Close the **Insert Devices from Network** dialogue box.
11. Click **Save to Device**.
12. Repeat steps 6 to 11 for each room device in the mockup room job.
13. Click **File > Save as > Save As Job File** to save the mockup room job to your PC.

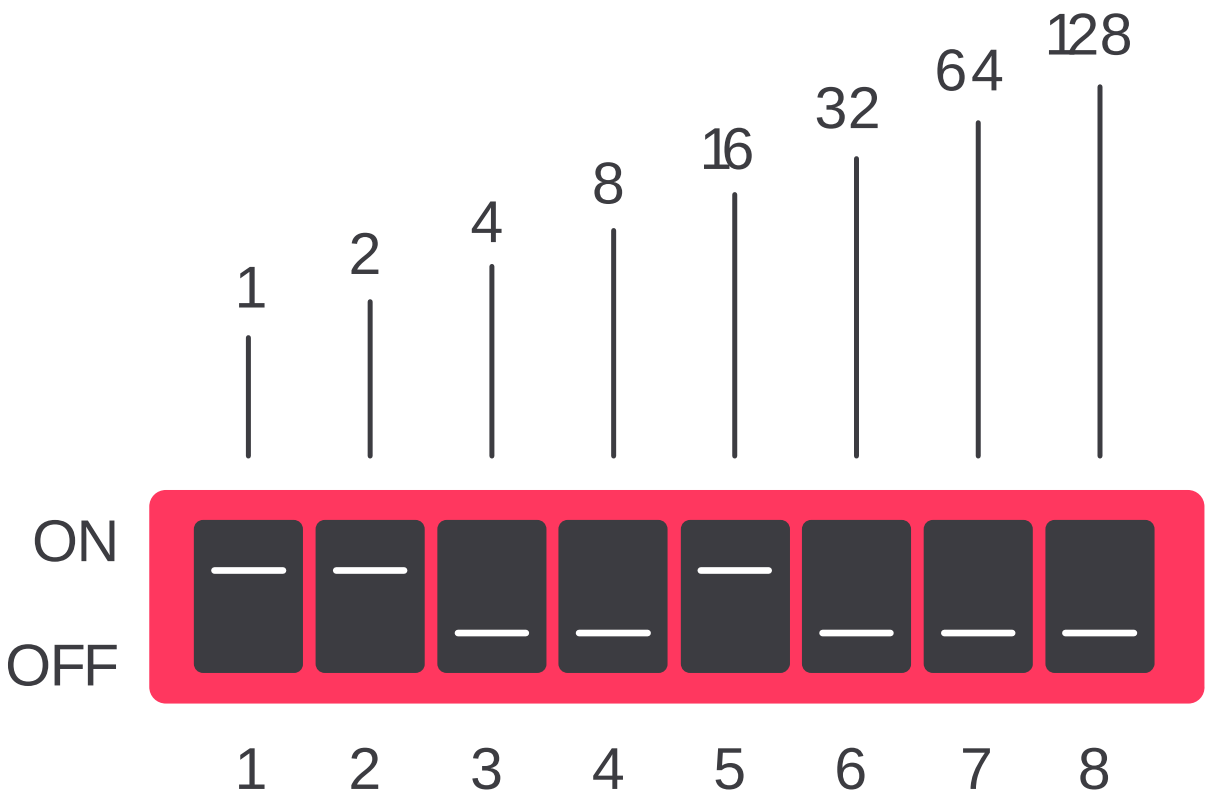
Third-party sensors are not added to the job as they are included in the tasking.

4.4.6. Configure addressing

Room Address

To allow for the specified number of areas and devices within each room, the **Box number multiplier** and **Area offset multiplier** in the room controller **Routing editor** are both set to a default value of 20. Maximum value = 255.

The ID1 DIP switch setting is determined by the total value of all ON switches. The image below shows a DIP switch setting (1 + 2 + 16) = 19.



ID1

The **ID1** DIP switches on the DDRC-GRMS-E set the room controller's box number and the offsets for devices within the room, using the following formulas:

Room controller box number	= DIP switch.
Box number range and Area offset range	= (DIP switch +1) x multiplier to (DIP switch +2) x multiplier – 1

For example, If Room 101, has a room controller DIP switch set to 1:

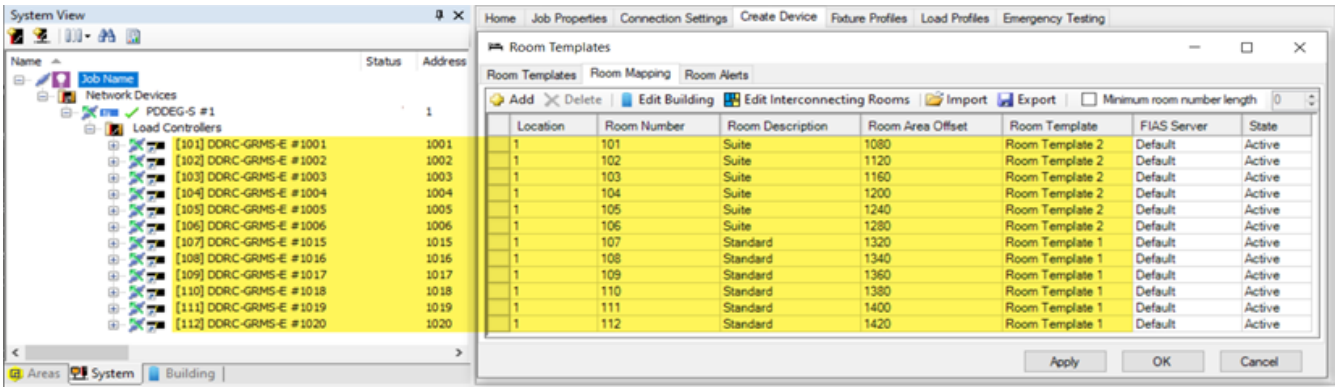
- The room controller box number will be = 1.
- The room device box number range and area range will be (2 x 20 = 40 to 3 x 20 – 1 = 59) = 40 to 59.

If there is a mixture of rooms with different offsets on a single floor gateway (for example, standard rooms with 20 areas and suites with 40 areas), then it is recommended to minimize area number wastage by allocating low DIP switch values to rooms with the larger offset. You then need to leave a gap in DIP switch values between the larger offset rooms and the smaller offset rooms.

In the example below, DIP switch values 7 to 14 are not used. This enables rooms with a 20-range offset to start their area numbers exactly where the rooms with a 40-range offset finish.

- **used values**
- *unused values*

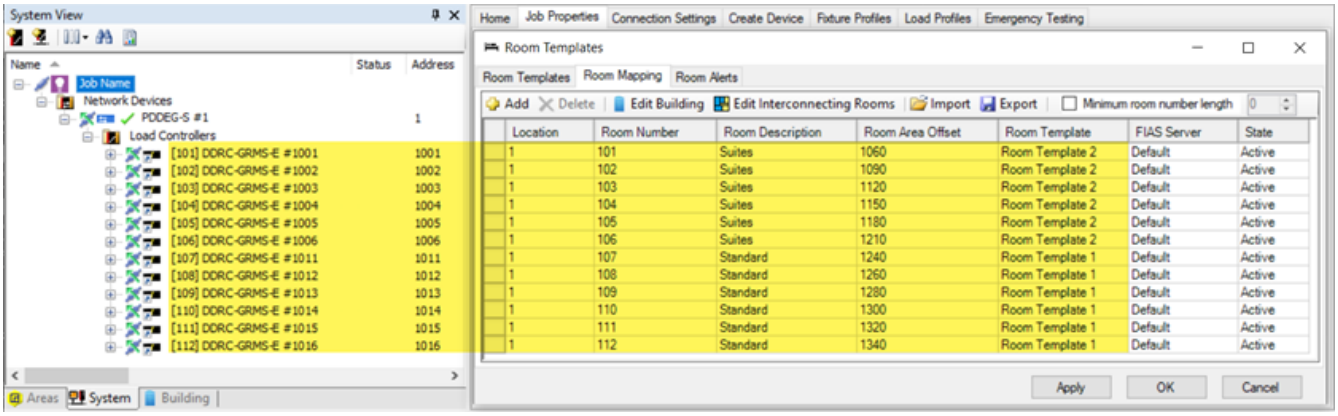
DIP switch	Floor offset	GRMS offset multiplier	Floor start area	Floor end area	Trunk start area	Trunk end area
1	**1000**	**40**	**80**	**119**	**1080**	**1119**
2	**1000**	**40**	**120**	**159**	**1120**	**1159**
3	**1000**	**40**	**160**	**199**	**1160**	**1199**
4	**1000**	**40**	**200**	**239**	**1200**	**1239**
5	**1000**	**40**	**240**	**279**	**1240**	**1279**
6	**1000**	**40**	**280**	**319**	**1280**	**1319**
7	*1000*	*20*	*160*	*179*	*1160*	*1179*
8	*1000*	*20*	*180*	*199*	*1180*	*1199*
9	*1000*	*20*	*200*	*219*	*1200*	*1219*
10	*1000*	*20*	*220*	*239*	*1220*	*1239*
11	*1000*	*20*	*240*	*259*	*1240*	*1259*
12	*1000*	*20*	*260*	*279*	*1260*	*1279*
13	*1000*	*20*	*280*	*299*	*1280*	*1299*
14	*1000*	*20*	*300*	*319*	*1300*	*1319*
15	**1000**	**20**	**320**	**339**	**1320**	**1339**
16	**1000**	**20**	**340**	**359**	**1340**	**1359**
17	**1000**	**20**	**360**	**379**	**1360**	**1379**
18	**1000**	**20**	**380**	**399**	**1380**	**1399**
19	**1000**	**20**	**400**	**419**	**1400**	**1419**
20	**1000**	**20**	**420**	**439**	**1420**	**1439**



In the example below, DIP switch values 7 to 10 are not used. This enables rooms with a 20-range offset to start their area numbers exactly where the rooms with a 30-range offset finish.

- **used values**
- *unused values*

DIP switch	Floor offset	GRMS offset multiplier	Floor start area	Floor end area	Trunk start area	Trunk end area
1	**1000**	**30**	**60**	**89**	**1060**	**1089**
2	**1000**	**30**	**90**	**119**	**1090**	**1119**
3	**1000**	**30**	**120**	**149**	**1120**	**1149**
4	**1000**	**30**	**150**	**179**	**1150**	**1179**
5	**1000**	**30**	**180**	**209**	**1180**	**1209**
6	**1000**	**30**	**210**	**239**	**1210**	**1239**
7	*1000 se*	*20*	*160*	*179*	*1160*	*1179*
8	*1000*	*20*	*180*	*199*	*1180*	*1199*
9	*1000*	*20*	*200*	*219*	*1200*	*1219*
10	*1000*	*20*	*220*	*239*	*1220*	*1239*
11	**1000**	**20**	**240**	**259**	**1240**	**1259**
12	**1000**	**20**	**260**	**279**	**1260**	**1279**
13	**1000**	**20**	**280**	**299**	**1280**	**1299**
14	**1000**	**20**	**300**	**319**	**1300**	**1319**
15	**1000**	**20**	**320**	**339**	**1320**	**1339**
16	**1000**	**20**	**340**	**359**	**1340**	**1359**



Floor Address

Each floor gateway connects via the Ethernet trunk to System Manager and then via an Ethernet spur to the rooms. Each floor gateway is configured with a unique IP address and offset (physical and logical address range) for example, 1000, 2000, 3000 etc.

The floor gateway IP address is configured in the DDRC-GRMS-E by adding a Gateway Mapping Port in the Port Editor. Then, adding a list of all the floor gateway static IP addresses in the Gateway Mapping editor. One floor gateway can then be selected by the ID2 DIP switches on the DDRC-GRMS-E.

You can enter the Gateway Mapping information in the DDRC-GRMS-E when creating the hotel job or when the IP address of every floor gateway is known.

4.5. Define Room Logic

The STR Template Library in the DDRC-GRMS-E contains all the tasking code to facilitate project programming. Providing a standardized format enables faster installation, commissioning and deployment, easy upgrades, swift support, and consistent documentation to reduce knowledge burden.

To access the template library, select the DDRC-GRMS-E Tasks tab. You can define the logic in the mockup room by first entering the task template settings – Activate features, Areas, Task Controls, Languages, HVAC controls, HVAC Temperatures, Doorbell settings, Automation Settings and Sleep Settings. Then you can modify the configuration of each feature for your specific project.

These tasks should not be modified

0. Startup Task
1. logical_watcher_task
2. occupancy_area_task
3. status_area_task
4. nightlight_area_task
5. bedroom_lighting_area_task
6. primary_hvac_area_task
7. secondary_hvac_area_task
8. tertiary_hvac_area_task
9. primary_hvac_energy_holdoff_timer
10. secondary_hvac_energy_holdoff_timer
11. tertiary_hvac_energy_holdoff_timer
12. resume_hvac_preset_processing_task
13. vip_refresh_task
14. vip_task
15. greenmode_task
16. day_night_area_task
17. guest_entry_task
18. staff_entry_task
19. resume_task
20. door_close_task
21. doorbell_task
22. unoccupied_timer
23. unoccupied_settings
24. recovery_task
25. check_in_and_out_task
26. access_entry_task
27. dummy_trigger_area_task
28. card_removed_task

29. goodnight_task
30. dynet_2_watcher_task
31. hvac_event_task
32. bulk_update_bouncer_task
33. humidity polling
34. primary_hvac_humidity_repeat_timer_df
35. secondary_hvac_humidity_repeat_timer_df
36. tertiary_hvac_humidity_repeat_timer_df
37. primary_humidity_reset_task
38. secondary_humidity_reset_task
39. tertiary_humidity_reset_task
40. precondition_timer
41. kit_card_drop_activate
42. kit_mag_or_card_drop_task
43. kit_master_toggle
44. dry_contact_occupancy_refresh_task
45. task_45

These tasks can be modified for each project

46. project_specific_first_day
47. project_specific_first_night
48. project_specific_welcome_day
49. project_specific_welcome_night
50. project_specific_start_up_task
51. project_specific_vip_entry_task
52. project_specific_staff_entry_task
53. project_specific_checked_in_unoccupied_settings_task
54. project_specific_checked_out_unoccupied_settings_task
55. project_specific_check_in_task
56. project_specific_check_out_task
57. project_specific_goodnight_task
58. project_specific_leaving_task
59. project_specific_resume_task
60. project_specific_room_linked_task
61. project_specific_room_unlinked_task
62. task_62
63. task_63
64. task_64

The STR GRMS Tasks must be placed in a DDRC-GRMS-E.

Doorbell press should send P2 one touch message which should be excluded for that channel, doorbell release should send P4 one touch message to the logical channel.

If Scene Shift is enabled, remember to program presets 8-16 for lighting areas.

4.5.1. Activate Feature

To reduce the number of unnecessary network messages, the library enables you to activate/deactivate the following features (select **True** if the feature is used or **False** if the feature is not used).

Property	Description
HVAC	Enable if HVAC is controlled. Default = *True*.
2 HVAC Areas	Enable if room has two HVAC areas. Default = *False*.
3 HVAC Areas	Enable if room has three HVAC areas. Default = *False*.
Window Coverings	Enable if motorized window coverings are used. Default = *True*.
Window Coverings 2	Enable if a second set of motorized window coverings are used. Default = *True*.
Balcony/Window	Enable if Balcony/Window Sensors are used. Default = *True*.
Night Light Lighting	Enable if Night light is used. Default = *True*.
Do Not Disturb	Enable if Do Not Disturb (Privacy) is used. Default = *True*.
DND Indicator	Enable if Do Not Disturb (Privacy) indicators are used. Default = *True*.
Make Up Room	Enable if Make Up Room is used. Default = *True*.
MUR Indicator	Enable if Make Up Room indicators are used. Default = *True*.
Laundry Pick Up	Enable if Laundry Pickup is used. Default = *False*.
LPU Indicator	Enable if Laundry Pick Up indicators are used. Default = *True*.
Service Request	Enable if Service Request is used. Default = *False*.
Service Indicator	Enable if Service Request indicators are used. Default = *False*.
Occupancy Indicator	Enable if Occupancy Indicators are used. Default = *False*.
Doorbell	Enable if Doorbell is used. Default = *True*.
Sensors	Enable if Sensors are used. Disable if card drop is used. Default = *True*.
Languages	Enable if multiple languages are used in the room. Default = *True*.
Wake-Up Alarms	Enable if alarms are used in the room. Default = *False*.
Temperature Aggregation	Enable if temperature aggregation is used in the room. Default = *False*.

Property	Description
GPO	Enable if the GPO/Plug load channel is used. Default = *True*.
Power Only	Enable if the Power Only Area is used. Default = *True*.
PMS Integration	Enable if the system has integration with a property management system. Default = *True*.
Scene Shift	Enable if you want Area 10 presets to offset by 8 at sunset and sunrise. Default = *False*.
Door Mag Switch	Enable if you have a door open switch. Default = *True*.
Access Controls	Enable if you have access controls integration. Default = *True*.
Large Suite	Enable if you have more than 3 HVAC zones and need to pass bulk updates to other devices. Default = *False*.
Humidity	Enable if tracking humidity.
Humidity Refresh	Enable if using automatic dehumidification
Precondition	Enable precondition room after check in. Preconditioning only runs when the room is unoccupied and ends when a guest enters the room and does not start again until after the guest is checked out. Preconditioning pauses if staff enter the room and resumes when they exit.
Dry Contact Sensors	Enable if using dry contact sensors on the **Motion Control** tab of the DDRC-GRMS-E.

For faster response when changing settings, set Compile Task Template to **Manually**. Then when you are finished changing all the settings, click **Compile Now**.

To make other settings visible, ensure that the matching **Activate Feature** property is set to *True*.

Added support for HVAC objects including area 202 to trigger HVAC events. HVAC Object task allows for up to 17 zones of HVAC control.

4.5.2. Areas

When assigning channels to areas, the library relies on the following area numbers to be used in the mockup room. Please request changes by contacting the System Expert team.

Property	Description	Default Setting
Occupancy Area	Dummy Area used for occupancy detection.	2 - Occupancy
Status Area	Area of statuses, doorbell. Dummy messages etc.	3 - Room Statuses/Doorbells/ Dummy Channels
Power Only Area	Area of locally switched devices and appliances.	4 – Power Only
Night Light Area	Area of the night lights.	5 - Night Lights
WC1 Blackout Area	Area of blackout window coverings.	6 - Window Covering 1 Blackouts

Property	Description	Default Setting
WC2 Sheer Area	Area of sheer window coverings.	7 - Window Covering 2 Sheers
Spare Area	Spare Area.	8 - Spare
Spare Area	Spare Area.	9 – Spare
Master Bedroom Lighting Area	Area of the main bedroom lighting.	10 - Bedroom Lighting
Bathroom Area	Area of the main ensuite bathroom lighting.	11 - Bathroom Lighting
Spare Area	Spare Area.	12 – Spare
Spare Area	Spare Area.	13 – Spare
Spare Area	Spare Area.	14 - Spare
Spare Area	Spare Area.	15 - Spare
Base Link Area	Lighting base link area.	16 - Lighting BLA
1st HVAC Area	First HVAC Area	17 - HVAC Area 1 Fan Speed
2nd HVAC Area	Second HVAC Area	18 - HVAC Area 2 Fan Speed
3rd HVAC Area	Third HVAC Area	19 - HVAC Area 3 Fan Speed
Day/Night Dummy	Dummy area used to track sunset and sunrise	65000
Dummy Trigger Area	Dummy area used to trigger things in the room only.	201 – Dummy Trigger Area
Dummy HVAC Event Area	Dummy area used to trigger HVAC events.	202 - HVAC Events

Areas not in use can be set to Area 1. You can rename areas to suit each specific mockup room design

If multiplier = 20, only use area numbers 2 to 19.

4.5.3. Task Controls

The Task Controls section allows you to modify the behavior of each mode.

Property	Description
Scene Shift Update	Controls if scene shifted areas are preset reset on sunrise and sunset to update levels to new value with a 20-minute fade time.
Debug Mode	Debug mode sends a debug message any time a task is triggered. True/False
Lang1 on Start up	Enable if language 1 home page is desired on startup. Disable if options page is desired on startup. True/False

Property	Description
Unoccupied Setting Delay	Delay time after the HVAC turns off before the curtains close and lighting turns off when a room becomes unoccupied. Maximum valid value: 21:50:000 (rounded to 10 ms).
Entry Delay	Select how long to queue an access control entry message before assuming someone swiped without entering. Maximum valid value = 21:50.000 (minutes:seconds.milliseconds rounded to 10ms).
Late Entry Msg Delay	Select how long to wait after a door open for a late access control entry message to show up before marking the room as guest occupied. Maximum valid value = 21:50.000 (minutes:seconds.milliseconds rounded to 10ms).

4.5.4. Languages

The Languages section enables you to enter two bytes in hexadecimal to set the default language:

- **Language 1 High (Hex):** First byte of the default language.
- **Language 1 Low (Hex):** Second byte of the default language.

Language: "Language Code(High Byte,Low Byte)"

- **Arabic:** AR(41,52)
- **Dutch:** NL(4E,4C)
- **English:** EN(45,4E)
- **French:** FR(46,52)
- **German:** DE(44,45)
- **Italian:** IT(49,54)
- **Japanese:** JA(4A,41)
- **Mandarin:** ZH(5A,48)
- **Spanish:** ES(45,53)
- **Thai:** TH(54,48)
- **Vietnamese:** VI(56,49)

4.5.5. HVAC controls

The HVAC Controls sections provides HVAC setup data.

Property	Description
HVAC Off Delay	Delay time after the balcony door or window is opened before HVAC turns off. Maximum valid value = 21:50.000 (minutes:seconds.milliseconds rounded to 10ms)
HVAC On Delay	Delay time after the balcony door or window is closed before HVAC turns back on. Maximum valid value = 21:50.000 (minutes:seconds.milliseconds rounded to 10ms)

Property	Description
Set Temp Override	Determines if set temperatures get overridden on occupancy changes and then resumed on guest entry. False would rely on deadbands shifting on occupancy changes. True/False
Relative Set Temp	Determines if set temperatures are offset relative to guest preference when unoccupied. False would send a specific set temperature based on bulk variable updates. True/False
Relative Set Temp Offset	Number of degrees Celsius (°C) that the set temperature is increased when room becomes unoccupied.
Max Set Temp Offset	Maximum allowed set temperature in degrees Celsius (°C) that the set temperature can be increased to when room becomes unoccupied.

HVAC Temperature Conversion

Celsius	**17°C**	**18°C**	**19°C**	**20°C**	**21°C**	**22°C**	**23°C**	**24°C**
Farenheit	62°F	64°F	66°F	68°F	70°F	72°F	73°F	75°F

4.5.6. Humidity Settings

This section controls dehumidification behaviour.

Property	Description
Dehumidification Fan Speed	Fan speed during humidity refresh.
Dehumidification Set Temperature	Target Set Temp during humidity refresh.
Dehumidification Start	Refresh will begin when humidity exceeds this value.
Dehumidification End	Refresh will end when humidity drops below this value.
Dehumidification Minimum Temperature	The minimum temperature for dehumidification. Below this value dehumidification is impractical.
Dehumidification Max Duration	Maximum duration of a humidity refresh in minutes. Max *255*.
Dehumidification Repeat Delay	Time between dehumidification attempts in minutes. Max *255*.
Humidity Polling	Enable if humidity sensor requires polling.
Humidity Polling Interval	Interval between humidity polling. Maximum valid value: *21:50.000* (rounded to: 10 ms).

4.5.7. Doorbell Settings

The Doorbell section allows you to modify the behavior of the doorbell.

Property	Description
DND Doorbell Mode	Controls whether doorbell is disabled by DND mode. True, False.
Doorbell Limits	Enable if Doorbell is limited to prevent excessive pressing. True, False.
Doorbell Max Ring	Select max time the doorbell can ring on a single push. Maximum valid value: 21:50:000 (rounded to 10 ms).
Doorbell Delay	Select how long the doorbell is disabled after pushing. Maximum valid value: 21:50:000 (rounded to 10 ms).

4.5.8. Card Drop Settings

If used, this section controls the card drop delay.

Property	Description
Card Drop Delay	Select how long after the card is removed before the room becomes unoccupied. Maximum valid value: *21:50:000* (rounded to 10 ms).

4.5.9. Sensor Controls

If used, this section sets the occupancy timeout delay.

Property	Description
Sensor Timeout Delay	Delay time to wait for the sensor to timeout. Must be longer than the sensor's internal timeout. Maximum valid value: *21:50:000* (rounded to 10 ms).

4.5.10. Automation settings

Automation controls the interaction between different features.

Property	Description
DND LPU Mode	Enable if LPU is disabled by DND mode. True/False
DND Service Mode	Enable if Service Pickup is disabled by DND mode. True/False
DND Deadbolt Mode	Enable if DND is turned on when deadbolt is thrown and off when released. True/False

4.5.11. Sleep Settings

The Sleep Settings section allows you to modify the Sleep Mode behavior when the Goodnight task is

triggered.

Property	Description
Night Light Mode	Default Nightlight Mode when goodnight task is triggered. 0=Off, 1=On, 2=AntiStumble
Sleep Status Mode	Controls if DND is set by goodnight task. True/False
AntiStumble/Time of Day Mode	Controls if AntiStumble is halted at sunrise. True/False

4.6. Configuring Room Status

4.6.1. Occupancy

Real-time occupancy is detected by the room sensors. Front door opening/closing triggers the occupancy detection task to update the **Area 2 - Occupancy** preset. This is combined with the Checked-In/Out status to determine if it is a guest or staff in the room and whether it is daytime or nighttime.

For projects without access control integration, any checked-out entry is treated as staff-occupied and any checked-in entry is treated as guest-occupied.

Although key drop occupancy detection is offered it is not recommended as it is easily overridden by the guest.

4.6.2. Room states and modes

The system uses context from the real-time clock, room sensors, PMS, and Multiroom Dashboard to switch between room states and modes:

- Checked-Out & Unoccupied state
- Checked-Out & Occupied state
- Staff Mode
- Checked-In & Unoccupied state
- Checked-In & Occupied state
- Welcome
- Daytime
- Evening
- Green mode
- VIP mode
- Guest preferences

Green Mode and VIP Mode are mutually exclusive. Selecting one automatically deactivates the other.

4.6.3. Guest services

Guest service requests are indicated by the room status. Area 3 channels are used for room status indicators and non-lighting features. The associated task for Area 3 detects the DND/MUR/LPU/RSP status, the doorbell status, and the balcony door status.

4.6.4. Power outlet control by room state

The power outlets (GPOs/plug loads) and other switched appliances in the room are automatically energized based on guest occupancy and the checked-in/out state. Some non-controlled power outlets may be designated in the room to provide power continuity for AV equipment, computer charging, minibar, etc. These channels should be assigned to Area 4.

4.7. Configuring Lighting

4.7.1. Switching

Switching is the simplest method of lighting control. In the controller, this functionality is performed by relays. All output channels can be configured for switching only, if required. The electrical design should ensure that the number and types of loads in each switched circuit do not exceed each output's power rating.

When grouped into logical areas, combinations of lights can be switched simultaneously to create different lighting scenes.

DDRC-GRMS-E Outputs:

- **Channels 1-13:** Switched
- **Channels 14-17:** Digital
- **Channels 18-81:** DMX Tx

DDRC-GRMS-E output channel 1 should be used to switch the general purpose outlet's circuit in the room.

DDRC-GRMS-E output channels 10 to 13 are designed for switching two curtain motors. DDRC-GRMS-E channels 10 and 12 control power to the motors and DDRC-GRMS-E channels 11a, 11b, 13a and 13b toggle the motor direction. The firmware ensures that the motor direction relay only changes state when the power channels are switched OFF. The room control task uses preset messages to area 6 for curtain control (Preset 1 = Open, Preset 4 = Close, Stop Ramp = Stop).

More complex switching combinations and sequences can be created in the user interface **Action Chain Editor** or in the **Task Editor**.

For switching channels, fade times should be set to 0 (Zero).

The addition of a DDNG485 enables direct control of Somfy controllers and blind motors in the room. For more information, refer to the *DyNet to Somfy Commissioning Guide*.

4.7.2. Preset Scenes

Scenes are created in the Preset editor for each area in the guestroom. Where provided by the controller, the Preset editor allows the lighting intensity and colors to be defined for each logical channel in a preset.

Specific channels can be excluded from a preset or set to switching only in the Outputs editor.

Project Reference Tools

- *Preset table*

Area Properties | Presets | Outputs | Area Devices | Unassigned Devices

New | Synchronise | Request Levels

Number	Channel Name	1. Bright	2. Relax	3. Work	4. Bedside All Off
1	Entry Downlight	100%	70%	40%	0%
2	Bedroom Downlights	100%	70%	40%	0%
3	Bedside Left	100%	36%	100%	0%
4	Bedside Right	100%	70%	0%	0%
5	Desk Lamp	100%	70%	40%	0%
6	Floor Lamp	100%	70%	40%	0%

Example preset table

Interact Hospitality default scenes are Bright, Relax, Work, Bedside Off, and Entry Off. Presets are offset by 8 at sunset and returned to normal at sunrise.

Other scenes can be prepared to suit the exact requirements of the lighting designer. For example:

- Welcome scene - light intensity based on time of day with curtains open and the TV showing a welcome message can help new guests explore their room.
- Turndown scene - In the evening after turndown, the room can be dimmed with a soft focus on the bed and pillow gifts (Turndown scene can only be activated by staff)
- TV/Movie scene - A guest can choose a scene tailored for enjoying TV and films with softer lighting and no glare, such as bedside or table lamps only.
- Reading scene - For guests wanting to sit in the reading chair or for brighter task lighting on the desk.

Scenes can also be dynamic, taking into account natural daylight or time of day, in achieving your intended effect. Rather than having multiple buttons for the same area to recall different lighting scenes – for example in the bedroom, Morning, Afternoon, Evening and Night scenes can be recalled by a single button on a user interface programmed so that the right scene is recalled for that specific time of day. This allows for a simplified experience with fewer buttons required. Examples of this logic can also be found in bathrooms to allow a softer light level upon entry during the night, instead of traditional controls which would just turn the lighting on to 100%. The options of adaptive configurations are only limited by the imagination.

Colorful scenes

Tunable white and color control can be offered with DALI luminaires or DMX luminaires. DMX offers full color control using Red, Green, and Blue channels. The DDRC-GRMS-E can control up to 64 DMX channels.

Suggested color temperatures for tunable white scenes:

- **Relax** = 2200k
- **Work** = 3500k
- **Bright Day** = 3000k,
- **Bright Night** = 2700k

Tunable white offers additional vitality scenes. The following four scenes use (proprietary) scientifically tested combinations of color temperature and lighting intensity:

- **Standard** - Cooler tones at higher intensities for more functional activities.
- **Creativity** - Warm, dimmed lighting supports creativity and cooperation.
- **Focus** - Bright light supports focus and concentration.
- **Presentation** - Warmer tones at lower intensities for more emotional activities.

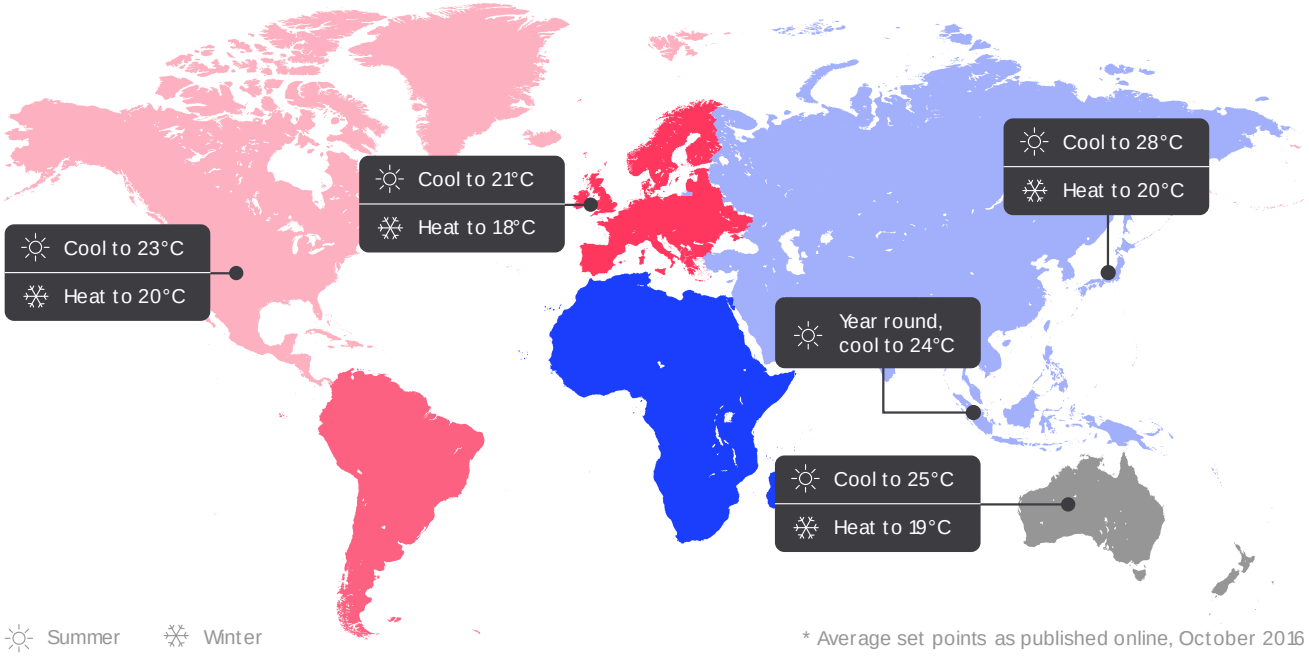
4.8. Configuring HVAC

HVAC control has the potential for the most energy savings in the room. In some climates, HVAC can consume as much as 60% of the energy in guestrooms. Integrating control of this service is therefore a significant opportunity to drive efficiency.

Every Antumbra user interface includes a temperature sensor, allowing you to choose the most representative location from which to measure current temperature and trigger heating or cooling. This could be time based - measuring from the entrance in the daytime and switching to readings from the bedside overnight to most accurately reflect guest behaviors. Alternatively, you can choose average readings from different groups of sensors (multi-temperature aggregation) for an accurate overall representation of the guestroom.

Additionally, the humidity sensor is regularly polled by a task in the room controller to display the value on the dashboard.

Guests are offered manual control of HVAC features such as fan speed and setpoint (only setpoint is shown, not current temperature). HVAC can be automatically shut down or set to a different setpoint when the room is checked-in/out and/or occupied/unoccupied.



Across the world different regions cool and heat their spaces to seasonal setpoints, nominally set as summer minimum and winter maximum levels. The global areas in the system are used to communicate day/night and seasonal changes.

Research suggests that for every 1°C reduction in heating/cooling, up to 10% energy savings can be achieved. To help you achieve this, HVAC integration enables you to present your guests with the choice to activate Green Mode as part of your brand's sustainability messaging.

Options:

- Switch to Green Mode through a simple leaf icon on the AntumbraDisplay. This activates a wider setpoint tolerance of 2-3°C (or your choice of setpoint) to save energy and allow guests to engage with making a difference in energy consumption.
- Not take part, and instead set their temperature preferences which the system maintains (default).

For more information, refer to the *Fan Coil Unit Controller Commissioning Guide*. For system-level HVAC integration, refer to CoolAutomation Integration.

4.8.1. Multi-temperature aggregation

By reading a combination of different temperature sensors at different times of the day, multi-temperature aggregation provides a more meaningful temperature for an area, considering temperature gradients and intended usage.

The DDRC-GRMS-E polls individual sensors using DyNet2 physical messages for their actual temperature reading. These values are assigned a configurable weight% then averaged to create the aggregated temperature value. Then an aggregated temperature message can be sent from the HVAC area.

A logical message to change the active mode determines which group of sensors to read. For example, 1C,02,24,48,00,01,FF (Active mode 1), 1C,02,24,48,00,02,FF (Active mode 2).

There are typically two active modes:

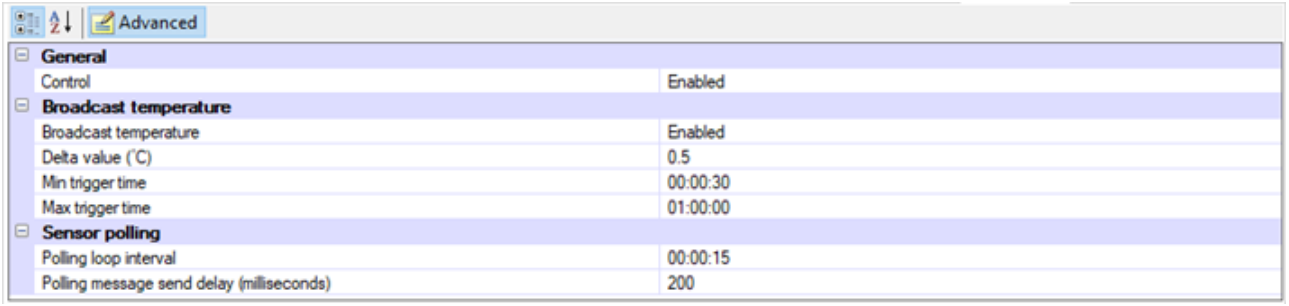
- **Daytime** - The average of temperatures from multiple sensor readings is made and provided to the room network for the HVAC controller (e.g. FCUC/CoolMaster/BACnet) to use for heating/ cooling.

This enables a truly representative room temperature enhancing energy efficiency (not over heating/cooling) and maximizing guest comfort.

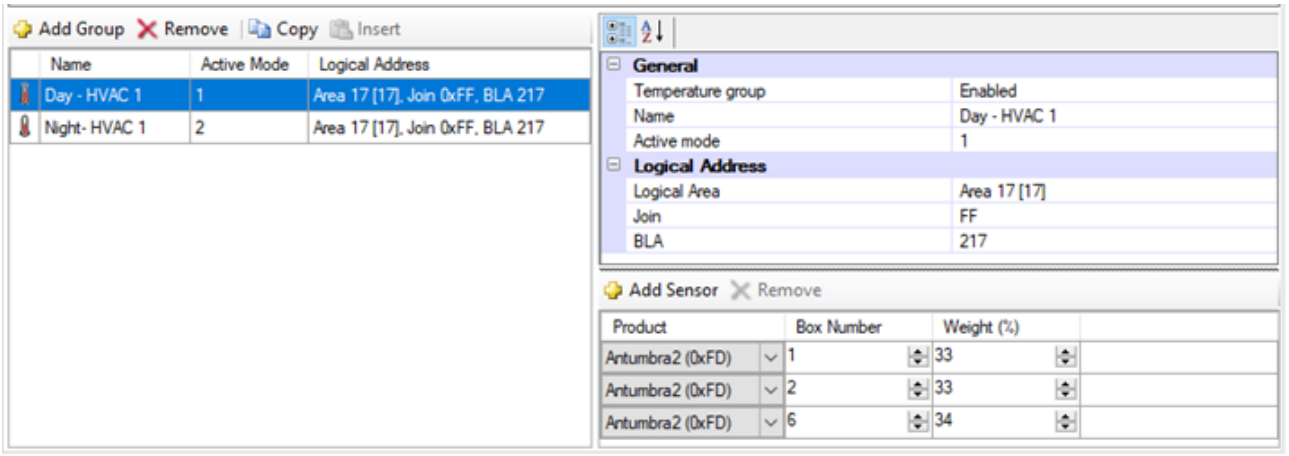
- **Overnight** - Only selected (bedside left and right) sensor readings are taken to represent the guest's location in the space, further enhancing guest comfort.

Configure multi-temperature aggregation

1. Select the room controller.
2. Add the Antumbra panels to the room controller.
3. Click the **Temperature** tab.
4. Set the applicable properties. Refer to the Temperature editor properties table below.



5. Click **Add Group**.
6. Enter a **Name** for the temperature group.
7. Enter the group's Active mode number.
8. Select a **Logical area**, **Join**, and **BLA**, if applicable. The logical area is set to the default HVAC area 17. This is the area that sends the aggregated temperature message to the trunk network. The BLA is set to default dummy HVAC area 217 (This area does not need to exist in the project and is used only within the room by the DDRC-GRMS-E and FCUC tasking).



9. Click **Add Sensor** for each Antumbra that you want in the temperature group (up to eight).
10. Enter the Antumbra **Box number**.
11. Enter the Antumbra temperature reading **Weight %** (total must add up to 100%).

Temperature editor properties

General

Property	Description
Control	Enabled or disabled. Used to enable/disable the multi-temperature aggregation feature.

Broadcast temperature

Property	Description
Broadcast temperature	Enabled or disabled. When enabled, sends the aggregated temperature message.
Delta value (°C)	The minimum temperature change required to trigger an aggregated temperature message.
Min trigger time	The minimum time that must elapse to trigger an aggregated temperature message.
Max trigger time	The maximum time to trigger an aggregated temperature message.

Sensor Polling

Property	Description
Polling loop interval	The time between requests to read all temperature sensors.
Polling message send delay (milliseconds)	Delay between sending requests to each temperature sensor.

Temperature group properties

General

Property	Description
Temperature group	Enabled or disabled. Used to enable/disable the temperature group.
Name	Temperature group name.
Active mode	Index number to set the active temperature group. This is sent via a DyNet1 User Preference message. Up to 16 temperature groups are supported.

Logical Address

Property	Description
Logical Area	Enabled or disabled.
Join	The static join of the device.
BLA	Base Link Area. A dummy HVAC area. Messages to this area stay within the room and are not sent to the trunk.

For consistency of operation, you should still use the temperature aggregation feature even if you are only taking readings from a single sensor.

If not using temperature aggregation at least one Antumbra should be configured to broadcast temperature to the HVAC area. (17, 18, or 19).

4.8.2. HVAC for large suites

The DDRC-GRMS-E tasking template library provides for up to three HVAC areas (17, 18, 19). A thermostat (AntumbraDisplay) is required in each area to measure the actual temperature and allow the user to adjust the setpoint.

In the library there is also an HVAC task placed in the DDFCUC (or Antumbra UI if not using the DDFCUC for HVAC) to enable additional HVAC areas for large suites and public spaces. A copy of the HVAC task is required for each additional HVAC area.

Configure an additional HVAC area:

1. In **DDRC-GRMS-E > Tasks > Activate Feature settings**, set the **Large Suite** property to *True*.
2. If required, in the **Routing** editor enter a number (larger than 20) in the **Area offset multiplier** and the **Box number multiplier** properties to cater for the additional HVAC areas.
3. In the **Areas** tree, copy and paste one of the HVAC areas to create an additional HVAC area. For example, area 20, 21, 22, 23, etc. If using a DDFCUC in the room, you also need to copy and paste one of the Room Only HVAC areas to create an additional matching FCUC HVAC area in the 200 range, e.g. 220, 221, 222, 223, etc.
4. In area 3, create an additional logical channel for each HVAC area that has a Balcony/Window switch. This enables the Energy Holdoff signal to turn the air conditioning on and off (according to the **HVAC Off Delay** and **HVAC On Delay**) when the balcony door/window is opened/closed.
5. In **DDFCUC > Tasks > Activate Feature** settings, set **HVAC Object**, **FCUC Conversion**, and **Balcony/Window** (if applicable) to *True*.
6. In **DDFCUC > Tasks > Task Controls** settings, enter a unique **Offset Delay** and **Message Delay** so responses to HVAC events in different areas do not all happen at the same time (to reduce network burden).
7. In **DDFCUC > Tasks > Areas** settings, click the **GRMS Template HVAC Area >** Change button and select the new HVAC area number. Also, click the **FCUC HVAC Area >** Change button and select the new matching area number from the 200 range.
8. Configure the **HVAC Controls** properties, including the Balcony channel number if applicable.
9. Click **Save to Device**.

In the **Room Mapping** table, ensure that the **Room Area Offset** has a large enough range to allow for additional HVAC areas.

If using VRF/Split Units or another HVAC system (not the DDFCUC) then add a DACM with the HVAC task to your job.

4.9. Configuring network user interfaces

Controlling the lighting in the room, by switching, dimming, or adjusting the color of areas and channels, is the key to helping guests feel comfortable during their stay.

Rather than large banks of switches and confusing settings, the system can present your guests with intuitive, logical groupings of buttons with appropriate names and/or icons. Simplifying usage to an

effortless button press encourages adoption and use of the system by people regardless of their technological comfort level.

Using a network user interface allows the user to interact with the system more intuitively to control different system functions. The built-in button indicators or display can give the user feedback on the current system status.

Inputs from network user interfaces are triggered by a button press from the user. The inputs are configured in the **Buttons Editor** for each user interface. Additionally, the AntumbraDisplay **Display and Buttons Editor** allows you to select icons and text for room information and functions on the display.

For room status indicators, instead of using lighting channels you can use a network user interface or third-party panel outside of the room to indicate Do Not Disturb/Make Up Room/Laundry Pick Up/Service Pickup.

This user interface may also include a doorbell function that can flash the lights or ring the doorbell when paired with a third-party door chime. Indicators can be set/cleared from the main button user interface inside the room and/or from an integrated room booking system.

Network user interfaces may include AntumbraButton, AntumbraTouch, AntumbraDisplay, or Revolution.

On each panel, the location of the Goodnight button should be closest to the bed.

Example Antumbra Layouts

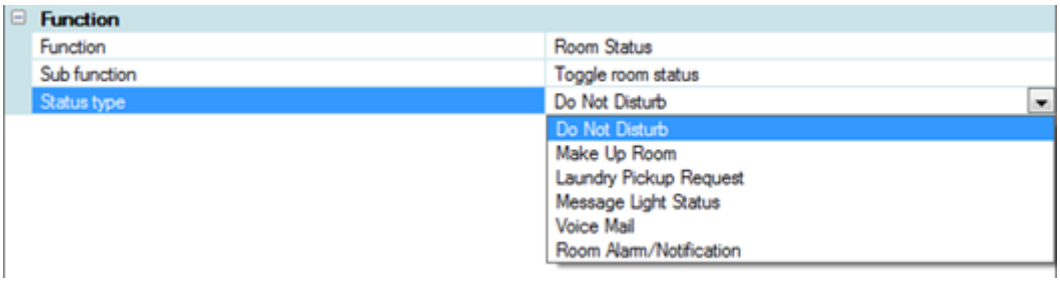
4.9.1. Room status buttons

Room status information is controlled by the Room Status function. This is displayed on the dashboard and sent to the property management system (PMS). These functions can be assigned to the dry contact input switches on the DDRC-GRMS-E or DLLI8I8O, or to any button on an Antumbra interface.

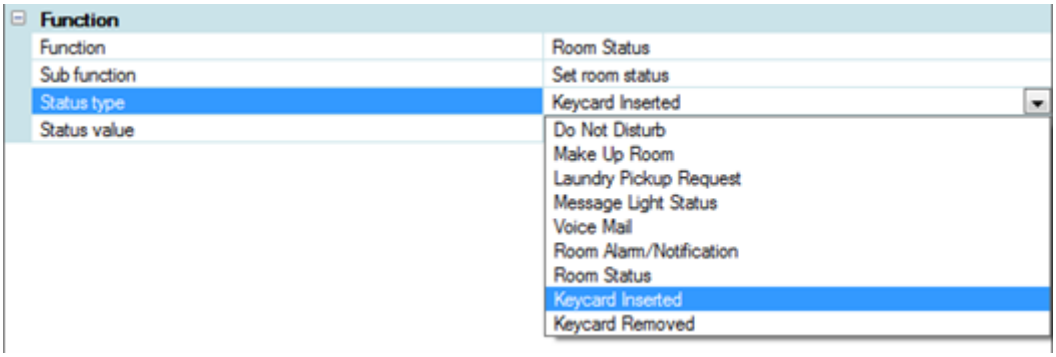
These functions are already programmed in the STR Template Library to control room status information.

Room Status Function

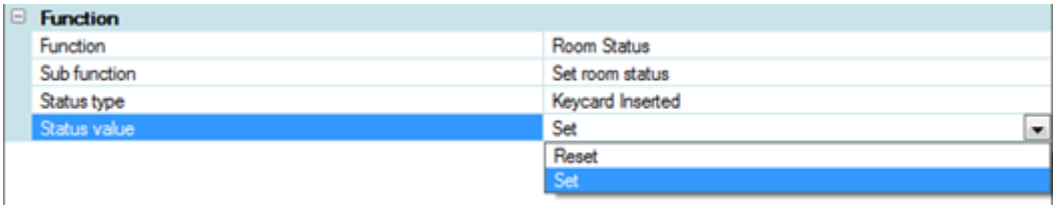
The **Toggle room status** sub function uses a single button to turn a status on and off. Click the **Status Type** dropdown list to select a status.



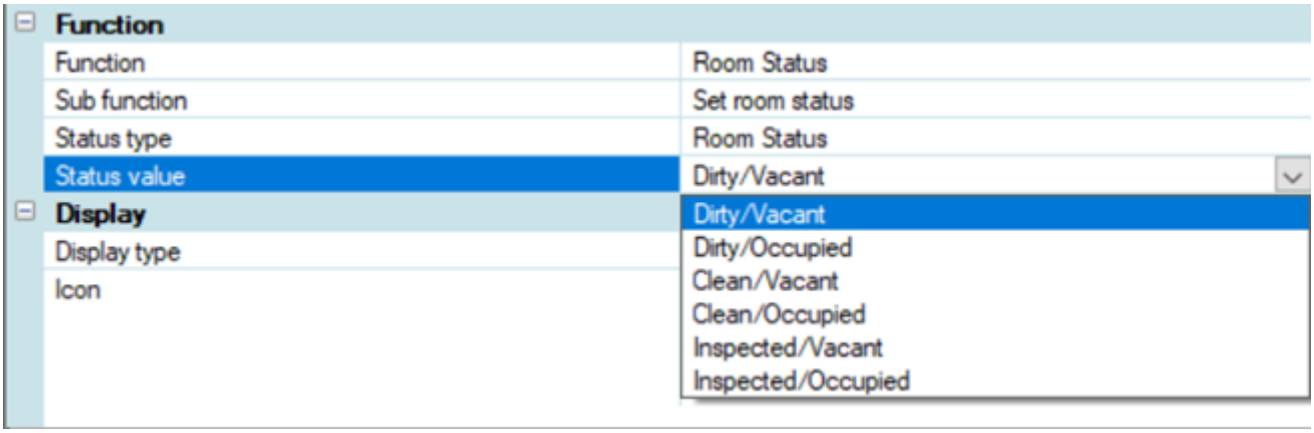
The **Set room status** sub function uses a single button to set a status value on (*Set*) or off (*Reset*). Click the **Status Type** dropdown list to select a status.



The **Status value** for sub functions **Keycard Inserted** (occupied) and **Keycard Removed** (unoccupied) is *Set*.



The **Status** values for the sub function **Room Status** are:



4.9.2. Antumbra preconfigurations

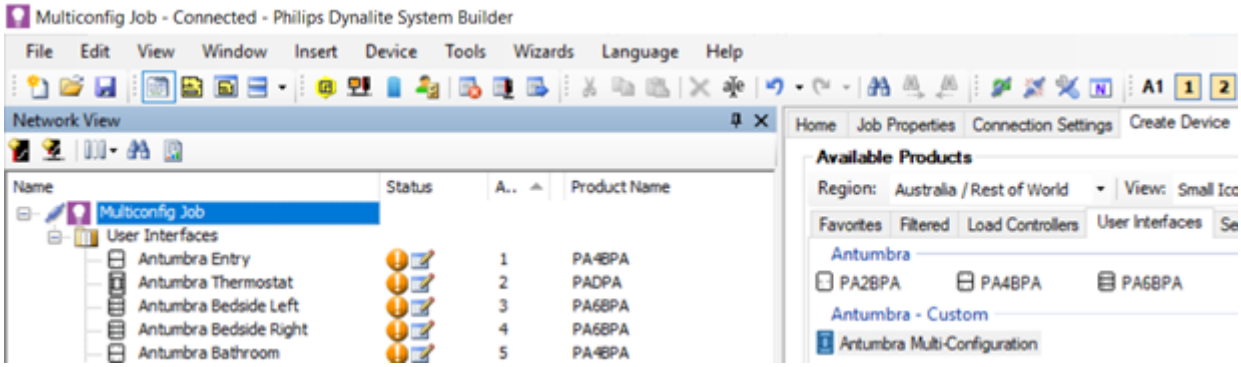
The Dynalite Application Communication Module (DACM) can store multiple configurations in a single unit.

The installer can then select a configuration by setting the DIP switches on the DACM, with no further commissioning. This allows all Antumbras to perform the functions of the other Antumbras in the room based on the DIP switch setting, for example, Entry, Bathroom, Bedside left, Bedside right, Living Room, Desk, etc.

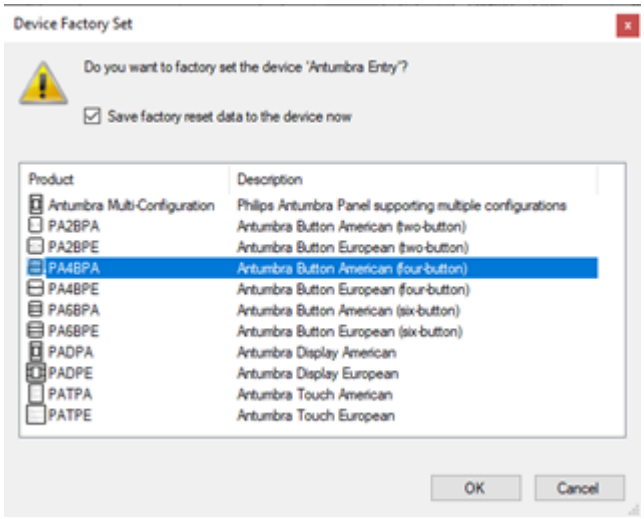
The number of configurations is limited by the EEPROM size. AntumbraDisplay consumes more space due to graphical elements. Ideally all configurations would be on a single DACM, but you can split the multiconfigurations for your project across two or more DACMs if required.

Create a new multi-configuration device:

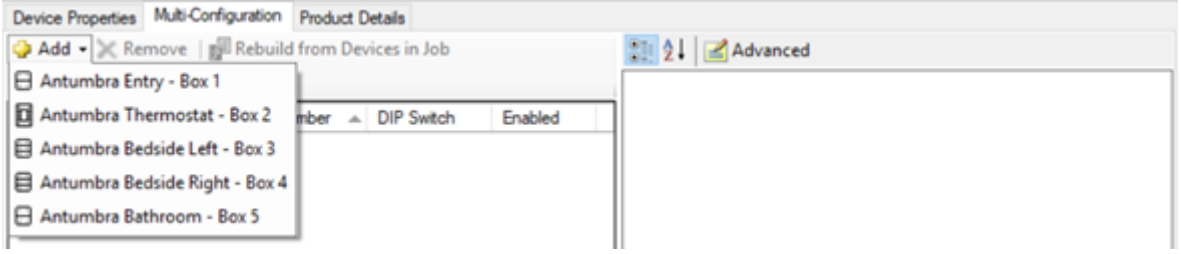
1. Starting with an SB job containing all the required Antumbra configurations, either:
   a. Click **Insert Device from List** (or Ctrl+D) to create an **Antumbra Multi-Configuration** device.



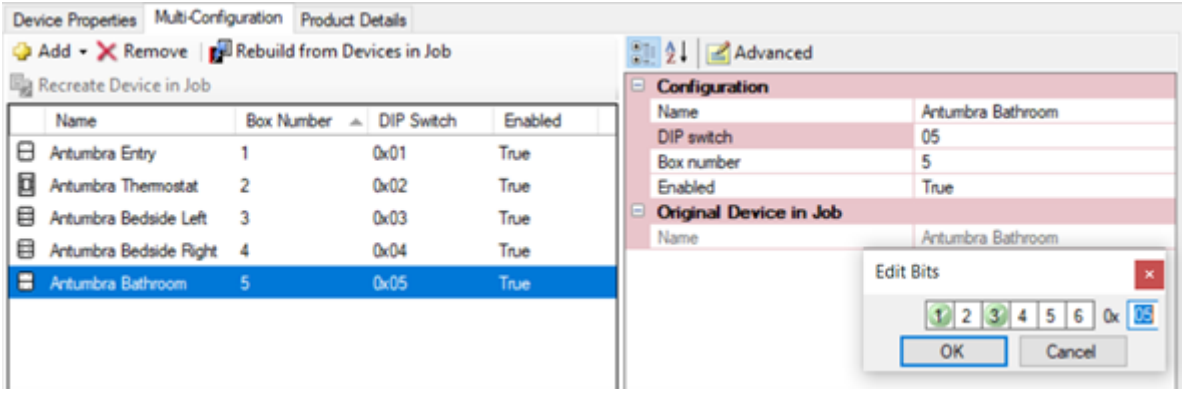
   b. Right-click and **Factory Set** a compatible Antumbra device on the network to Multi-Configuration.



2. In the **Multi-Configuration Editor** tab, use the **Add** button to add any of the Antumbra devices in the job.



3. Set the required properties for each of the devices.



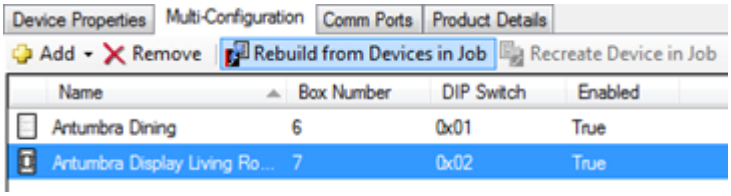
4. Click **Save To Device** to save to the Multi-Configuration device.
   Note that if the DIP switches on the device are set to the value of any of your configurations, the device will restart with that configuration immediately after saving.

Antumbra Multi-Configuration Properties

Property	Description
Name	This is the name of the configuration. It defaults to the same name as the original device in the job, but it can be changed.
DIP switch	This sets the DIP switch value (0 – 63) for the selected configuration. It's recommended not to use 0, and to set the DIP switches on the actual device to 0 while commissioning. You can choose DIP switch values that are easy to set onsite. For example, if you have 6 configurations, you can use 0x01, 0x02, 0x04, 0x08, 0x10 and 0x20. This allows recall of each configuration by switching a single DIP switch bit to the ON position.
Box number	This is the spur box number that the device will have when the configuration is recalled. It defaults to the same box number as the original device in the job, but it can be changed. Note that you can create multiple configurations with the same box number. In the picture below there are 2 devices called Antumbra Kitchen with box number 84. This may be useful for quick configuration changes onsite.
Enabled	True or False

Synchronizing configuration updates from original devices

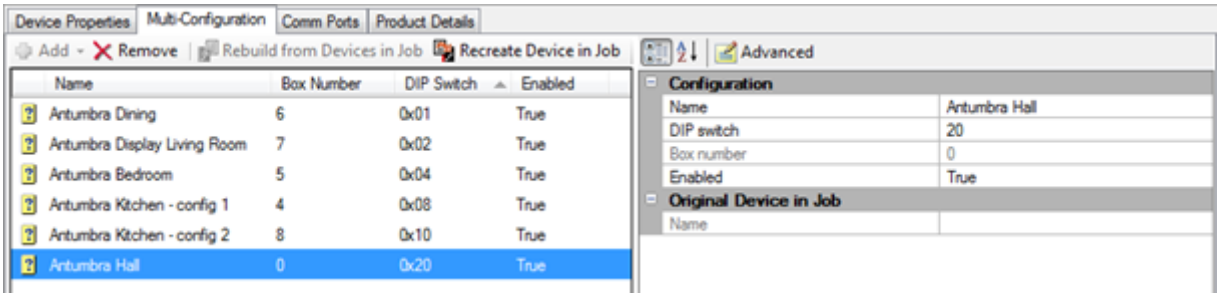
Click the **Rebuild from Devices in Job** button to synchronize the current settings of all the original devices in the job to the Multi-Configuration device.



Loading a multi-configuration device from the network or from a hex file

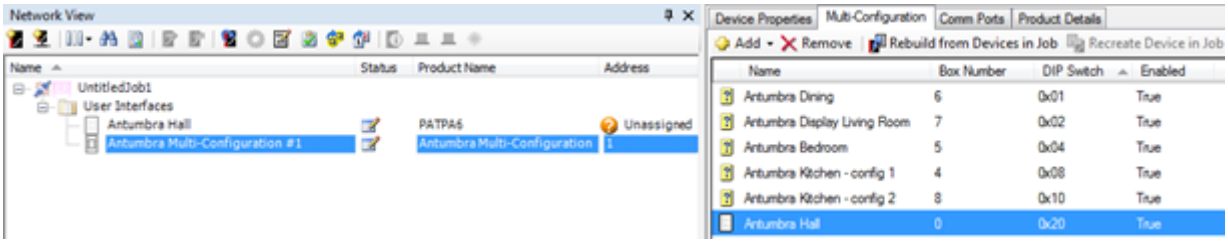
If a multi-configuration device must be loaded from the network or from a hex file, the original devices will not be known. In this case the configurations each appear with a ? icon beside them. The **Original**

Device in Job > Name field will also be empty.



For devices in this state it is possible to change the name, DIP switch, and Enabled settings, but not possible to change the box number.

To change the box number or any other device configuration, selectthe config you wish to edit then use the **Recreate Device in Job**. The image below shows a recreated device. Note that devices are recreated in the job without a box number.



Now that the Antumbra Hall device exists in the job, you can change its configuration and then sync it back to the Multi-Configuration device using **Rebuild from Devices in Job**.

4.10. Configuring third-party user interfaces

4.10.1. Dry Contact Inputs

In addition to a network sensor or user interface, room functions can also be triggered either from an AntumbraLite button panel or a third-party interface (such as a button panel or a window/door reed switch.)

Inputs are provided by a dry contact input on a network device such as the DDRC-GRMS-E controller or a DLLI8I8O dry contact interface device. This allows the control system to detect button presses or door open/close state. Dry contact inputs also enable the use of custom manufactured user interface panels that match the project's design requirements.

A third-party interface may be one of the following:

- A user interface button with or without LED indicators.
- An output from another system.
- An open/close switch on a keycard holder, window, or door.

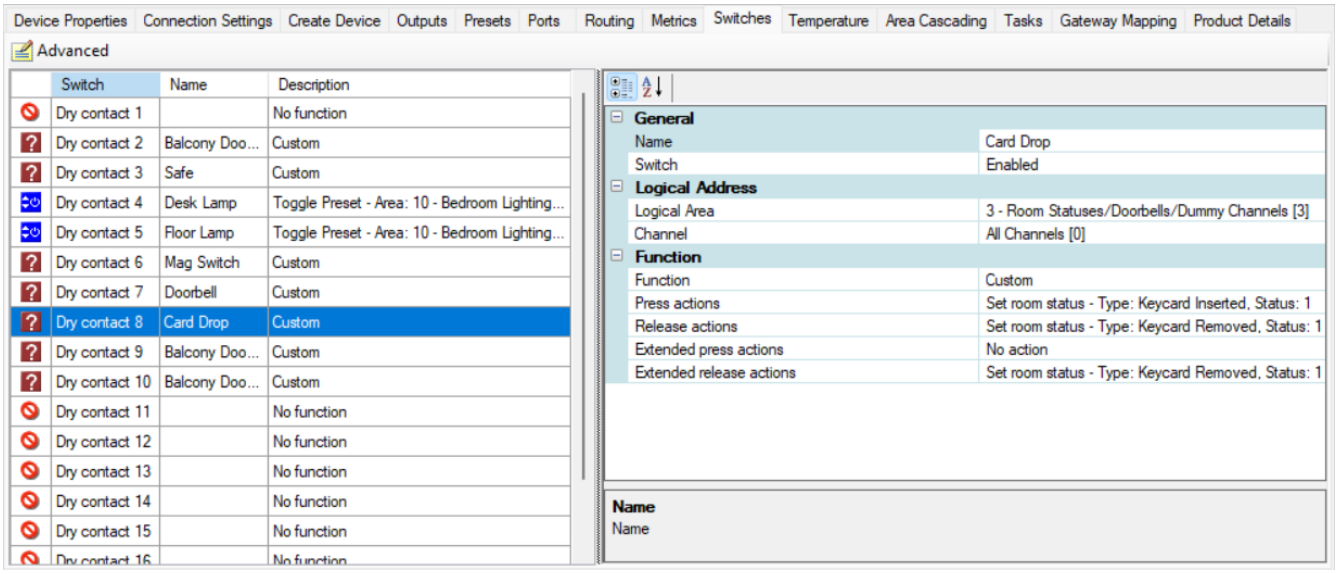
Additionally, you can configure the DDRC-GRMS-E UL924 input to trigger an emergency preset via the **Device Properties Editor**.

UL924 input is different to a DyNet panic message. There is no network message, and it is not reversible via DyNet packets.

4.10.2. Card Drop Integration

Configure occupancy based on card drop (sensor-based occupancy detection is recommended):

1. In **System view**, select the DDRC-GRMS-E and open the **Tasks** tab.
2. Click **Edit** to open the **Tasks Editor**.
3. Click the **Persistent Memory** tab.
4. Set persistent memory index **10 $Card_Drop** to *01*.
5. Close the **Task Editor** and click Yes to save changes to the job file.
6. Select the **Switches** tab
7. Configure **Dry Contact 8 (Card Drop)** to send the **Set room status - Keycard Inserted/Removed** messages. When the card is removed the system marks the room as unoccupied and disables all keypads and dry contacts until reinserted.
8. Click **Save to Device**.
9. Click **File >** **Save** to save the job.



4.10.3. DLLI8I8O Dry Contact Inputs

A DLLI8I8O dry contact interface with LED indicators for each button gives the user feedback on the current system status. The indicators can show which button has been pressed or which mode is selected. The inputs are configured in the **Switches Editor** for the device.

Buttons connected to panels can perform identical functions by configuring the inputs accordingly, or by wiring the inputs in parallel.

4.10.4. Other Third-Party Inputs

Other third-party devices with RS-232 or RS-485 ports connect to the control network via an integration device. This method is commonly used for:

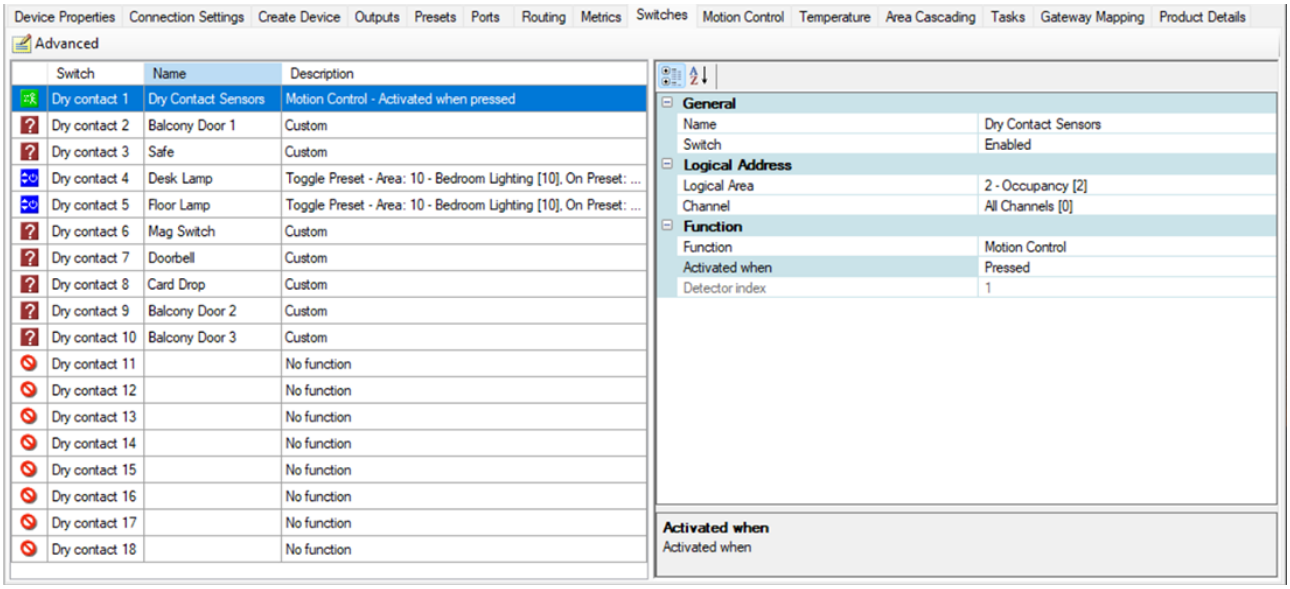
- AV systems with built-in DyNet compatibility, such as AMX and Crestron.
- Third-party control of the lighting system.
- Lighting system status feedback to a third-party system.
- Notification of alarm conditions, such as circuit breaker trips and smoke or gas detection.

4.11. Configuring Third-Party Sensors

DDRC-GRMS-E dry contact inputs 1 to 4 can be connected to a third-party sensor for occupancy control. Occupancy is checked 30 seconds after the magnetic switch input detects that the front door has been opened and closed.

Configure third-party sensor:

1. In **System View**, select the DDRC-GRMS-E **Tasks** tab.
2. Set **Activate Feature > Dry Contact Sensors** to *True*.
3. Set the **Sensor Controls > Sensor Timeout Delay** to the required timeout period. The delay must be longer than the sensor's internal timeout period.
4. Open the **Switches** tab and configure one of the first four switches to **Logical Area:** *2*, **Function:** *Motion Control*.



5. Open the **Motion Control** tab and tick the **Enable Motion Control** checkbox for the respective input (*1* to *4*) connected to the third-party sensor. There is no need to change the motion control properties as they are already configured by the task template.
6. Click Save to Device.
7. Click File Save to save the job.

4.12. Configuring Wake-Up

The Wake-Up feature mimics sunrise by simulating the dawn light before a set wake time. Wake-up lighting can reduce sleep inertia and improve well-being.

Wake-Up is configured using a combination of devices and software:

- AntumbraDisplay (contains the wake-up tasking)
- Multiroom Dashboard
- PMS (optional)
- Ethernet gateway (if using **Day Rhythm** feature)
- Controller with dimmable and color control outputs

- Tunable white drivers and lamps

If wake-up is used, the **Activate Feature** section of the DDRC-GRMS-E STR Template Library must be set to *True* so that the alarms get cleared on check-out.

The wake-up alarm can be set from the AntumbraDisplay, the Dashboard, or the PMS. The alarm time is saved in the AntumbraDisplay, which shows the alarm time and listens for time messages from the real-time clock in the PDEG/PDDEG-S.

Depending on the specific configuration, sometime before the alarm triggers (default = 20 minutes), a task typically recalls a sequence of presets for both the main lighting area (10) and the spare colored lighting area (12). It also changes the page on the AntumbraDisplay to the snooze page where the guest can choose to:

- Let the sequence continue
- Turn it off and turn the lights on to bright
- Turn it off and turn the lights off
- Snooze for 9 minutes, turning the lights off.
  After the snooze period expires, a truncated sequence resumes.

The task must be on the AntumbraDisplay, and requires area 200 for the display and wake-up opcodes for area 3 for the actual commands to communicate with the STR Template Library tasks in the DDRC-GRMS-E.

Home No Alarm

12 Hour Wake Alarm

Home Alarm Set

12 Hour Wake Snooze

If applicable, all actions can be saved and synchronized with the PMS - refer to PMS integration.

4.13. Configuring sensors

Accurate guest detection is key to allowing the status and condition of the room to be automatically updated, whether for guest comfort or operational efficiency. Through a combination of sensor hardware, integration design and contextual logic we can determine whether a room is occupied, whether they are a guest or staff, the natural light level, the current temperature, window/door status, etc.

This detection can recall either a welcome scene or intelligently remember the previous scene and revert to the guest's preferences. Combined with access control, the room services can react differently to staff occupancy compared to guest occupancy.

In unoccupied states, such as during breakfast or in the daytime, the room can step down services over a period of time. Cutting all HVAC for example can maximize energy savings, while stepping to a 3-4°C difference allows the room to revert to its previous state more quickly than when HVAC is turned off.

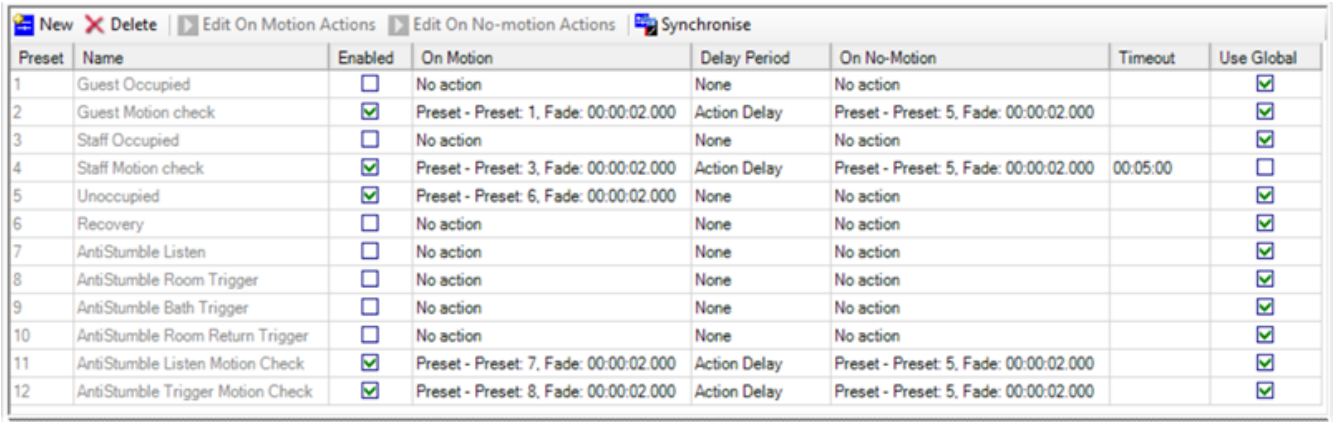
There are three categories of guestroom sensors:

1. **Bedroom sensors** - detect where people sleep.
2. **AntiStumble sensors** - detect feet when they leave or enter the bed.
3. **Bathroom sensors** - detect anything else (bathroom, balcony, entry, closet, living room, etc.).

4.13.1. Bedroom sensors

Motion control detection in the bedroom sensor triggers preset scenes in the Occupancy area.

The **Occupancy Area** task in the STR Template Library then uses this input to update the occupancy status of the room.



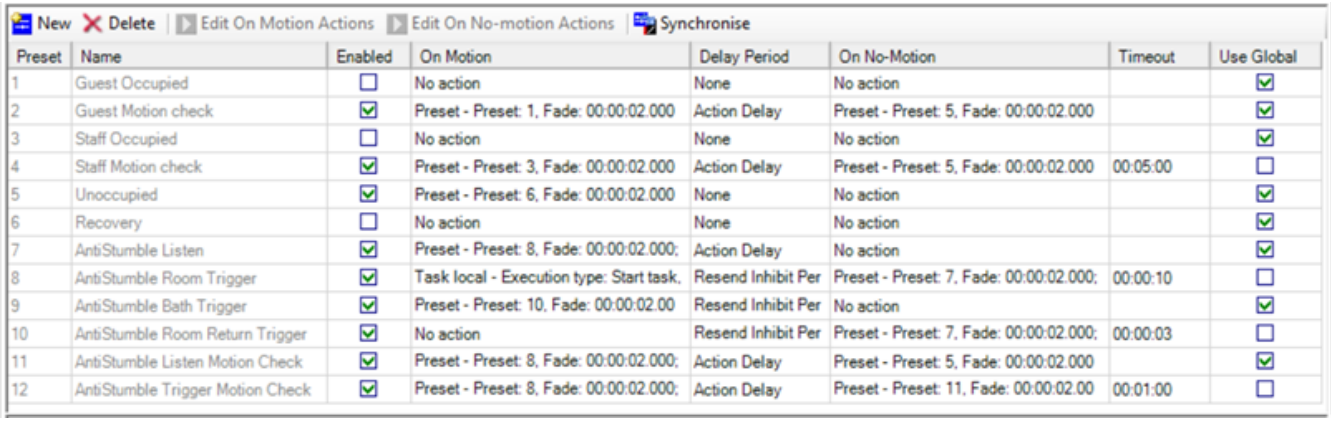
Preset	Name	Enabled	On Motion	Delay Period	On No-Motion	Timeout	Use Global
1	Guest Occupied	☐	No action	None	No action		☑
2	Guest Motion check	☑	Preset - Preset: 1, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000		☑
3	Staff Occupied	☐	No action	None	No action		☑
4	Staff Motion check	☑	Preset - Preset: 3, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000	00:05:00	☐
5	Unoccupied	☑	Preset - Preset: 6, Fade: 00:00:02.000	None	No action		☑
6	Recovery	☐	No action	None	No action		☑
7	AntiStumble Listen	☐	No action	None	No action		☑
8	AntiStumble Room Trigger	☐	No action	None	No action		☑
9	AntiStumble Bath Trigger	☐	No action	None	No action		☑
10	AntiStumble Room Return Trigger	☐	No action	None	No action		☑
11	AntiStumble Listen Motion Check	☑	Preset - Preset: 7, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000		☑
12	AntiStumble Trigger Motion Check	☑	Preset - Preset: 8, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000		☑

4.13.2. AntiStumble sensors

AntiStumble sensors are placed under the bedside tables. They recall a low light level in bedside and bathroom lights to help guests navigate to the bathroom at night. The sensors are configured to detect motion only when the room is in the Goodnight preset or when the light level is below a certain value.

Nightlights can be specified in the bedroom and bathroom to use movement detection from the bedside (wall) sensors and bathroom (ceiling) sensors whenever the Goodnight preset is active.

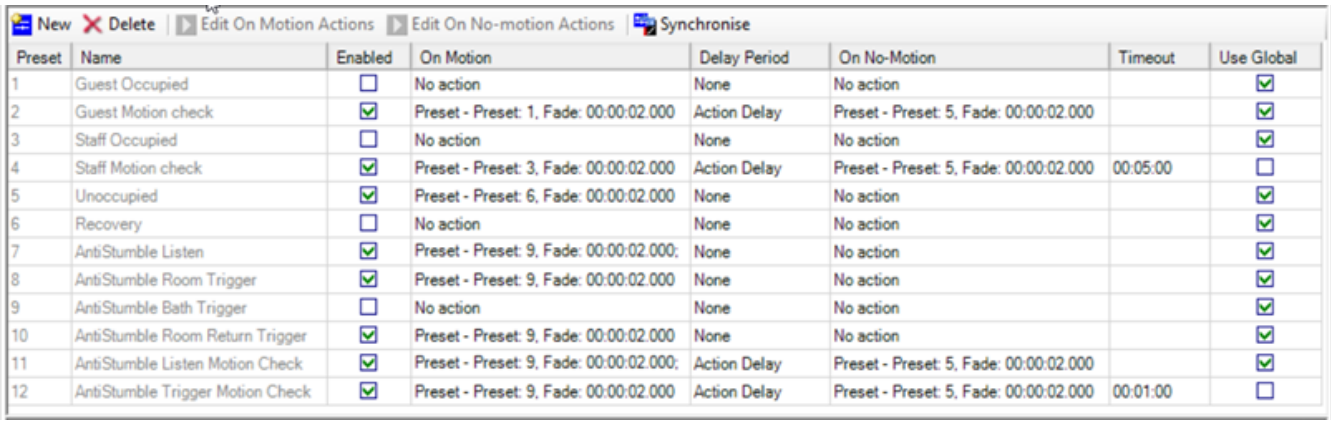
The sensor timeouts should allow sufficient time to navigate from the bedside sensor detection zone to the bathroom sensor detection zone. When a guest returns to bed, the nightlights automatically switch off, based on the timeout since last movement was detected (default timeout = 30 seconds after leaving the bed and 3 seconds after returning to bed).



Preset	Name	Enabled	On Motion	Delay Period	On No-Motion	Timeout	Use Global
1	Guest Occupied	☐	No action	None	No action		☑
2	Guest Motion check	☑	Preset - Preset: 1, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000		☑
3	Staff Occupied	☐	No action	None	No action		☑
4	Staff Motion check	☑	Preset - Preset: 3, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000	00:05:00	☐
5	Unoccupied	☑	Preset - Preset: 6, Fade: 00:00:02.000	None	No action		☑
6	Recovery	☐	No action	None	No action		☑
7	AntiStumble Listen	☑	Preset - Preset: 8, Fade: 00:00:02.000;	Action Delay	No action		☑
8	AntiStumble Room Trigger	☑	Task local - Execution type: Start task,	Resend Inhibit Per	Preset - Preset: 7, Fade: 00:00:02.000;	00:00:10	☐
9	AntiStumble Bath Trigger	☑	Preset - Preset: 10, Fade: 00:00:02.00	Resend Inhibit Per	No action		☑
10	AntiStumble Room Return Trigger	☑	No action	Resend Inhibit Per	Preset - Preset: 7, Fade: 00:00:02.000;	00:00:03	☐
11	AntiStumble Listen Motion Check	☑	Preset - Preset: 8, Fade: 00:00:02.000;	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000		☑
12	AntiStumble Trigger Motion Check	☑	Preset - Preset: 8, Fade: 00:00:02.000;	Action Delay	Preset - Preset: 11, Fade: 00:00:02.00	00:01:00	☐

4.13.3. Bathroom sensors

Bathroom (or balcony, entry, closet, living room) sensors signal occupancy in the Occupancy area. They can also recall presets in a specific area.



Preset	Name	Enabled	On Motion	Delay Period	On No-Motion	Timeout	Use Global
1	Guest Occupied	☐	No action	None	No action		☑
2	Guest Motion check	☑	Preset - Preset: 1, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000		☑
3	Staff Occupied	☐	No action	None	No action		☑
4	Staff Motion check	☑	Preset - Preset: 3, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000	00:05:00	☐
5	Unoccupied	☑	Preset - Preset: 6, Fade: 00:00:02.000	None	No action		☑
6	Recovery	☐	No action	None	No action		☑
7	AntiStumble Listen	☑	Preset - Preset: 9, Fade: 00:00:02.000;	None	No action		☑
8	AntiStumble Room Trigger	☑	Preset - Preset: 9, Fade: 00:00:02.000	None	No action		☑
9	AntiStumble Bath Trigger	☐	No action	None	No action		☑
10	AntiStumble Room Return Trigger	☑	Preset - Preset: 9, Fade: 00:00:02.000	None	No action		☑
11	AntiStumble Listen Motion Check	☑	Preset - Preset: 9, Fade: 00:00:02.000;	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000		☑
12	AntiStumble Trigger Motion Check	☑	Preset - Preset: 9, Fade: 00:00:02.000	Action Delay	Preset - Preset: 5, Fade: 00:00:02.000	00:01:00	☐

If a portable cot or pull-out sofa is likely to be used in an area, then configure the sensor as a bedroom sensor.

4.14. Configuring room monitoring

Room monitoring can be performed by the corridor panel and/or the room monitoring software.

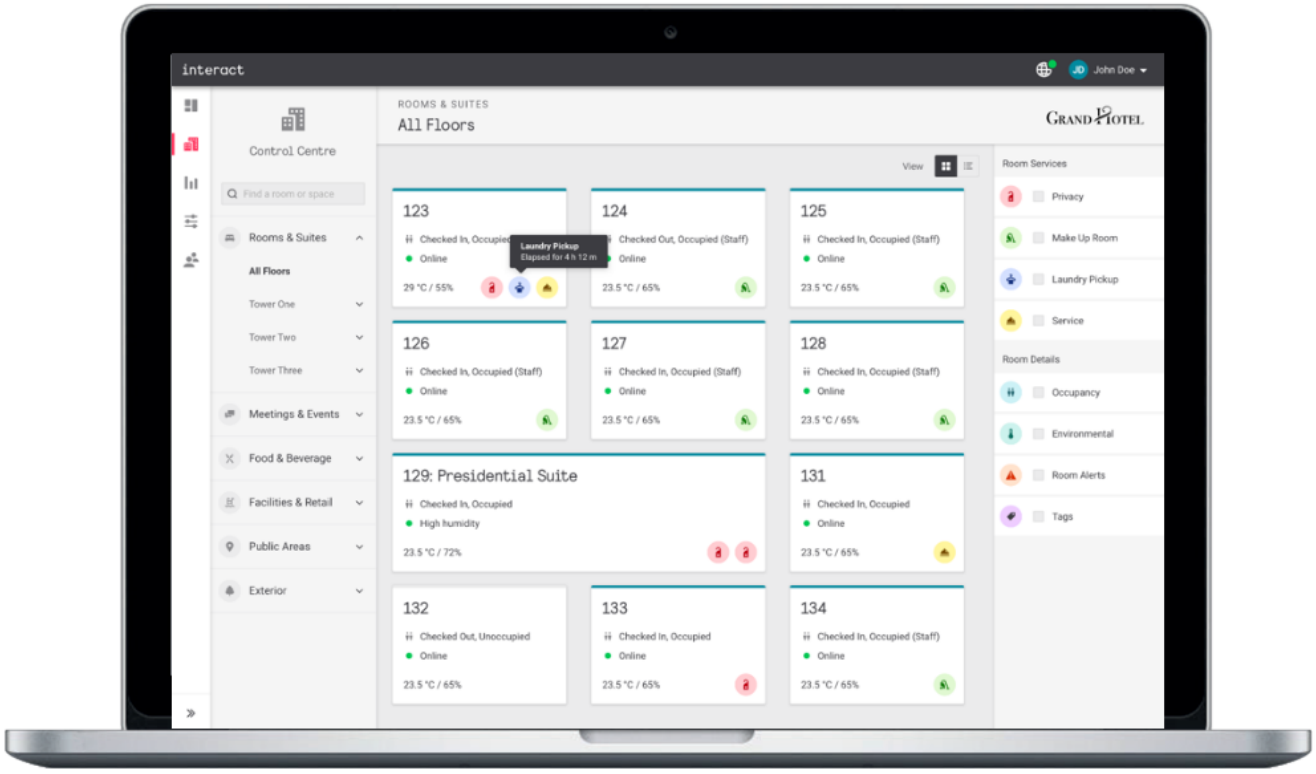
Corridor Panel

- The corridor indicator panel outside of the room can signal the DND/MUR/LPU/RSP or occupancy status of the guestroom to hotel staff.
- The DND/MUR/LPU/RSP function requires a DLLI8I8O or room controller digital output to drive the indicators and a button panel within the room for the guest to set their room status preference.

Monitoring software

Networked rooms provide many benefits including automatic reporting of the room status to the central System Manager Server. When rooms are monitored, additional system messages are also captured, such as preset state, channel levels, and DND/MUR/LPU/RSP status.

With the Multiroom Dashboard installed, operational staff can monitor the status of all guestrooms and are automatically informed if the system detects a fault within the network. If DALI Addressable fittings are used, then driver and lamp failure detection is also possible. System Manager seamlessly integrates with many different systems, with the Hotel Integration API enabling a wide variety of applications.



Dashboard floor view

Save configuration to each device

Before testing each feature, save the configuration to each device in your mockup room:

1. Select each device in the job.
2. Click **Save to Device**.
3. Click **File Save** to save the job.

4.15. Mockup room testing

Perform scenario-based testing to confirm that all room controls are functioning according to the System Control Requirements.

4.15.1. Example System Control Requirements

1. Ability to control all lights in Guestroom.
2. Ability to control A/C set point temperature through a fully modulating valve.
3. Ability to control A/C Fan Coil Unit fan speed.
4. Ability to control power supply to TV.
5. Ability to control motorized curtains.
6. Ability to differentiate between guest key opening door and staff key opening door.
7. Ability to change timings as to when system takes control after guest leaves room (during the guest stay or upon checkout).
8. Ability for system to detect presence in the room, method of detection to be advised (sensor, key drop).
9. Ability to generate energy usage reports and view on lighting dashboard.

10. System must be able to determine the difference between a guest or employee entering the room to determine access to equipment.
11. System must allow an administrator to adjust/customize settings if local environmental conditions demand.
12. Equipment always powered on:
    a. Mini Bar
    b. Electrical outlet at desk
    c. Electrical outlet in guest safe
    d. Universal power sockets
    e. USB Chargers

4.15.2. Example Scenario 1 – Room unoccupied

a. Dependent on the ambient temperature the system will hold the room at a predetermined temperature, this temperature should be adjustable by the system administrator.
b. FCU fan speed will be controlled to maintain predetermined temperature.
c. All lights in bedroom and bathroom will be off.
d. If there are motorized curtains, then the curtains will be closed to minimize solar gain.
e. Power to TV will be turned off.

4.15.3. Example Scenario 2 – Room unoccupied – employee enters room

a. System to identify that it is an employee in the room via occupancy sensor and access control system.
b. System to maintain control of A/C and predetermined temperature.
c. All lights to be powered for staff member to check they are working.
d. TV to be powered to all staff members to check signal.
e. Curtains to open.
f. System to take control of room after 5 minutes (based on operational needs) after the staff member leaves the room and return room to unoccupied status and predetermined settings.

4.15.4. Example Scenario 3 – Room unoccupied then guest checks in (Checked-in, Occupied)

a. When a check-in event is received the room state changes from Checked Out, Unoccupied to Checked In, Unoccupied and some settings change like GPO on, Temp Setpoint change.
b. When a guest enters the room the room state changes to Checked In, Occupied mode that changes more settings including lights, curtains and temp setpoint (day/night dependent).
c. When the guest opens the door for the first time, the room should go into a welcome scene, this welcome scene should include specific lights.
d. System signals the controls to adjust the A/C to 23°C (based on operations requirement).
e. System signals the controls to switch on TV.
f. Systems signals the control to open the curtains during daytime or close them in the evening unless we want to highlight the view.

4.15.5. Example Scenario 4 – Guest is checked into room but leaves the room

a. Room goes to Vacant state 15 minutes (based on operations requirement) after the guest leaves the room.

b. Dependent on the ambient temperature the system will raise the room to a predetermined temperature, this temperature should be adjustable by the system administrator.

c. FCU fan speed will be controlled to maintain predetermined temperature.

d. All lights in bedroom and bathroom will be off.

e. If there are motorized curtains, then the curtains will be closed to minimize solar gain.

f. Power to TV will be turned off.

4.15.6. Example Scenario 5 – Guest is checked into room but leaves the room then returns to room

a. The system should identify the guest as opposed to a staff member.

b. The AC should work to restore previous guest preference temperature.

c. If there are motorized curtain closers, then the curtains/blinds should open during daylight.

d. During daylight no lights should come on until the guest switches a light on.

e. After dark, then the welcome scene at the time of arrival should come on.

f. TV should not come on until guest switches it on.

4.15.7. Example Reports for Hotel Staff

a. Access available for housekeeping to determine vacant room for cleaning via mobile app.

b. Access available for housekeeping to determine occupied room but no guests inside for daily cleaning and room make up/turndown.

c. Access for Housekeeping & Engineering to identify which rooms housekeeping staff are in, (this can be timed based on hotel operations requirement).

d. Access available for engineering department to determine all the same items as housekeeping

- plus functionality of MEP systems:
  - Lighting - (including individual lamp failure identification if smart LED lamps are installed)
  - Room temperature
  - Room humidity
  - FCU valve position
  - Chilled water/heated water temperature
  - Fan speed
  - Curtain position
  - Electrical Meter reading kWh
- plus Links (interface with Computer Aided Facilities Management system). This can be multi-functional - alerts on controlled modules, maintenance history (e.g. get information on last service visit or complaint about a specific room, time, and damaged / repaired item).

e. User dashboard session access.

f. Customizable dashboards and easily accessible to the hotel management / staff.

g. An optional mobile app could easily be downloaded and used to control A/C and Lighting.

h. DND, MUR, Bell module must have the ability to detect guest presence before staff push the bell.

i. Capture guest preferences such as temp, energy consumed, reported issues, number of stays, etc.

4.16. Test luminaire interoperability

The System Engineer tests all room lighting functions to ensure correct switching, dimming, and color control of luminaires.

If there are issues these must be addressed or accepted by the customer. You must obtain customer signoff to complete this step.

The Multiroom system supports all open standard dimming methods, providing smooth, flicker free dimming. For complete assurance, pair with Philips Lighting fixtures and drivers.

4.16.1. Project reference tools

- *Third-party luminaire interoperability test report and waiver*

Chapter 5. Create Hotel Job file

The System Engineer produces a hotel master job file by adding the floor gateways, room profiles, mockup room jobs, room alerts, and room mapping.

To use the Multiroom Dashboard and API with your mockup room, you must create a hotel job with at least one room and install a licensed copy of Multiroom System Manager. Later when on-site, the System Engineer will use this hotel job file to complete the hotel configuration during acceptance testing.

Configure hotel job:

1. Add floor gateway
2. Add global areas to the hotel job
3. Add room profiles, zones, and services and enter the required properties
4. Define and add Room Alerts
5. Import mockup room job to room profile
6. Place devices and channels in zones
7. Configure notional energy
8. Configure DDRC-GRMS-E
9. Create device hex files
10. Add room mapping to create the initial Hotel Master Configuration
11. Install System Manager and configure integrations to test all features

Project reference tools

- *Mockup room sign-off sheet (release for manufacturing)*
- *Mockup room job files*
- *Hotel Job file*
- *Room Controller IP address table (not required if using Dynamic IP addresses)*
- *Floor Gateway IP address table*
- *DIP switch settings table*
- *Site private key text file (must be kept secure)*

5.1. Add floor gateway

Each floor gateway is configured with a unique IP address and floor offset (physical and logical address range), for example, 1000, 2000, 3000 etc. A global logical range is also added to all gateways (areas 65000 – 65005) for logical messages to all rooms.

The Ethernet connections between SM, PDDEG-S, and DDRC-GRMS-E are secured via TLS encryption.

Disable the UDP default multicast, unicast, and all other unnecessary protocols and ports before handing over the system to the customer. This is performed automatically

when selecting the “Hotel Floor Ethernet Gateway” or “Hotel Room Ethernet Gateway” options in the Bridge Configuration Wizard.

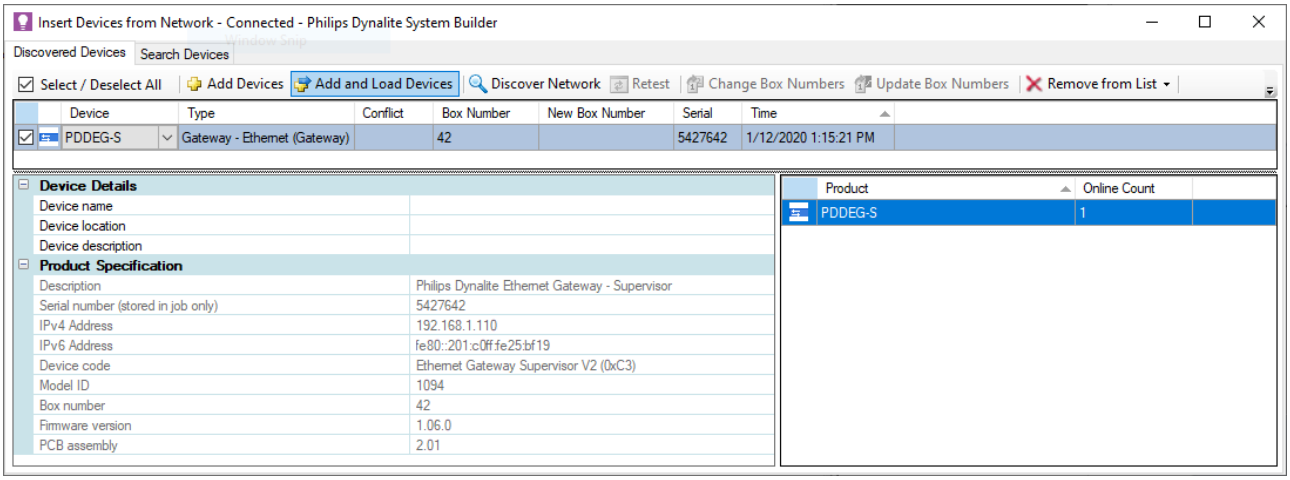
For more information on making the system more secure, please refer to the *Ethernet Gateway Commissioning Guide*.

Default port numbers for Ethernet enabled devices

- **Secure**
  - Port 443 for Trunk connections (System Manager - Floor Gateway)
  - Port 50443 for Floor connections (Floor Gateway – Room Controller)
- **Unsecure**
  - Port 50000 for Trunk connections (System Manager - Floor Gateway)
  - Port 50003 for Floor connections (Floor Gateway – Room Controller)

Add a floor gateway to the job:

1. Click **File > New** and select **New Empty Job** (Ctrl+N).
2. Enter the Hotel details in the **Job Properties Editor**.
3. Click **File Save As > Save As Job File** to save the Hotel job to your PC.
4. Connect SB via an Ethernet cable and TCP/IP address to the PDDEG-S, or via a USB cable and PC Node to the serial port.
5. Click **Insert Devices from Network** (Ctrl+L) and select **Discover Network > Discover Devices over Ethernet** or search for the Ethernet gateway, or press the service switch. The gateway appears in the Discovered Devices window.
6. Click **Add and Load Devices** to add the gateway to the job from the Discovered Devices window. This loads the default device configuration, admin password, and properties.



7. Click **Save to Device**.
8. Click **File Save** to save the job to your PC.

5.1.1. Create and upload the gateway certificate

A Site CA Certificate (Site Private Key) must be first be created or imported into SB. The Site CA Certificate is then used to sign and upload a Device Site Certificate to the PDDEG-S gateways. When SB has a Site CA certificate, it shows a green lock icon at job level in the System and Building views.

SB shows a green lock icon next to an PDDEG-S or Ethernet device when a Device Site Certificate has

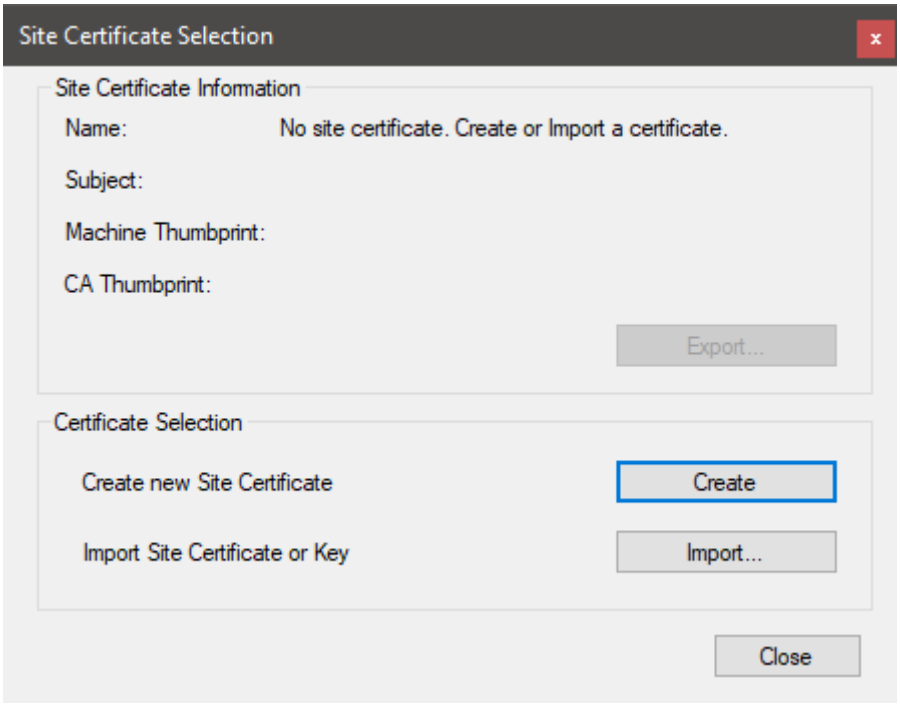
been uploaded. This enables SB/SM and Ethernet devices to securely connect to the PDDEG-S gateways via a secure TLS TCP connection.

If the lock icon on an EG shows a warning icon, then check the tooltip as it will indicate either:

- Device site certificate configured but Site CA used to sign the device site certificate is not found on this machine. System Builder will be unable to securely connect to this device. Ensure correct Site CA certificate is imported into this machine with the Tools menu, Set Site CA Certificate option.
- Device site certificate configured but doesn't match Site CA configured in job. System Builder will be unable to securely connect to this device. An updated device site certificate should be signed and uploaded to the device.

Create/import site CA certificate:

1. From the **Tools** menu, select **Set Site CA Certificate** to open the Site Certificate Selection window.
2. If starting a new job, click the **Create** button to create a new site certificate.
   a. After creating a new site certificate, you will be prompted to **Export** the site certificate and save it in a secure location.
   b. For additional security when exporting the site certificate, you must enter a password. This password will be required by anyone importing the site certificate into another machine.
3. If someone has already started commissioning any of the devices and already created a site certificate, they will need to export the certificate from their machine. You can then import the site certificate to any machines used to commission or connect to secure Ethernet devices.



The Site CA certificate is stored in your machine, not in the job file. To allow another machine to commission the same site you must securely send the job file, the Site CA Certificate, and the password.

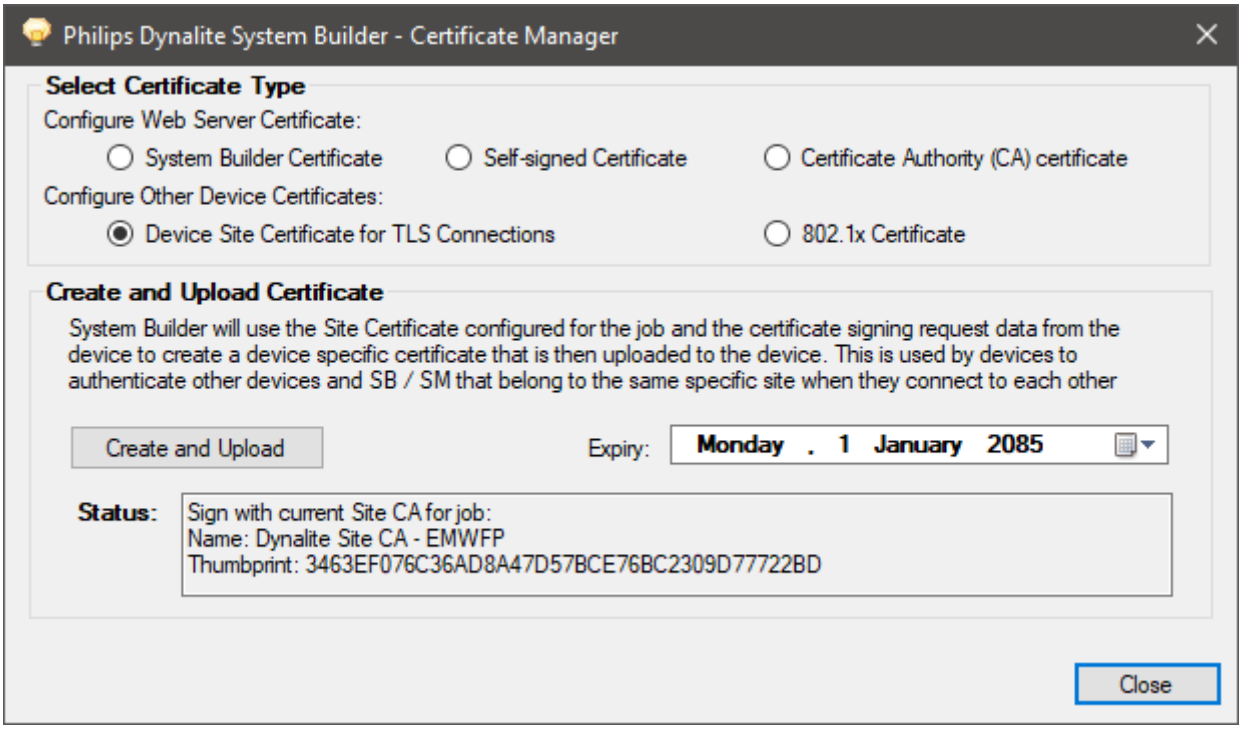
Having a lock icon in SB, a gateway, or a device simply means you have created and uploaded a certificate. You still need to configure the secure connections (with the Bridge Configuration Wizard) and save to device before you can connect securely.

The certificate placed in SM, the PDDEG-S, and the DDRC-GRMS-E must be signed by the same Site CA Certificate.

The certificate can be uploaded over a TCP/UDP or serial connection.

Create and upload certificate to the floor gateway:

1. Right-click the floor gateway in System view and select **Manage Certificate**.
2. Select Certificate Type > **Device Site Certificate for TLS Connections**.
3. Click the **Create and Upload** button. After a minute or two, System Builder creates and uploads a signed certificate file to the gateway.
4. Click the **Close** button.

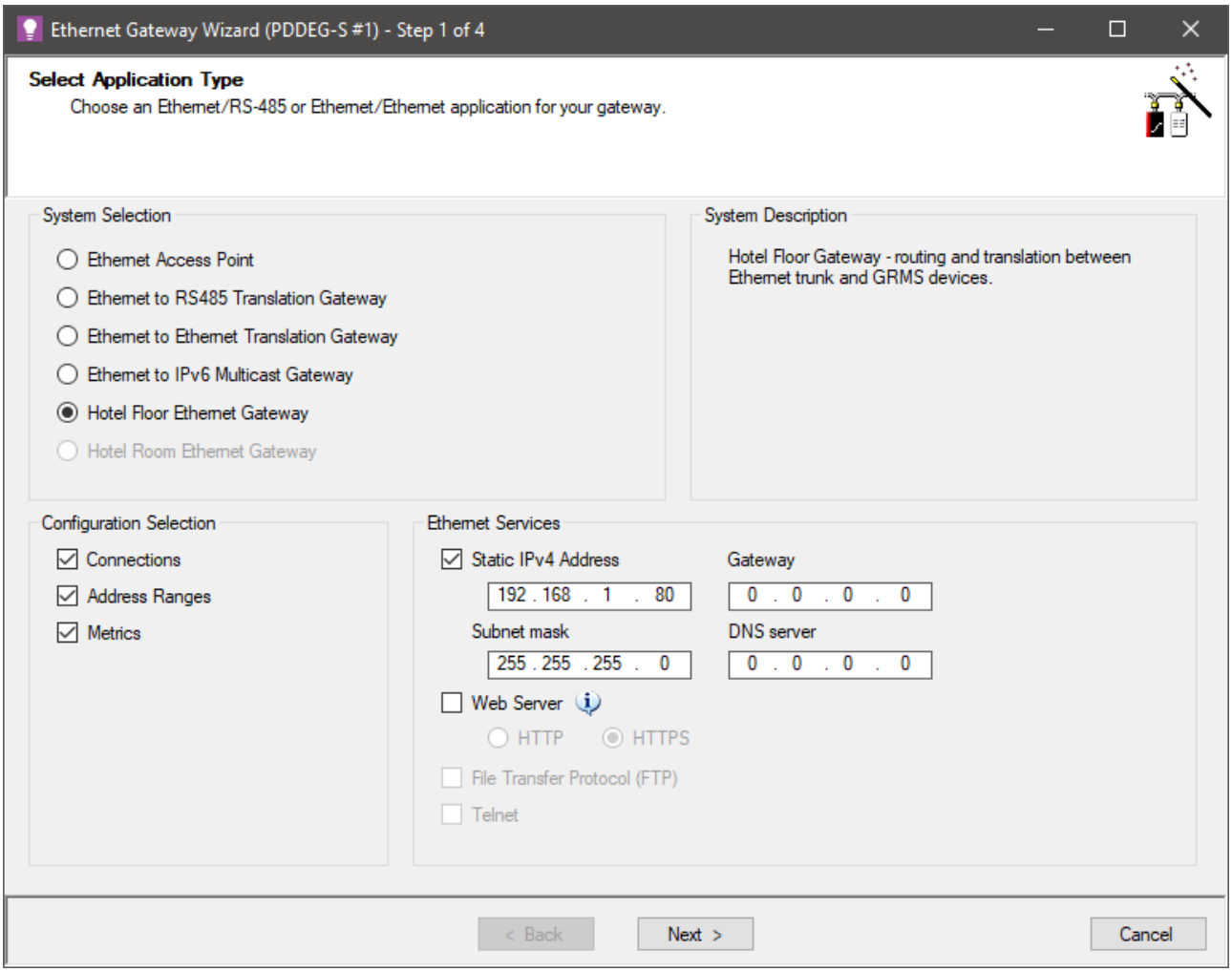


5.1.2. Configure the floor gateway connections

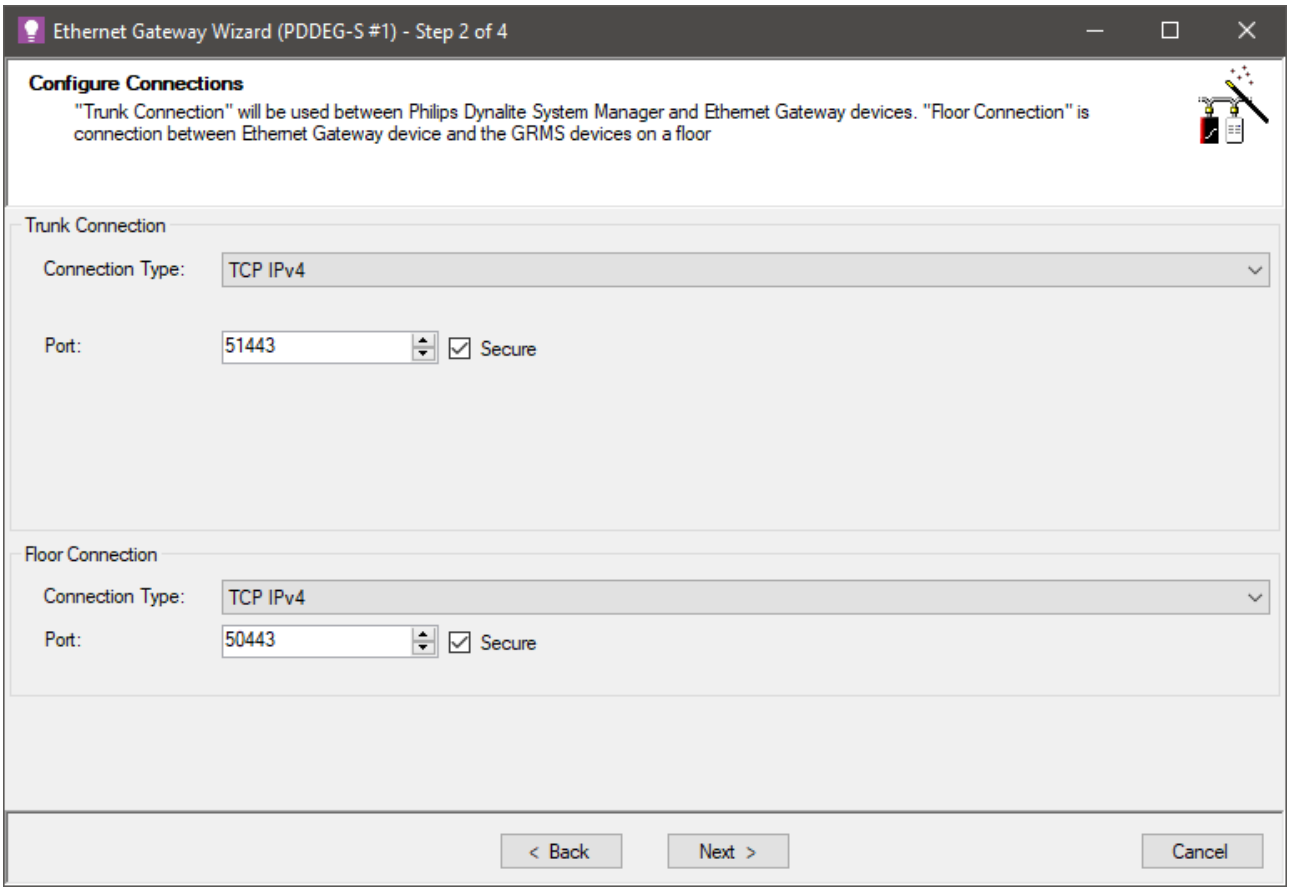
We strongly recommend configuring secure connections between System Manager, the PDDEG-S, and the DDRC-GRMS-E.

Configure floor gateway functions:

1. Right-click the floor gateway in System view and select **Bridge Configuration Wizard** (Alt+W).
2. Select **Hotel Floor Ethernet Gateway**.
3. Select **Static IPv4 Address** and enter IP Address (and Gateway and Subnet mask if required).
4. Leave **Web Server** unchecked.
5. Click the **Next >** button.

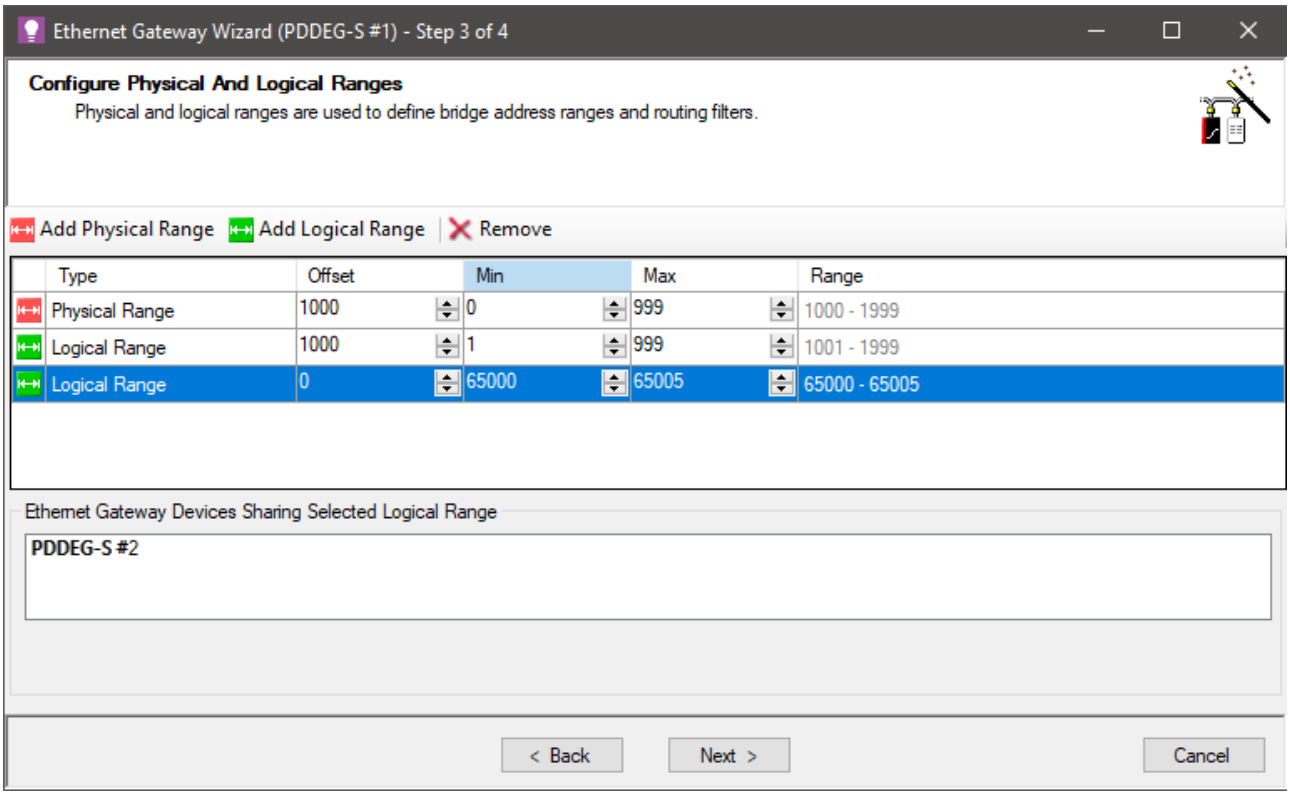


6. Under **Trunk Connection**, select *TCP IPv4*, **Port** *51443* and **Secure** checkbox.
   (For unsecure Trunk Connection, select *TCP IPv4*, **Port** *50000*)
7. Under **Floor Connection**, select *TCP IPv4*, **Port** *50443*, **Secure** checkbox, and click the **Next >** button.
   (For unsecure Floor Connection, select *TCP IPv4*, **Port** *50003*).

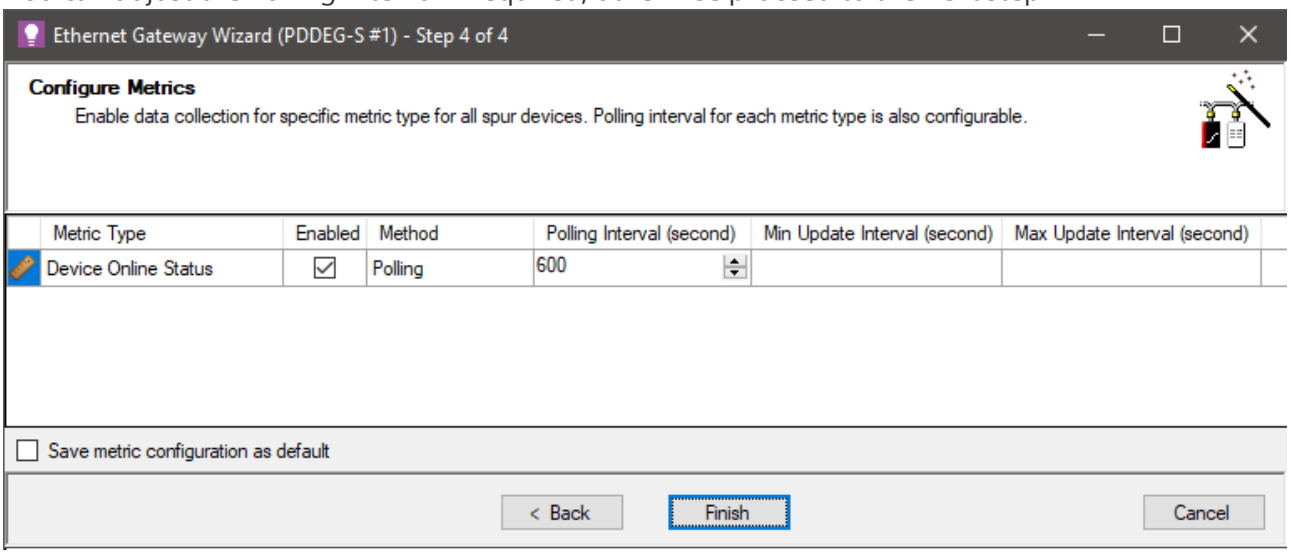


8. Click the **Add Physical Range** icon and enter the **Offset**, **Min**, and **Max** values.
9. Click the **Add Logical Range** icon and enter **Offset**, **Min**, and **Max** values.
10. Click the **Add Logical Range** icon again and enter **Offset** = *0* (zero), **Min** = *65000*, and **Max** = *65005* for the global areas.
    Ignore any popup message boxes.
11. Click the **Next >** button.

An SB Technician License is required to enter an address range without an offset.



12. Click the **Next >** button to accept the default metrics on the spur.
    You can adjust the Polling Interval if required, otherwise proceed to the next step.



13. Click the **Finish** button, then click the **Yes** button to confirm.
14. Record the box number and IP address in the *Floor gateway IP address table*.
15. Click **Save to Device**.
16. Click **File Save** to save the job to your PC.

The Hotel Floor Ethernet Gateway option in the Bridge Configuration Wizard disables the default UDP multicast connection when saved to the gateway. This means SB must now connect to the gateway using a secure Ethernet trunk connection.

5.1.3. Add alternative floor gateway

Network gateway redundancy is provided by adding an alternative floor gateway for every primary floor gateway in the project. The two floor gateways must be in different locations to ensure adequate

redundancy.

The primary gateway and the alternative gateway are both connected via an Ethernet trunk connection. If a floor gateway fails, then SM and the DDRC-GRMS-E room controller connections will switch over to the other gateway (maximum switchover time is 2 minutes). The current connection is maintained (unless the alternative gateway fails) even if the other gateway comes back online.

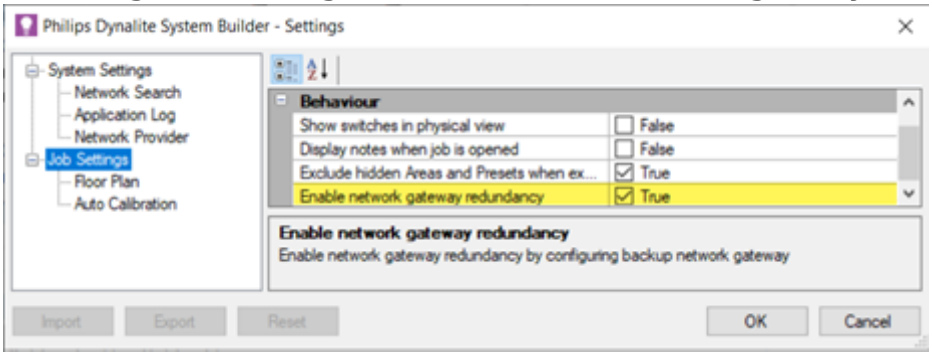
Both floor gateways are listed in the job's master configuration. However, only the primary gateway will show the connected DDRC-GRMS-E controllers in the network device tree. The two gateways should be similarly named and have identical port, routing, and metric configurations. It is recommended to commission the primary floor gateway and then copy the configuration to the alternate floor gateway.

Only these properties differ between the primary and alternative gateways:

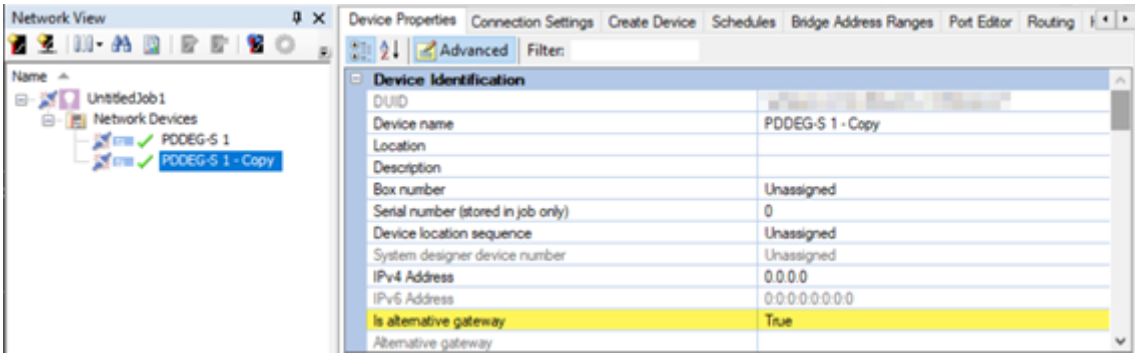
- User settings
- IP address
- Box number

Configure network gateway redundancy:

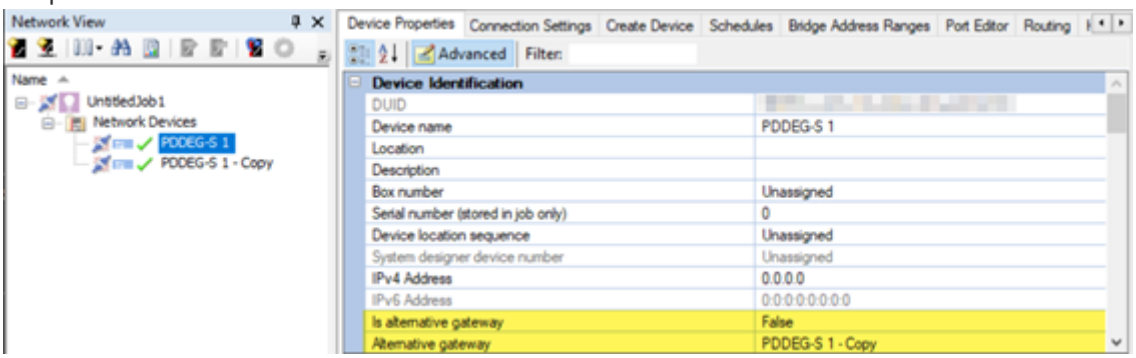
1. Set **Settings > Job Settings > Behavior > Enable network gateway redundancy** to *True*.



2. Copy and paste the primary gateway to create the alternative gateway.
3. Select the alternative gateway, click **Device Properties** and set **Is alternative gateway** to *True*.



4. Open the primary gateway's **Device Properties** tab and select the **Alternative gateway** from the dropdown list.



The security certificate must be uploaded to both gateways.

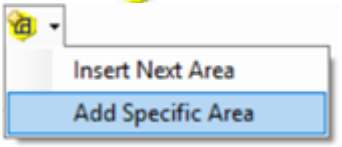
Additionally, both the primary floor gateway and alternative floor gateway IP addresses must be entered in the DDRC-GRMS-E **Gateway Mapping** Editor. Refer to Configure gateway mapping.

5.2. Add global areas

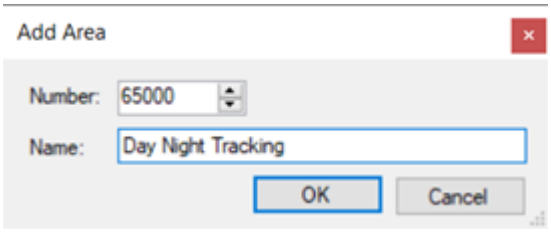
Global areas are used for system-wide messages to indicate day/night or current season.

Add global areas:

1. Click the **Areas View** tab.
2. Click **Insert New Folder** and name it *Global Areas*.
3. Click the **Insert New Area** dropdown list and select **Add Specific Area**.



4. In the **Number** field, enter *65000*.
5. In the **Name** field, enter *Day Night Tracking*.
6. Click the OK button.



5.3. Add room profiles

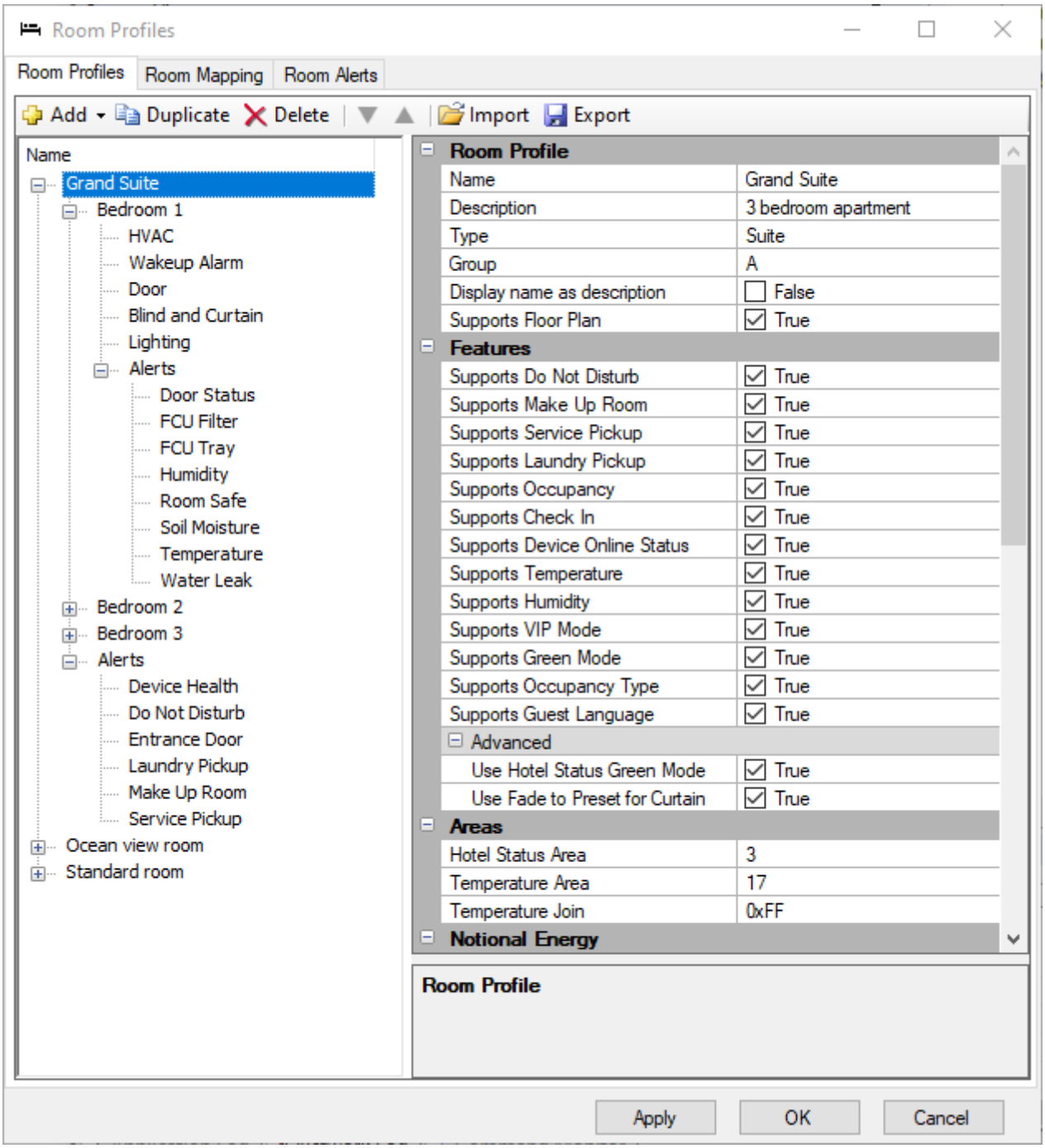
Since most hotels have a limited number of room profiles, this eliminates much of the repetition involved in adding rooms with identical configurations. The **Room Profiles** editor determines which zones, features, areas and services are supported by each room profile. These are displayed in the dashboard and are also available on the API.

The following room profile limitations affect the dashboard room view:

- 1 service of each type per zone (only 1 wake-up service per suite)
- 3 items per tile
- 5 different service types (HVAC, Wakeup Alarm, Door, Blind/Curtain, Lighting)
- 10 tiles per service

Set up room profiles:

1. Click **File > Manage Room profiles** to open the Room Profiles dialog box.
2. Click **Add > Room profile**.
   You can also **Duplicate**, **Delete**, **Import**, and **Export** room profiles.
3. With the room profile selected, enter a **Name**, **Description**, and **Type** for easier identification.
   The **Type** property determines the how the room is grouped and displayed on the dashboard.



4. Enter a **Group** name if you have many room profiles. This property groups room profiles under submenus in **SB > File > Open Room Configurations**.

5. If applicable, select **Supports Floor Plan** to enable the floor plan drawing to be shown on the dashboard. This is mainly used for public areas and larger suites. Refer to Add a room configuration floor plan.

6. You can set **Display name as description** to *True* to show the **Room Description** (from the Room Mapping Table) instead of the room number on the dashboard. This is typically used for public areas.

7. Select the supported room features for your project, e.g. **Do Not Disturb**, **Make Up Room**, **Laundry Pickup**, **Service Pickup**, **Humidity**, **Temperature** for a guestroom. This ensures that only relevant information is displayed on the dashboard's Room View page. You can also set the **Hotel Status Area** and **Temperature Area** to the area numbers reserved for these functions.

   - **Default Hotel Status Area** = 3
   - **Default Temperature Area** = 17

8. Enter the estimated room profile base power in Watts for each room state (this should be estimated by the hotel's electrical engineer/specifier).
9. Enter sensor information to allow dashboard users to update occupancy timeouts and AntiStumble nightlight timeouts for each room profile (See /GIT/multiroom/build/multiroom/latest/index.html/multiroom/2.11/dashboard_guide/configuration/room_profiles.html[Multiroom Dashboard > Room & Suite Profiles]).
   Select the number of ceiling sensors and AntiStumble sensors used in your room profile:

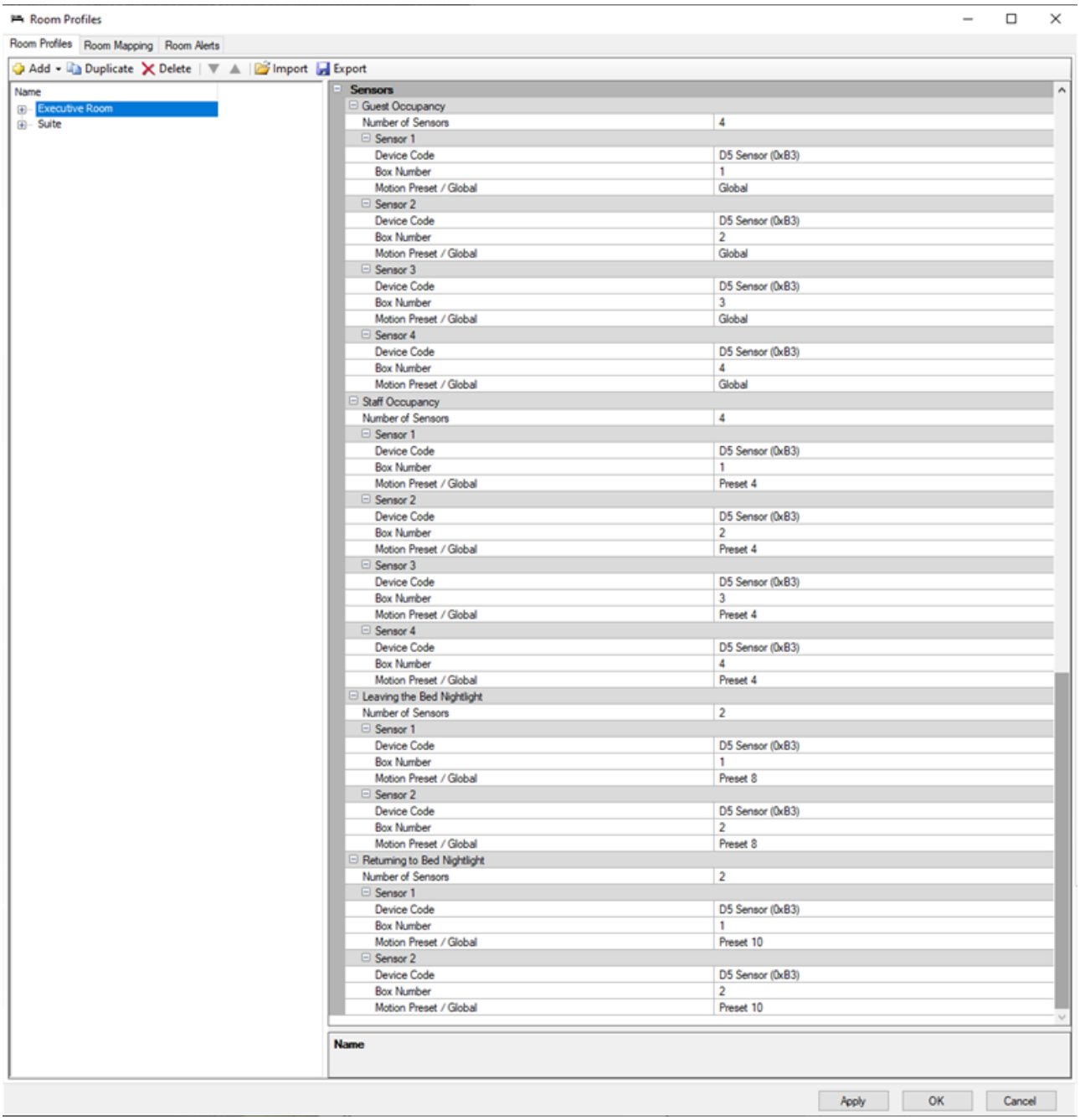
   Example

   A suite with:

   - **2 x ceiling sensors** (Bedroom + Bathroom)
   - **2 x AntiStumble sensors** (Bed Left and Bed Right)

   Would have:

   - **Guest Occupancy**: 4
   - **Staff Occupancy**: 4
   - **Leaving the Bed Nightlight**: 2
   - **Returning to Bed Nightlight**: 2
10. Enter each sensor's **Device Code**, **Box number**, and **Motion Preset** under each applicable category.
    As in the example above, you may need to reenter one sensor's info under multiple categories. This allows each sensor to support different timeouts under various occupancy and room status conditions. These timeouts are set via the dashboard's **Configuration > Room & Suite Profiles > Room settings**.



11. With the room profile highlighted, click **Add > Zone** to create as many zones as the room requires. Each room profile must have at least one zone. You can enter a name for each zone for easy identification. A zone can contain one of each type of supported service:

    - HVAC
    - Wakeup Alarm
    - Door
    - Blind and Curtain
    - Lighting

    Separately serviced areas (such as rooms with their own HVAC units and balcony doors) require a separate zone.

12. With the zone selected, click **Add > Service** to add each required service to the zone. Enter a name for each service for easy identification. The **Name** property is displayed in the service's tile in the dashboard **Room View**. Use the **Up** and **Down** arrows to reorder the zones and services in

the dashboard **Room View**.

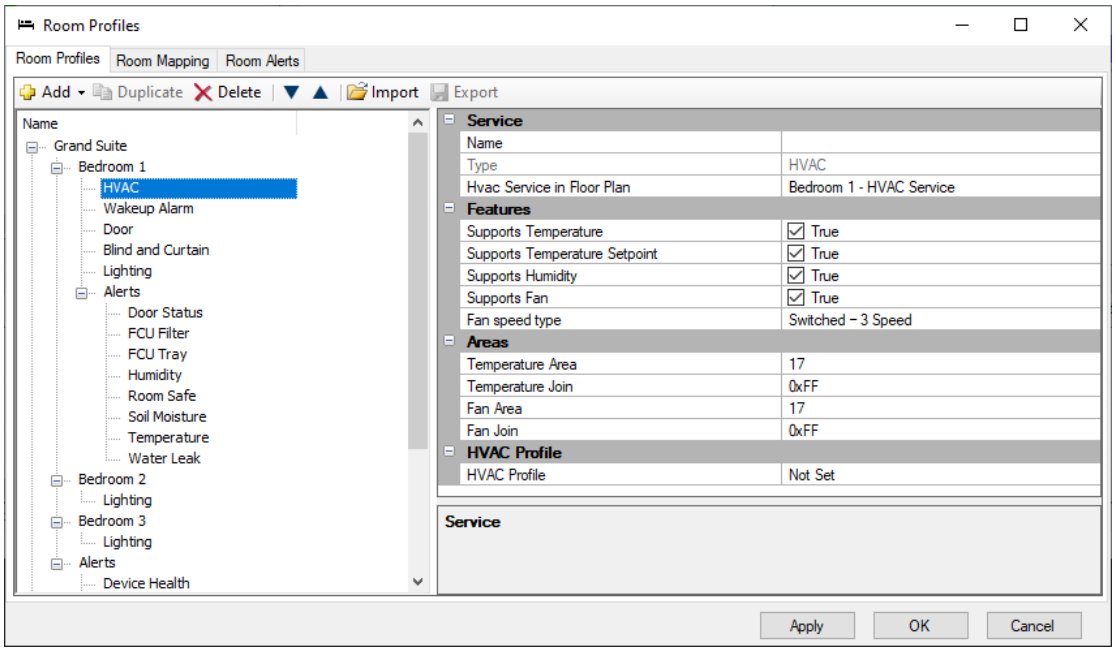
13. Select each service (refer to the **Example Services Properties** screenshots below) to configure the **Features** and logical **Areas**.
14. Click the **Export** button to save a room profile to an editable XML file. This enables profile sharing across multiple sites.
    To load an exported profile, click the **Import** button and follow the prompts.
15. Click the OK button to save your changes and close the Room Profiles window.

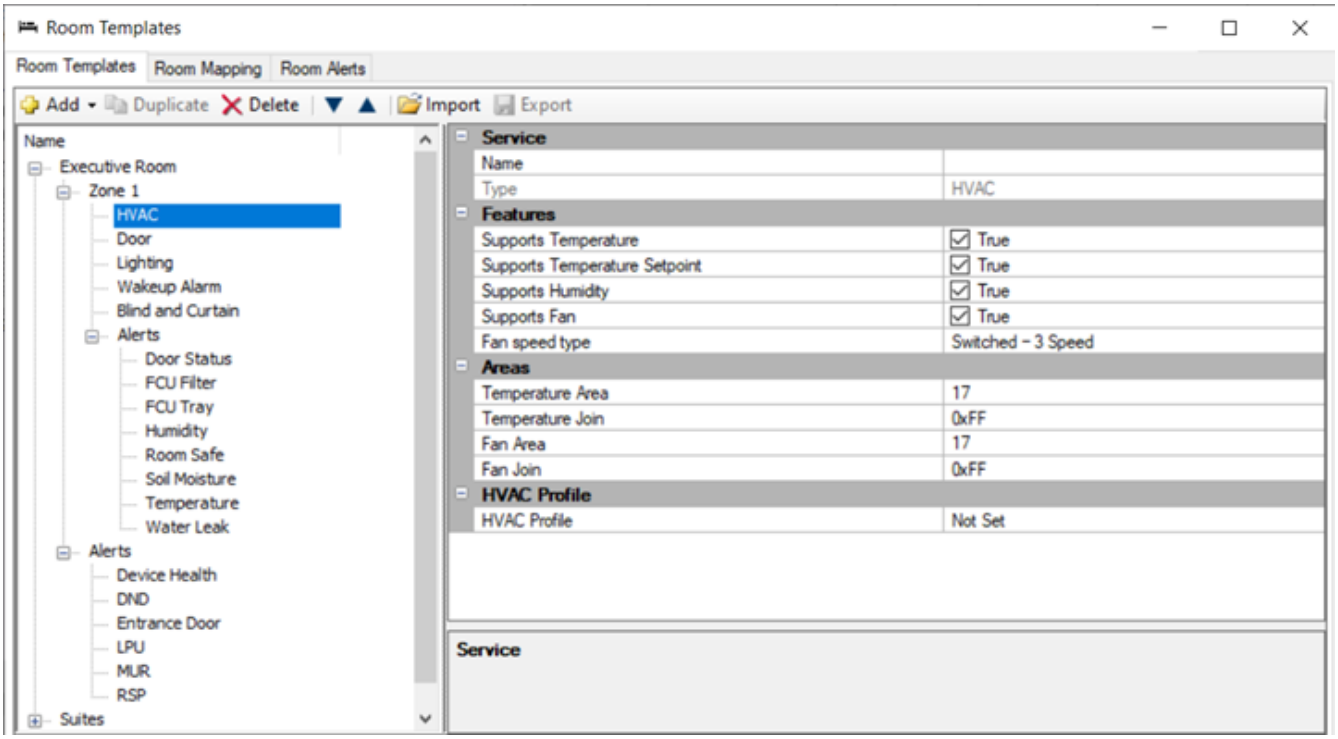
5.3.1. Example Services Properties

HVAC

- **Default Temperature Area** = 17
- **Default Fan Area** = 17

If using a floor plan for this room profile, select **Service > HVAC Service in Floor Plan**.





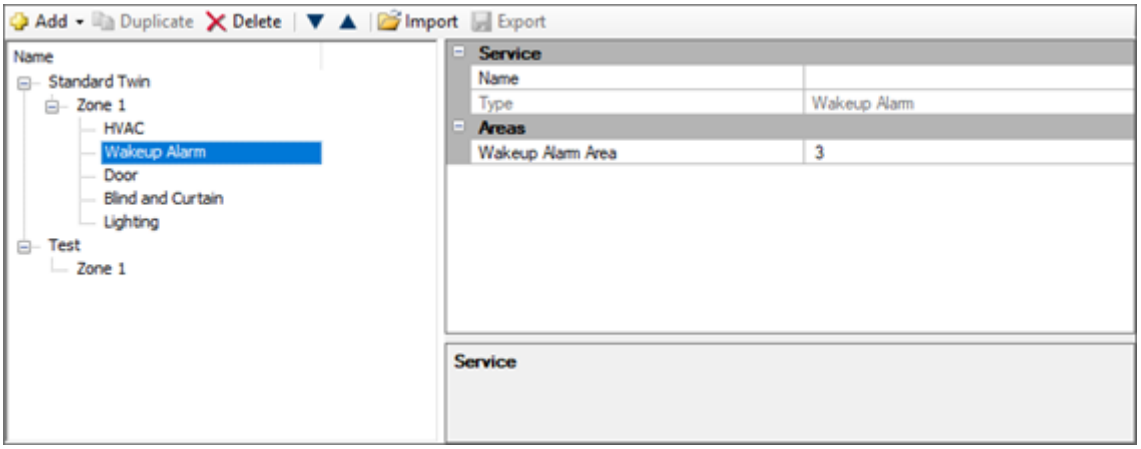
Fan Speed Options

Switched 3-Speed Fan	Variable 5-Speed Fan	Variable 10-Speed Fan
Preset 1 - High **Preset 2** - Medium **Preset 3** - Low **Preset 4** – Auto **Preset 5** - Off	**Preset 4** – Auto **Preset 5** - Off **Preset 7** - 20% **Preset 9** - 40% **Preset 11** - 60% **Preset 13** - 80% **Preset 15** - 100%	**Preset 4** – Auto **Preset 5** - Off **Preset 6** - 10% **Preset 7** - 20% **Preset 8** - 30% **Preset 9** - 40% **Preset 10** - 50% **Preset 11** - 60% **Preset 12** - 70% **Preset 13** - 80% **Preset 14** - 90% **Preset 15** - 100%

For more information on fan speeds and HVAC profiles, refer to Configure notional energy.

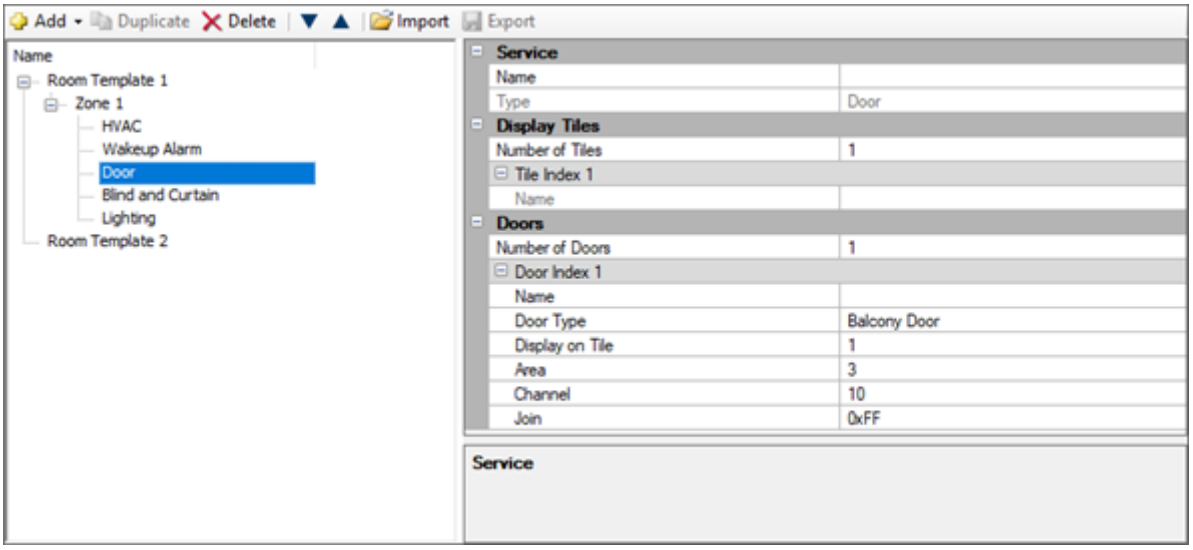
Wake-Up Alarm

- **Default Wake-Up Alarm Area** = 3



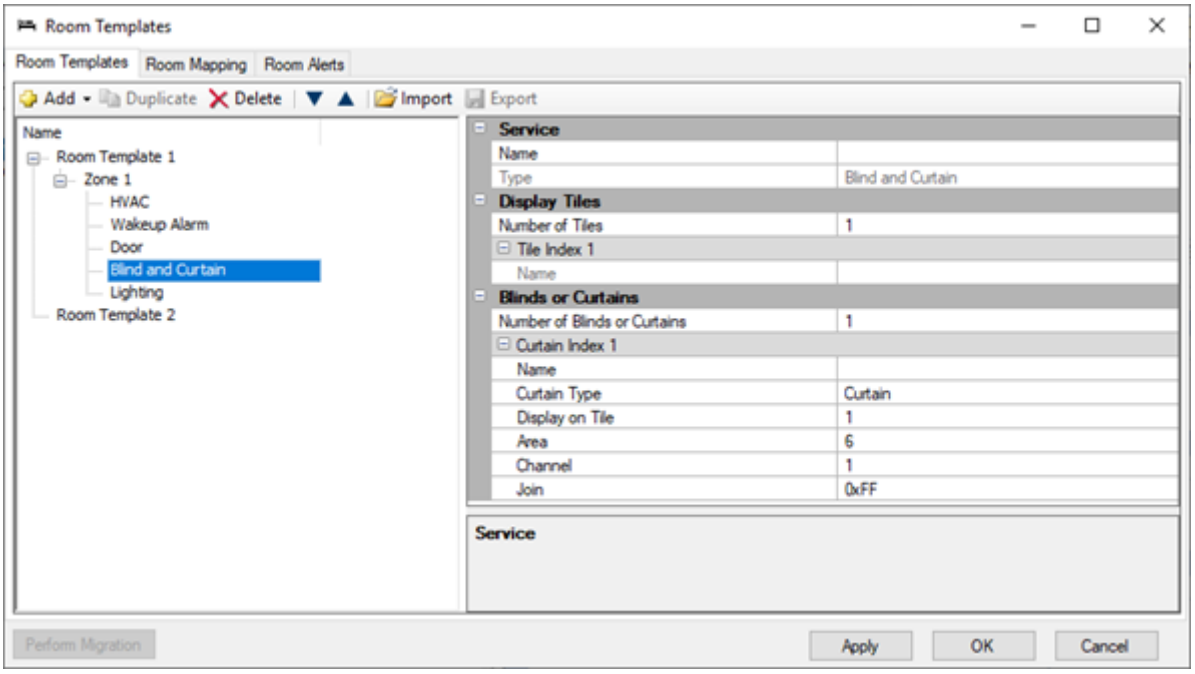
Door

- **Default Door Area** = 3
- **Default Door Channel** = 10
- **Default Room Safe Channel** = 11



Blind and Curtain

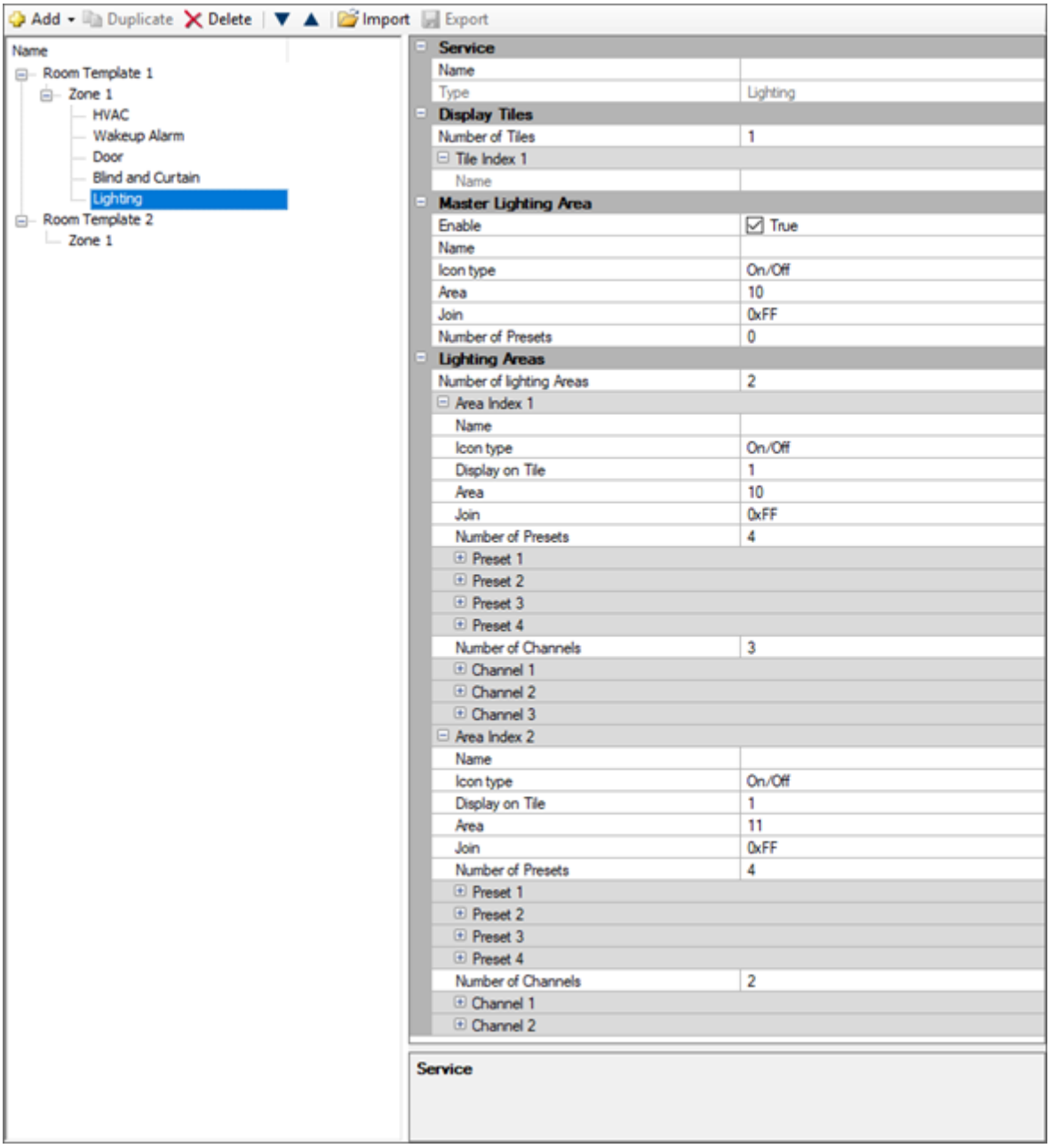
- **Default Curtain Area** = 6



Lighting

- **Default Night Lights Area** = 5
- **Default Main Room Lighting Area** = 10
- **Default Bathroom Lighting Area** = 11

Each Dashboard lighting tile supports up to 3 lighting areas, or a Master Lighting Area + 2 lighting areas.



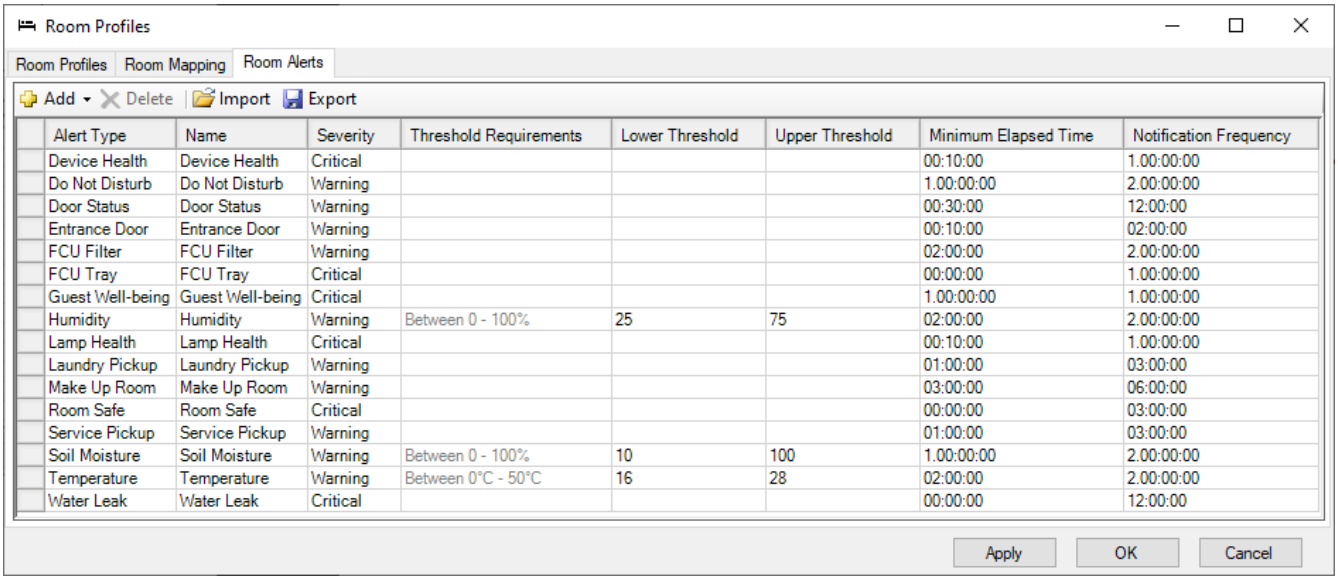
5.4. Define and add room alerts

Various room alerts can be specified for each room profile. They are displayed in the dashboard room view and are available on the **Hotel Integration API**. Each room alert is added to a room profile and applies to either the entire room profile or to a zone within the room profile. To trigger a room alert, the corresponding hardware must first be configured in the room.

Define room alerts:

1. Click **File >** **Manage Room Profiles** to open the Room Profiles editor.
2. Click the **Room Alerts** tab.
3. Click **Add** and select the required room alert.
4. Edit the **Name**, **Severity**, **Minimum Elapsed Time** (before the alert is triggered) and the **Notification Frequency**.
   For **Humidity**, **Soil Moisture**, and **Temperature**, you must enter the **Lower Threshold** and **Upper Threshold** values.
5. Room Alerts can be added more than once with different parameters as required.

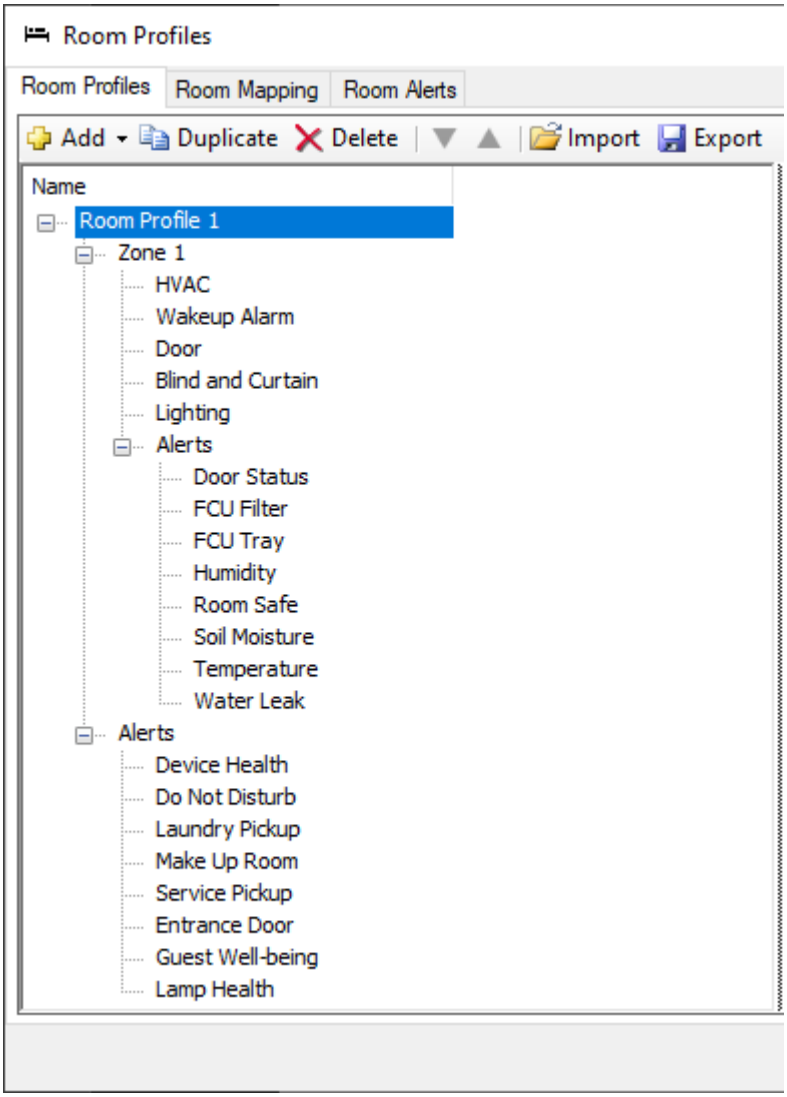
Click the beginning of the row to **Delete** a room alert. You can also **Export** and **Import** room alerts to/from an XML file.



Alert Type	Name	Severity	Threshold Requirements	Lower Threshold	Upper Threshold	Minimum Elapsed Time	Notification Frequency
Device Health	Device Health	Critical				00:10:00	1.00:00:00
Do Not Disturb	Do Not Disturb	Warning				1.00:00:00	2.00:00:00
Door Status	Door Status	Warning				00:30:00	12:00:00
Entrance Door	Entrance Door	Warning				00:10:00	02:00:00
FCU Filter	FCU Filter	Warning				02:00:00	2.00:00:00
FCU Tray	FCU Tray	Critical				00:00:00	1.00:00:00
Guest Well-being	Guest Well-being	Critical				1.00:00:00	1.00:00:00
Humidity	Humidity	Warning	Between 0 - 100%	25	75	02:00:00	2.00:00:00
Lamp Health	Lamp Health	Critical				00:10:00	1.00:00:00
Laundry Pickup	Laundry Pickup	Warning				01:00:00	03:00:00
Make Up Room	Make Up Room	Warning				03:00:00	06:00:00
Room Safe	Room Safe	Critical				00:00:00	03:00:00
Service Pickup	Service Pickup	Warning				01:00:00	03:00:00
Soil Moisture	Soil Moisture	Warning	Between 0 - 100%	10	100	1.00:00:00	2.00:00:00
Temperature	Temperature	Warning	Between 0°C - 50°C	16	28	02:00:00	2.00:00:00
Water Leak	Water Leak	Critical				00:00:00	12:00:00

Add room alerts to room profile:

1. Click the **Room Profiles** tab.
2. Select the required **Room Profile** or **Zone**.
3. Click **Add > Alert** and the select the required alert. The alert will be grey if it has already been added.
4. Click the **Apply** or OK button.



To enable the Dashboard to identify offline DALI drivers/lamps, DALI drivers must be placed into zones in the room controller's **Outputs** editor. Lamp Health must be enabled.

Disabled room devices will:

- Not be seen in the dashboard room view Alerts and Health page
- Not be reported as offline
- Not trigger a Device Offline room alert
- Not be deployed to as part of a firmware or configuration deployment
- Have a disabled device icon in the SB device tree

5.4.1. Room Alert Descriptions

Guestroom Alerts

Room Alert	Description
Device Health	Indicates the online/offline status of room devices after the minimum elapsed time. Requires the Device Online Status metric. To exclude devices, set **Device Properties > Device Identification > Room device enabled** to *False*.
Entrance Door	Indicates when the entrance door has been left open for the minimum elapsed time. Requires a room controller or DLLI8I8O Entrance Door Dry Contact Input and/or Access Control System message.
Room Status	Indicates the current room status after the minimum elapsed time (requires a UI, Dashboard, or PMS to set the room status): Do Not Disturb (Privacy) Laundry Pick Up Make Up Room Service Pickup
Guest Well-Being	Indicates that the room has remained occupied but no-motion has been detected for the minimum elapsed time. Default = 24 hours.
Lamp Health	Indicates that a DALI driver or lamp is offline.

Zone Alerts

Room Alert	Description
Door Status	Indicates when a balcony door has been left open for the minimum elapsed time. Requires a Balcony Door Dry Contact Input.
FCUC Filter Dirty	Indicates the FCUC filter is dirty after the minimum elapsed time. Requires an FCUC Air Filter Dry Contact Input.
FCUC Drip Tray Full	Indicates the FCUC drip tray is full after the minimum elapsed time. Requires an FCUC Drip Tray Overflow Dry Contact Input.
Humidity	Indicates the humidity is below the Lower Threshold value or above the Upper Threshold value for the minimum elapsed time. Requires a Humidity Sensor.
Room Safe Closed	Indicates that the safe door is closed when guest checks in or out. Requires a room controller or DLLI8I8O Safe Door Dry Contact Input.
Soil Moisture[1]	Indicates the soil moisture is below the Lower Threshold value or above the Upper Threshold value for the minimum elapsed time. Requires a Soil Moisture Sensor.

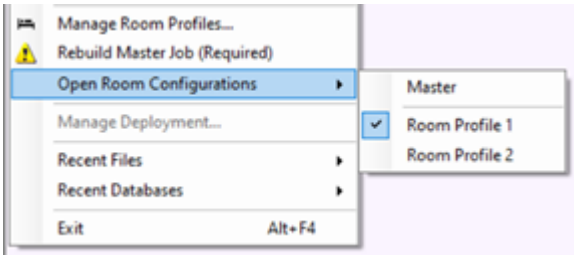
Room Alert	Description
Temperature	Indicates the temperature is below the Lower Threshold value or above the Upper Threshold value for the minimum elapsed time. Requires a network user interface with temperature sensor.
Water Leak[1]	Indicates bathroom water leak. Requires a room controller or FCUC Bathroom Water Leak Dry Contact Input.

DALI alerts (Channel offline, Driver/Ballast failure, Lamp failure) do not need to be configured in the **Room Alerts** editor. Once DALI channels are placed into zones, DALI alerts are automatically displayed in the dashboard. **Device Health** must be enabled.

Alert notifications are set up after SM installation in the **SM Configuration Tool >** Site Settings.

5.5. Import mockup room job to room profile

After adding room profiles to the job, you can open them from the **File > Open Room Configurations** menu. Each room profile is linked to a specific room configuration (mockup room). After making changes to a room configuration, click **Rebuild Master Job**.



The room configuration tree has a light purple background color to show that you are viewing a room profile.

Areas, System, and Building properties are unique in each room configuration, but Job properties are common.

Room profiles that are mapped cannot be deleted. Before deleting, you must first remove the profile from the room mapping table.

Add mockup room job to a room configuration:

1. Click **File > Open Room Configurations** and select the required room profile.
2. Click **File > Import System Builder Job…**, select the job file, and click the **Open** button to import the mockup room job file for that room configuration.
   (You can also manually add the mockup room devices and areas to the room configuration).
3. Click the **Test** button to confirm that there are no device conflicts.
   If there are device conflicts, you must correct the mockup room job file before importing.
4. Click the **Import** button.

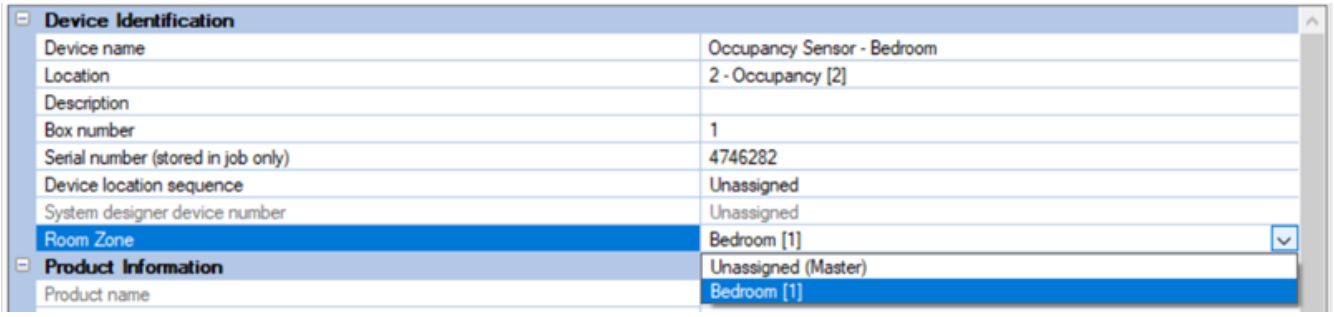
5. Click the **Close** button, then click **File Save** (Ctrl+S) to save the job to your PC before selecting the next room profile.
6. Repeat these steps for each room profile in your project.

5.6. Place devices and channels into zones

The Dashboard's **Control Center** page reports device status by zone. User interface and sensor devices must be placed in the room zone where they are located. For single-zone guestrooms, this can remain as *Unassigned (Master)*.

Place a device into a room zone:

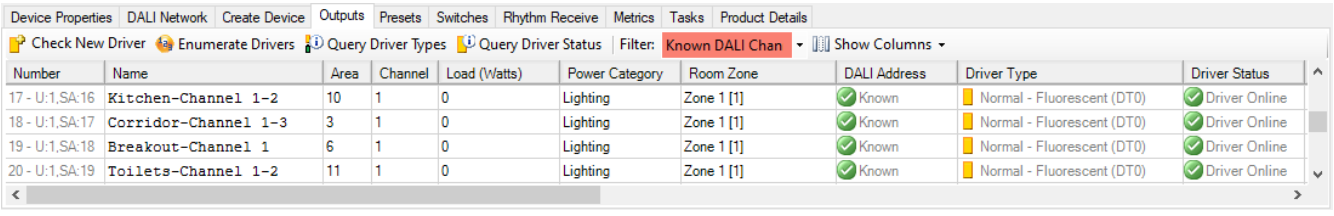
1. Click **File > Open Room Configurations** and select the required room profile.
2. Select the device (UI or sensor).
3. Click the **Device Properties** tab.
4. Under **Device Identification > Room zone**, click the dropdown list and select the zone.
5. Repeat steps 1 to 4 for each UI and sensor in your room configuration.



DALI controller channels must have a room zone selected. This enables DALI alerts to be identified by their location in the guestroom.

Place a DALI controller channel into a room zone:

1. Click **File > Open Room Configurations** and select the required room profile.
2. Select the **DALI controller** (the DDBC120-DALI and DDBC320-DALI are supported).
3. Click the **Outputs** editor tab.
4. In the **Room Zone** column for each lamp driver, click the dropdown list and select the zone.



If you have one or more DDBC120-DALI or DDBC320-DALI controllers in a room/suite, the DALI drivers need to be localized using the Multiroom Dashboard. For more information refer to /GIT/multiroom/build/multiroom/latest/index.html/multiroom/2.11/dashboard_guide/control_center/room_view/manage_luminaires.html[Multiroom Dashboard > Management Luminaires].

For security reasons, the DDBC320-DALI Ethernet port must be disabled.

5.6.1. Add a room configuration floor plan

If you have selected **Supports Floor Plan** in the Room Profile settings, then you can add a floor plan drawing and associated fixtures and devices to the corresponding room configuration. The floor plan will be displayed within the room view on the Multiroom Dashboard.

To view the floor plan in the Dashboard, the user can open the **Monitor & Control** tab, click the **Floor Plan** icon in the top right corner, and then select one of the following two views:

- **Service & Health**
- **Lights & Devices**

Light fixtures and devices need to be placed within a zone in their actual location on the floor plan. However, service and health icons are automatically created and placed in the appropriate zone based on the services selected in the **Room Profile > Zone Properties**.

The following service and device icons are shown on the dashboard:

Service & Health	Lights & Devices
Lighting HVAC Drapery Doors	Lights Environmental Drapery Doors Occupancy

Note that a floor plan drawing must be cropped to only show part of the floor plan for the specific room profile. To crop the floor plan please use relevant software applications that can handle PDF files and vector drawings.

In **File > Manage Room Profiles**, ensure you have added the zones and required services to each zone before adding them to the floor plan.

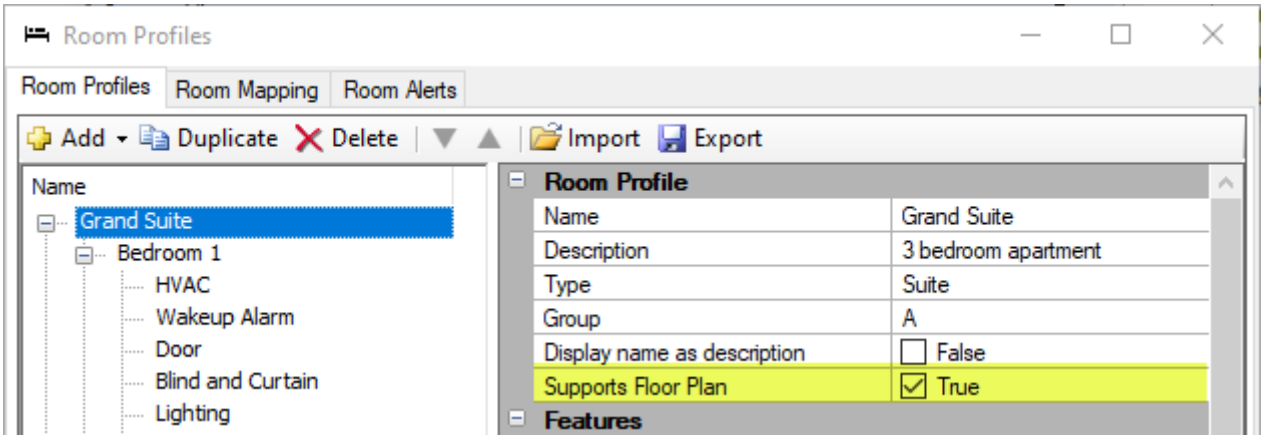
Currently, user interfaces are not shown on Multiroom Dashboard floor plans.

Service & Health

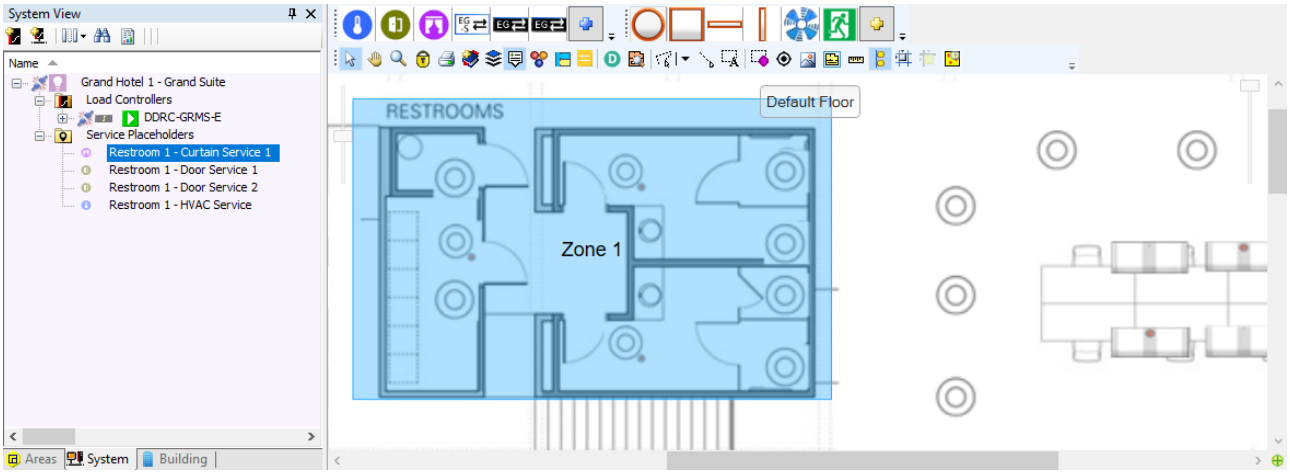
Lights & Devices

Add fixtures and devices to a room profile floor plan:

1. Click **File >** 🛏 **Manage Room Profiles** to open the **Room Profiles** dialog.
2. Select the required room profile and set **Supports Floor Plan** to *True*.



3. Click Apply or OK.
4. Click **Show Floor Plan Window**, or **Float Floor Plan Window** (Ctrl+F9).
5. Click **Background Image > Select Background Image** and select a PDF file that has a cropped floor plan drawing showing the room.
6. On the floor plan toolbar, select **Draw Zone Region**.
7. Click and drag a rectangle to draw a zone region for each zone in your room profile.

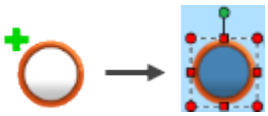


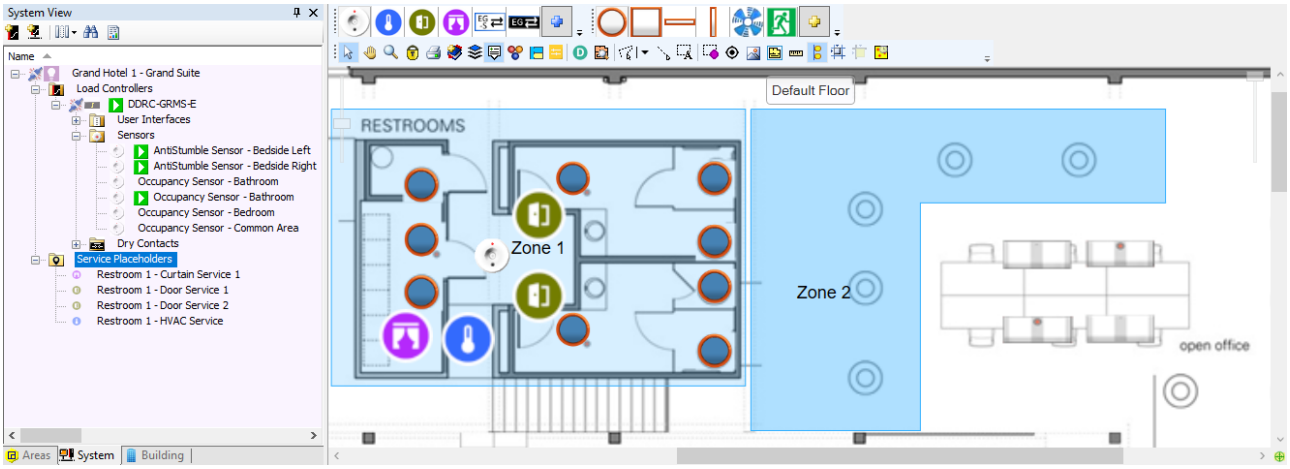
8. Enter the zone region name or keep the default name.
9. (Optional) Select a colour from the colour picker or enter the RGB values and click OK. You can use this to visually group or differentiate zones.
10. Right-click the zone region to make changes.

    If applicable, you can set a new center point to change the location of the zone label (and service icons on the Dashboard). Right-click the zone region and select **Set Center Point** and click in the zone where you want the label to appear.

    You can also add to the zone shape by drawing an adjoining zone and giving it the same zone number.

11. From the **System View** or **Building View** tree, drag service placeholder devices into the floor plan zone(s) where they are physically located.
12. Drag your DDRC-GRMS-E and other controllers onto the floor plan. These are not shown on the dashboard.
13. In **Building View**, click the **Expand** icon to show the DDRC-GRMS-E output circuits or DALI controller drivers.

14.  Drag a circuit/driver to a location on the floor plan to add a fixture. The icon shows a green + sign while dragging. You can scale the size of the fixture icon by dragging the red handles.
15. Right-click a fixture to open the fixture context menu and make other changes to the fixture icon. For example, you can click **Edit Properties** to select a different fixture profile.
16. Continue dragging circuits/drivers to each zone until you have added all the fixtures in your room.



17. Right-click the controller in **System View** or **Building View** and select **Save to Device** (F12).
18. Click **File >** **Save** (Ctrl+S) to save your changes to the job.

5.7. Configure notional energy

Notional energy is calculated per room based on the estimated consumption of each load in the room. This data is presented in the Multiroom Dashboard for reporting, analysis, maintenance, and monitoring. Notional energy values are updated hourly on the dashboard and can be aggregated across the whole hotel or per building/wing as required.

Notional energy properties are divided into three power categories:

- Lighting
- HVAC (Heating & Cooling)
- Base power

Project reference tools:

- *Notional energy load sign-off sheet*

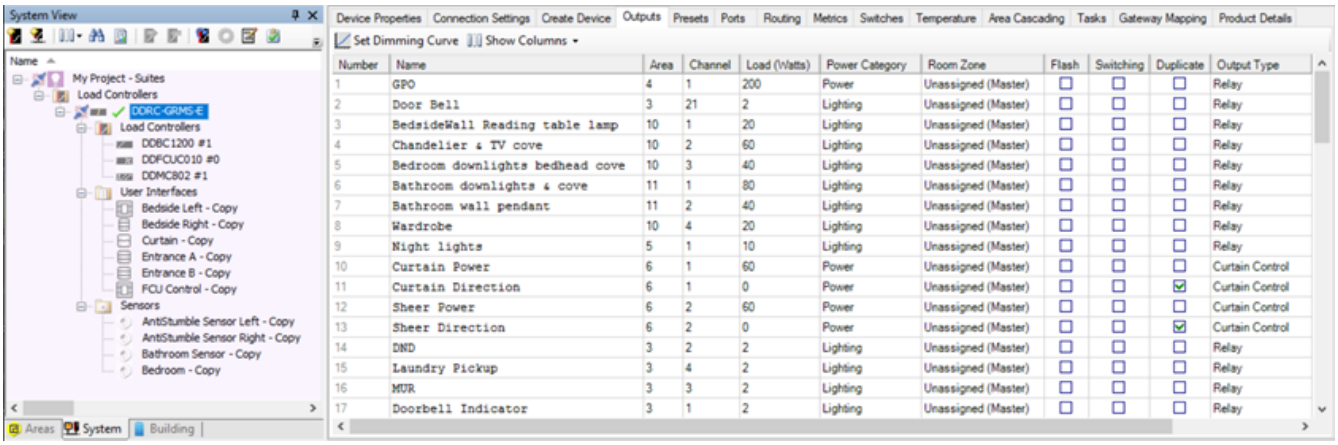
5.7.1. Notional lighting power

Notional lighting power uses the estimated maximum load power, channel level, and run-time for lighting circuits to arrive at a notional energy consumption value.

Configure notional power for lighting:

1. Click **File > Open Room Configurations** and select the required room profile.
2. In **System** view, select a controller and click the **Outputs** tab.

3. In the **Load (Watts)** column, enter the maximum power consumption of the load in Watts for each lighting circuit.
4. In the **Power Category** column, select **Lighting** for each lighting circuit.
5. Repeat steps 2 to 4 for each controller in the room profile. Ensure that you have included all channels with connected loads.
6. Click **File Save** to save the job to your PC.



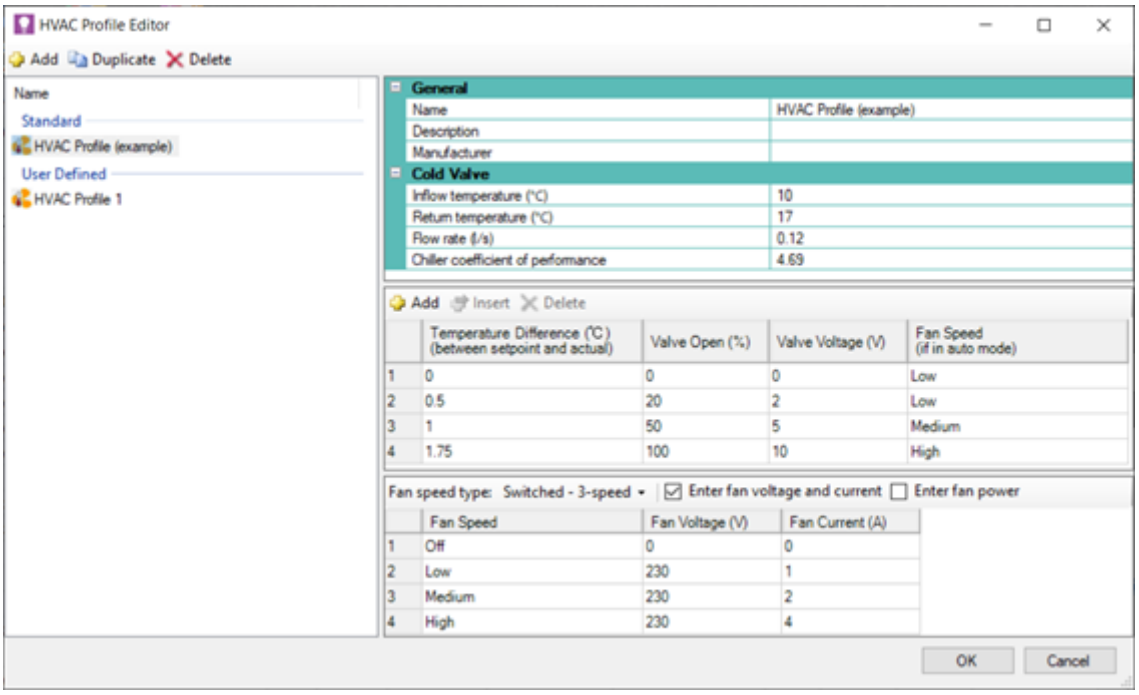
5.7.2. Notional HVAC power

Notional HVAC power uses estimated HVAC energy consumption along with recorded run-time to arrive at a notional energy consumption value. It is calculated from the values entered in an HVAC profile based on manufacturer specifications, fan speed, and the difference between the setpoint and actual temperature.

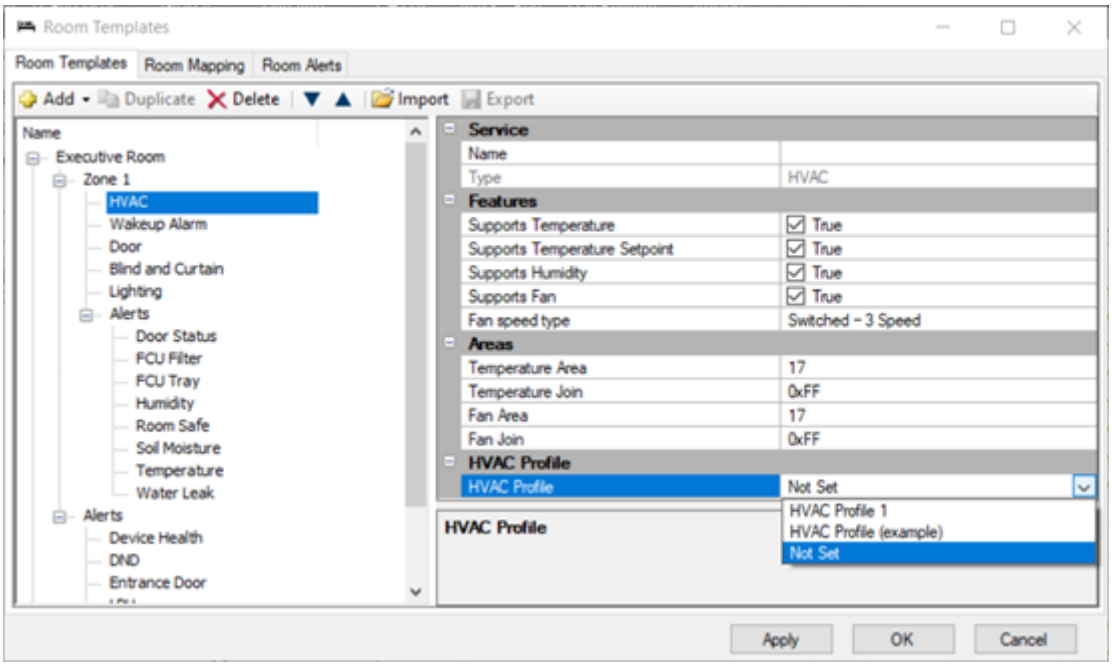
- If HVAC status is Cooling or Auto, and actual temp is equal to or higher than setpoint, then the HVAC profile valve table is used for the power calculation. If actual temp is lower than setpoint, the first row of the valve table is used.
- If HVAC status is Heating, the first row of the valve table is used for the power calculation.
- If HVAC status is Energy Holdoff or Off, then notional power is zero.

Configure notional power for HVAC:

1. Click **Tools > HVAC Profiles**.
2. Click **Add** to add a new HVAC profile (refer to the HVAC profile example for typical values).
3. Enter the values in the **Cold Valve** properties, as provided by the HVAC system consultant.
4. Enter the values in the **Valve** table, as provided by the HVAC system consultant.
   - Click **Add** to add another valve settings row.
   - Select a row number and click **Insert** to add a row above the selected row.
   - Select a row number and click **Delete** to delete a row.
5. Select the **Fan speed type** from the dropdown list (3-, 5-, or 10-speed) and select either **Enter fan voltage and current** or **Enter fan power**. Enter the values in the **Fan Speed** table, as provided by the HVAC system consultant.
6. Repeat the previous steps process for each HVAC profile used in the hotel.
7. Click the OK button to close the editor.



8. After creating the HVAC profiles, click **File >** **Manage Room Profiles** and select a **room profile > zone > HVAC service**.
9. Select an **HVAC Profile** for the zone from the dropdown list.
10. Click the **Apply** button to save your changes, or **OK** to save your changes and close the Room Profiles window.



5.7.3. Notional base power

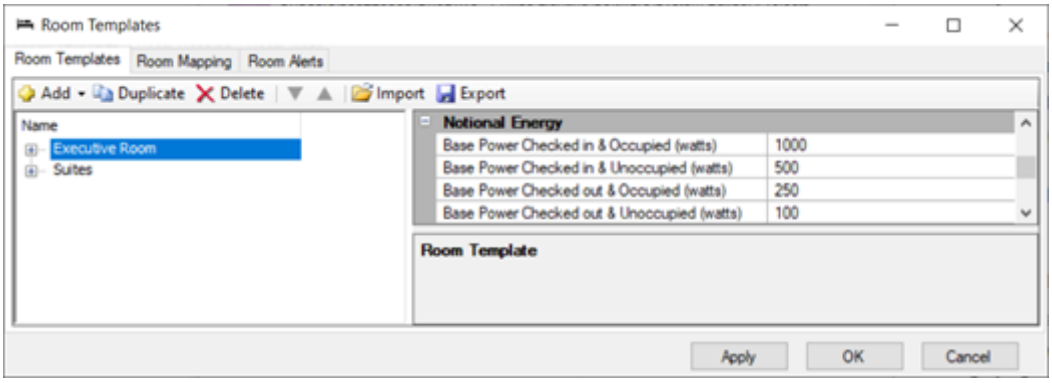
Notional base power combines the estimated load for each room state (for non-controlled loads such as minibar, coffee machine, TV, permanently powered outlets, etc.), along with the energy consumption and run-time of plug loads connected to switched outputs, to arrive at a total notional energy consumption value.

Base power has two components:

- **Fixed** – Load in Watts specified per room state (non-controlled plug loads).
- **Variable** – Load in Watts specified for each circuit with Power Category = Power (controlled plug loads).

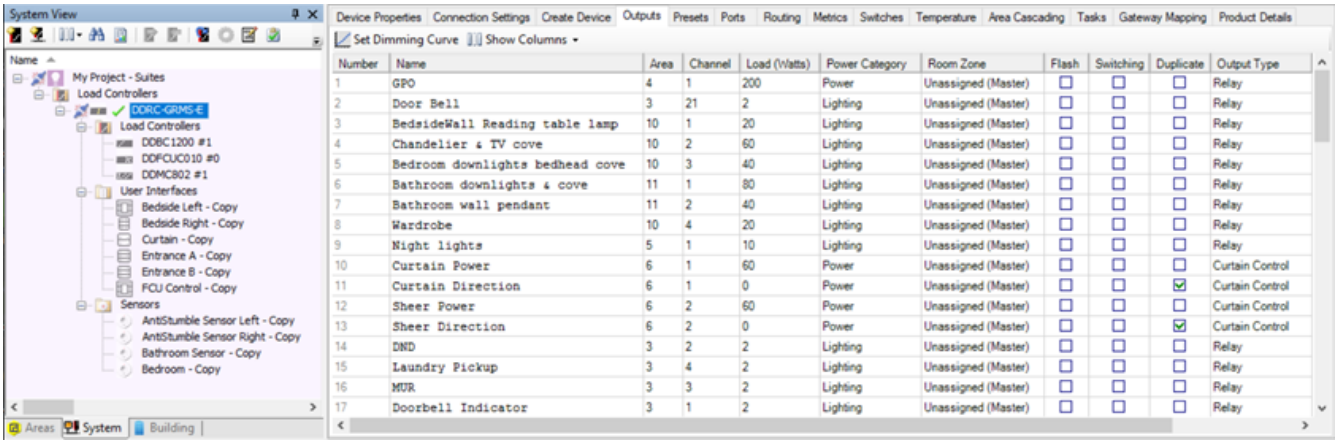
Configure fixed base power:

1. Click **File >** **Manage Room Profiles** and select a room profile.
2. In the **Notional Energy** group, enter the estimated power consumption in Watts for each room state:
    a. **Base Power Checked in & Occupied**
    b. **Base Power Checked in & Unoccupied**
    c. **Base Power Checked out & Occupied**
    d. **Base Power Checked out & Unoccupied**
3. Click the **Apply** button to save your changes, or **OK** to save your changes and close the Room Profiles window.
4. Repeat the previous steps for each room profile.
5. Click **File Save** to save the job to your PC.



Configure variable base power:

1. Click **File > Open Room Configurations** and select the required room profile.
2. In **System** view, select a controller and click the **Outputs** tab.
3. In the **Load (Watts)** column, enter the maximum power consumption of the load, in Watts, for each power circuit.
4. In the **Power Category** column, select **Power** for each power circuit.
5. Repeat the previous steps for each controller. Ensure that you have included all channels that have loads connected.
6. Click **File Save** to save the job to your PC.



5.8. Configure DDRC-GRMS-E

5.8.1. Create and upload the DDRC-GRMS-E certificate

A Device Site Certificate for TLS Connections must be uploaded to the DDRC-GRMS-E in each room before you can configure a secure connection. To create a Device Site Certificate in the DDRC-GRMS-E, you must first create/import a Site CA Certificate from System Builder **Tools > Set Site CA Certificate**. Refer to Create and upload the gateway certificate.

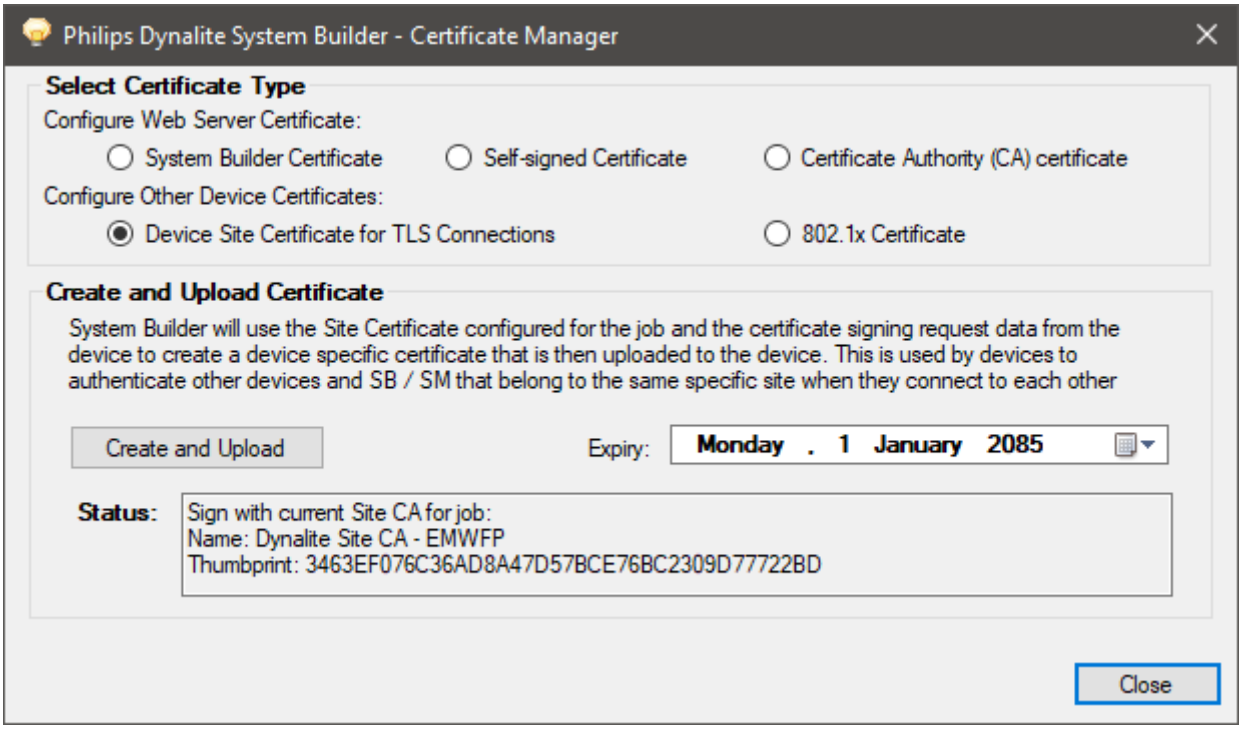
The certificate uploaded to SB/SM, PDDEG-S and GRMS-E must be signed by the same Site CA Certificate.

The certificate can be uploaded over a TCP/UDP or Serial connection.

The DDRC-GRMS-E must have a box number.

Create and upload certificate to the DDRC-GRMS-E:

1. Click **File > Open Room Configurations** and select the required room profile.
2. Connect SB to the room network.
3. In **System** view, select the DDRC-GRMS-E load controller and click **Manage Certificate**.
4. Set **Select Certificate type** to – **Device Site Certificate for TLS Connections**.
5. Click the Create and Upload button. After a minute or two, System Builder creates and uploads a signed certificate file to the device.
6. Click the Close button.



5.8.2. Configure gateway mapping

In the room controller, the gateway mapping lists the details of every floor gateway in the project. This enables the installer to select the DDRC-GRMS-E to floor gateway connection by setting the **ID2** DIP switches.

Add gateway mapping:

1. Click **File > Open Room Configurations** and select the required room profile.
2. Connect SB to the room network.
3. In **System** view, select the DDRC-GRMS-E load controller.

> Ensure that SB is using the correct box number for the DDRC-GRMS-E - this should match the ID1 DIP switch setting on the controller. If you make any changes the DIP switch setting, reset the controller before proceeding.

4. Click the **Gateway Mapping** tab.
5. Click **Add** to add a gateway mapping row (you can also import and export the rows).

IP Address	Alternative IP Address	Port	DIP Switch
192.168.1.7	192.168.1.57	50443	0x01
192.168.1.8		50443	0x02
192.168.1.9		50443	0x03

Configuration	
IP Address	192.168.1.7
Alternative IP Address	192.168.1.57
Port	50443
DIP switch	01

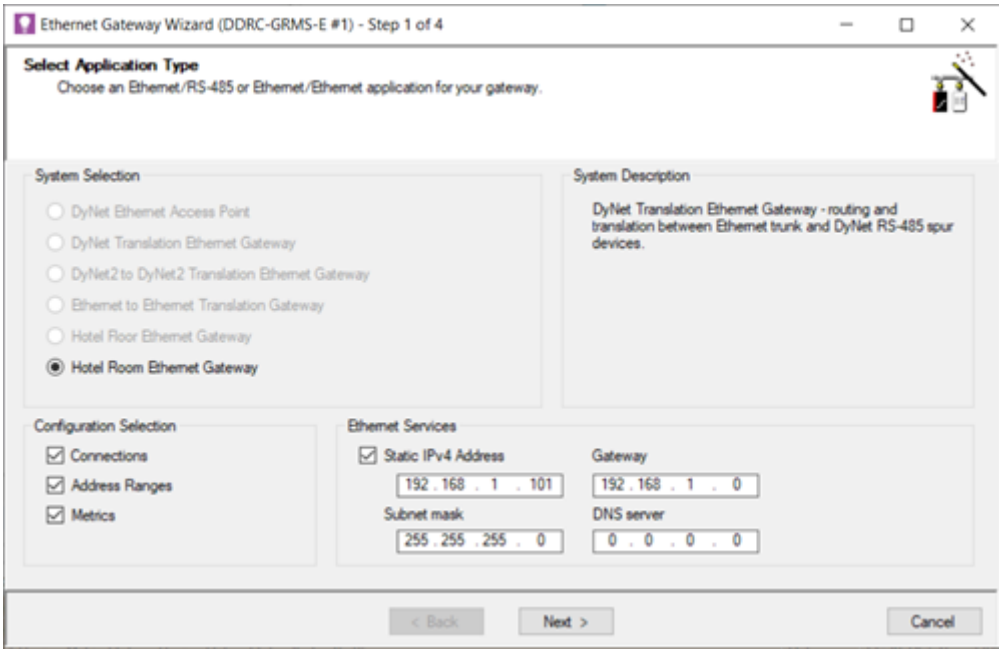
6. Enter the **Primary IP4 Address**, **Alternative IP address** and **Port** (50443) for the floor gateways and the corresponding DIP switch number. Primary and Alternate gateways must be in the same subnet.
7. Repeat for every floor gateway in the hotel project.

> To enable the Alternative IP address, open **Tools > Settings > Job Settings > Behavior** and set **Enable network gateway redundancy** to *True*.

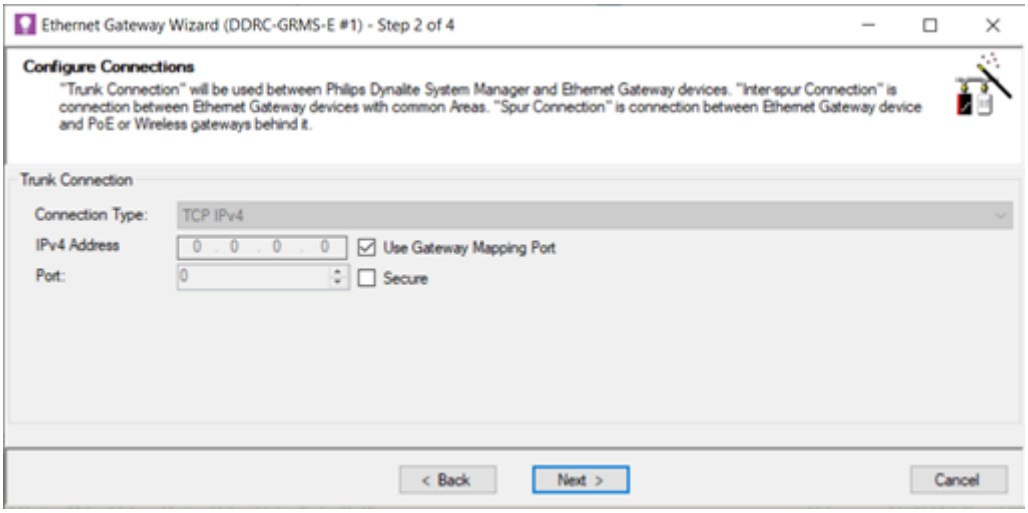
5.8.3. Configure the DDRC-GRMS-E connections

Configure DDRC-GRMS-E gateway functions:

1. Right-click the DDRC-GRMS-E and select **Bridge Configuration Wizard** (`Alt`+`W`).
2. Select **Hotel Room Ethernet Gateway**.
3. If using DHCP, uncheck the **Static IPv4 Address** property or enter a static IP address (the **Gateway** address, **Subnet mask**, and **DNS server** address properties are the same as in the Port Editor under IPv4 properties but are not relevant for the DDRC-GRMS-E).
4. Click the **Next >** button.

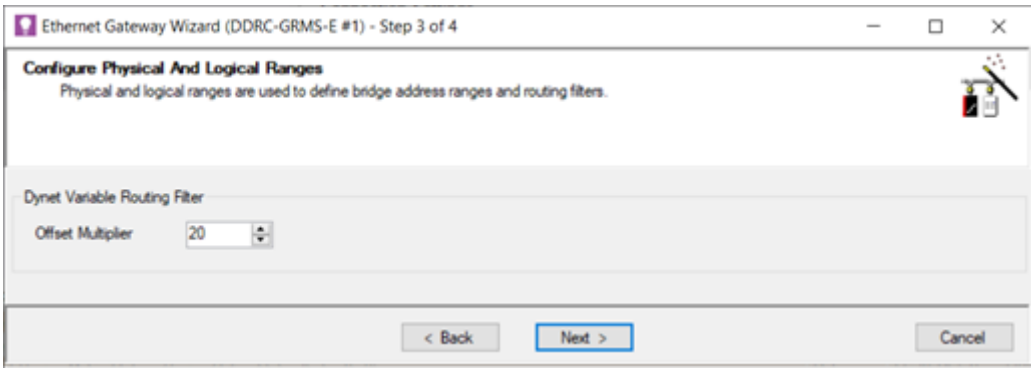


5. Select **Use Gateway Mapping Port** and select the **Secure** checkbox. Then click the **Next >** button.

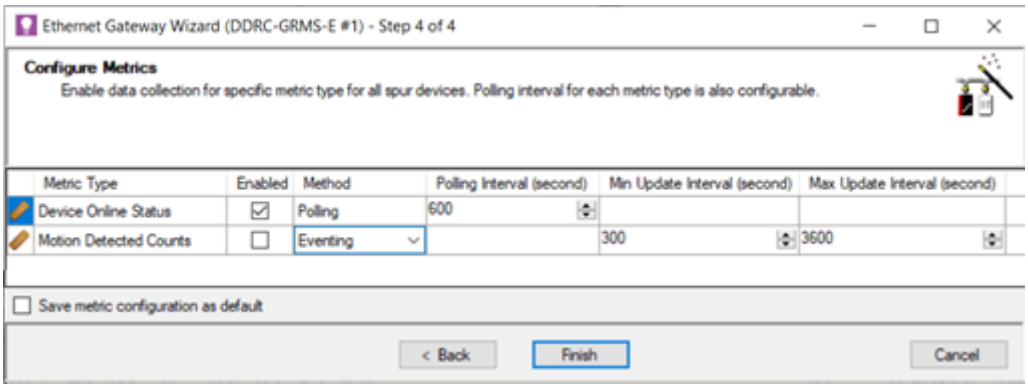


If you do not select Use Gateway Mapping Port, then you can manually enter the IP address and port of a single floor gateway, however you will not be able to change it with the ID2 DIP switches.

6. Click the **Next** button.



7. Click the **Next** button.



8. Click the **Finish** button.
9. Press F12 or click **Save to Device**.
10. Click **File Save** to save the job to your PC.

5.9. Create device hex files

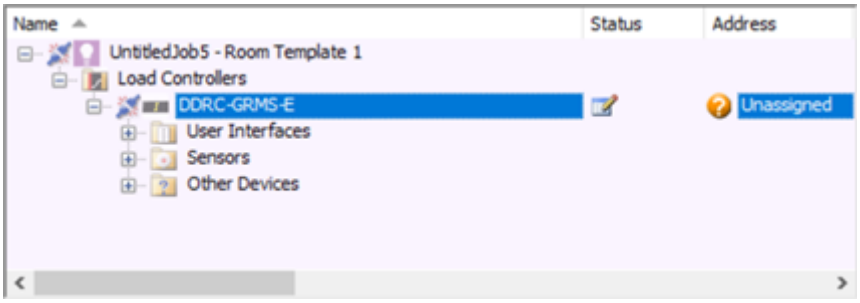
The device hex files must be sent with the hotel job file to enable device manufacturing and preprogramming.

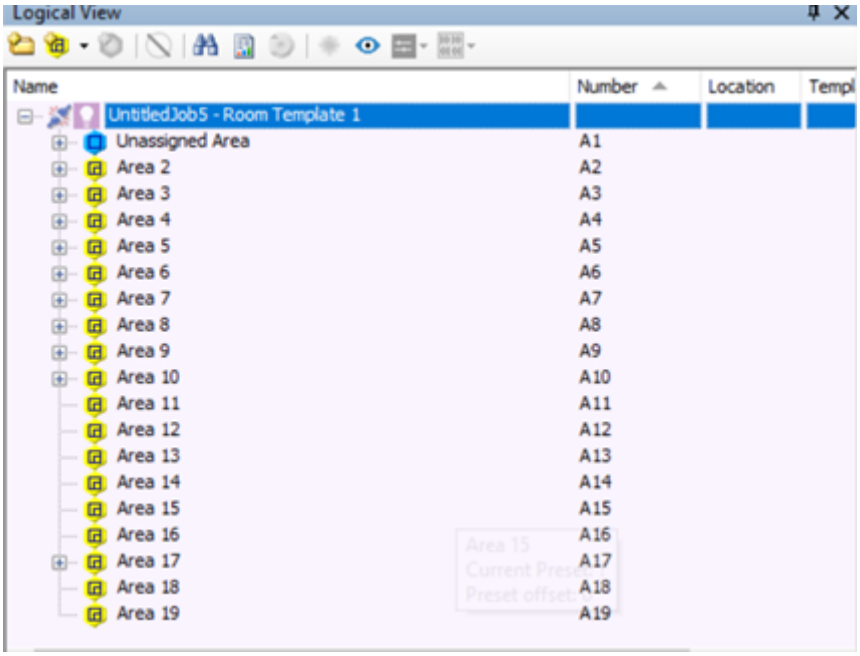
To complete the room profile configuration, you must unassign the box number from the room controller as this will be set by the DDRC-GRMS-E DIP switches.

Set room controller box number to unassigned:

1. Right-click the room controller and select **Change Box Number**.
2. Tick the **Unassigned** checkbox.
3. Click the OK button.
4. Click **File Save** to save the job to your PC.
5. Repeat for each room profile.

Check the structure in **System** view. Ensure all required room devices have been added under the room controller and all logical areas appear as expected.

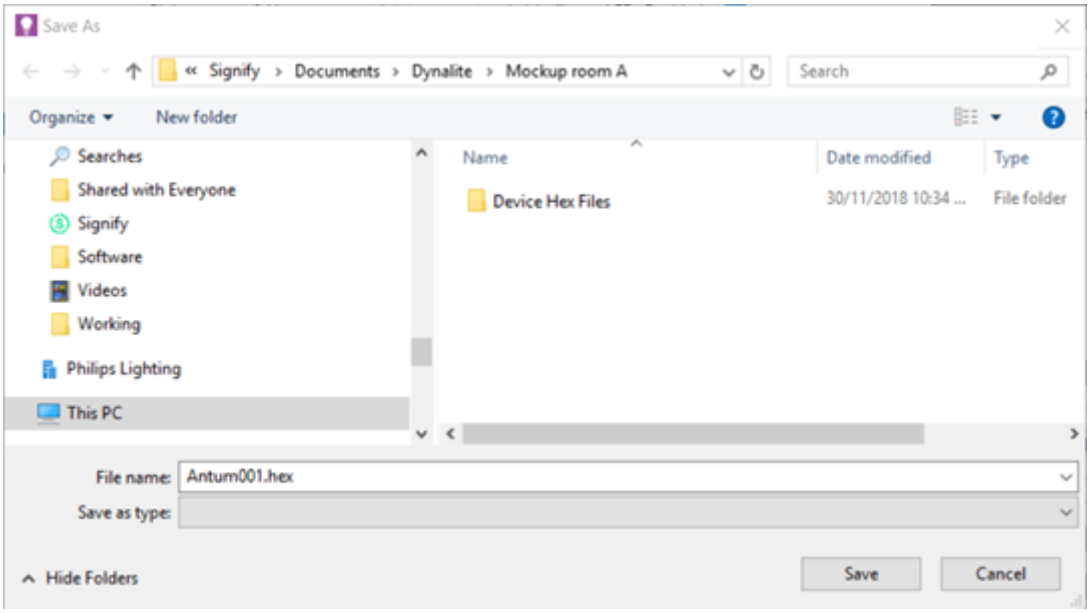




A device hex file is the image that the factory uses to preprogram a room device. Each room device hex file is exported from System Builder and forms part of the package that the system engineer sends to Dynalite.

Save device hex file:

1. On your PC, create a Mockup Room folder and a Device Hex Files sub-folder.
2. Click **File > Open Room Configurations** and select the required room profile.
3. Within your selected SB room configuration, select a device to be exported.
4. Select **File > Export > Device to Hex File**. SB automatically names the file with the device type and box number.
5. Select the required Mockup room and Device Hex Files folder.
6. Click the **Save** button.
7. Repeat the previous steps for each device in your mockup room.
8. Repeat this procedure for each room configuration.



5.10. Add room mapping

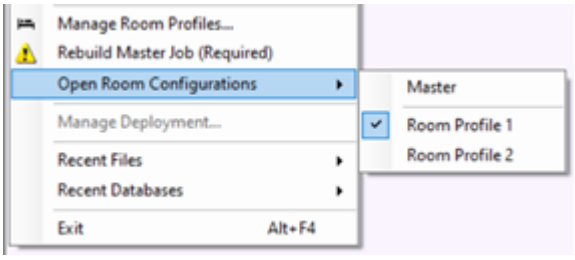
SB uses the room mapping table to build all the rooms in the Master configuration. You can enter the mapping data manually or import the data from a spreadsheet (.csv file).

The room mapping configures the offsets for each room. Ensure the offsets match the offsets in the floor gateway. For example, a mapping entry for room 101 with an offset of 1040 will require that a floor gateway exists with the offset of 1000.

At this stage it is only necessary to add the room mapping for your mockup rooms. This enables you to ensure correct functionality before deploying to the complete hotel. You can add to the room mapping table later when acceptance testing each floor at the customer's site.

Set up room mapping:

1. Click **File > Open Room Configurations > Master** to see the hotel job master configuration.
   Opening the Master configuration builds the complete hotel structure. It is populated by each room configuration in combination with the room mapping table.



If you have many rooms, when you click **File >** ⚠ **Rebuild Master Job**, it can take a few minutes for SB to build the Master configuration.

The Master configuration can have different connection settings to a Room configuration.

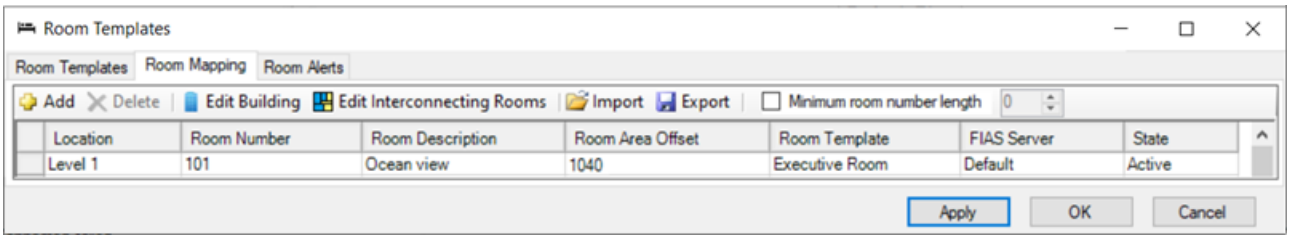
2. Click **File >** 🛏 **Manage Room Profiles** to open the **Room Profiles** dialog box.
3. Click the **Room Mapping** tab.

4. Click **Add** to add a room mapping entry, or select the beginning of a row to **Delete** a room mapping entry. Each room requires:

   - **Location** (building, tower, wing, and/or floor separated by a /)
   - **Room Number** (Do not enter leading zeros in the room number)
   - **Room Description**
   - **Room Area Offset**
   - **Room Profile**
   - **FIAS Server** (set to *default* unless additional FIAS servers are set up in SM)
   - **Room Mapping State** (*Active* / *Inactive*)

   The dashboard displays the **Room Number** for rooms and suites, and the **Room Description** for all other room types.

   The data in the **Location** column creates the folders and floors displayed in the dashboard. These are sorted alphanumerically by default. To change the order, click **Edit Building** and manually drag the folders and floors to different positions. The order is indicated by the **Index** value.



5. Add your mockup rooms to the mapping table.
6. Click the OK button to save the room mapping table and close the Room Profiles window.
7. Click **File Save** (`Ctrl`+`S`) to save the job to your PC.

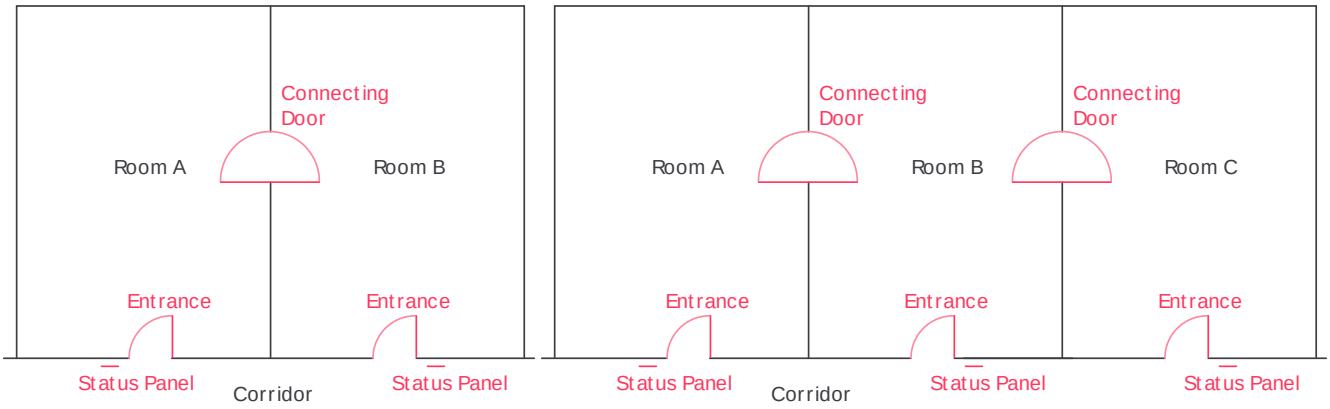
5.10.1. Add Interconnecting Rooms (Room Linking)

Multiroom System Manager allows rooms with interconnecting doors or a shared entrance lobby (vestibule area) to have a common doorbell, room status and occupancy status when connected. The hotel must provide a list of rooms that can be physically connected to each other.

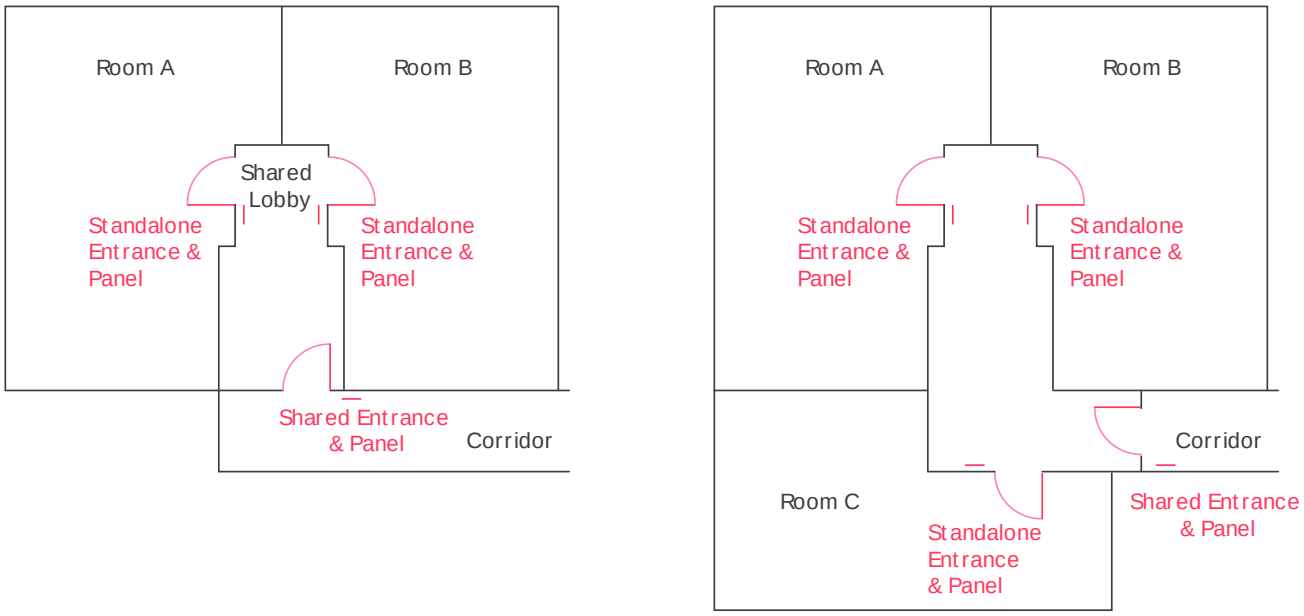
If interconnecting rooms have a shared lobby with an indicator panel, then this needs to be wired to one of the rooms. An area in that room needs to be assigned to the panel to receive hotel status messages from System Manager. If the shared lobby indicator panel has a doorbell button, then this should be configured to send messages to this area.

If additional hardware is used to connect to the indicator panel, this will require a separate room profile.

For rooms capable of being interconnected, Dashboard users will see a **Link/Unlink Rooms** button in the top right corner of the Room view. When linked, the rooms in building and floor view will show the **Linked** icon.



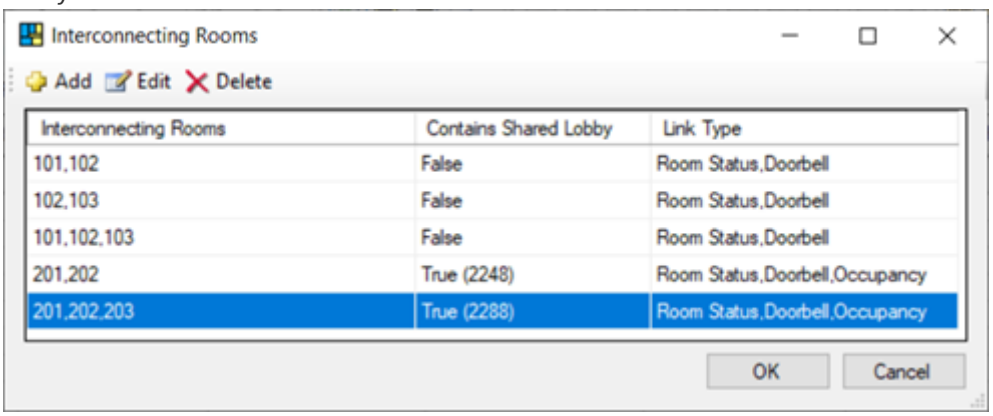
Example interconnected rooms



Example interconnected rooms with a shared lobby

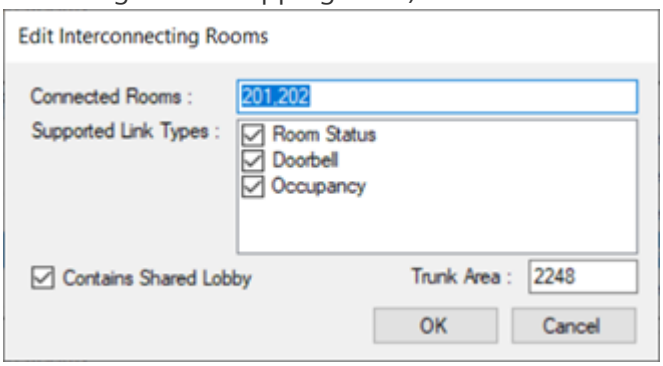
Add Interconnecting rooms:

1. Click **File >** **Manage Room Profiles** to open the **Room Profiles** dialog.
2. Click the **Room Mapping** tab.
3. Click **Edit Interconnecting Rooms**.
4. Click **Add** to add an **Interconnecting Rooms** entry, or select a row to **Edit** or **Delete** that entry.



5. In the **Add/Edit Interconnecting Rooms** window, enter the connected room numbers.
   Each entry requires a list of at least two room numbers, with each room separated by a comma.

6. Select the appropriate checkboxes for rooms sharing:
   - Room Status
   - Doorbell
   - Occupancy
7. For rooms with a shared lobby, select **Contains Shared Lobby** and enter the trunk area number for the shared lobby area in one of the adjoining rooms (double-check that it is in the correct range according to the mapping table).



8. Click the OK button.
9. Click the OK button again.

Supported Link Types > Occupancy must be selected for the Guest Well-Being alert to function in interconnected rooms.

Behavior of interconnected rooms in System Manager:

1. When **Room Status Link Type** is enabled and SM receives a set or reset hotel room status message (DND, MUR, LPU, RMS) and the room is currently linked then SM will send the hotel status message back to the currently linked rooms. If a shared lobby area has been configured, then SM will also send the hotel status message to the shared lobby area to update the status on the shared lobby indicator panel.
2. When **Room Status Link Type** is enabled and rooms are unlinked (either manually from dashboard or automatically when any of the rooms are checked out) and a shared lobby area has been configured then SM will send to messages to reset (clear) all hotel status on the shared lobby indicator panel (DND, MUR, LPU, RMS).
3. When **Doorbell Link Type** is enabled and SM receives a doorbell on or off message and the room is currently linked, then SM will send the doorbell on or off message to all other rooms currently linked. If a shared lobby area has been configured and SM receives a doorbell message from the shared lobby area, then SM will send the doorbell message to all rooms that are currently linked. If rooms are not currently linked, then no message will be sent by SM. Doorbell messages are DyNet1 opcode `0x6B` Channel 1 with Preset 1 for Doorbell ON and Preset 4 for Doorbell OFF.
4. When **Occupancy Link Type** is enabled. If a room that is currently linked reports as occupied, then SM will show all rooms as occupied in the dashboard. Only if all linked rooms are unoccupied shall all linked rooms be shown as unoccupied. When a linked room reports as being unoccupied any linked rooms that are still believed to be occupied by SM shall be sent a Door Closed message to trigger an occupancy check in the room. Shared lobbies are not included in occupancy syncing.

Behavior of interconnected rooms in DDRC-GRMS-E

1. Linking/Unlinking rooms triggers the DDRC-GRMS-E tasks **60. Project Specific Room Linked Task** and **61. Project Specific Room Unlinked Task** respectively. The shared vestibule is stored in

persistent memory.

5.10.2. Importing and exporting room mapping

You can add room mapping entries for every guestroom, or click the **Export** button to create an editable CSV file and use a spreadsheet editor to complete the room mapping.

When importing the Room Mapping data into Excel:

1. Under the **Data** menu, select **From Text/CSV**.
2. In the **Import** window, select **Do not detect data types** and click the **Load** button.
3. Once the spreadsheet is complete, save your changes.

When on-site at the hotel, import the complete spreadsheet by clicking the **Import** button to load the saved file back into the **Room Mapping** table.

RoomStatusAreaDefinition1.csv

File Origin: 1252: Western European (Windows) | Delimiter: Comma | Data Type Detection: Do not detect data types

Column1	Column2	Column3	Column4	Column5	Column6	Column7
Location	Room Number	Room Description	Room Area Offset	Room Template	FIAS Server	RoomId
Tower 1/Floor 1	101	Standard room	1040	Room Template 1		7c34a2dc-4ebc-459f-bc04-c3302be825a8
Tower 1/Floor 1	102	Standard room	1060	Room Template 1		934a49a1-cc8e-4af9-9b10-739a8d25e80e
Tower 1/Floor 1	103	Standard room	1080	Room Template 1		1e85209f-8d17-45bf-98cc-8e950e7ecec8

5.11. Install System Manager for the mockup room

To use the Multiroom Dashboard and integrations with your mockup room, you must create a hotel job with at least one room and install a licensed copy of Multiroom System Manager. This allows you to check the room logic with the Dashboard and third-party systems.

System Manager Server for the customer will be installed later at the hotel site. For more information refer to System Manager installation.

[1] Not available to all markets. Contact your Interact representative for more information.

Chapter 6. Order Preparation

Prepare order:

1. Prepare IP address tables
2. Prepare and submit files
3. Factory preprogramming and preassembly

Project reference tools

- *Mockup room sign-off sheet (Release for Manufacturing)*
  This document is to verify the agreement between Sales and the Customer.
- *Hotel job file*
- *Device hex files*
- *Room profile hardware BOQ*
- *User interface labeling artwork*
- *Room controller IP address table*
- *Floor gateway IP address table*
- *Site private key text file (must be kept secure)*

Hardware BOQ (SAP) and **User interface labeling artwork** (via online configurator) follow existing process.

6.1. Prepare IP address tables

Prepare a room IP address table, listing the DDRC-GRMS-E in every guestroom/public area in the hotel.

6.1.1. Example IP Address Tables

Room Controller

Room number	IP address	Host name	Box number	ID1 DIP switches
101	192.168.241.101	GRMS-E#101	1	1
102	192.168.241.102	GRMS-E #102	2	2
103	192.168.241.103	GRMS-E #103	3	3

This table is not required if the room controller IP addresses are assigned by DHCP.

Prepare a floor gateway IP address table, listing every floor gateway in the hotel.

Floor Gateway

Floor number	IP address	Host name	Box number	ID2 DIP switches
Floor 1	192.168.241.1	EG#1	241	1

Floor number	IP address	Host name	Box number	ID2 DIP switches
Floor 2	192.168.242.1	EG#2	242	2
Floor 3	192.168.243.1	EG#3	243	3

Depending on the number of rooms on each floor (e.g. >30) there may be more than one floor gateway per floor.

6.2. Prepare and submit files

When all key stakeholders have agreed on the room logic and completed the mockup room sign-off sheets (release for manufacturing), and the System Engineer has completed the hotel job file, they submit the order to Dynalite for production.

After sign-off, changes or new requests are chargeable.

The customer can choose either factory preprogramming (recommended) or on-site programming.

6.2.1. Factory preprogramming (recommended)

May have a longer lead time to assess the ETO request, with shorter on-site commissioning time as devices will be preprogrammed.

Ordering follows the standard ETO process. The System Engineer sends an Architecture STR ETO Request with attached files to the Dynalite International Order Desk (dynalite.sales@signify.com) to start the ETO process.

The commissioning engineer sends the following files to Dynalite: * *Mockup room sign-off sheets (release for manufacturing)*
This document is to verify the agreement between Sales and the Customer. * *Hotel job file * Device hex files * Room profile hardware BOQ * User interface labeling artwork * Room controller IP address table * Floor gateway IP address table * Site private key text file (must be kept secure)*

Hardware BOQ (SAP) and **User interface labeling artwork** (via online configurator) follow existing process.

The Dynalite factory will create and upload Device Site Certificates to preconfigured PDDEG-S gateways. In this case they will share the Site CA Certificate with the assigned commissioning engineer representative.

Preconfigured products will be issued a unique 12NC. The 12NCs are raised by the factory based on the BOQ and project requirements.

The factory preprograms all floor gateways and room devices (controllers, dry contact inputs, sensors, user interfaces) and ships the finished products to the job site.

6.2.2. On-site programming

May have a shorter lead time as devices are ordered directly from Dynalite, with longer on-site commissioning time as devices are not preprogrammed.

Ordering follows the standard Dynalite product ordering process. The commissioning engineer programs devices on site using the Hotel Job file Master Configuration and saves the configuration to each device.

- **DDRC-GRMS-E**: Box numbers and gateway mapping are set by DIP switches.
- **Antumbra multi-configuration**: Initial box number set by SB, then configuration set by DIP switches.
- **Other room devices**: Box numbers are set by SB.

6.3. Factory preprogramming and preassembly

6.3.1. Antumbras

One or more Antumbra multi-configurations are programmed into the DACMs and labelled for identification.

Example multi-configuration table

Multi-Config Index	DACM Description	12NC number	1	2	3	4	5	6
1	Entrance 4-button	913 703 244 409						
1	Entrance 6-button	913 703 244 409						
1	HVAC Display	913 703 244 409						
2	Bedside Left	913 703 246 309						
2	Bedside Right	913 703 246 309						

6.3.2. AntiStumble Sensors

AntiStumble sensors are combination of a DUS360CR sensor and the DUS180WR stick-on cover plate. Custom colors can be ordered.

6.3.3. Modular Controllers

The factory preassembles the controllers as specified. They will insert the specified control modules into the correct positions in the DDMC802 controller.

6.3.4. DIN Rail Enclosures

For fast and consistent installation, we can supply preassembled enclosures. Deployment is faster onsite and the risk of bad interconnections in the enclosure is removed. These can be ordered separately by the electrical contractor and may be a tender requirement.

The DH2X24 and DH3X24 DIN rail enclosures can be ordered empty or prepopulated with devices and network wiring.

- Ordering follows standard ETO process.
- Dedicated 12NCs to be raised by factory based on the Bill of Materials (BOM) and project requirements.
- Additional costs to AFSP communicated by the factory to local market based on BOM and project requirements.
- Sales organizations to create final BOM with End User/VAP pricing.
- Codes activation to be completed across all supply chain prior to ordering.
- Factory to provide forecasting and delivery schedule to meet project requirements.

6.3.5. Dedicated Server Rack

The System Centre or Certified System Integrator assembles and pre-wires shelving with DIN rails. They can arrange for a number of PDDEG-S gateways on each shelf, consuming 2U each with clearance. They may also offer a dedicated rack with gateways, servers, backup, monitors, etc. fitting into 48U.

Chapter 7. On-Site Configuration

Deploy Hotel System:

1. Install system.
2. Save device configurations.
3. Perform acceptance testing.

Project references

- *System Installation Guide*
- *Room layout (showing lights, UIs, sensors, and other services)*
- *Electrical drawings (including elevation drawings to show UI locations)*
- *ID1 DIP switch settings table*
- *ID2 DIP switch settings table*
- *Room IP address table*
- *Snagging list*

7.1. Installation

Prepare a *System Installation Guide* for the installers. Then, prior to installation, brief the installers on the system installation tasks.

The System Installation Guide must include:

1. Instructions to connect and test room and corridor devices, wiring recommendations, and cable length estimates.
2. The *DIP switch settings tables* to instruct how to set the DIP switches for each room controller.
3. *Antumbra multi-configuration DIP switch settings table*.
4. Drawings to identify correct location of UIs (and UI buttons) and sensors (sensor coverage diagrams).
5. Wiring instructions (in-room wiring run).
6. Hotel room numbers from the hotel operator (**not from the builder**).
7. Device labels to identify the room devices and floor gateways.

On the room controller, it is important that the DIP switches are set before powering on. If DIP switches are changed, reset the controller by holding the service switch for more than four seconds. It can take up to 30 seconds for the controller to come back online.

Room controllers may be room-specific (if using static IP addresses), but all other room devices are room-agnostic. This allows the contractor or hotel engineering to easily swap in spare devices/parts as needed.

Floor gateways are floor-specific due to static IP addressing. Floor gateways must be installed according to the building's IT requirements.

Testing and validation of the installation is the responsibility of the installer. Suggested installer tests include:

1. Service switch on each controller (as per front label)
2. Walkthrough test
3. Emergency lighting test

7.1.1. Example DIP Switch Settings Tables

7.1.2. Room Controller ID1

This sets the room controller box number and room address offset.

Room Number	Box Number	1	2	3	4	5	6	7	8
101	1	■	□	□	□	□	□	□	□
102	2	□	■	□	□	□	□	□	□
103	3	■	■	□	□	□	□	□	□
104	4	□	□	■	□	□	□	□	□
105	5	■	□	■	□	□	□	□	□
106	6	□	■	■	□	□	□	□	□
107	7	■	■	■	□	□	□	□	□
108	8	□	□	□	■	□	□	□	□
109	9	■	□	□	■	□	□	□	□
110	10	□	■	□	■	□	□	□	□

7.1.3. Room Controller ID2

This sets the room controller connection to a floor gateway (via gateway mapping).

Room Number	Box Number	1	2	3	4	5	6	7	8
101	1								
102	1								
103	1								
104	1								
105	1								
106	1								
107	1								
108	1								
109	1								
110	1								
201	2								
202	2								
203	2								
204	2								
205	2								
206	2								
207	2								
208	2								

Room Number	Box Number	1	2	3	4	5	6	7	8
209	2								
210	2								

7.2. Saving device configurations

These steps only apply to devices that were not preconfigured in the factory.

For each floor gateway, add and configure a floor gateway in the hotel job:

1. Connect SB via Ethernet or serial connection.
2. Create and upload certificate.
3. Run the **Bridge Configuration Wizard**.
4. Save device configuration and check the Ethernet trunk connection.

Refer to the steps in Add Floor Gateway.

For each room, add and configure a DDRC-GRMS-E in the hotel job:

1. Open the room configuration and select the DDRC-GRMS-E in System view.
2. Connect SB via Ethernet or serial connection.
3. Adjust the room controller DIP switches.
4. Create and upload the certificate.
5. Change the room device box numbers to match the room profile.
6. Save the configuration to all devices in the room.

Refer to the steps in Create and upload the DDRC-GRMS-E certificate, then complete the steps below.

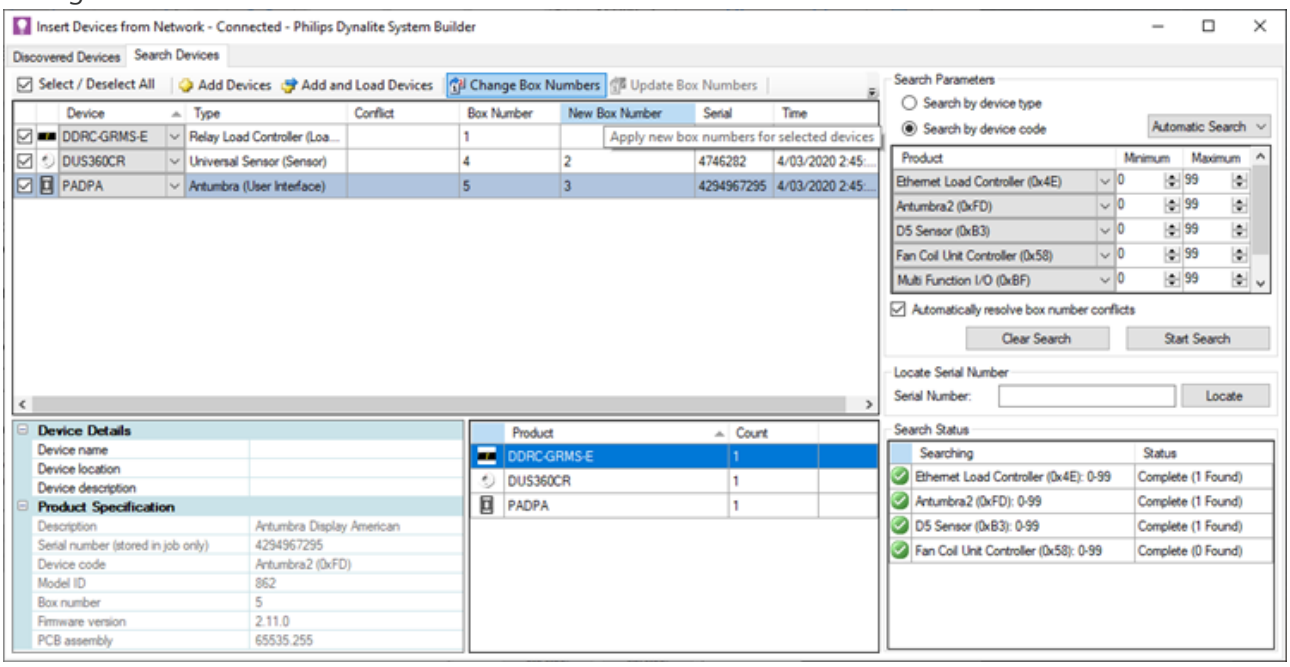
To save the configuration for the room controller and room devices, you need to open two instances of System Builder.

- **SB with new empty job** to change device box numbers.
- **SB with hotel job** to be used as a reference for the room configuration device box numbers and to save the configuration to each device.

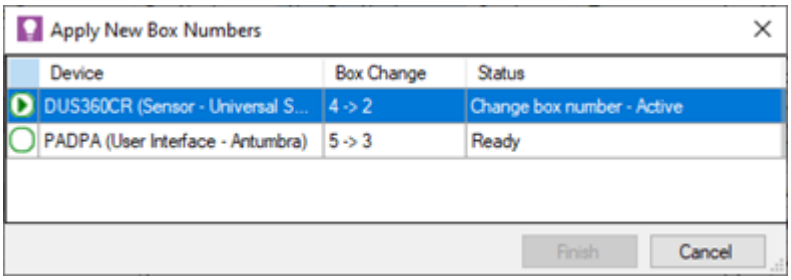
Change room device box numbers:

1. Go to each room and plug the commissioning PC into a USB PC node, then plug the USB PC node into a DyNet socket that is connected to an RS-485 network serial port.
2. Ensure the room controller DIP switches are set for the correct room and all room devices are powered up.
3. Launch SB with the hotel job

4. Launch a second instance of SB with a new empty job and connect using a serial connection.
5. Click **Insert Devices from Network** (Ctrl+L) and:
   a. Search by device code for the required room devices
   OR
   b. Sign on each room device by pressing the service switch or holding down a UI button
   OR
   c. Turn the room circuit breaker OFF then ON (all devices will power up and sign on).
   Signed-on devices appear in the **Discovered Devices** window.
6. Enter a new box number for each room device to match the box number in the hotel job room configuration.



7. Click **Change Box Numbers**. The **Apply New Box Numbers** window opens and saves the new box numbers to the listed devices.



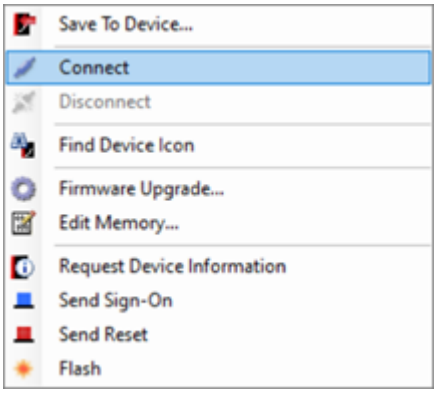
8. If applicable, Create and upload the DDRC-GRMS-E certificate.
9. Close the **Discovered Devices** window, then close this instance of SB.

Save device configuration:

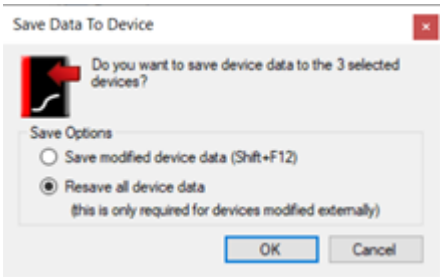
1. Open the hotel job file.
2. Click **File > Manage Room Profiles** to open the **Room Profiles** dialog box.
3. Click the **Room Mapping** tab.
4. Click **Add** to add a room mapping entry (you can add all entries for the floor).
5. In the new row, enter the details for the current room (or copy and paste from an existing row then modify as needed).
6. Click the OK button to save the room mapping table and close the Room Profiles window. The

Master Configuration is rebuilt and now includes the new room.

7. In the **Master Configuration System** view, right-click the room controller for the room you are configuring and select **Connect...**.
   Ensure the **Machine Connection Settings** are configured to use a serial connection (SB lower right corner shows `Connected-COM`).



8. Select the room controller and all room devices by holding the `Ctrl` key and clicking each device.
9. Right-click one of the selected room devices and select **Save to Device**.
10. In the **Save Data To Device** window, select **Resave all device data** and click **OK**.
    The full configuration data is saved to each device.



11. Select each room device and click **Send Device Sign-on** (`F6`).
12. Check the **Network Log** to verify that each device responds correctly.
13. Click **Disconnect**.
14. Click **File Save** to save the job.

7.3. Acceptance testing

7.3.1. Server room

Check that IT equipment has been installed and configured correctly. All Ethernet gateways must be patched and powered up. The patching panel may be in the IT server room.

7.3.2. Guestroom

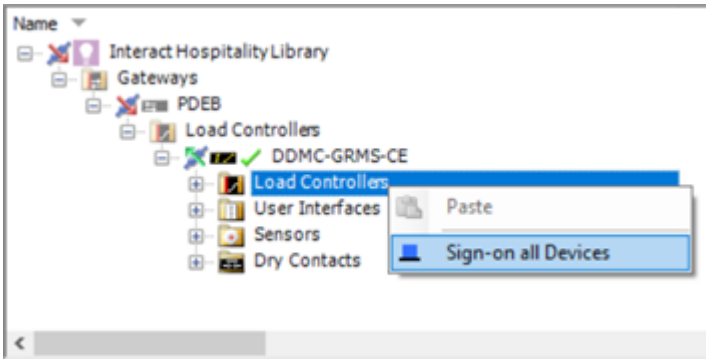
The integrity of the cabling and device installation must be verified before accepting the handover from the installer. Installation and electrical testing of rooms is entirely managed by the electrical contractor. You must verify that all devices have been installed according to instructions and the installer has executed the electrical tests and signed off that all tests have passed.

Project reference tools

- *Snagging list*

Verify network devices:

1. Open the hotel job file/database.
2. Connect SB to the network, either via the Ethernet trunk or directly to a floor gateway.
3. Add the room mapping entries for the rooms you will be testing.
4. Starting from the first room, right-click the Ethernet bridge (if using) and select **Send Sign-on**. Note the response from the **Network Log**.
5. Right-click the DDRC-GRMS-E and select **Send Sign-on**. Note the response from the **Network Log**.
6. Under the DDRC-GRMS-E, right-click each device folder and select **Sign-on all Devices**. Observe the **Network Log** for responses from each device.



7. Record the responses from all room devices in the *Snagging list*.
8. Repeat for each room in the hotel.

Be aware of where SB is connected. On the trunk side of the gateway, you will see addresses with the floor offset. On the spur side of the gateway, you will see addresses without the floor offset.

If DIP switches are duplicated on two DDRC-GRMS-Es then in SB you will see devices with duplicate box numbers. Alternatively, if you set all rooms to the same room status, such as, DND or MUR, and filter your Dashboard **Control Center** floor view to show this status, then the duplicate room number will be missing.

If two floor gateways have duplicate offsets, you will be controlling rooms on two different floors at the same time. Recheck the Bridge Address Ranges for each floor gateway.

Device box numbers are already preprogrammed in the factory. Except for DALI localization and problem investigations, there should be no need to attend rooms. Everything is either predefined or worked on from a central location. This reduces your per-room labor allocation to approximately 20 minutes per room (5 minutes each for testing, problem reporting, retesting, and for unforeseen support requirements).

Acceptance testing process:

1. **Device Test** - When the contractor believes a floor is complete, it is handed to the System Engineer to test rooms from the server.
2. **Contractor Snagging** - After testing, report any devices you can't reach to the contractor to check and remedy.
3. **Device Retest** - After snagging, the rooms are retested by signing on all the devices (controllers,

sensors, and user interfaces)

4. **Dashboard Room Setup** - Once rooms pass all tests, they are added (partial or full floor) onto the dashboard. This acts as the handover to the hotel operator.

7.4. DALI Pairing

If you have a DDBC120-DALI or DDBC130-DALI controller, the DALI drivers must be localized using the standard DALI enumeration process in System Builder, or via the dashboard - refer to /GIT/multiroom/build/multiroom/latest/index.html/multiroom/2.11/dashboard_guide/control_center/room_view/manage_luminaires.html[Multiroom Dashboard > Management Luminaires].

To resolve issues where duplicate or incorrect DALI addresses are seen in the dashboard's **Manage Luminaires** page, follow these steps:

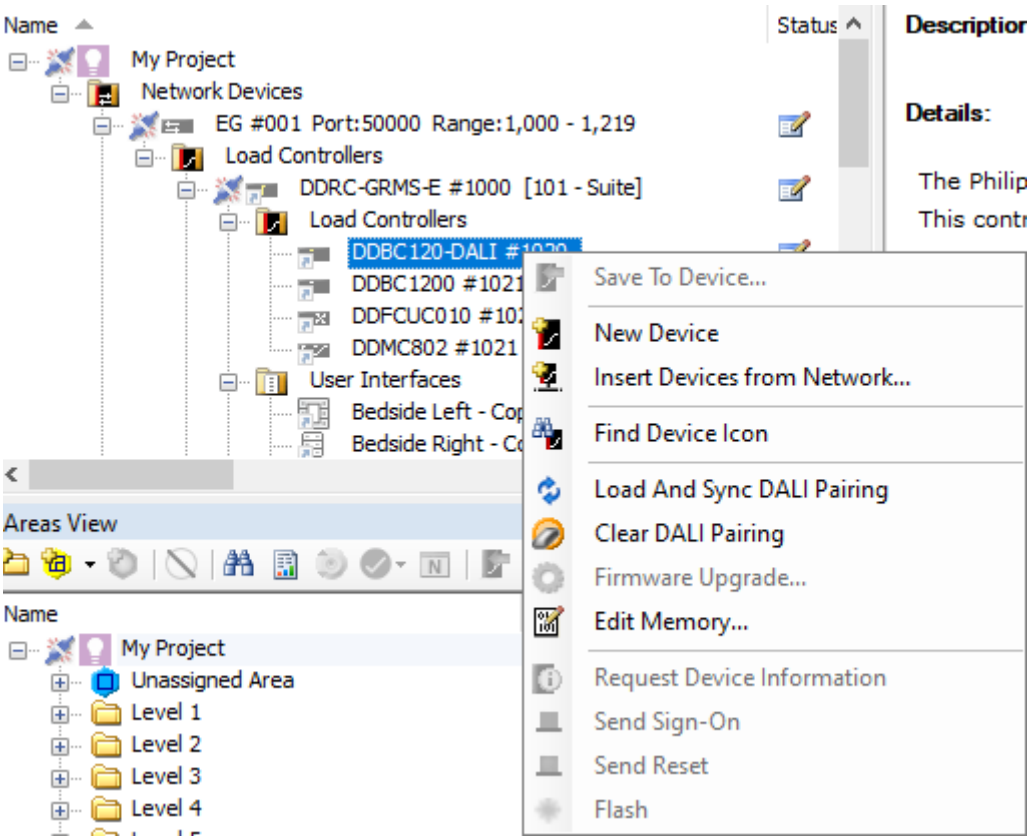
Clear DALI controller addresses:

1. Open the hotel database in SB.
2. From the **Master** configuration, right-click the DALI controller for the specific room and select:
   - **Remove Unpaired DALI Drivers**. This removes the surplus driver information in the job and in the controller when drivers have been removed from the room.
     OR
   - **Clear DALI pairing**. This does not factory-set the device in the room; it simply clears any DALI status and pairing information in the job for that specific controller.
3. Save the database in SB. If using the server machine, this will trigger the SM server to reload the changes.

To load and sync DALI addressing for DALI drivers have been enumerated and paired by running SB in the room. Follow these steps:

Load and Sync DALI Pairing:

1. Open the Hotel database in SB.
2. From the Master configuration, right-click the DALI controller for the specific room and select **Load and Sync DALI Pairing**. This loads the DALI addressing from the controller into the master job so it will show on the dashboard.



3. Save the database in SB. If using the server machine, this will trigger SM Server to reload the changes.

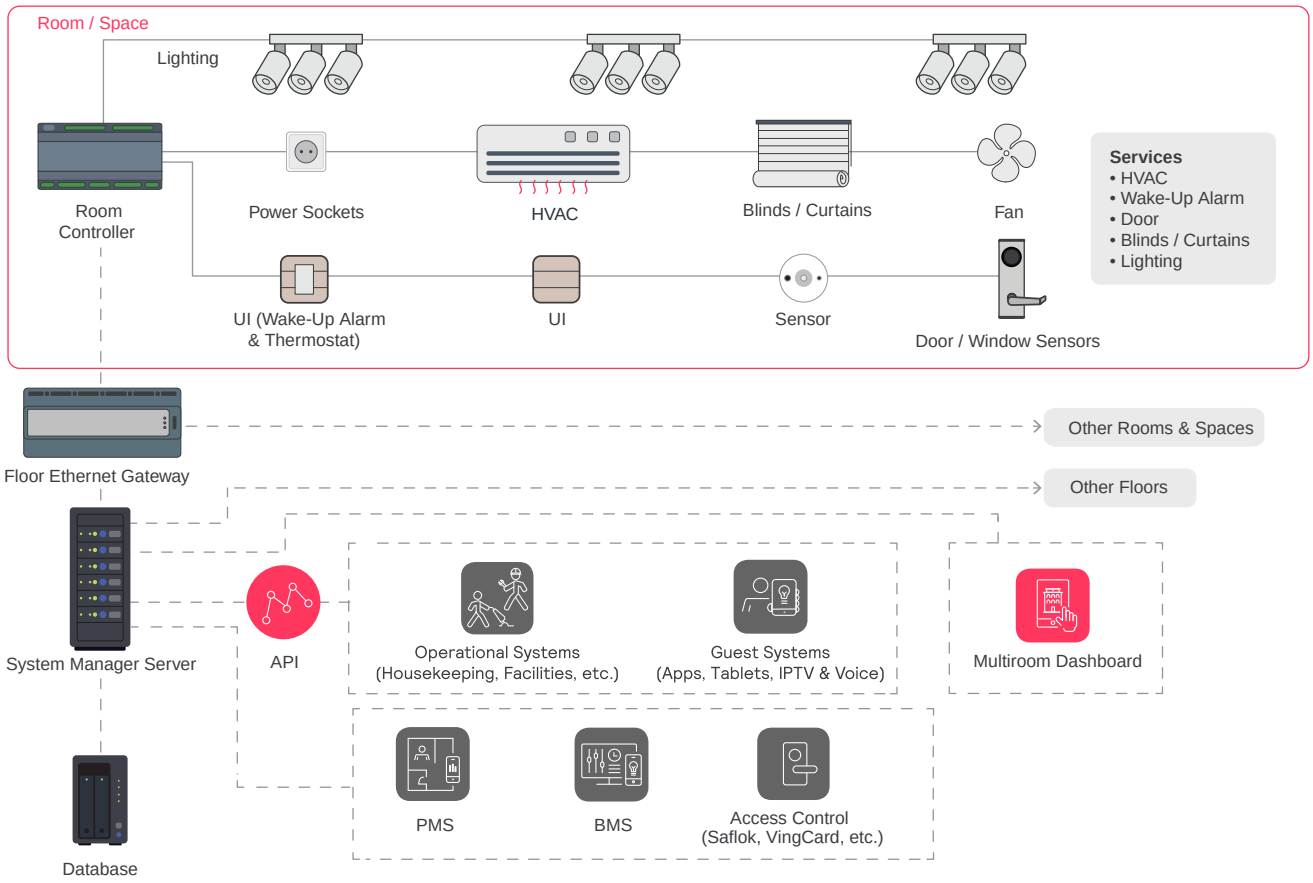
Chapter 8. System Manager Installation

Install Interact Multiroom System Manager:

1. Install database management software
2. Configure Microsoft Internet Information Services
3. Install System Manager prerequisites
4. Install System Manager software suite
5. Check server operation

Project reference tools:

- *System Manager and associated installation files*
- *Room mapping table*
- *Hotel job file*



8.1. Install database management software

Multiroom System Manager requires database management software for the *HospitalityDashboardDb*, *UserManagementDb*, *EnergyDb* and *DataAccessDb* databases. You must install the database management software and configure Internet Information Services (IIS) before installing other System Manager components.

The options are:

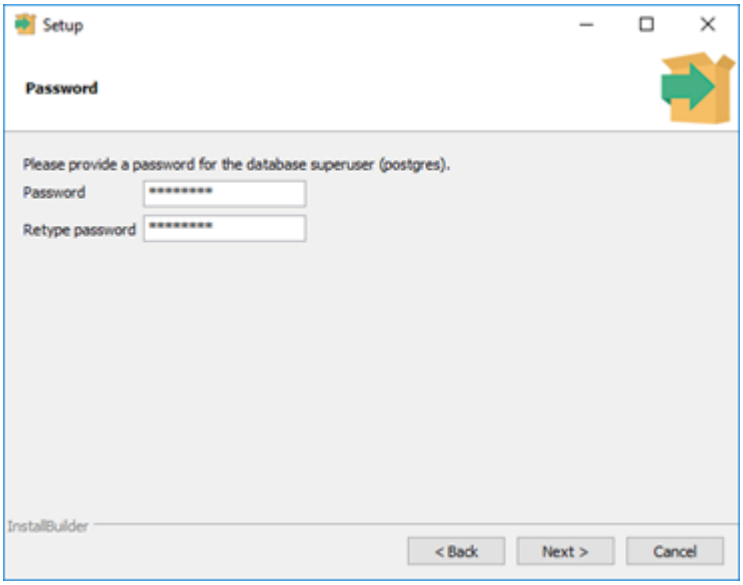
- **PostgreSQL** database, version 12 or 13.
  Download the PostgreSQL installation package from https://www.postgresql.org/download/windows/
- **Microsoft SQL 2019** database or later.
  This may be used where the hotel has an existing Standard or Enterprise license. For more information on downloading and installing Microsoft SQL server, please refer to https://www.microsoft.com/en-au/sql-server/sqlserver-2019.

Databases can be configured to be local (on the SM Server machine) or remote (on another machine on the customer's LAN). Please refer to Dynalite FAQ #477 - How can I connect System Manager to a Remote SQL Database. If using SQL on a different machine from the System Manager Server, you will need to note the following:

- Server name
- Instance name
- SQL username
- SQL password

Install PostgreSQL database:

1. Right click the PostgreSQL setup file from an explorer window and select **Run as administrator** to open the PostgreSQL Setup Wizard.
2. Click **Next >** in the PostgreSQL Setup Wizard.
3. Click **Next >** for Installation Directory.
4. Click **Next >** for Select Components.
5. Click **Next >** for Select Data Directory.
6. Enter database superuser password and retype to confirm.



The database management software password is encrypted so ensure you store a copy of the password in a secure location for future reference. The password is required later when installing System Manager.

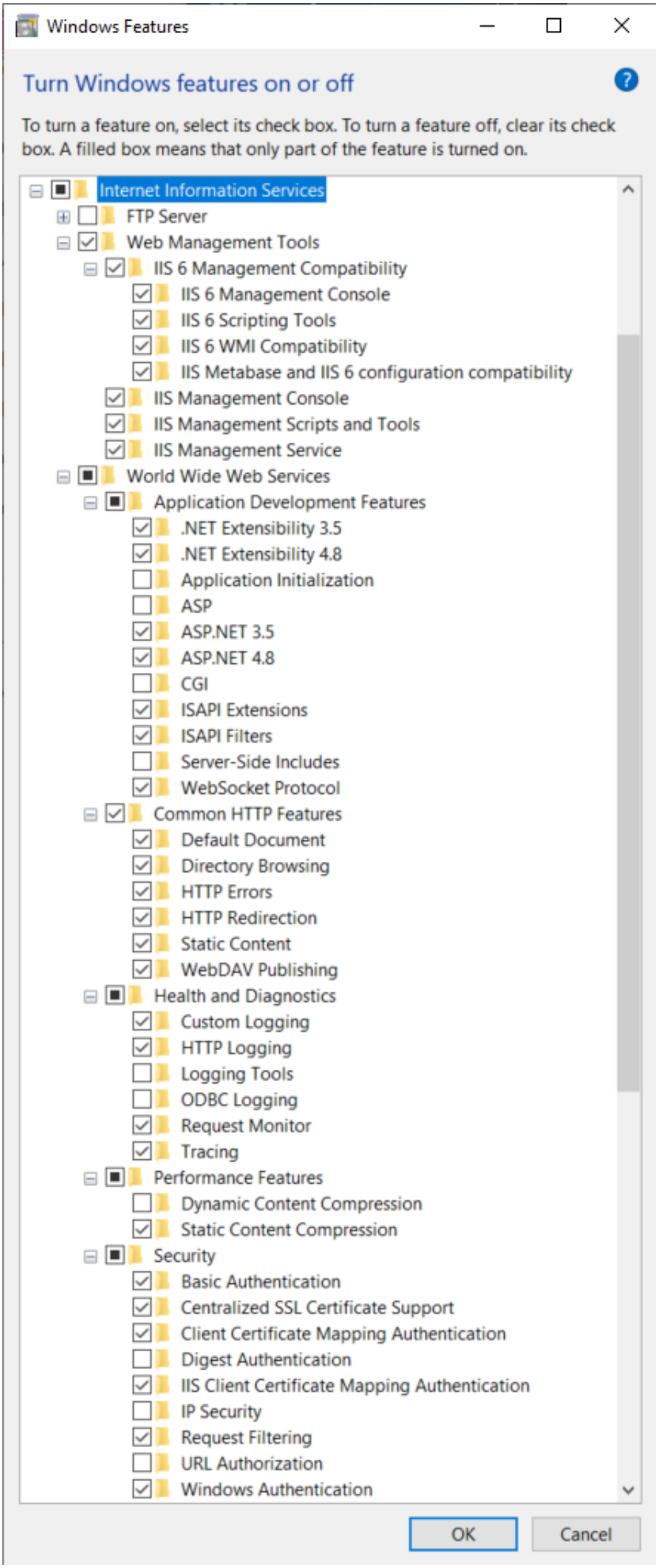
7. Click **Next >** for Select Port Number.
8. Click **Next >** and Select Your Language and Location, if applicable.

9. Click **Next >** for Display Pre-Installation Summary.
10. Click **Next >** for Ready to Begin Installation.
11. Untick the **Launch Stackbuilder** checkbox and click **Finish**.

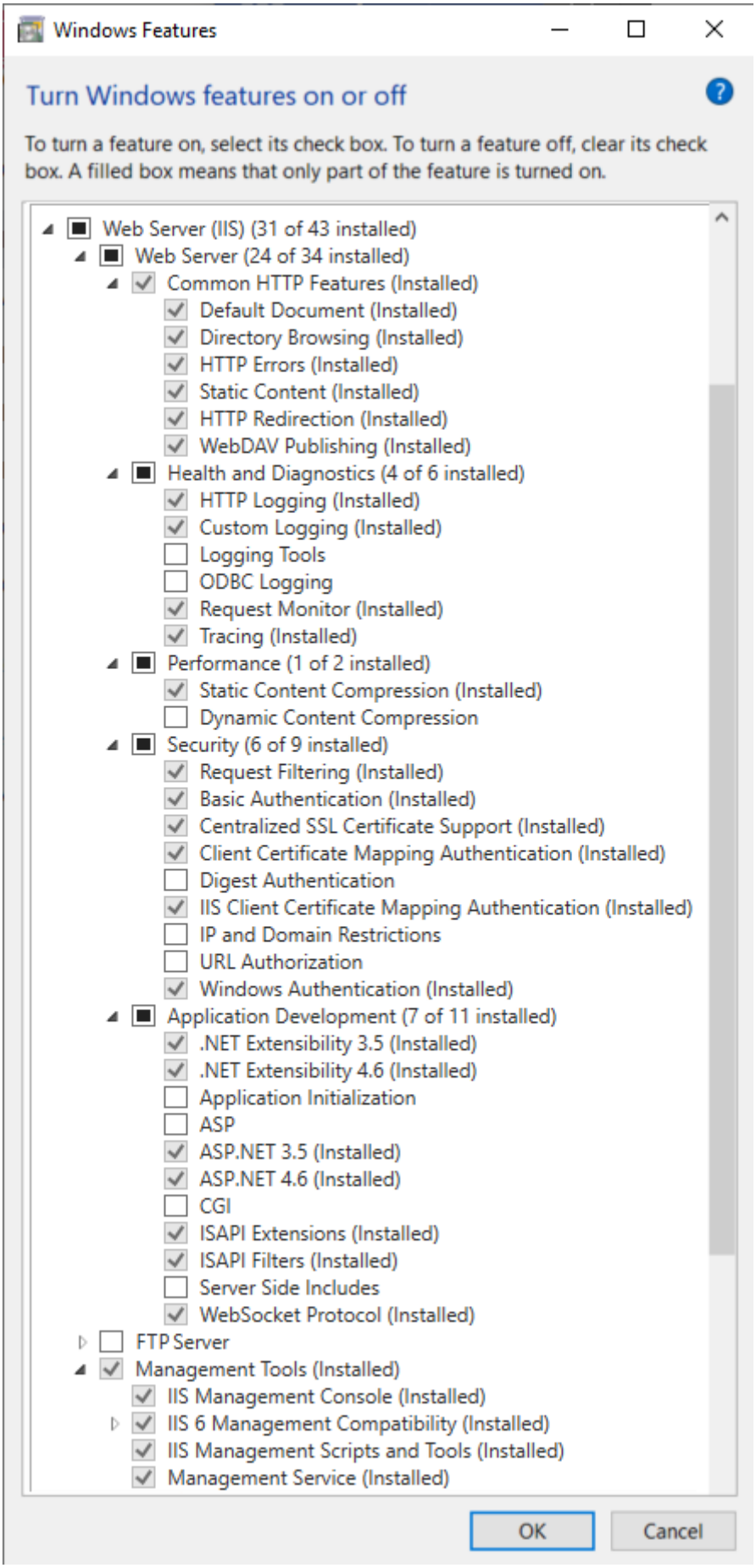
8.2. Configure IIS

On the SM Server, open **Windows Control Panel > Programs and Feature > Turn Windows features on and off**.

Click the checkbox to enable **Internet Information Services**, and additional checkboxes as appropriate for your operating system.


Windows Features
Turn Windows features on or off
To turn a feature on, select its check box. To turn a feature off, clear its check box. A filled box means that only part of the feature is turned on.
Internet Information Services
FTP Server
Web Management Tools
IIS 6 Management Compatibility
IIS 6 Management Console
IIS 6 Scripting Tools
IIS 6 WMI Compatibility
IIS Metabase and IIS 6 configuration compatibility
IIS Management Console
IIS Management Scripts and Tools
IIS Management Service
World Wide Web Services
Application Development Features
.NET Extensibility 3.5
.NET Extensibility 4.8
Application Initialization
ASP
ASP.NET 3.5
ASP.NET 4.8
CGI
ISAPI Extensions
ISAPI Filters
Server-Side Includes
WebSocket Protocol
Common HTTP Features
Default Document
Directory Browsing
HTTP Errors
HTTP Redirection
Static Content
WebDAV Publishing
Health and Diagnostics
Custom Logging
HTTP Logging
Logging Tools
ODBC Logging
Request Monitor
Tracing
Performance Features
Dynamic Content Compression
Static Content Compression
Security
Basic Authentication
Centralized SSL Certificate Support
Client Certificate Mapping Authentication
Digest Authentication
IIS Client Certificate Mapping Authentication
IP Security
Request Filtering
URL Authorization
Windows Authentication
OK
Cancel

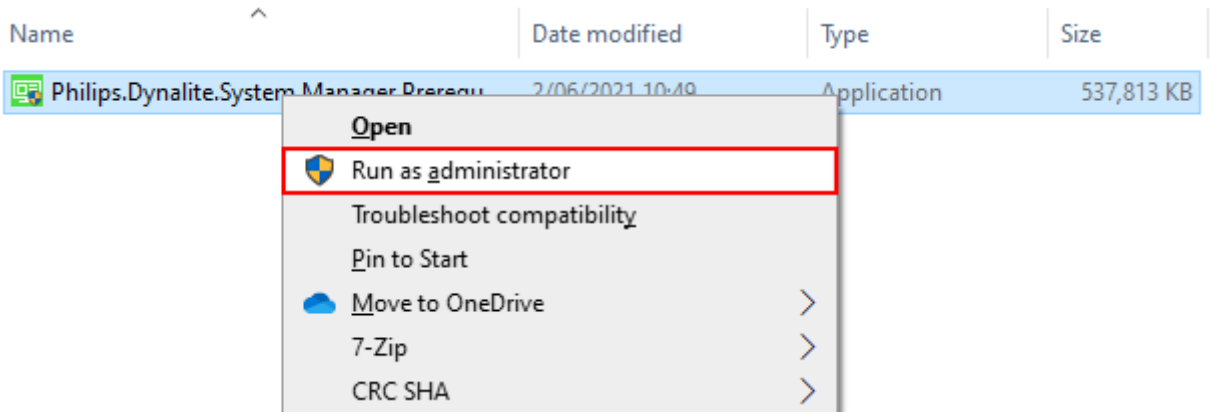
Windows 10



Windows Server 2016

8.3. Install SM prerequisites

In Windows Explorer, right-click the **System Manager Prerequisites** setup file and select **Run as administrator** (`Philips.Dynalite.System.Manager.Prerequisites_v1.5.0.2.exe`).



Once the prerequisites are installed, the wizard ends automatically.

SM Prerequisites installs Microsoft SQL Express 2019 (not used for Multiroom) and creates the instance "\EMSERVER". This is installed by default and must be uninstalled if using Microsoft SQL 2019 Standard or Enterprise.

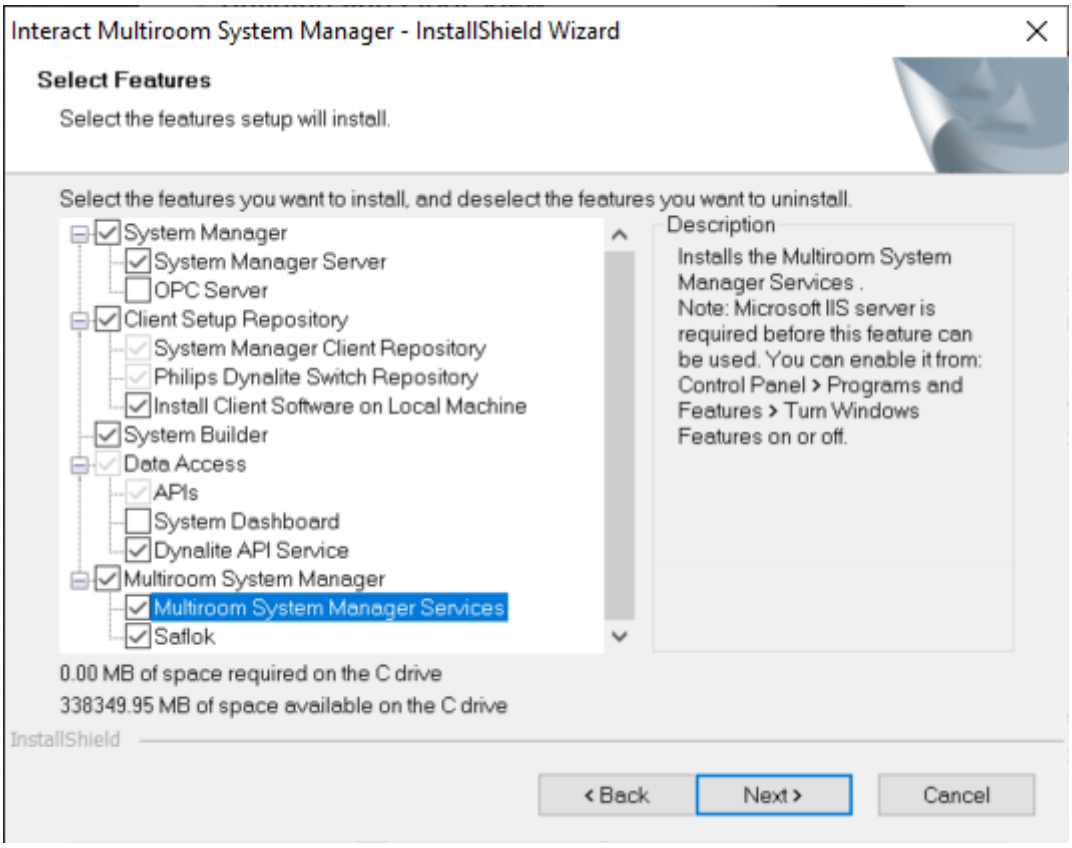
If required, Microsoft SQL databases can be encrypted. For more information on Microsoft SQL 2019, please refer to the relevant Microsoft documentation.

8.4. Install Multiroom System Manager

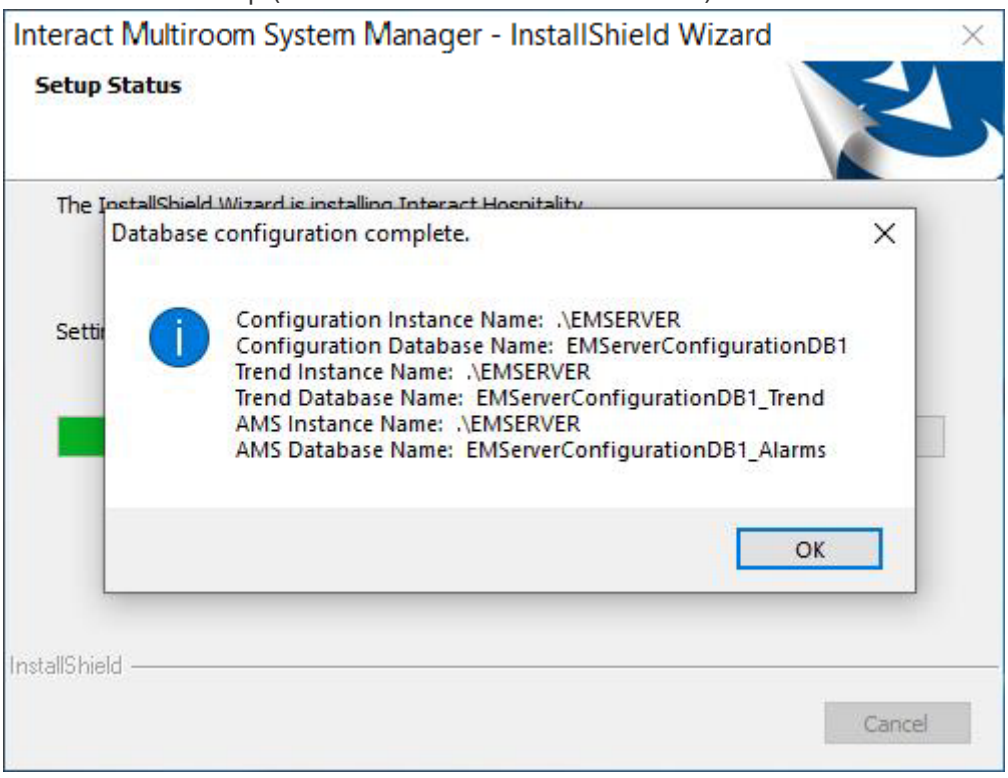
Ensure that you install **Multiroom** System Manager (**not** Dynalite System Manager) package.

Install Multiroom System Manager software suite with PostgreSQL:

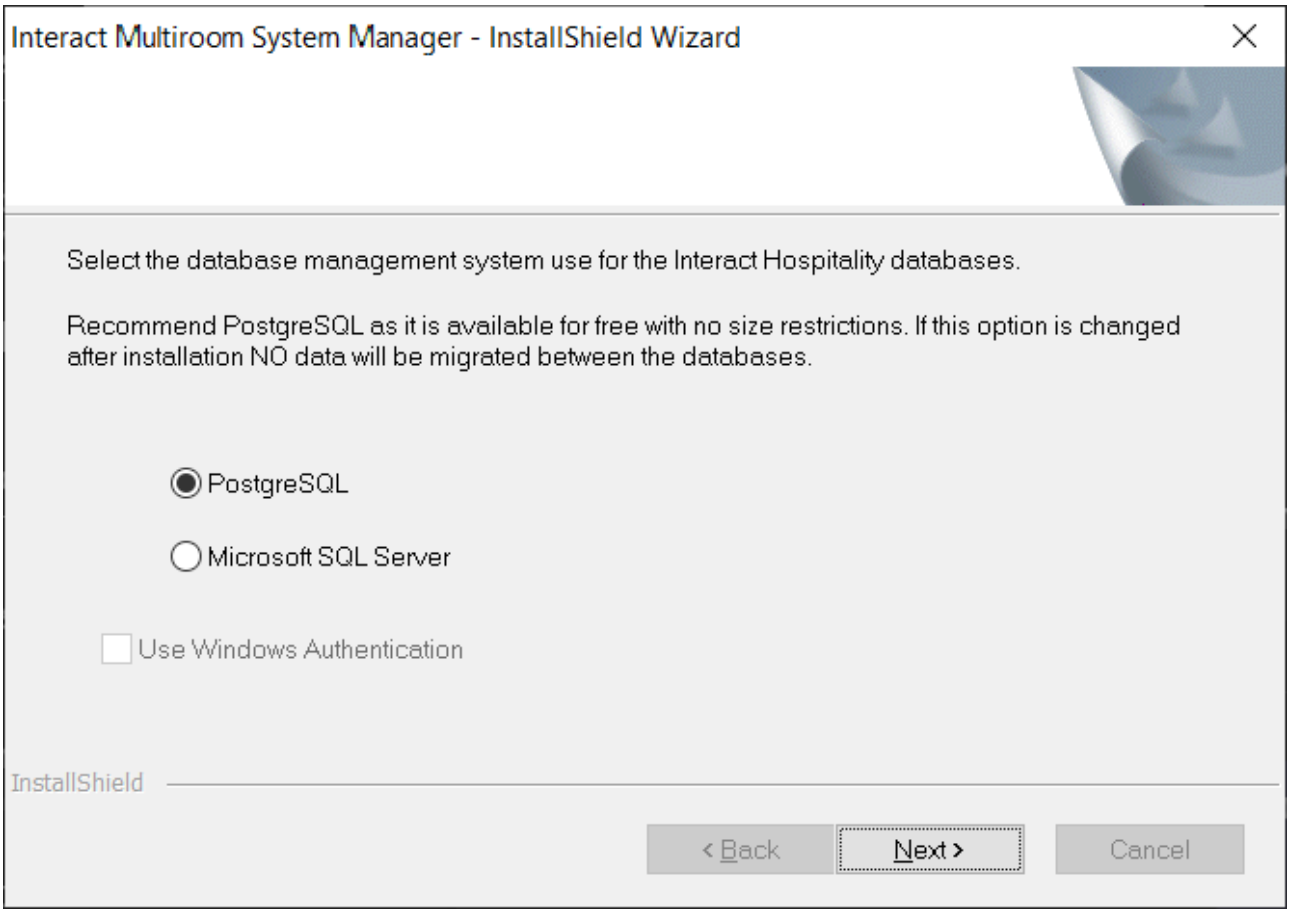
1. Right-click the installer (.exe) and select **Run as administrator**.
2. Select the program features to install and click Next >, then click **Install**.



3. Click OK. This message confirms that the three standard System Manager Microsoft SQL Express databases are set up (these are not used for Multiroom).



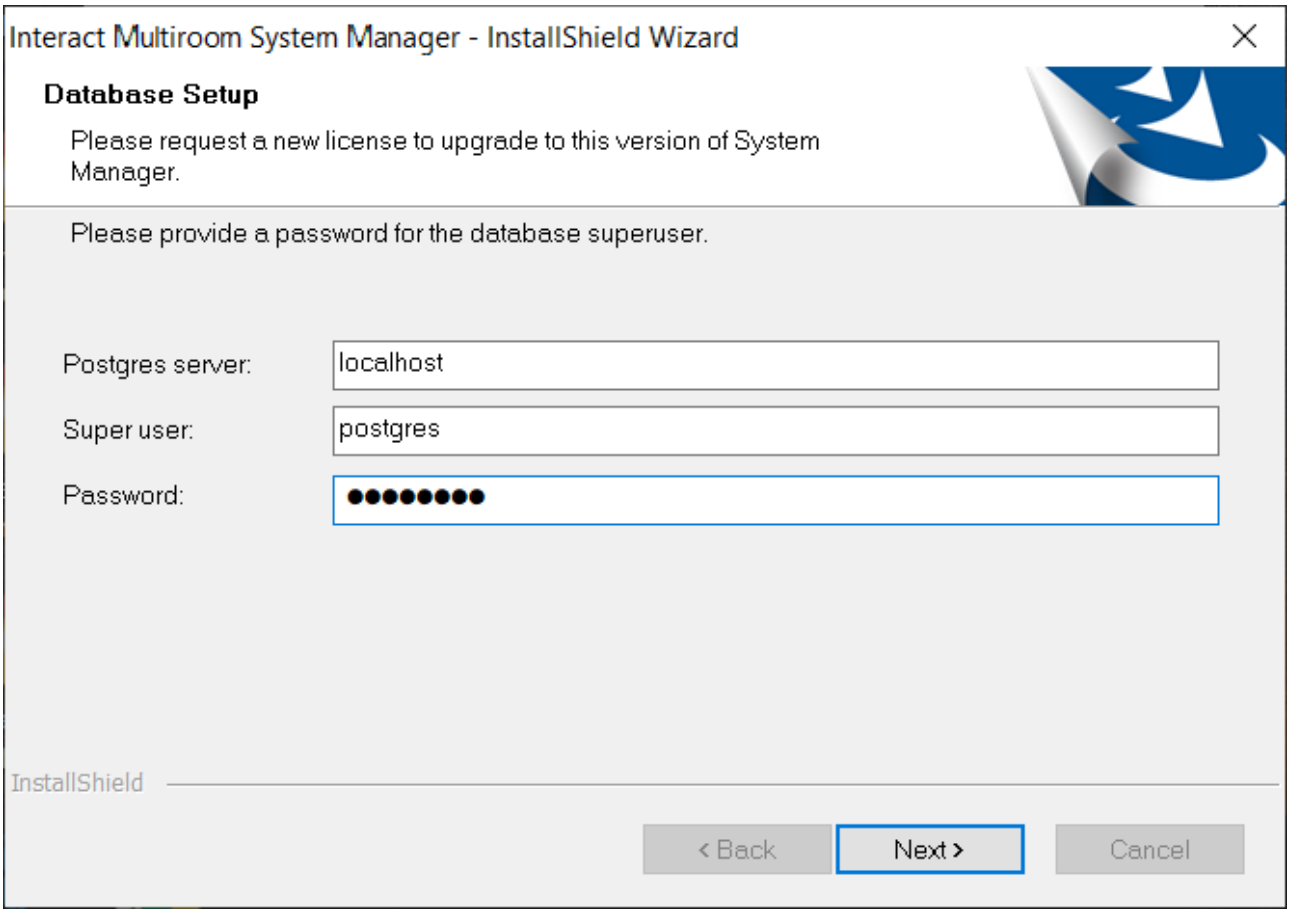
4. Select the database management system (default: **PostgreSQL**).



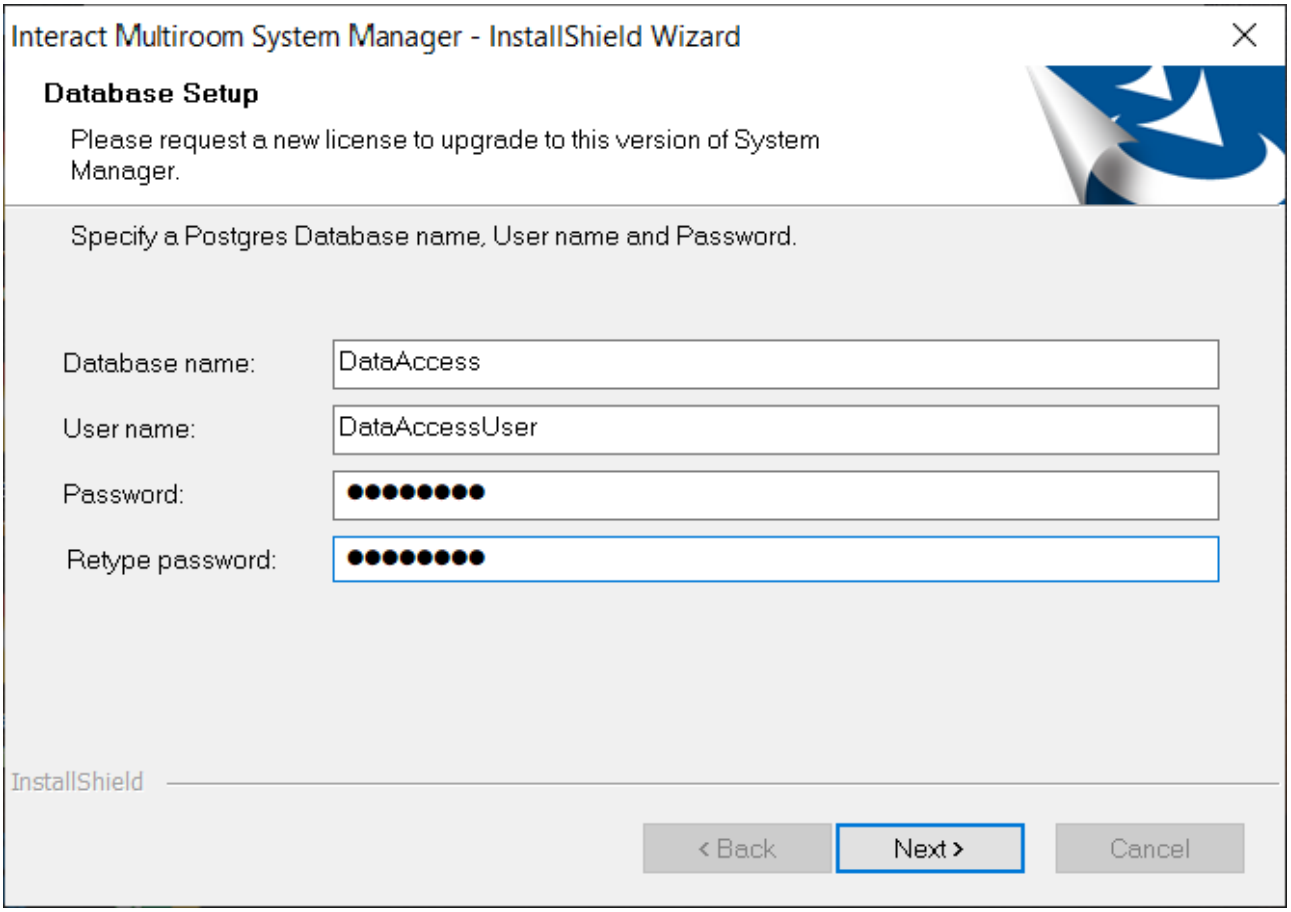
For more information on using Microsoft SQL Server with Multiroom System Manager, please refer to Dynalite FAQ #682 Set up Multiroom System Manager to use Microsoft SQL 2019 Standard/Enterprise edition.

If you have made an incorrect database server selection, you can change from MSSQL back to PostgreSQL by modifying the System Manager installation from **Windows - Programs and Features** and change the selection (No data shall be migrated).

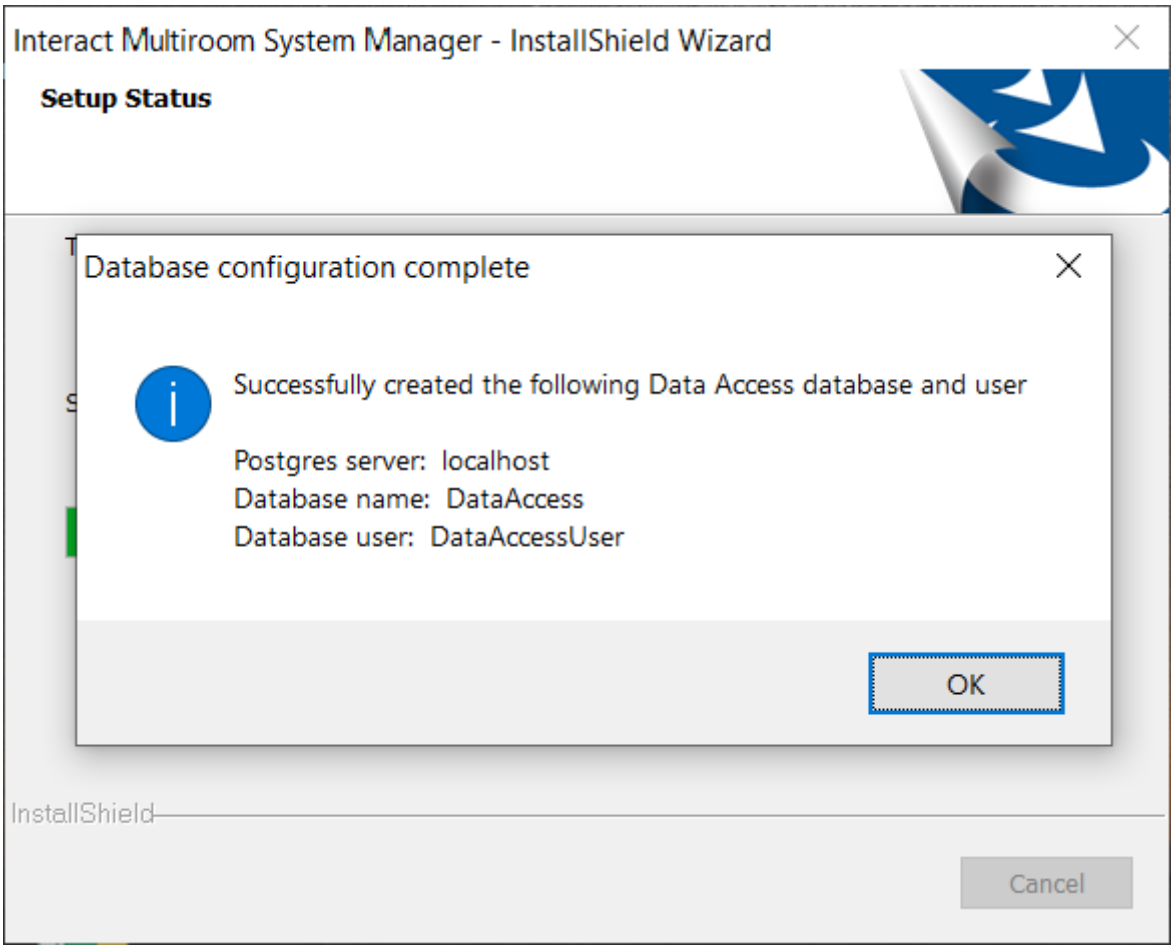
5. When prompted, enter the password previously created for the PostgreSQL database super user account and click Next >.



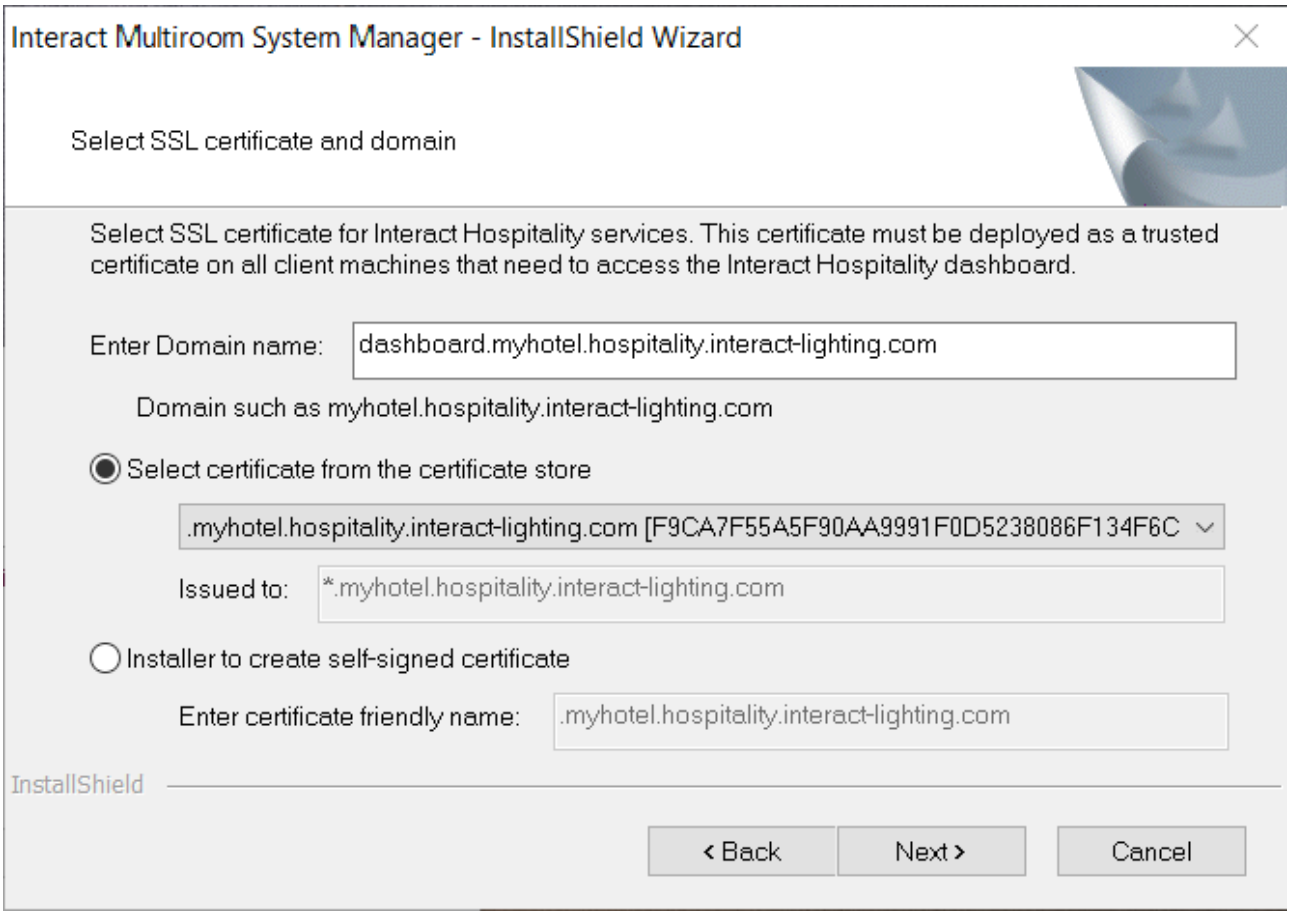
6. To create the **Database name** and **User name**, enter the same password twice and click Next >.



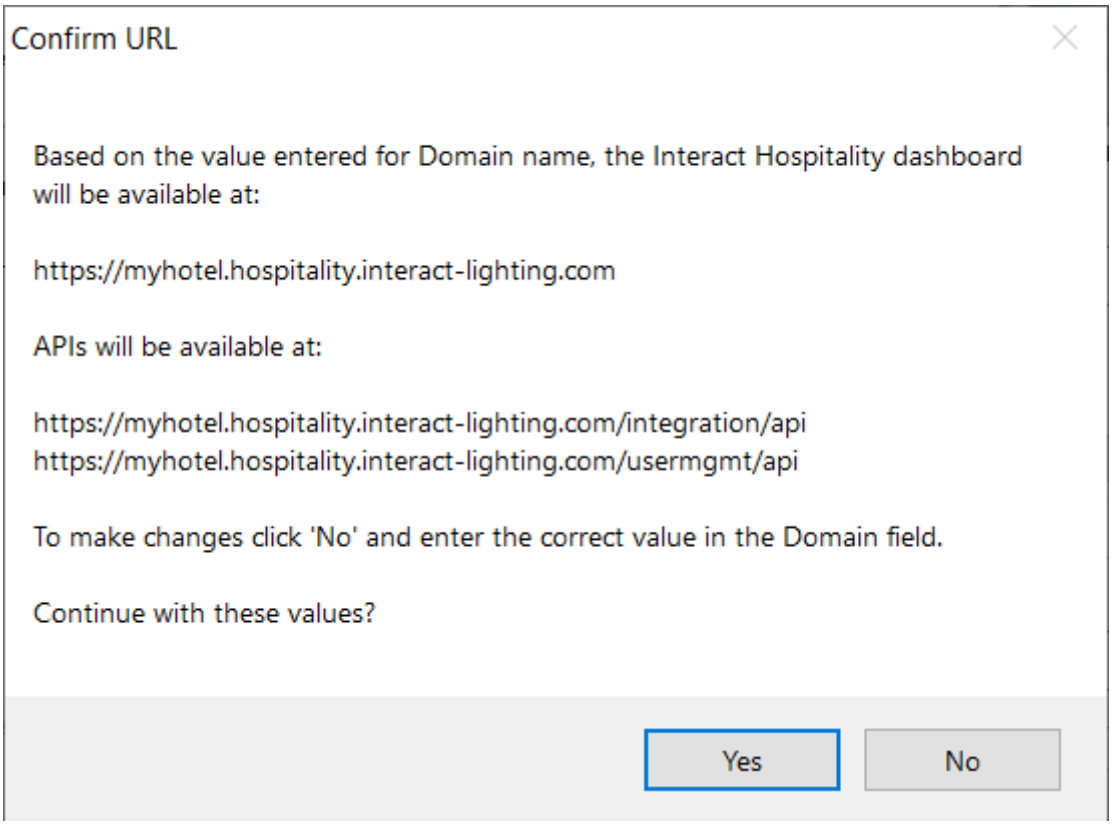
7. After the wizard has successfully created the Data Access database and user, click OK.
   The installer will install the remaining System Manager components.



8. To provide browser access to the Dashboard and APIs via your own domain: select the SSL certificate and enter the domain name, then click Next >. We recommend selecting a certificate from the certificate store (supplied by the hotel), or the wizard can create a self-signed certificate for the specified domain.
   Spaces are not allowed in the certificate friendly name.
   A self-signed certificate created by the installer is updated in IIS Server certificates (expiration is 2 years from current date).



9. Click Yes to confirm the URL.



The domain name must have a minimum of three parts, e.g. `myhotel.example.com`

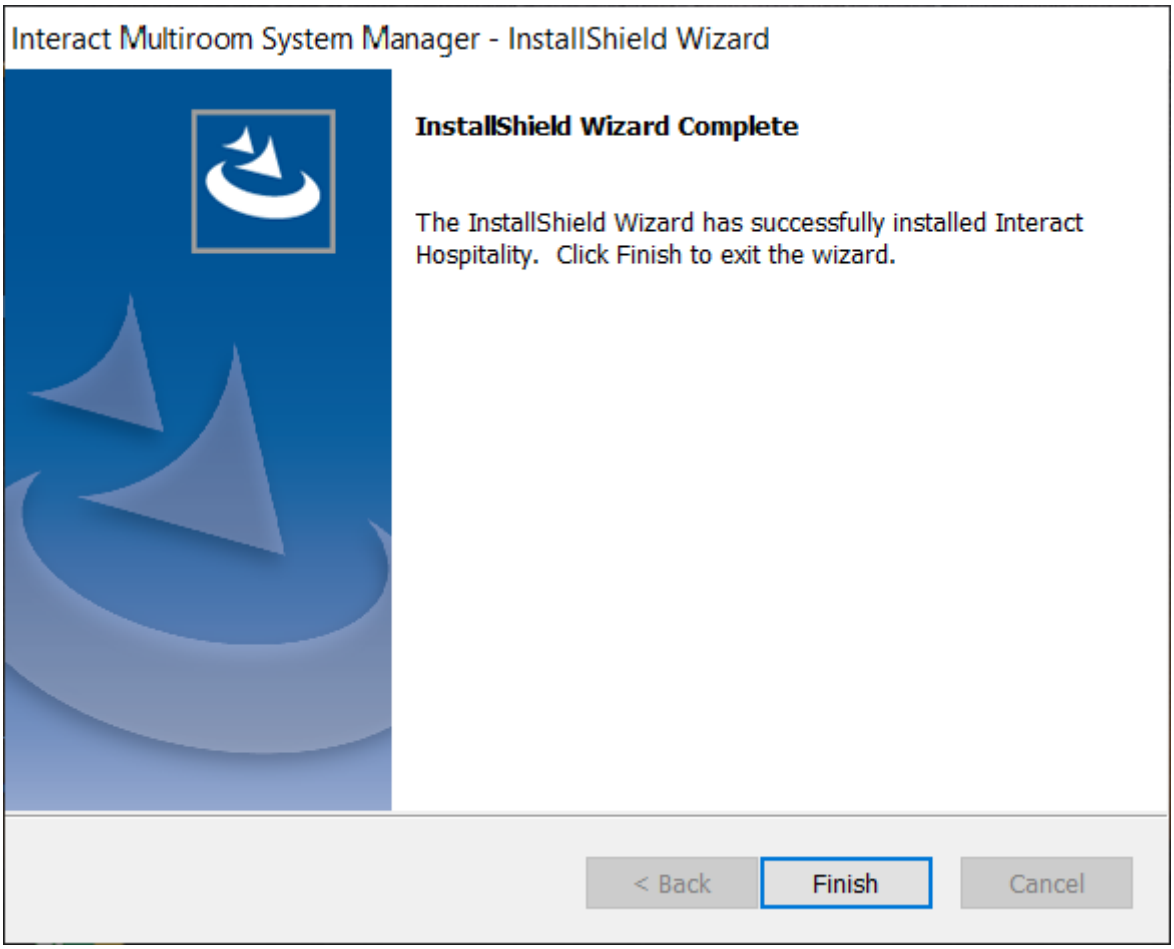
Domain names either need to be registered by IT on their DNS servers, or on each client machine's `hosts` file, to resolve the domain name to the SM server IP address.

The certificate and domain can be changed later by rerunning the install package, or by opening the **Data Access Service Configuration** app.

Only the Interact gateway URL (e.g. `https://dashboard-local.hospitality.interact-lighting.com`) is required to be trusted on client PCs. This is the only address that is accessible via the local network. After installation you can find the gateway URL in Windows IIS. This is the URL for all dashboard, API, and WebSocket connections. The gateway then routes requests to the individual APIs as in the example table below:

Domain	IP:Port	Local/Remote
`https://myhotel.hospitality.interact-lighting.com`	`[SM server IP address]:443`	Remote
`https://api.hospitality.interact-lighting.com`	`127.0.0.1:443`	Local
`https://usermgmt.hospitality.interact-lighting.com`	`127.0.0.1:443`	Local
`https://dashboard-local.hospitality.interact-lighting.com`	`127.0.0.1:443`	Local
`https://energyapi.hospitality.interact-lighting.com`	`127.0.0.1:443`	Local
`https://dynalitecontrolapi.hospitality.interact-lighting.com`	`127.0.0.1:443`	Local
`https://publicapi.hospitality.interact-lighting.com`	`127.0.0.1:443`	Local

10. Click the Finish button to complete the installation.

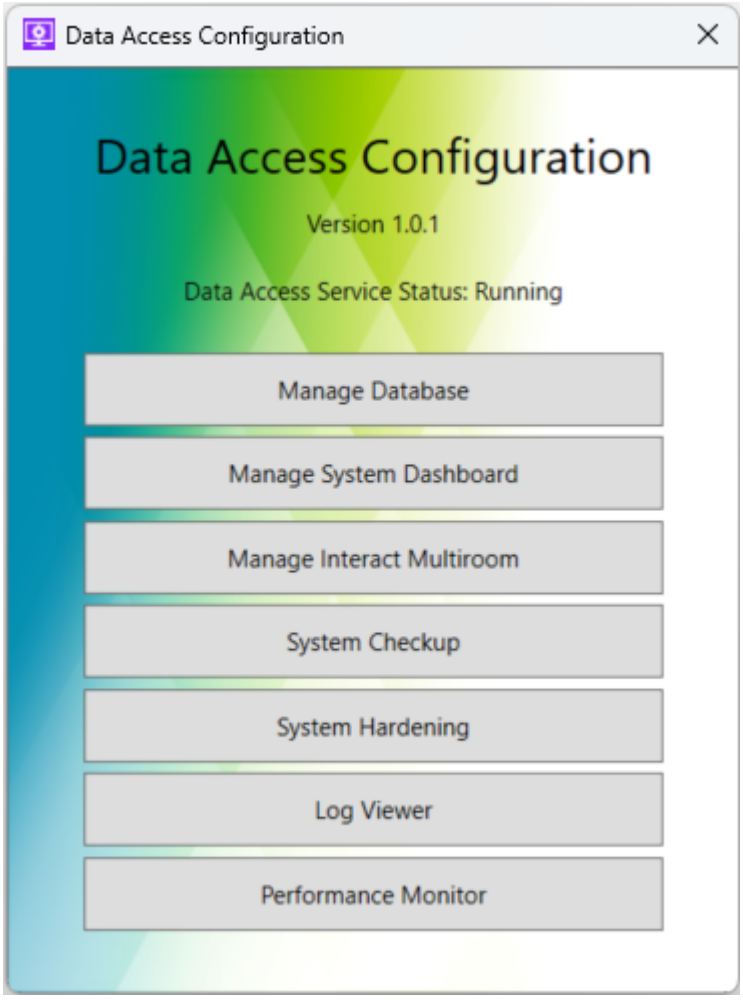


8.5. Data Access Configuration

If you have followed the Multiroom SM installation wizard steps, you are not required to make any changes to Data Access Configuration.

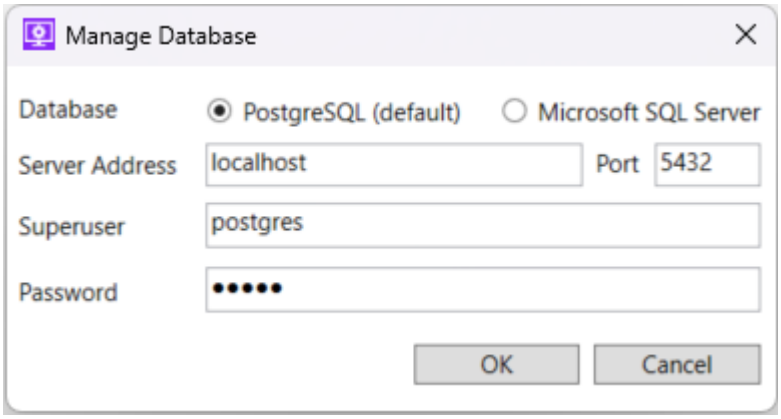
You can access **Data Access Configuration** via the **Windows Start Menu** under **Philips Dynalite >** **Data Access Service Configuration** to make changes to the database settings and credentials.

The **Data Access Configuration** window shows the current **Data Access Service Status** and buttons for each section.



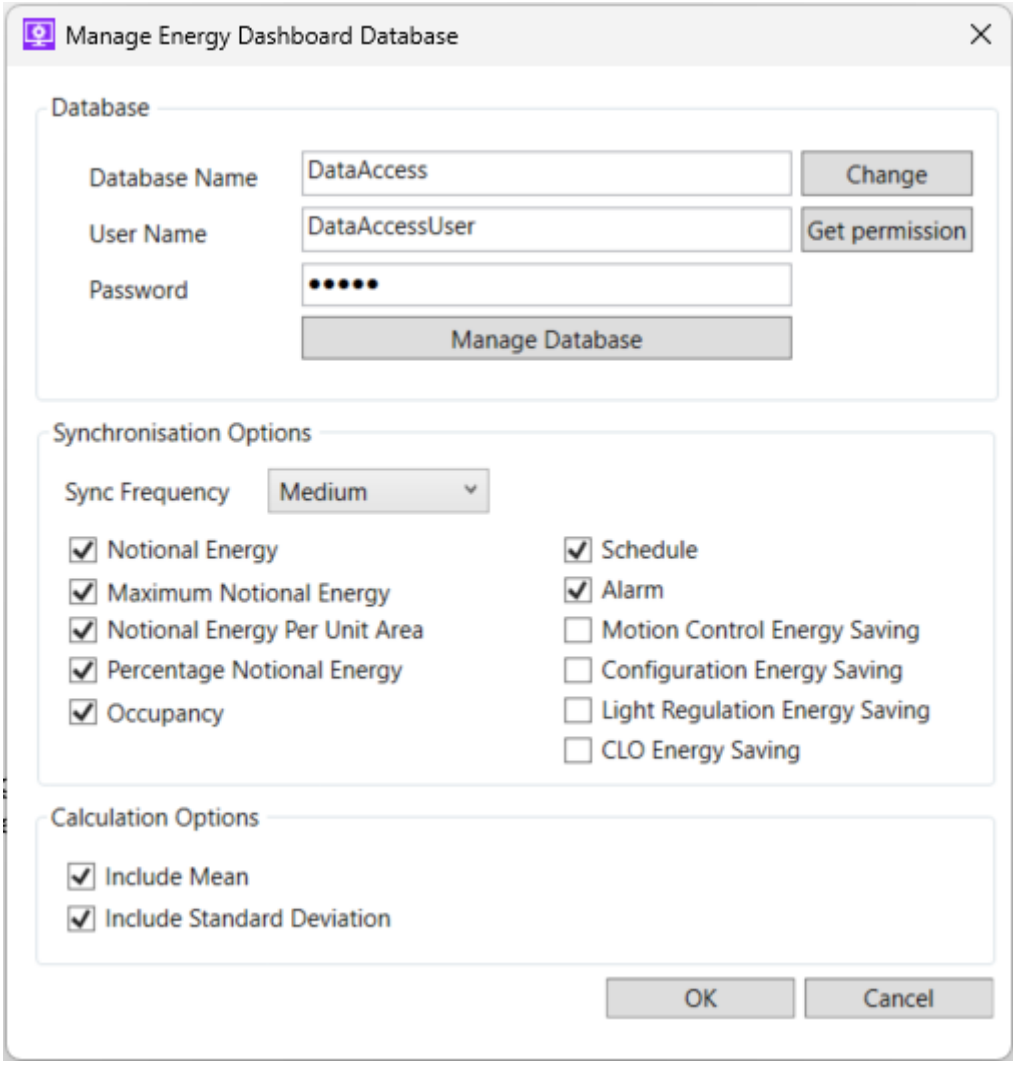
Manage Database

The **Manage Database** dialog provides settings to select the database type, server address, and superuser credentials that were entered during the SM installation process.



Manage System Dashboard

Do not change these settings, they are not relevant to Multiroom System Manager.

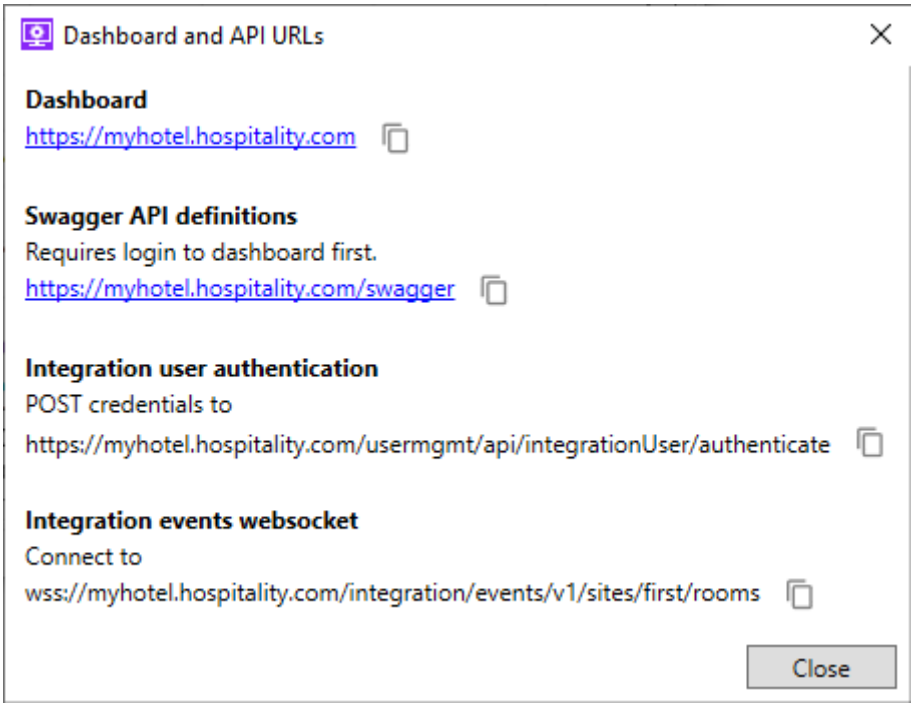


Manage Interact Multiroom

The **Interact Multiroom Configuration** window includes buttons to access **URLs Overview**, **Certificate Configuration**, and **Manage Multiple System Managers**.

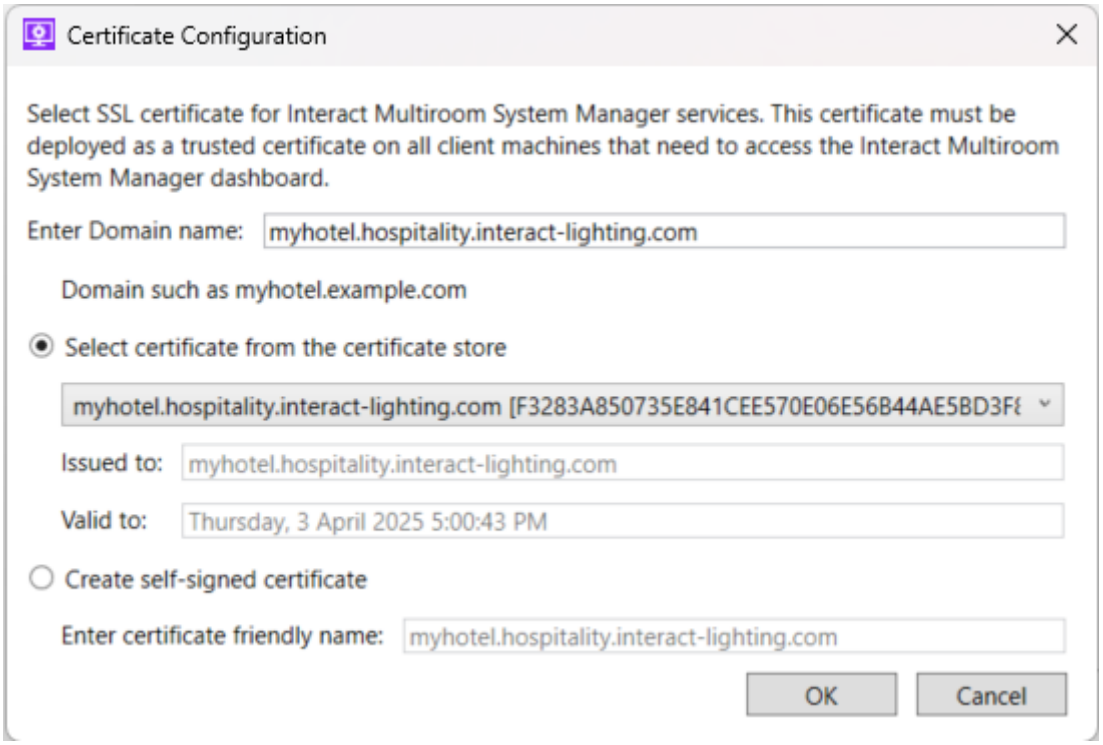
URLs Overview

The **URLs Overview** dialog shows the current Dashboard and API URLs for your system. Click the links to launch them in your browser. Click the icon to copy the URL to the clipboard.



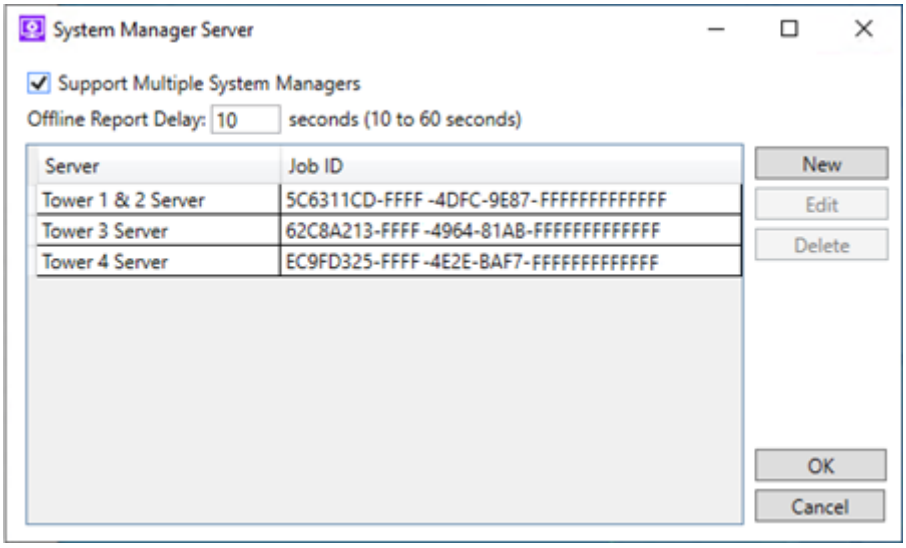
Certificate Configuration

The **Certificate Configuration** dialog allows you to configure the host name and domain of the multiroom dashboard and APIs, and to select or create an SSL certificate for the webserver.



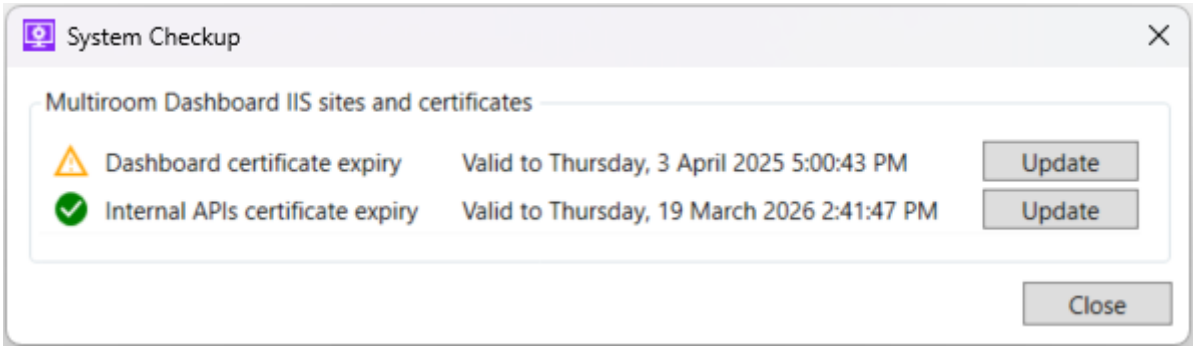
Manage Multiple System Managers

The **System Manager Server** dialog enables you to link multiple SM servers that may be required for very large sites with thousands of rooms. Data from all SM servers is integrated into a single Multiroom Dashboard.



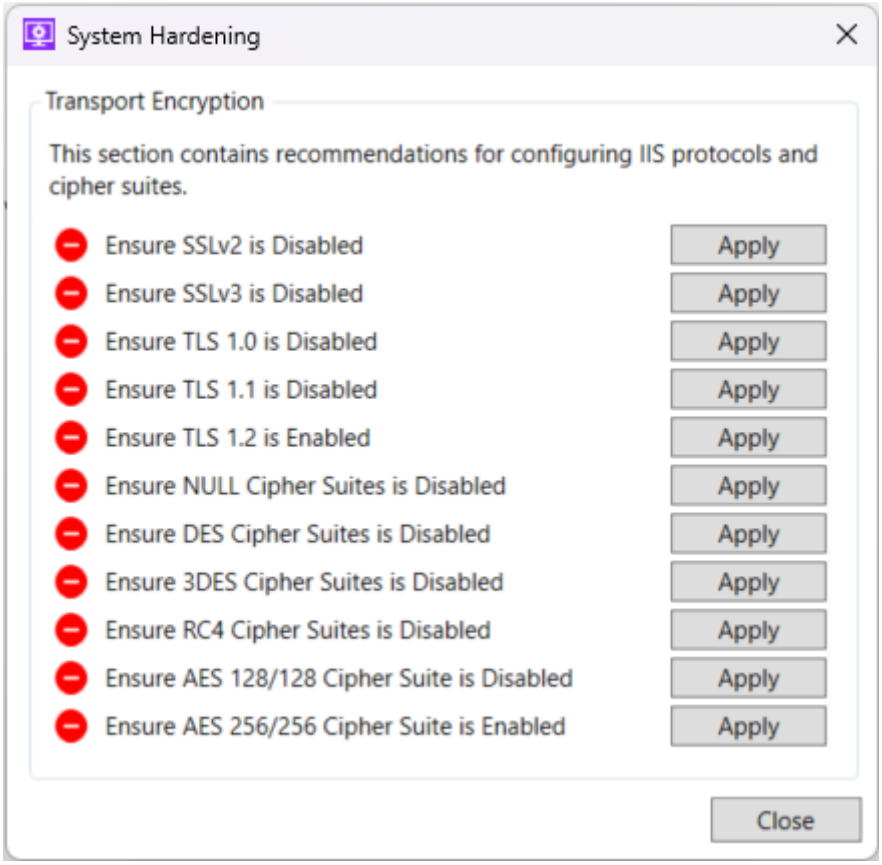
System Checkup

The System Checkup dialog box shows notifications of upcoming certificate expirations so you can update the relevant certificates.



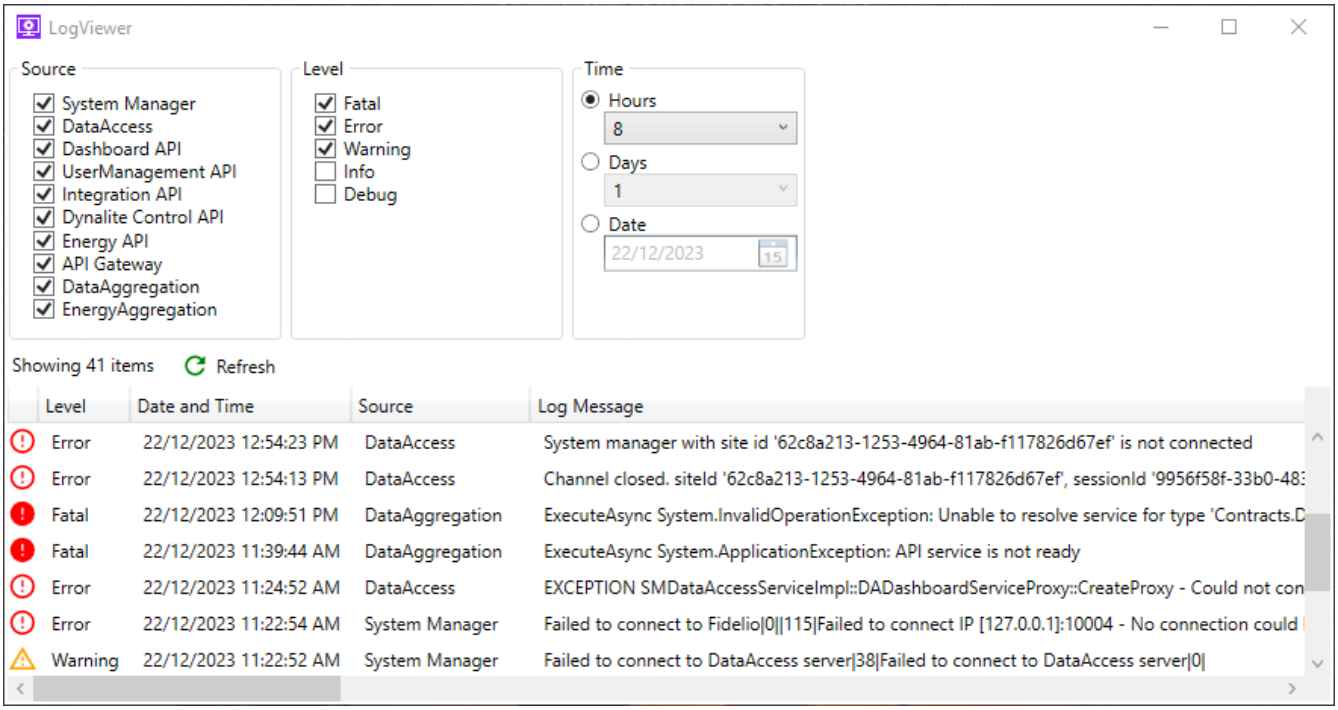
System Hardening

The **System Hardening** dialog provides a list of security recommendations that you can apply to the server machine.



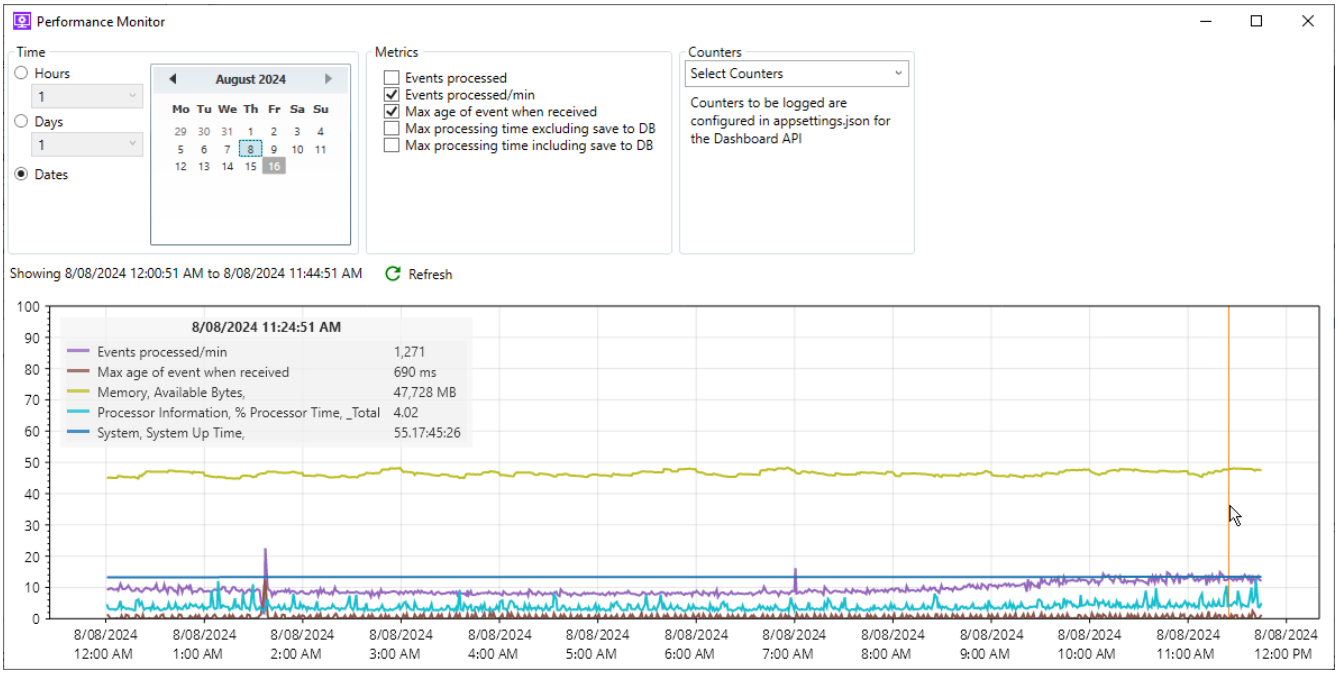
Log Viewer

The **Log Viewer** dialog combines log messages from multiple text file logs on the server machine. Logs can be filtered by service, message level, time, and date.



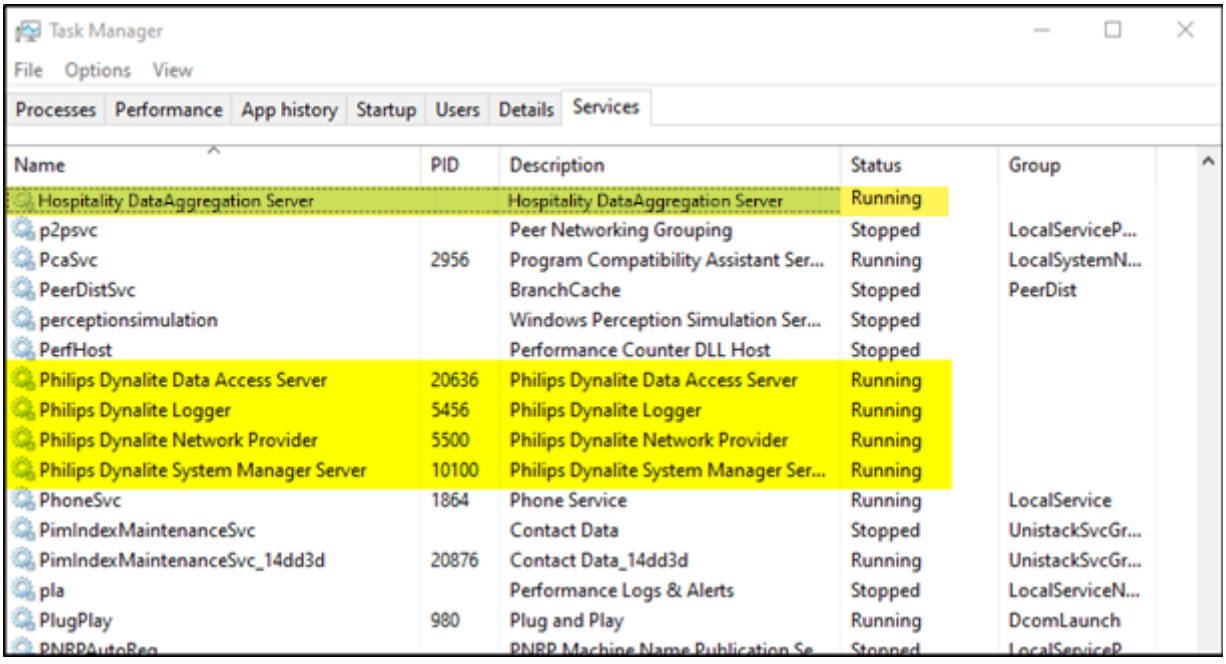
Performance Monitor

The **Performance Monitor** dialog shows graphs of application and service performance metrics. You can add time filters, and select different metrics or counters to be logged. Some built-in metrics are available, and any Windows Performance Counters available on the machine can be configured to be logged and displayed.



8.6. Check SM Server Operation

In **Windows Task Manager Services**, ensure that the four Philips Dynalite System Manager services are running.



If the system is connected and there is live data going into the TrendDB, then you can check `C:\ProgramData\Dynalite\DataAccess\Logs\DataAccessServer.log` to see incoming sync messages.

```
2018-02-02 11:15:58,647 [641] INFO - Stopping DataAccess Server...
2018-02-02 11:20:35,505 [7] INFO - Starting DataAccess Server...
2018-02-02 11:20:36,852 [7] INFO - Starting DataAccess Server is ready
2018-02-02 11:20:52,834 [15] INFO - (SyncConfigurationData) Synced Plan data of site (3ac338d2-7d95-42c7-bc56-4aa1a55b496e)
2018-02-02 11:20:52,954 [15] INFO - (SyncConfigurationData) Synced Tag data of site (3ac338d2-7d95-42c7-bc56-4aa1a55b496e)
2018-02-02 11:20:52,966 [15] INFO - (SyncConfigurationData) Synced Holiday data of site (3ac338d2-7d95-42c7-bc56-4aa1a55b496e)
2018-02-02 11:20:53,289 [15] INFO - (SyncTrendData) Synced actual notional energy data of site 3ac338d2-7d95-42c7-bc56-4aa1a55b496e
2018-02-02 11:20:53,464 [16] INFO - (SyncTrendData) Synced maximum notional energy data of site 3ac338d2-7d95-42c7-bc56-4aa1a55b496e
```

8.7. Install SM clients, if applicable

The client software is not required for hotel staff but may be required for engineering staff. The initial superuser account on the server is likely to be sufficient for most installations.

You can install multiple versions of the client software on different PCs to access System Manager Server.

Install SM client:

1. Copy the installation files located in the following folder on the SM server:
   `C:\Philips Dynalite\System Manager\System Manager Client`
2. Run **setup.exe** on the user's PC.
3. In Windows, click  **System Manager** to open the System Manager client.

8.8. Security Hardening

Ensure that you perform system and OS hardening to prevent unauthorized access to the system.

- For information on hardening the Windows server, please refer to the *OS Hardening Guide*.
- For information on hardening Philips Dynalite System Manager software and hardware devices, please refer to the *System Hardening Guide*.

Chapter 9. System Manager Configuration

Configure System Manager:

1. Import Site CA Certificate
2. Request licenses
3. Load Hotel job file into System Manager
4. Configure site settings
5. Configure system alert
6. Configure guest languages
7. Configure SM client user access
8. Configure secure access to the Multiroom Dashboard
9. Open Dashboard

9.1. Import Site CA Certificate

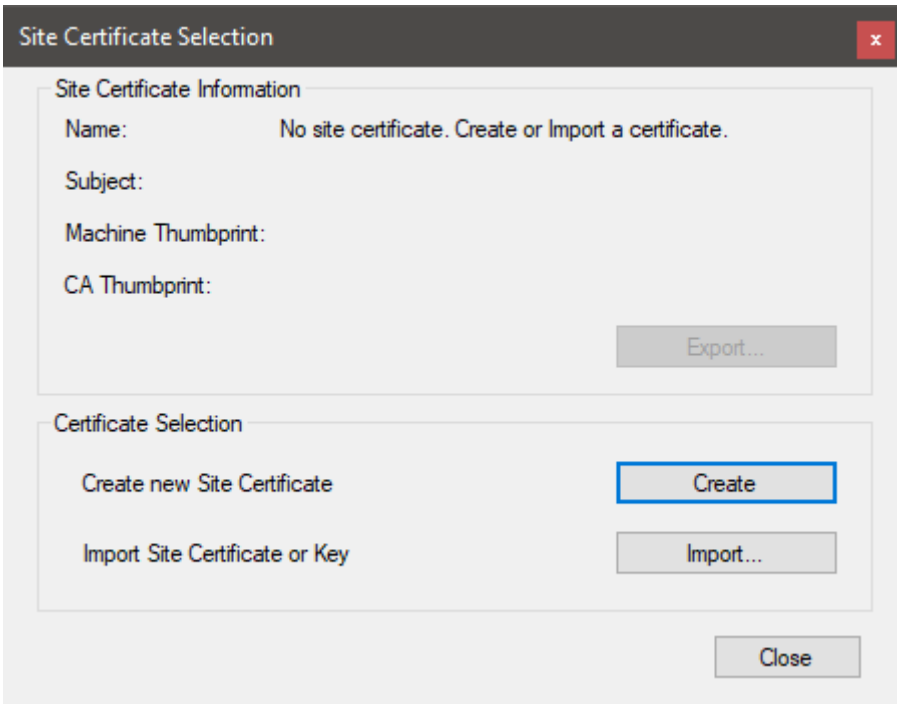
To establish secure Ethernet connections, you must open System Builder on the SM Server machine to import a Site CA Certificate (Site Private Key) and save the job/database. The Site CA Certificate must have been previously exported from the commissioning machine. The Site CA Certificate and password must always be stored and sent securely.

SB is used for site certificate management and uploading to devices. During commissioning, the Site CA Certificate is used in the job to create and upload Device Site Certificates for TLS connections between gateways and Ethernet devices, and between gateways and SB/SM.

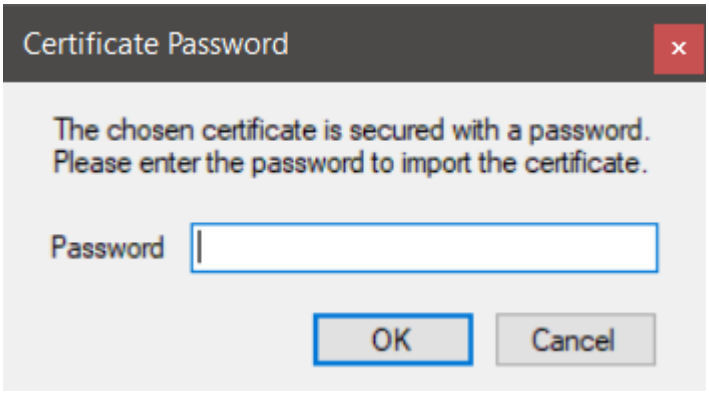
Only a PDDEG-S can be used for secure connections. To ensure end-to-end security, each PDDEG-S and Ethernet device must be configured for secure connections in the job and saved to devices before importing the job into SM.

Import Site CA Certificate:

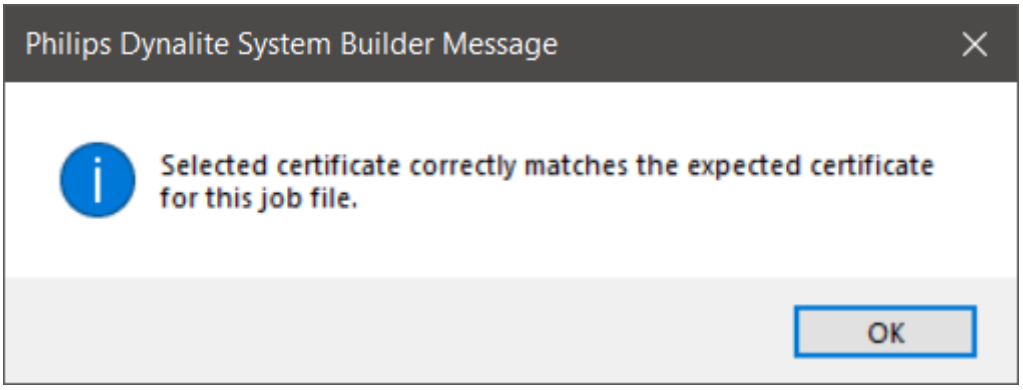
1. Open **System Builder** on the SM Server machine.
2. In the Tools menu, select  **Set Site CA Certificate** to open the Site Certificate Selection window.



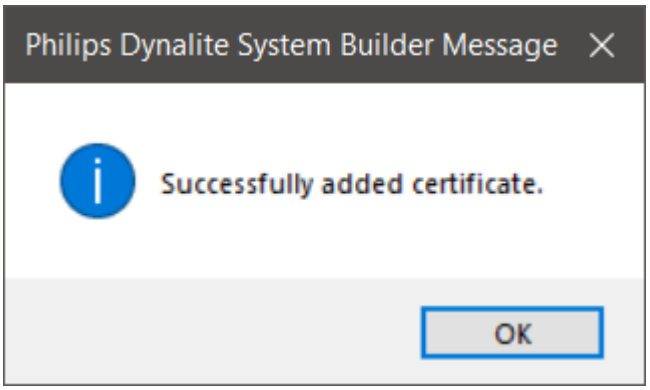
3. Click the **Import** button and select the exported certificate (.pfx).
4. When prompted, enter the certificate password.



5. Click the OK button.



6. Click the OK button.



7. Save the job/database.

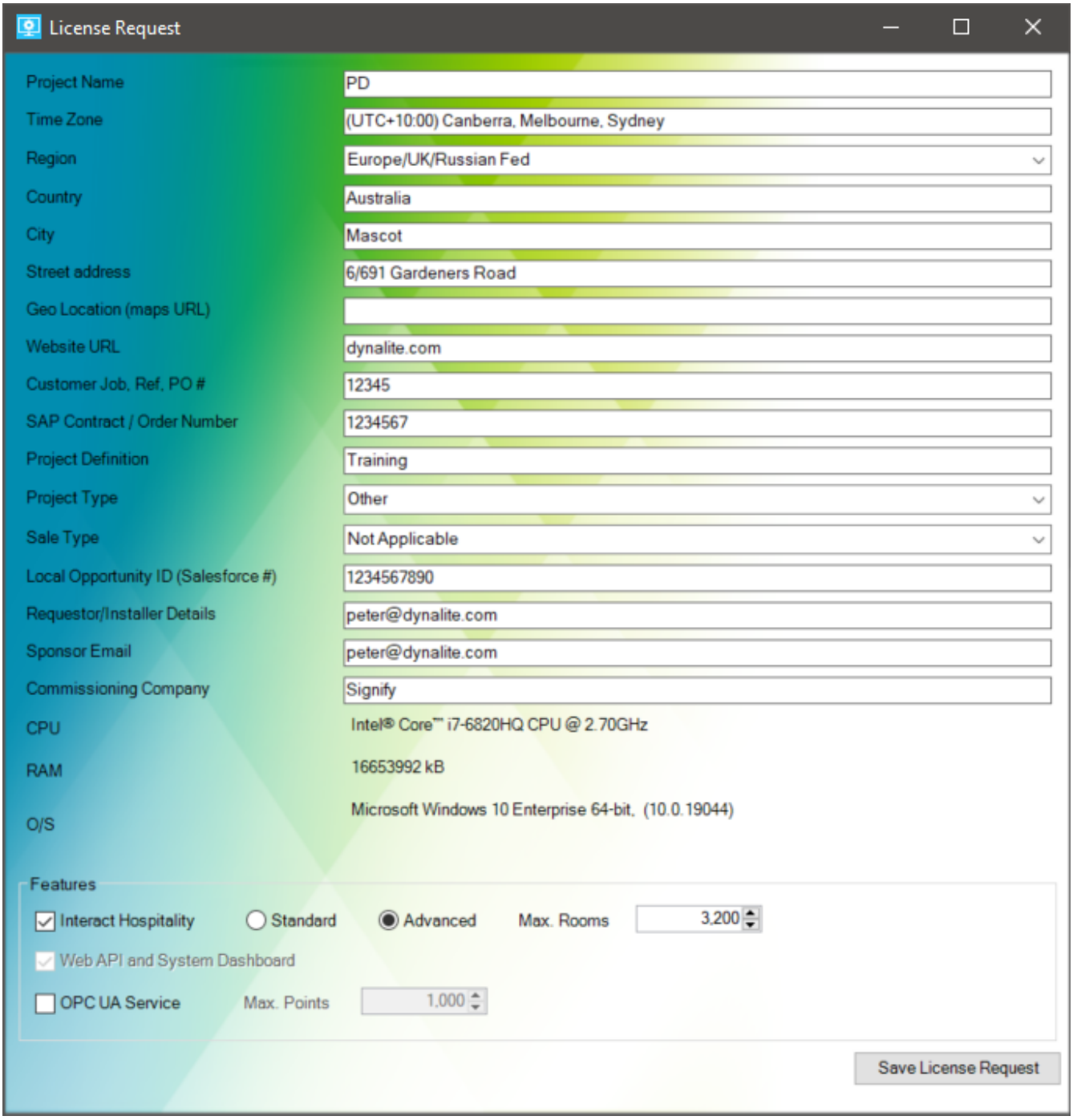
9.2. Request Licenses

The Multiroom System Manager license automatically enables the API and Hospitality services.

License fees are based on number of rooms, license duration (years), and feature tier (Advanced or Enterprise).

Request and apply license:

1. After System Manager is installed, run the **System Manager Configuration** tool.
2. Click the **Request License** button.
3. Enter the site details and select the required license features (**Red** fields are mandatory).
4. Click the **Save License Request** button and send the request via email.
5. The support team contacts the sub-segment manager to verify that the software + service entitlement is logged in C4CS and matches an order in SAP.
6. The support team creates the license with the entitlements embedded and issues it to the requester by replying to the email with the attached license file within 24 hours.
7. Save the license file to a folder on the server.
8. Click the **Apply License** button.
9. Browse and select the license file `System Manager.license`.
10. Click the **Open** button. The license information is displayed at the bottom of the **Configuration** window.



The request uses the standard email application on the computer to generate an email to support.controls@signify.com. If no email client is installed, the **Save License Request** button can be used to save the license request to a file to be sent later or from another computer.

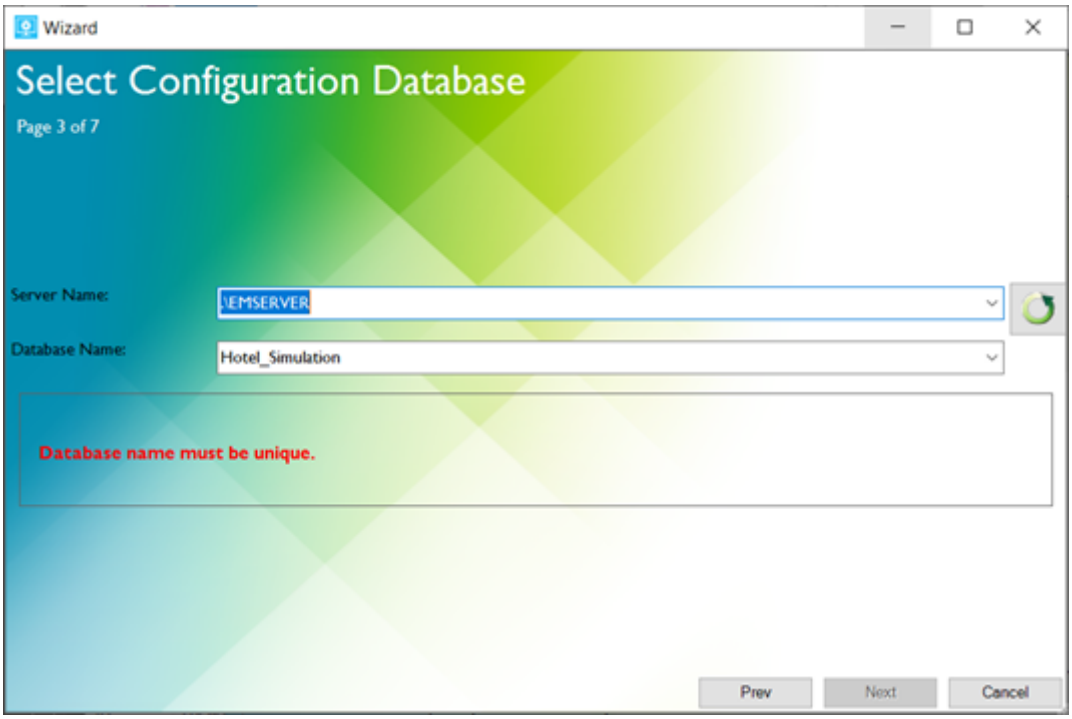
9.3. Load Hotel Job file into System Manager

To complete the System Manager configuration, you need to run the **System Manager Configuration** tool and create a new database from the hotel job file.

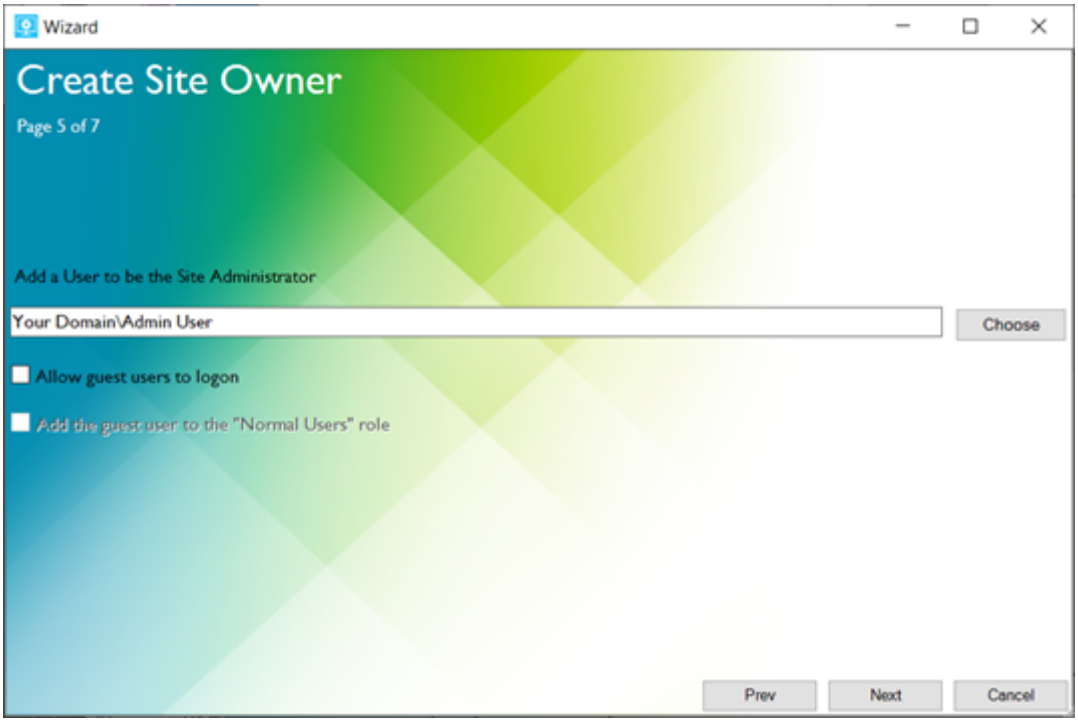
Load hotel job:

1. Click the **Run Quickstart** button, select **Start from a System Builder job file** and click the **Next >** button.
2. Click the **Browse** button, select the job file and click the **Open** button. Click the **Next >** button.

3. Enter the **Server Name** and **Database Name** and click the **Next >** button.



4. Click the **Next >** button, since you have already licensed the server.
5. Enter the domain name and username for the admin user, or click the **Choose** button to search for a user.
   Unselect the **Allow guest users to logon** checkbox.



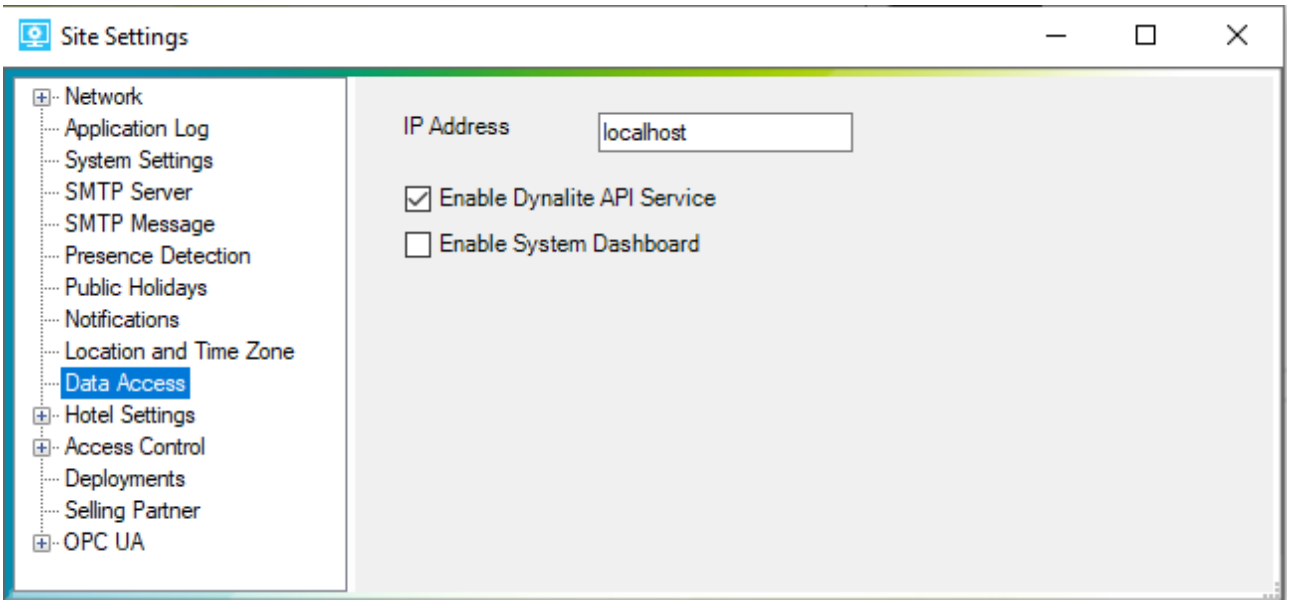
6. Select the **Location** and **Time Zone** information and click the **Next >** button.
7. Click the **Execute** button and **Finish** button to create the databases and user.

9.4. Configure Site Settings

Configure site settings for API access:

1. Run the **System Manager Configuration** tool.

2. Click **Site Settings**.
3. Select **Data Access**.
4. Select the **Enable Web API** checkbox.



5. Consult with integrated systems engineers regarding **Hotel Settings** for FIAS and Access Control.

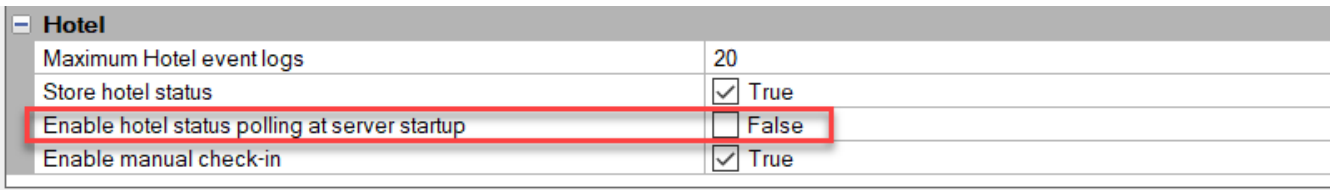
For more information refer to Integration.

9.4.1. Startup Polling

If SM server restarts, then room statuses may not be completely synchronized with the Dashboard. The system resynchronizes all statuses as it receives new events.

For small hotels (<250 rooms), setting **Site Settings > System Settings > Hotel > Enable hotel status polling at server startup** to *True* allows the server to poll all the rooms at startup to immediately synchronize the dashboard.

However, for larger hotels this setting generates too much network traffic, and must remain set to *False (default)*.



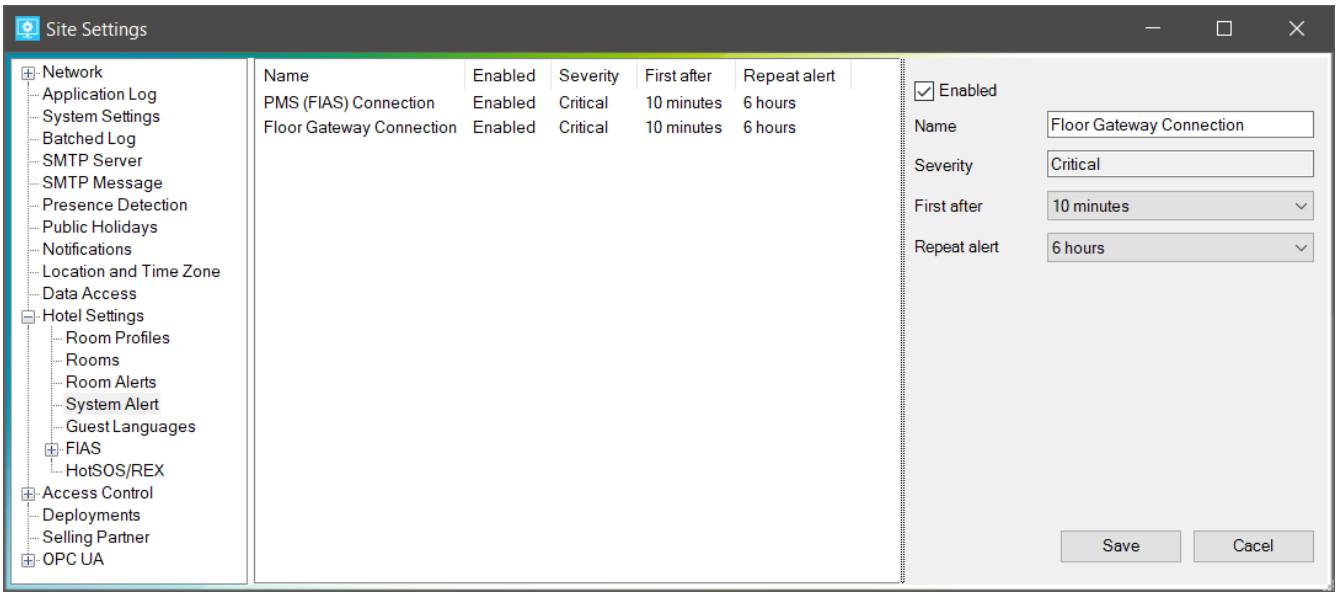
9.5. Configure System Alert

These settings are for initial configuration of system alerts for PMS (FIAS) and Floor gateway connections. You can also modify the system alert configuration in the Multiroom Dashboard, under /GIT/multiroom/build/multiroom/latest/index.html/multiroom/2.11/dashboard_guide/configuration/alert_definitions.html[Configuration > Alert Definitions > System Alerts].

Configure system alert for PMS (FIAS) and Floor Gateway Connections:

1. Run the **System Manager Configuration** tool.
2. Click Site Settings.

3. Expand **Hotel Settings** and select **System Alert**.
4. Select **PMS (FIAS) Connection** or **Floor Gateway Connection**.
5. Select the **Enabled** checkbox.
6. Enter a name for the alert (this will be displayed on the dashboard)
7. Select the **First after** time period from the dropdown list.
8. Select the **Repeat alert** time period from the dropdown list.
9. Click the Save button.



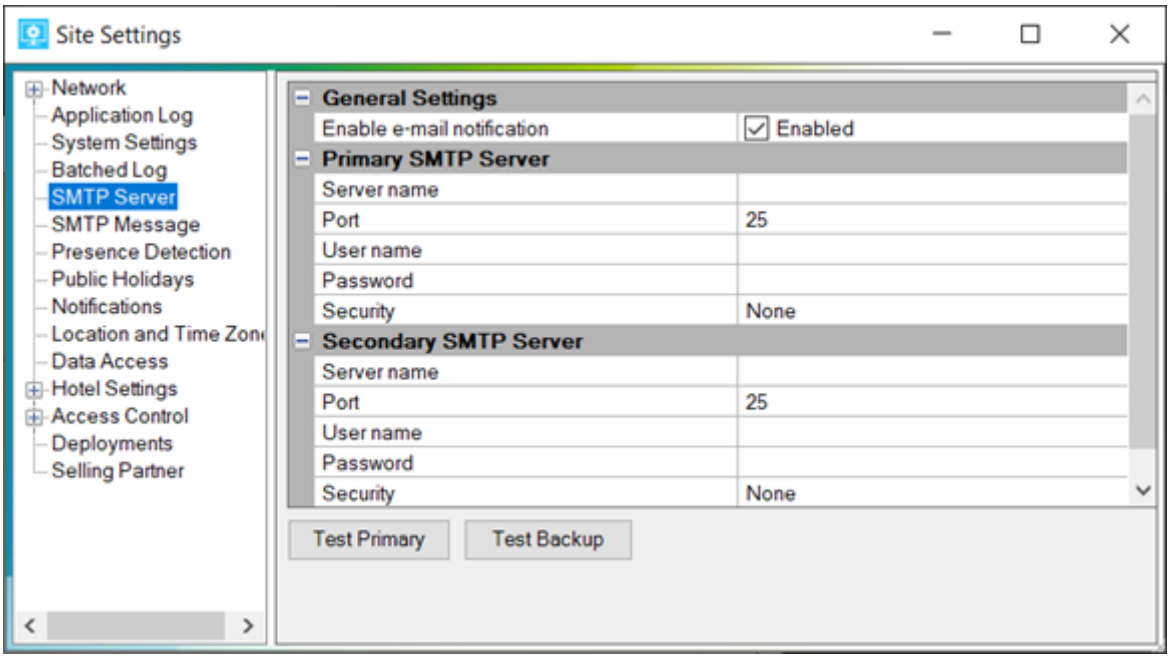
The System Alert status is shown by clicking the globe icon in the top right corner of the dashboard. First and Repeat alerts are sent on the API WebSocket. However, the alert icon on the dashboard will persist until the connection is restored.

9.6. Configure SMTP and Notifications

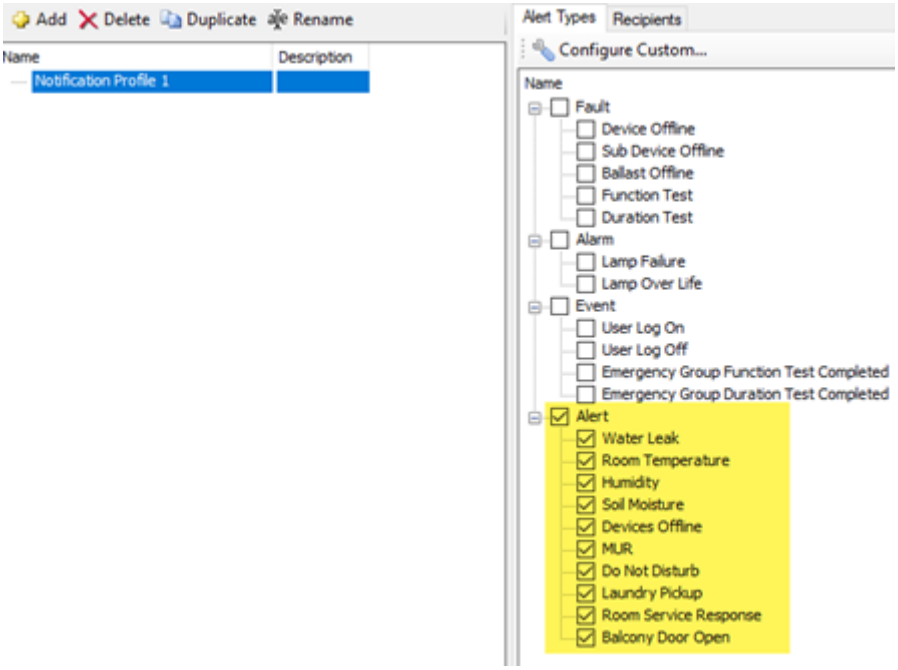
System Manager can be configured with an SMTP server and custom messages to notify specified staff members via email when an alert is triggered.

Configure Alert Notifications:

1. In **SM Configuration > Site Settings > SMTP Server**, enter the SMTP server details.
2. Click the **Test Primary** and (if applicable) **Test Backup** buttons to confirm the connection.



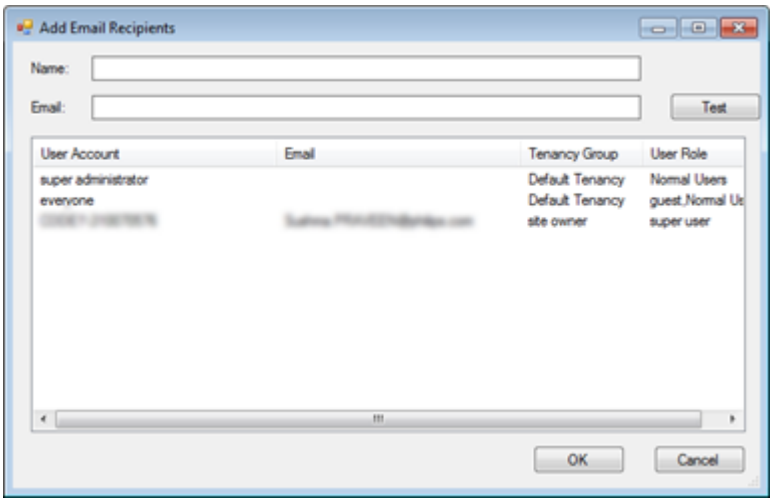
3. In **SM Configuration > Site Settings > SMTP Message**, select the message Importance, Message Template and Custom subject. A preview of the message template is shown in the window.
4. In **SM Configuration > Site Settings > Notifications**, click **Add** to create a new notification.
5. Enter a name for the notification profile.
6. Check the **Alert Types** for which the user will be notified.



This creates the notification profiles. Email recipients must then be added to the required profiles, so they are notified when an alert occurs.

Add Recipients:

1. In the **Notifications Recipients** tab, click **Add** or **Add System Manager User**. The **Add Email Recipients** dialog is displayed.



2. Enter the **Name** and **Email** address of the recipient or select the recipients from the User account list.
3. Click the **Test** button to verify the email address of the recipient.
4. Click **OK**. The recipients are added to the Recipient list.

9.7. Configure Guest Languages

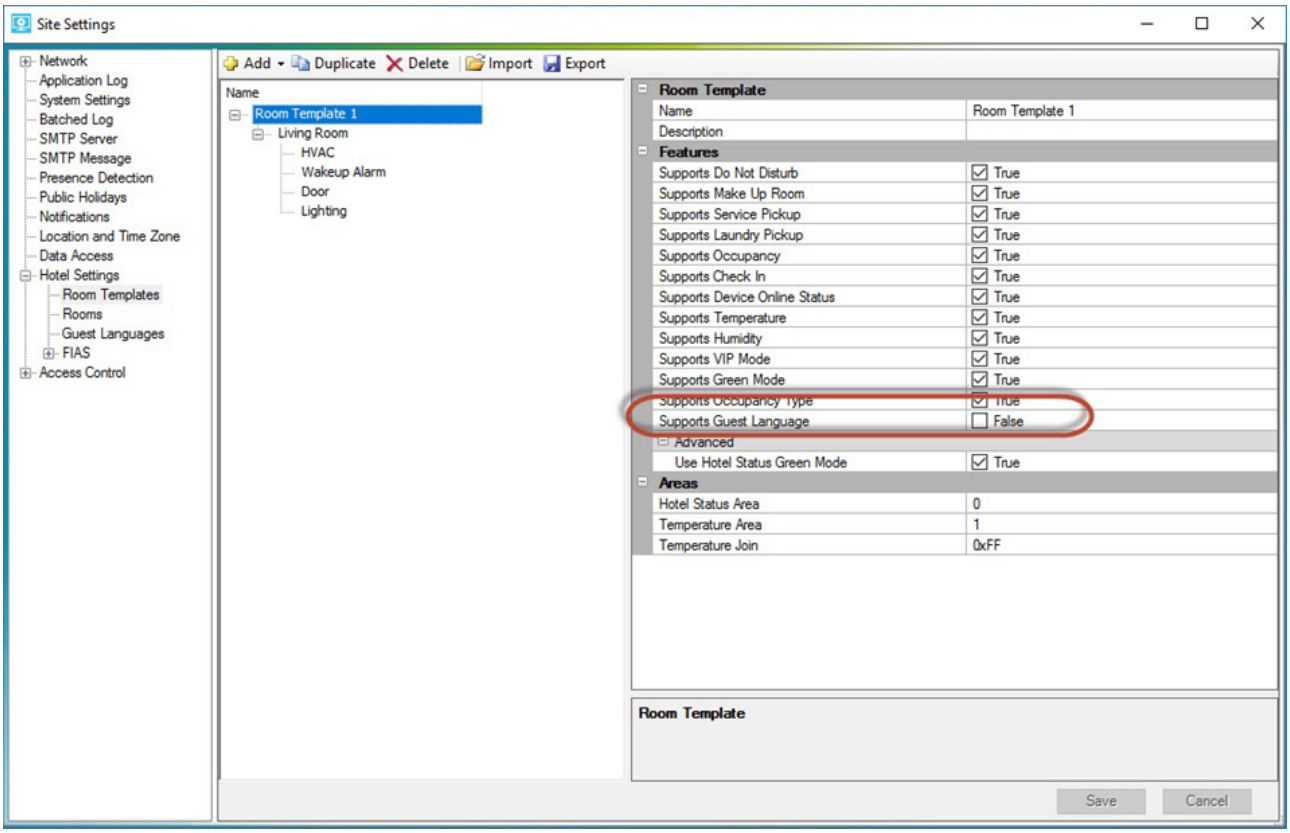
FIAS allows the PMS to select a guest language on check-in and reset the language on check-out. The language for the room is reflected in the hotel dashboard and on the AntumbraDisplays in the room. If no language is received from the PMS or it does not match an available language, the display will continue to show the language menu.

To support guest languages, the SM Server must have the languages made available and the AntumbraDisplays should be preconfigured with multi-language pages. These are selected using Page Modes (up to three languages can be configured).

In the room, the guest can select a language from the language menu on the display. The AntumbraDisplay then sends out a Set Language message and the Multiroom Dashboard will reflect the chosen language. The language can also be set remotely from the Dashboard.

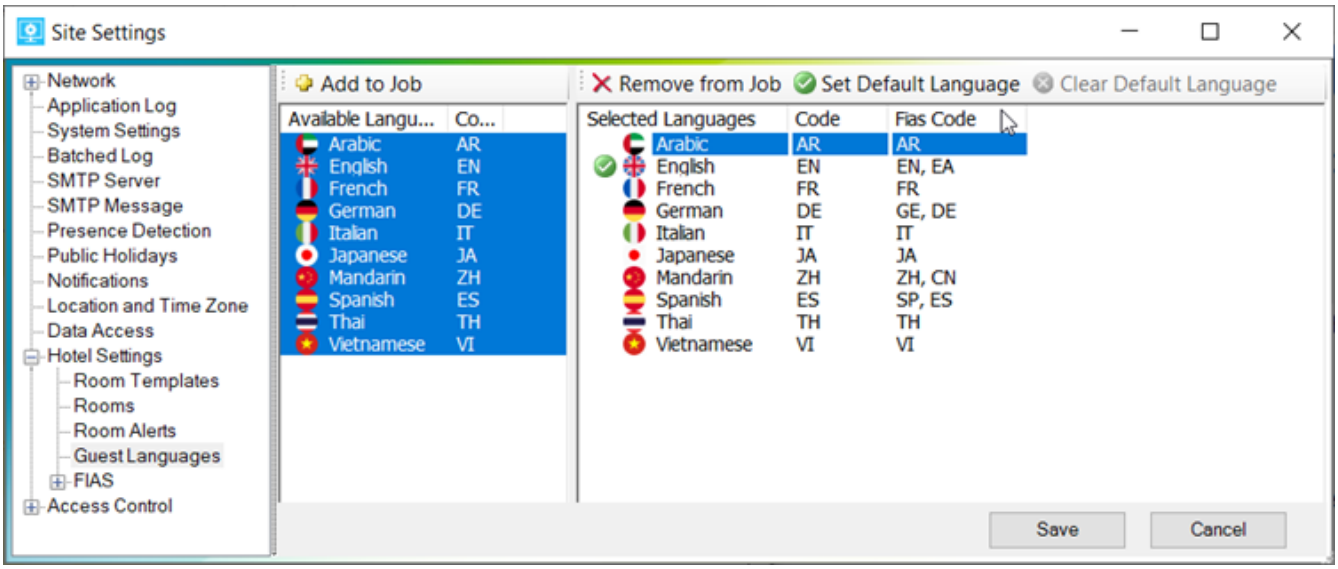
Set up guest languages:

1. In **Site Settings > Hotel Settings > Room Profiles**, select a room profile.
2. Under **Features**, Set **Supports Guest Language** to `True`.
   Repeat this for all room profiles that require guest language options.



The room profile settings are also available in System Builder.

3. In **Site Settings > Hotel Settings > Guest Languages**, select the required languages from the **Available Languages** list.
4. Click **Add to Job**, to move the languages to the Selected Languages list or click **Remove** to delete them from the list.
5. To set a language as default, select the language from the list and click **Set Default Language** or you can click **Clear Default Language**.
6. Click the **Save** button to save the current changes and close the Site Settings window.

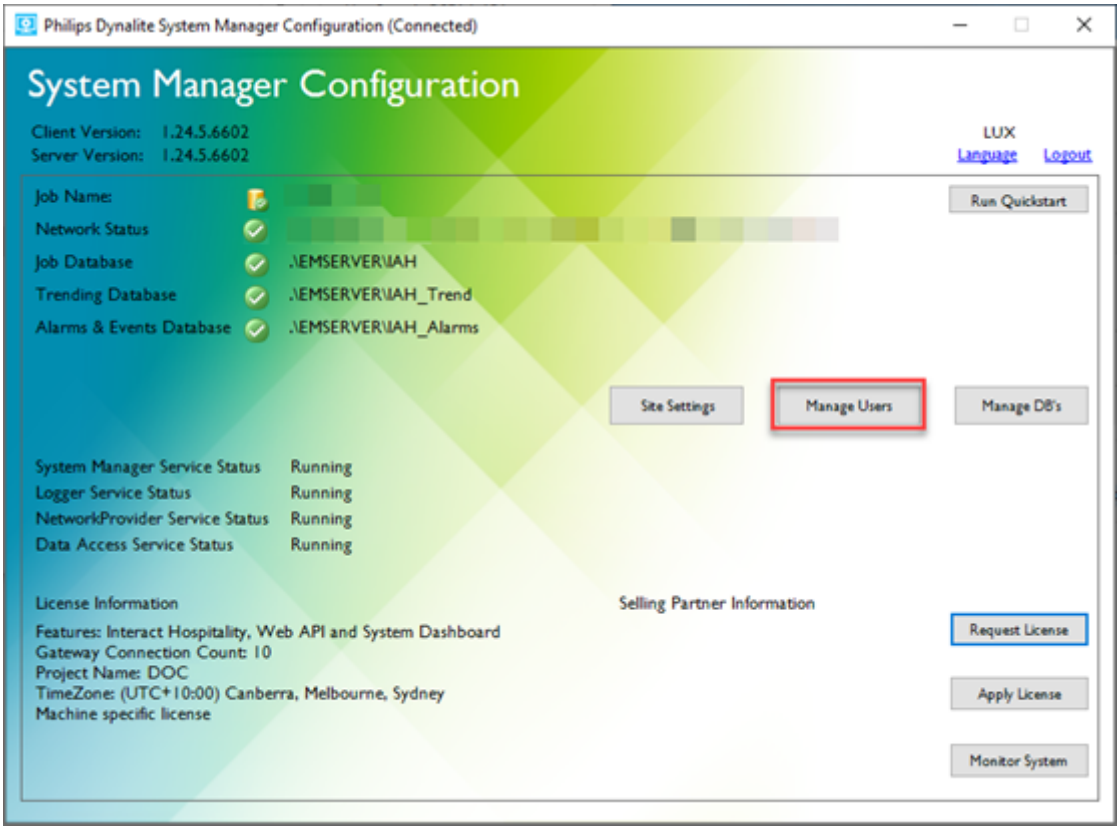


9.8. Configure SM Client User Access

This is only for System Manager Client users. It does not affect Dashboard users. Dashboard users are configured in the Dashboard Web Interface.

System Manager offers a range of configurable user roles and permissions, allowing individuals the appropriate level of control and access while removing unnecessary and restricted information from the interface.

To access User Access Management, open **System Manager Configuration** and click the **Manage Users** button.



For more information on users and user roles, refer to the *System Manager Installation Guide*.

In **User Access Management > User Roles**, the following securable service settings are recommended. All other services should be left at their default settings unless advised by your Signify consultant.

Securable Service	Description	Recommended Setting
Write Button	User can create, delete and edit room tiles.	Enabled for commissioning only.
Control Button	User can click buttons in System Manager to perform functions such as changing room status and controlling HVAC systems.	Enabled for authorized staff.

Securable Service	Description	Recommended Setting
Site Map View Maintenance View Reports View Alerts View	User can access non-Dashboard tabs in System Manager.	Disabled

9.9. Configure secure Dashboard user access

Secure user access to services running on the SM Server requires user authentication and an HTTPS certificate (for encrypted connections) on the server and/or user PCs.

9.9.1. User Authentication

User authentication is configured for the dashboard by the superadmin user who adds users and user profiles.

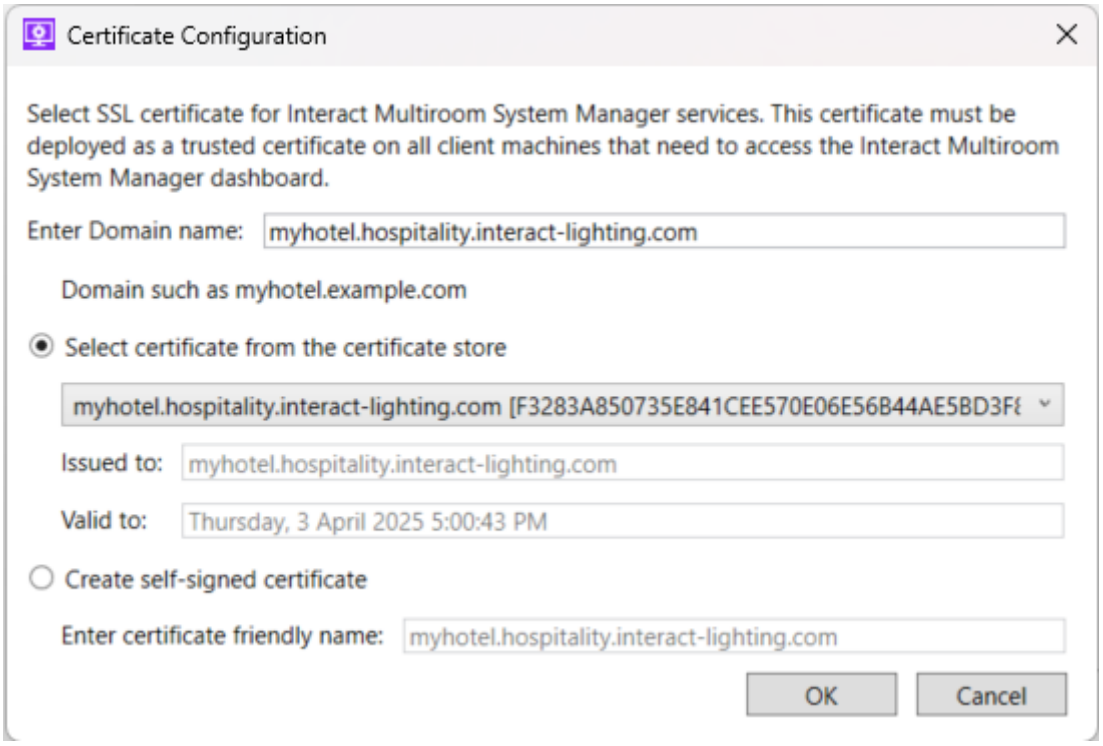
Just as for Dashboard users, administrators can set up app credentials for API integrations on the Dashboard **Configuration** page. For more information refer to /GIT/multiroom/build/multiroom/latest/index.html/multiroom/2.11/dashboard_guide/configuration/integrations.html[Multiroom Dashboard > Integrations (API Access)] and the Interact Developer Portal.

9.9.2. HTTPS

You can create and configure certificates using the SM installer or the **Data Access Configuration tool**.

There are two options:

1. Select a certificate provided by the Hotel IT team (recommended). This assumes the customer has access to the CA (certificate authority) used to create the certificate already deployed on their client machines.
2. System Builder can create a self-signed certificate. This certificate must then be deployed by Hotel IT to the Windows Certificate Store on all client machines that will be accessing the dashboard.



When one of these options is selected, System Builder will update the IIS bindings, local `hosts` file on the SM Server, and the configuration files using the domain assigned for the system as defined in the certificate.

The customer will need to configure their DNS server to direct the domain to the SM Server machine or configure client PC `hosts` files - `C:\Windows\System32\drivers\etc\hosts`:

- `dashboard.[subdomain]`
- `usermgmt.[subdomain]`
- `api.[subdomain]`
- `integration.[subdomain]`
- `dynalitecontrolapi.[subdomain]`

Self-signed certificates have an expiration of 2 years from the current date.

9.10. Open Dashboard

After installing the security certificate and adding users, users can access the dashboard by entering their domain gateway URL, e.g. `https://myhotel.example.com`

Chapter 10. Manage Deployments

Deploy bulk updates:

1. Firmware and configuration updates
2. Variable updates

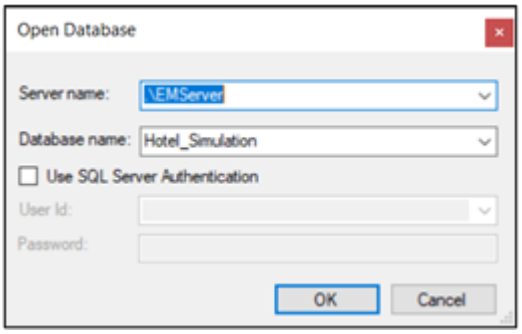
10.1. Bulk firmware and configuration updates

System Builder provides a **Manage Deployment** feature to update firmware and configuration data for different room profiles in the hotel.

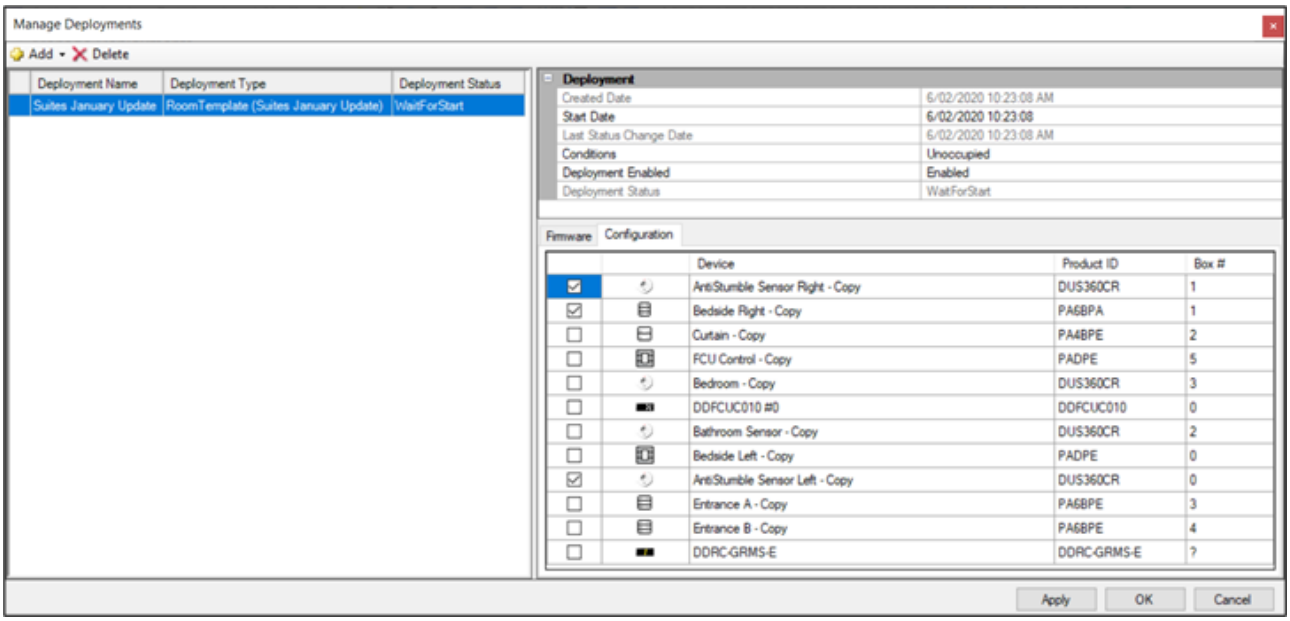
You can select the room profile and room devices that are to be updated, the room condition and the deployment time. Once the deployment is configured in System Builder and saved to the database then it is executed by the System Manager deployment engine according to the room mapping table.

Deploy Firmware and Configuration updates:

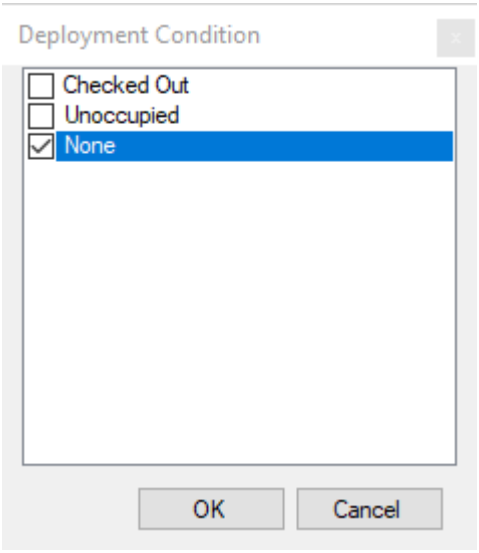
1. In System Builder, open the hotel database.



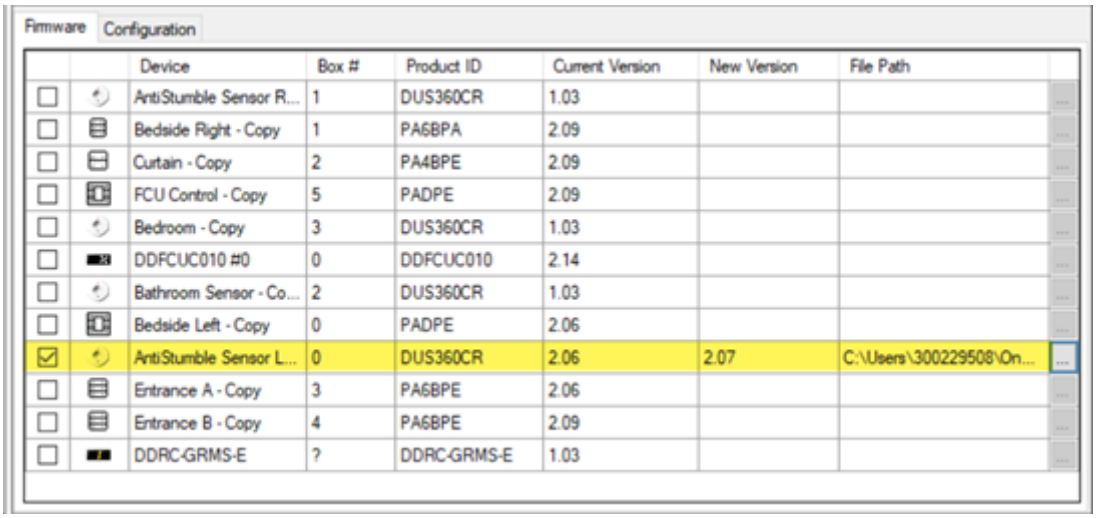
2. Select **File > Open Room Configurations > [the required room profile]**.
3. Make the configuration changes to the devices in the room profile.
4. Select **File > Open Room Configurations > Master** and click **Yes** to rebuild the Master job.
5. Select **File > Manage Deployment** to open the **Manage Deployments** window.
6. Click **Add Room Profile Deployment**.
7. Select a **Room Profile**, enter a **Deployment Name** and click **OK**.
8. Enter a start date and time or no changes if you want it to run immediately after saving.



9. Select the room conditions that must be present to deploy updates to the room (*Checked-Out*, *Unoccupied*, or *None*).



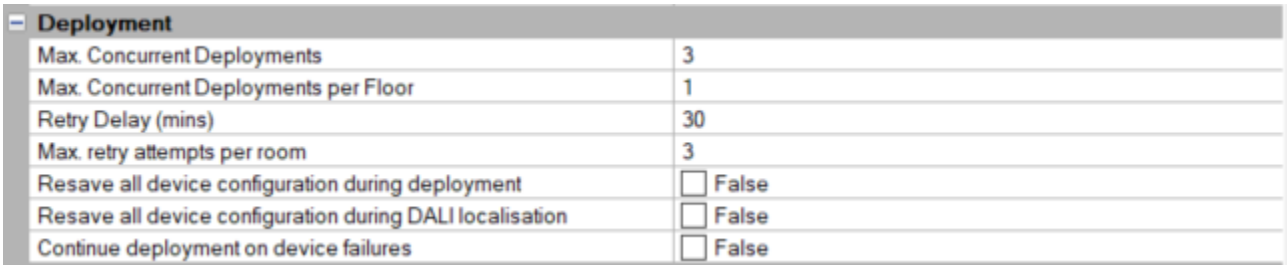
10. Select the **Deployment** as *enabled* or *disabled*. If *disabled*, then it will still be passed to the SM deployment engine and can be enabled at a future time in **SM Configuration > Site Settings > Deployments**.
11. Click the **Firmware** tab and select the devices that require a firmware update.
12. For each device, enter the path to the respective firmware file. To ensure a fast and reliable deployment, copy the firmware files to the server machine.



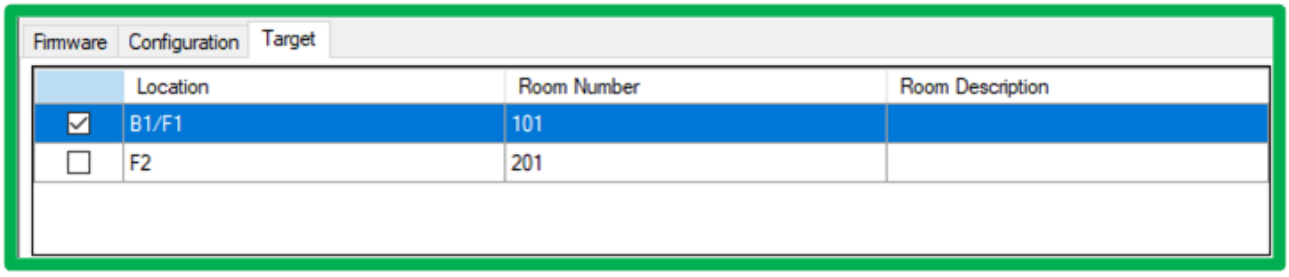
Do not use a copy on your laptop to do the update if you have a remote connection to the system as the deployment can take many hours.

Major firmware version numbers must match to successfully update the firmware (e.g. **1**.xx > **1**.xy, **2**.xx > **2**.yy, etc.)

13. Click the **Configuration** tab and select the devices to be updated. These must match the devices that you previously modified in the room configuration.

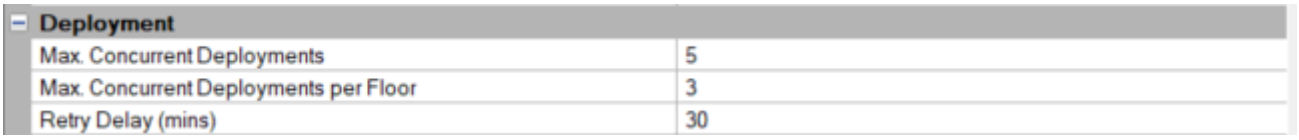


14. Click the **Target** tab and select the building and floors that you want to target for the deployment.



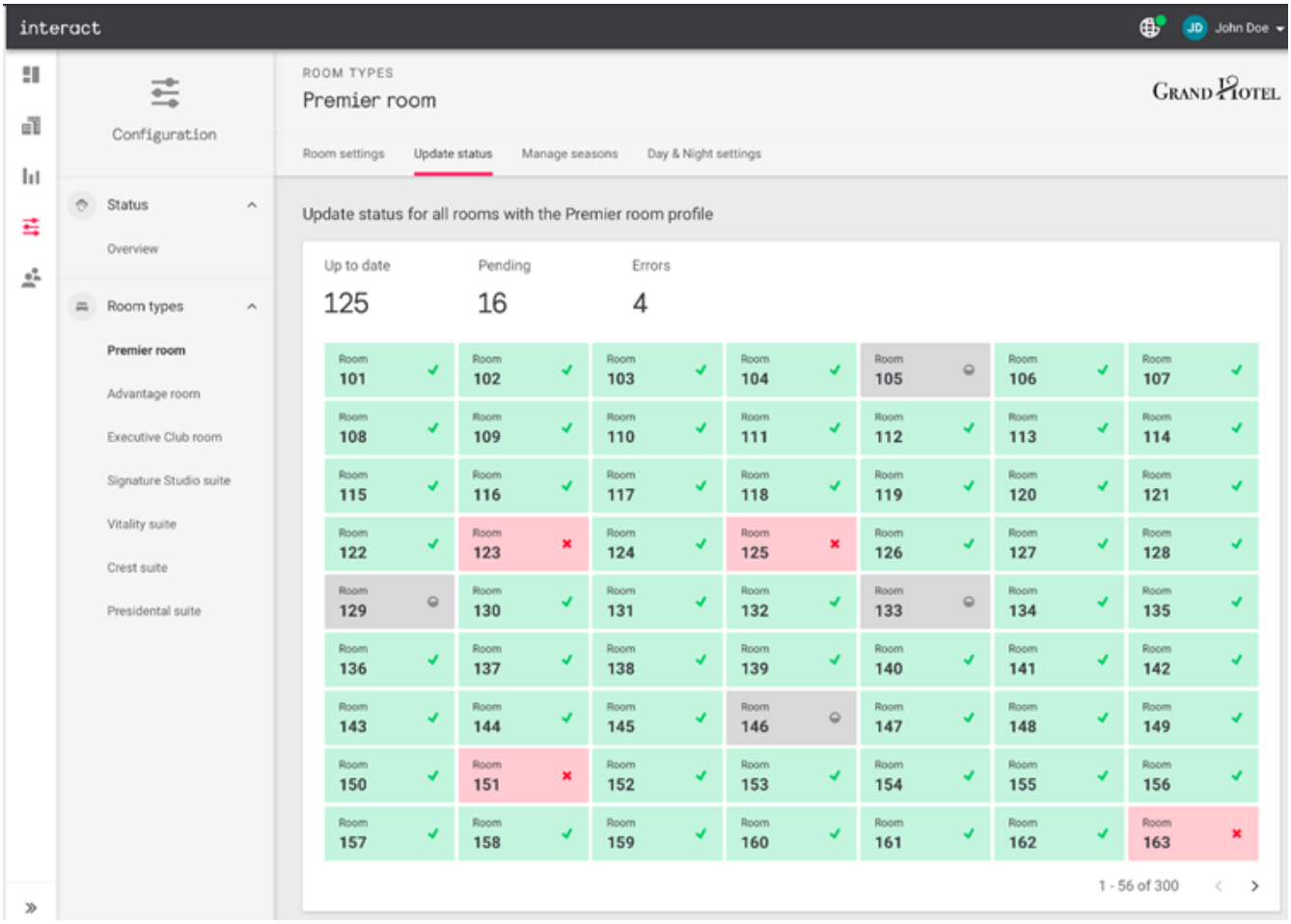
15. Click the **Apply** button to stay in the window or the OK button to close the window.
16. Click **File Save** to save the database.
    If the start date and time has passed and deployment is enabled, it will immediately start to deploy.

If some rooms fail to meet the specified room condition (*Checked-Out*, *Unoccupied*), then the deployment is retried every 30 minutes up to the retry limit. These properties are configurable in the **System Manager Configuration > Site Settings > System Settings > Deployment**.



Bulk firmware and configuration update progress can be monitored on the Dashboard **Configuration**

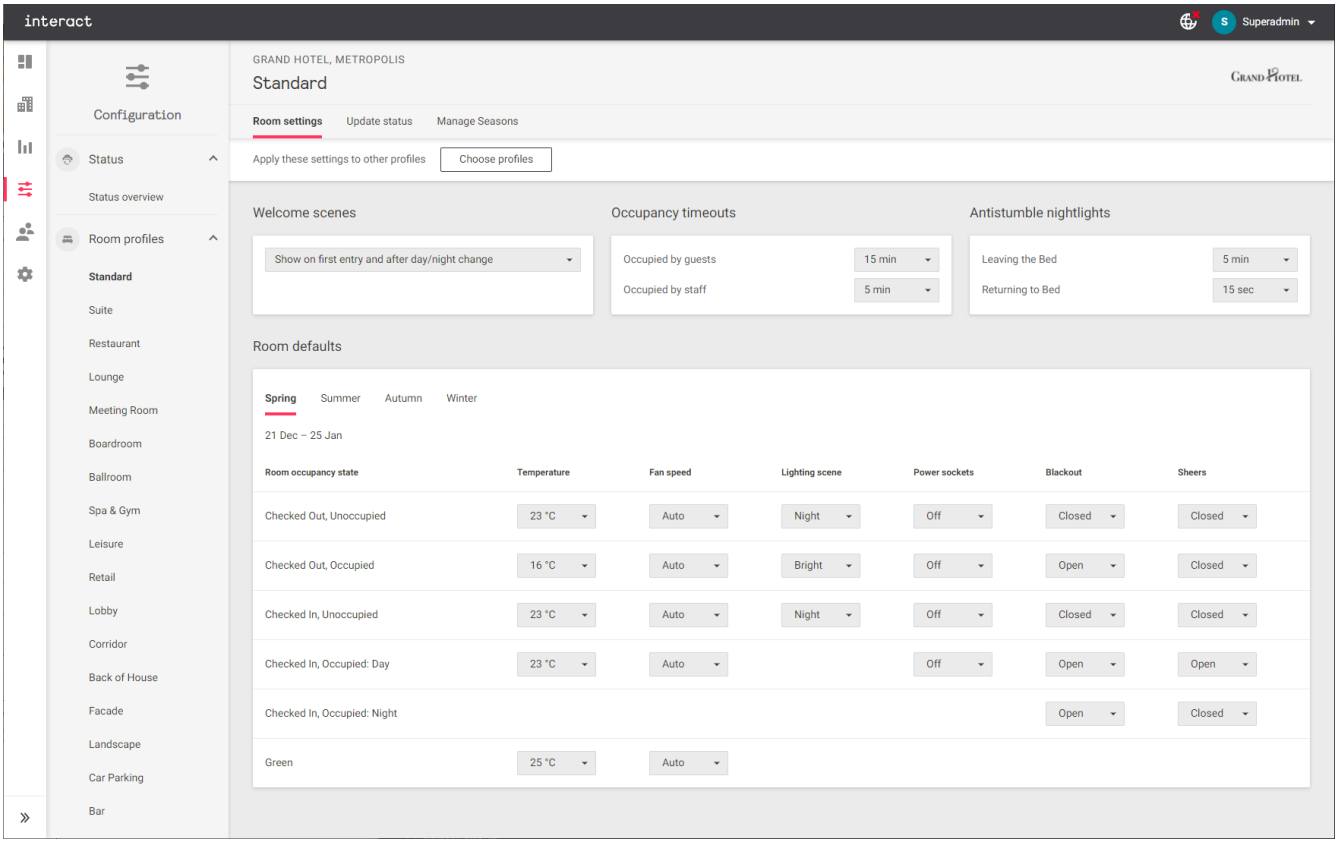
page.



10.2. Bulk Variable Updates

Bulk variable updates enable hotel staff adjust default settings for different room statuses. This can be deployed for each room profile across the entire hotel.

For more information, refer to /GIT/multiroom/build/multiroom/latest/index.html/multiroom/2.11/dashboard_guide/configuration/room_profiles.html[Multiroom Dashboard > Room & Suite Profiles].


interact
Superadmin
Configuration
Status
Status overview
Room profiles
Standard
Suite
Restaurant
Lounge
Meeting Room
Boardroom
Ballroom
Spa & Gym
Leisure
Retail
Lobby
Corridor
Back of House
Facade
Landscape
Car Parking
Bar
GRAND HOTEL, METROPOLIS
Standard
GRAND HOTEL
Room settings
Update status
Manage Seasons
Apply these settings to other profiles
Choose profiles
Welcome scenes
Show on first entry and after day/night change
Occupancy timeouts
Occupied by guests
15 min
Occupied by staff
5 min
Antistumble nightlights
Leaving the Bed
5 min
Returning to Bed
15 sec
Room defaults
Spring
Summer
Autumn
Winter
21 Dec – 25 Jan
Room occupancy state
Temperature
Fan speed
Lighting scene
Power sockets
Blackout
Sheers
Checked Out, Unoccupied
23 °C
Auto
Night
Off
Closed
Closed
Checked Out, Occupied
16 °C
Auto
Bright
Off
Open
Closed
Checked In, Unoccupied
23 °C
Auto
Night
Off
Closed
Closed
Checked In, Occupied: Day
23 °C
Auto
Off
Open
Open
Checked In, Occupied: Night
Open
Closed
Green
25 °C
Auto

Chapter 11. Integration

Integrate hotel systems:

1. PMS
2. HotSOS/REX
3. Saflok
4. VingCard
5. CoolAutomation
6. BMS

In-room integration provides power outlet management, AV control, HVAC control, blind control, and window/door status detection. In-room integration only requires configuration of the room control devices.

System integration extends outside of the room to third-party network systems and requires configuration in each relevant gateway device or in the System Manager central monitoring and management software.

Integration gateways are generally deployed on the backbone network, meaning they are installed and configured to operate across many rooms. The PDEG (Philips Dynalite Ethernet Gateway) or DDNG485 (RS-485 Gateway) can facilitate two-way communication for integrated site-wide intelligence.

System Manager has system-level integration options for the following third-party systems:

- **Property Management Systems** - Oracle Opera (ex. Fidelio) and Infor HMS
- **Access Control** - Saflok and VingCard
- **Central HVAC Control** - CoolAutomation
- **Building Management Systems** – BACnet

11.1. PMS integration

Our system provides two-way communication with a Property Management System (PMS) using the FIAS protocol (Fidelio Interface Application Specification). System Manager acts as a gateway between System Manager and the PMS.

By integrating with a PMS, we can dynamically adjust room conditioning based on the room's check-in status, conserving energy when the guest is checked out. We also synchronize room statuses such as DND/MUR and can send and receive wake-up requests. You can check the status of floor gateway connections and FIAS connections by clicking the  globe icon in the top right corner of the dashboard.

11.1.1. Supported Actions and Commands

Message Type	Oracle Opera	Infor HMS
Occupancy	• Dirty, Vacant • Dirty, Occupied • Clean, Vacant • Clean, Occupied • Inspected, Vacant • Inspected, Occupied	
Authorization	• Check-in • Check-out • Settlement	• Check-in • Check-out • Room move
Status	• Wake-up	• MUR

11.1.2. From PMS

Guest Check-In

- When a guest checks in, Opera notifies System Manager server so that the room conditions can be adjusted accordingly.
- This status has a native matching command in Opera, their reference `GI` under the group **Guest Data** with variable `RN` (*Room Number*).
- **Example command**: `GI|RN2760` (*Room #2760, Guest Check In*).

Guest Check-Out

- When a guest checks out, Opera notifies the System Manager server so that the room statuses can be reset, and conditions adjusted to conserve energy between stays.
- This status has a native matching command in Opera, their reference `GO` under the group **Guest Data** with variable `RN` *(Room Number*).
- **Example command**: `GO|RN2760` (*Room #2760, Guest Check Out*).

11.1.3. To PMS

Do Not Disturb/Privacy

- When the guest activates the DND status, either manually or through a linked scene (sleep-scene etc.), the status is synchronized with the Interact Multiroom Dashboard and sent to Opera.
- This status has a native matching command in Opera, their reference `DN` under the group **Room Data** with variables of `Y` (*Yes Active*) or `N`, (*Not Active*).
- **Example command**: `RE|RN2760|DNY|` (*Room #2760, activate DND*).
- If required, DND can also be mapped to the `RS` field.

Make Up Room

- When the guest activates the MUR status, it is synchronized with the Multiroom Dashboard and sent to Opera.

- This status has a native matching command in Opera, their reference RS under the group **Room Data** with a variable of 1-6. Our system is mapped to the variables 2(*Dirty/Occupied*) and 4 (*Clean/Occupied*) as the *Active* and *Not Active* states. We can also map the variables to other values as required by the hotel to match individual Opera configurations.
- **Example command**: RE|RN2760|RS2| (*Room #2760, activate MUR as 'Dirty/Occupied'*).

11.1.4. FIAS

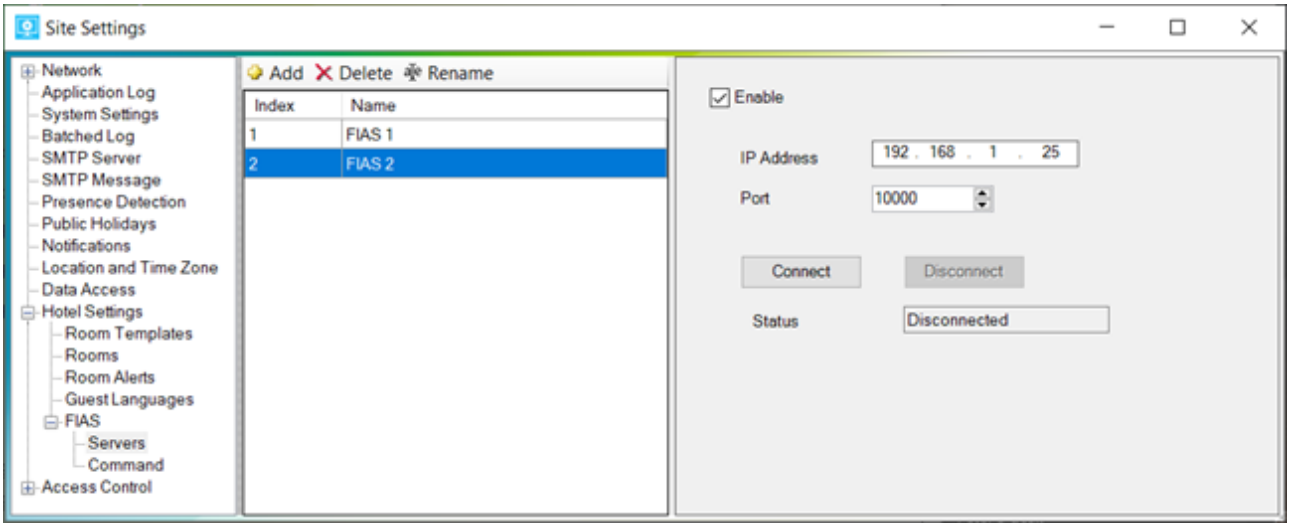
The PMS identifies rooms with a room number whereas SM identifies rooms with an area number. To map the data between the two systems requires a room mapping table. This is created in SB under **File > Manage Room Profiles**. System Manager can integrate with more than one FIAS system at a time. However, in SB the FIAS server can only be set to default. The FIAS server must be configured in SM.

Configure FIAS server:

1. Open **System Manager Configuration**.
2. Click **Site Settings > Hotel Settings > FIAS > Servers**.

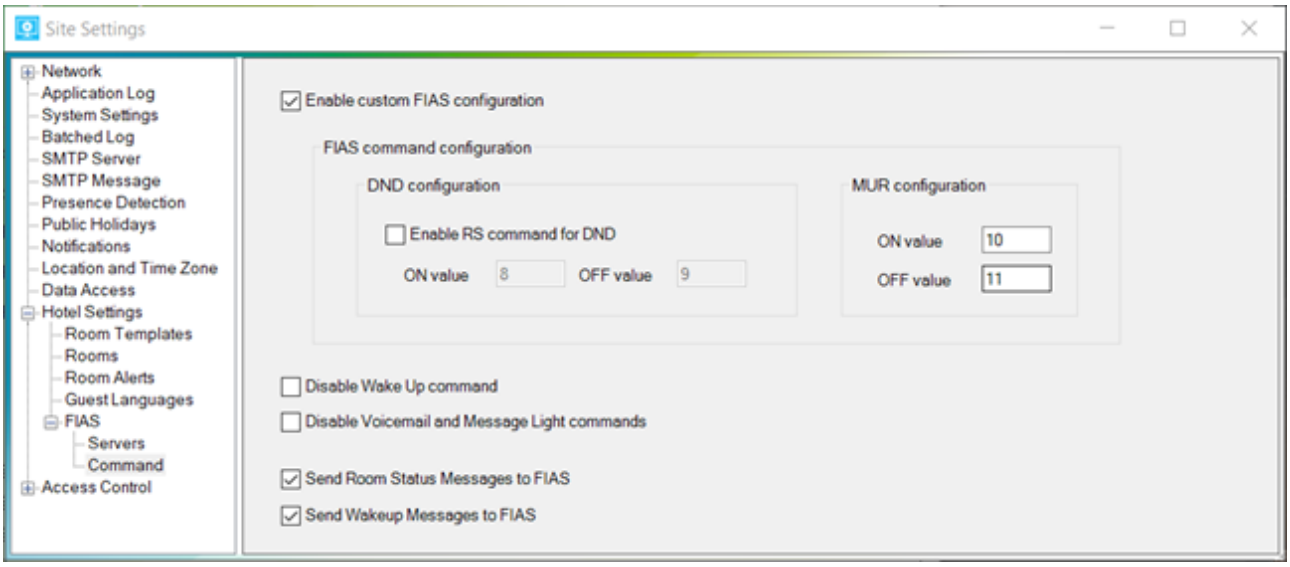
> To create a secure FIAS connection, generate a certificate on the Oracle Fidelio server (use the IP address of the Fidelio server). In the Local Root certification path check the Certificate and the IP address. Export the certificate and place the certificate in the SM server Trusted Root Certificates store.

3. Click **Add** for each FIAS Server and enter the IP Address and Port number.
   You can also **Delete** and **Rename** the FIAS Server.
4. Restart the Fidelio server and click the **Connect** and **Disconnect** buttons to test the connection.

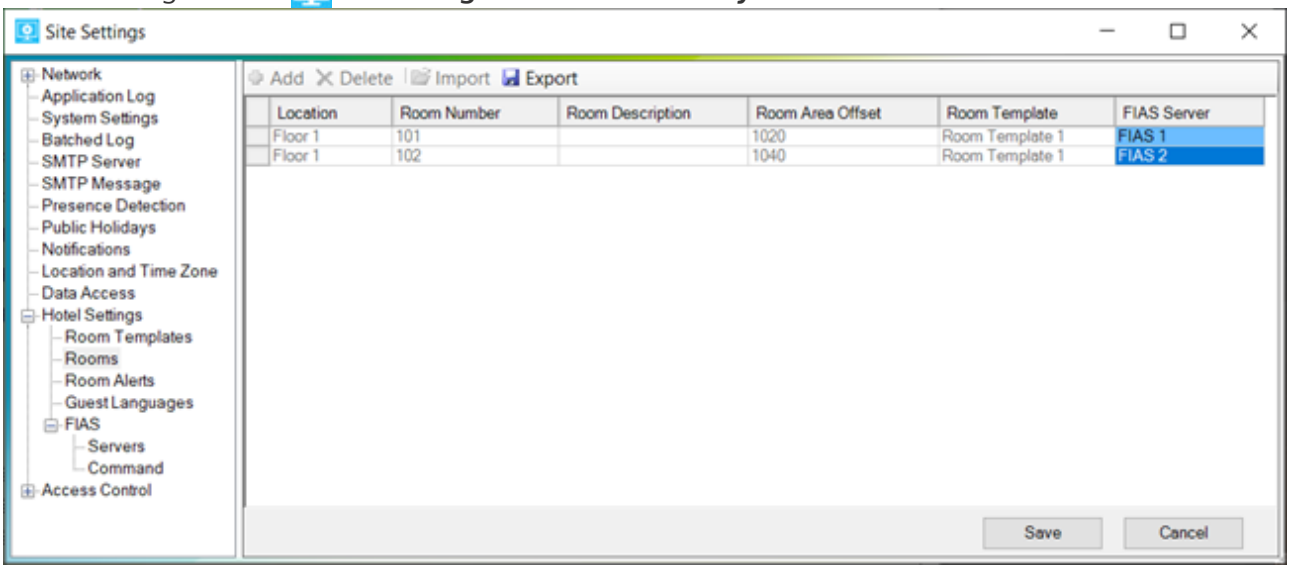


5. Click **Site Settings > Hotel Settings > FIAS > Command**.
6. If applicable, select the following checkboxes:

   - **Enable custom FIAS configuration** - Enter the **DND/MUR > ON/OFF value** as required.
   - **Enable RS command for DND**
   - **Disable Wake Up command**
   - **Disable Voicemail and Message Light commands**
   - **Send Room Status Messages to FIAS**
   - **Send Wakeup Messages to FIAS**



7. Click **Site Settings > Hotel Settings > Rooms**.
8. For each room, click the dropdown list in the **FIAS Server** column and select the appropriate FIAS server.
9. Click the **Save** button.
10. Send test commands from the Fidelio server and observe the changes on the dashboard. You can check messages in the **SM Configuration > Monitor System** window.



DyNet has specific opcodes to enable the lighting control system to communicate over FIAS. System Manager passes the following messages:

Opcode	DyNet Function
4C	Set Hotel Room Information
4D	Request Hotel Room Information
4E	Reply/Report Hotel Room Information

In any Fidelio record, Room Number RN is an alphanumeric string up to 8 characters in length.

Refer to *DyNet public opcodes* or *DyNet2 opcodes* spreadsheet for specific packet

details.

The following Infor Communications commands are **not** supported:

- `DR Message Received`
- `Data Swap Sync Completed`
- `DS Message Sent`
- `GI/GO Messages Sent`
- `DE Message Sent`

The following Infor Guest Data commands are **not** supported:

- Names using special code page
- `Set No Post Flag in HMS  NPY`

PMS translation table

DyNet Sub-OpCode and function	Message direction	Fidelio record
00 Do Not Disturb	DyNet ← Fidelio	**RE** `RN` = *Room number* `DNY` = *Set Do Not Disturb* `DNN` = *Clear Do Not Disturb* (Unused. Translated by SM to Room Maid Status command.)
01 Make Up Room	DyNet → Fidelio	**RE** `RN` = *Room number* `RS1` = *Set MUR (Dirty/Vacant)* `RS4` = *Clear MUR (Clean/Occupied)*
02 Laundry Pickup Request	DyNet ← Fidelio	**GI** `RN` = *Room number* `A1Y` = *Set Laundry Pickup* `A1N` = *Clear Laundry Pickup* (Unused. Translated by SM to Room Maid Status command.)
03 Message Light Status	DyNet ← Fidelio	**RE** `RN` = *Room number* `MLY` = *Set message light* `MLN` = *Clear message light*
04 Voice Mail	DyNet → Fidelio	**RE** `RN` = *Room number* `VMY` = *Set Voicemail* `VMN` = *Clear Voicemail*

DyNet Sub-OpCode and function	Message direction	Fidelio record
05 Room Service Pickup Request	DyNet ← Fidelio	**GI** RN = *Room number* A2Y = *Set Room Service Pickup* A2N = *Clear Room Service Pickup* (Unused. Translated by SM to Room Maid Status command.)
06 – 19 Reserved		
20 Room Maid Status	DyNet → Fidelio	**RE** RN = *Room number* RS1 = *Dirty/Vacant* RS2 = *Dirty/Occupied* RS3 = *Clean/Vacant* RS4 = *Clean/Occupied* RS5 = *Inspected/Vacant* RS6 = *Inspected/Occupied* Custom according to FIAS command configuration for DND, MUR.
21 Room Alarm/Notification		Not Applicable
22 Room Wakeup Request (set wakeup alarm)	DyNet ←→ Fidelio	**WR** RN = *Room number* DA = *YYMMDD* TI = *HHMMSS* For **Fidelio → DyNet**, both date and time must be specified and valid. For **DyNet → Fidelio**, time must be specified and valid, but date is optional. If year, month, and day are all 0xFF in the DyNet packet then SM will guess the correct date up to 24 hours ahead.
23 Room Wakeup Answer	DyNet → Fidelio	**WA** RN = *Room number* DA = *YYMMDD* TI = *HHMMSS* **Fidelio Answer status:** ASOK = *0 (Success)* ASBY = *1 (Busy)* ASUR = *2 (Unprocessable request)* The DyNet message is sent from the device after the alarm has been actioned and the guest has been woken. It allows Fidelio to know that the guest has woken.

DyNet Sub-OpCode and function	Message direction	Fidelio record
24 Room Wakeup Clear (clear specific or clear all alarms)	DyNet ←→ Fidelio	**WC** `RN` = *Room number* `DA` = *YYMMDD* `TI` = *HHMMSS* **To clear a specific wakeup alarm:** For **Fidelio → DyNet**, both date and time must be specified and valid. For **DyNet → Fidelio**, time must be specified and valid, but date is optional. If year, month, and day are all `0xFF` in the DyNet packet then SM will guess the correct date up to 24 hours ahead. **To clear all wakeup alarms:** For **Fidelio → DyNet**, date and time fields must exist but have no data. e.g. `WC|RN1043|DA|TI|` For **DyNet → Fidelio**, date and time in DyNet message must have year, month, day, hour, minute, second all set to `0xFF`.
25-39 Reserved		
40 Key Card Inserted		Not Applicable
41 Key Card Removed		Not Applicable
42 Guest Check In	DyNet ← Fidelio	**GI** `RN` = *Room number* Only the room number RN field is decoded. All other fields are ignored by SM.
43 Guest Check Out	DyNet ← Fidelio	**GO** `RN` = *Room number* Only the room number RN field is decoded. All other fields are ignored by SM.
Guest Info Change (Room Move) *Not currently supported*	DyNet ← Fidelio	**GC** `RN` = *Room number* Only the room number `RN`, `RO`, and both `GS` fields are decoded. Other fields are ignored by SM. This record is translated into two separate DyNet messages - a check-out from the old room followed by a check-in to the new room.
44-FF Reserved		

11.2. HotSOS/REX integration

Amadeus HotSOS/REX is a popular hotel operations software application that supports housekeeping, laundry, facilities, and other guest service teams. Integrating with Amadeus HotSOS/REX enables

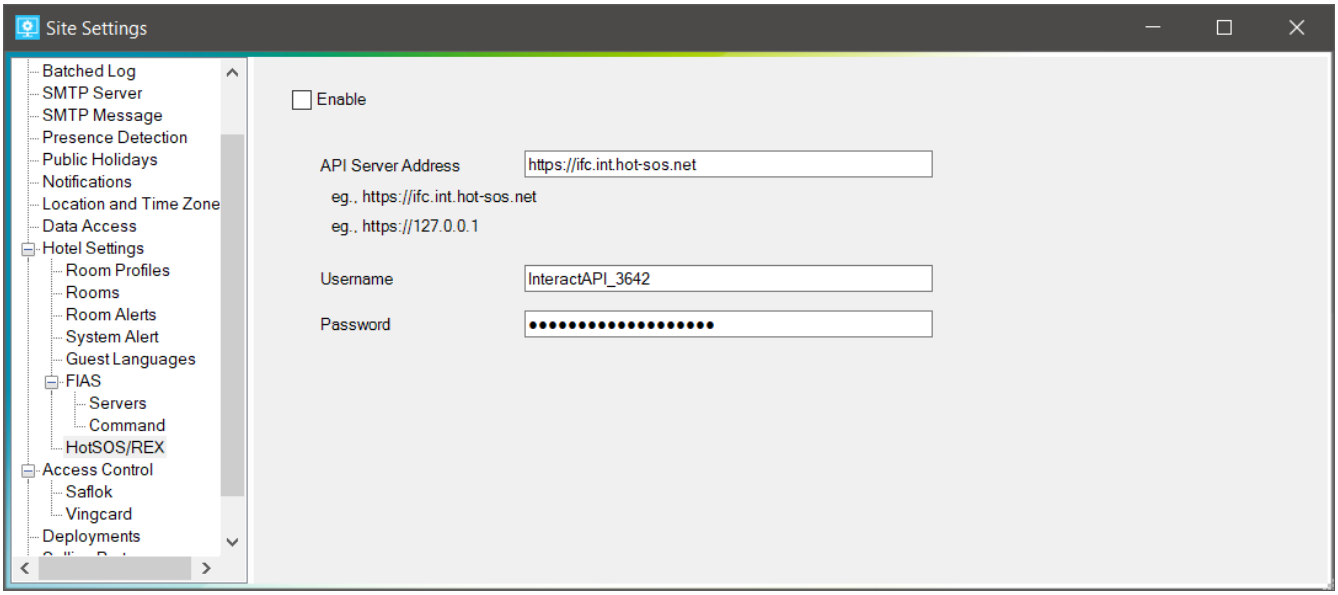
Interact to push certain room statuses and alerts into the hotel operations system to help staff deliver guest services.

Interact synchronizes the following room statuses with the HOTSOS server:

Interact	HOTSOS/REX
Privacy (Do Not Disturb)	DND Make Up Room
MakeUp Real-time Occupancy	GuestInRoom

Set up HOTSOS/REX integration:

1. Open **Site Settings > System Settings > Hotel Settings > HotSOS/REX**.
2. Enter the HotSOS **API Server Address**.
3. Enter a **Username** and **Password**.
4. Select the **Enable** checkbox to start sharing status messages.



The HotSOS specification requires numeric room names. Events in SM for rooms with non-numeric names are not sent to the HotSOS server.

Room states are monitored after the room linking logic, so updates sent to HotSOS include room linking.

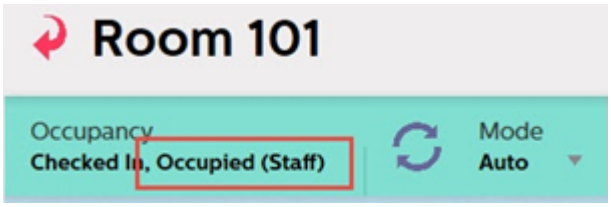
Errors, warnings, and info are logged to the SM log. If the HotSOS server certificate is invalid or not trusted by the SM machine, it can be seen in the **Detail** column. If you see errors, you need to install the HotSOS public certificate into the Windows Trusted Certificate Store.

11.3. Saflok integration

Saflok integration enables room access control and monitoring. You must select the checkbox for **Access Control > Saflok** when installing System Manager. Selecting Saflok provides an additional IIS Server web service site. Ensure the enabled authentication configuration for the *Philips Dynalite Saflok* site in IIS matches the authentication provided by the Saflok server. Saflok is a client of Interact.

Saflok reports on the following door events:

OpCode	Sub-OpCode	Command
4C	**80**	Door Guest Entrance
4C	**81**	Door Staff Entrance
4C	**82**	Door Inside Open (Generic egress)
4C	**83**	Door Deadbolt Thrown
4C	**84**	Door Deadbolt Released
4C	**85**	Door Closed

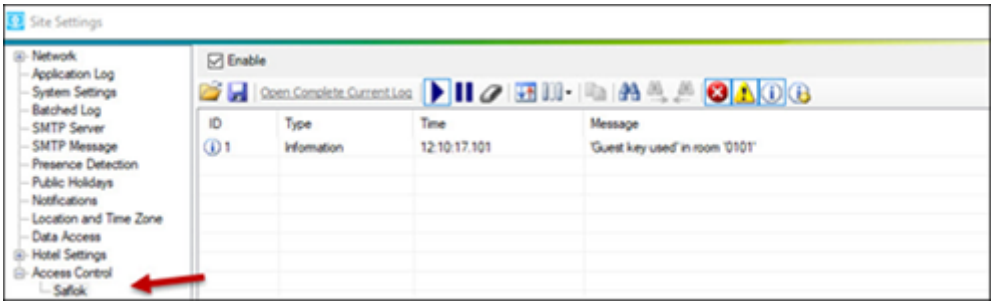


A **Door Guest/Staff Entrance** message needs to be followed up with an **Occupancy** message from the room so that the room tile will change to *Occupied (Guest)* or *Occupied (Staff)*.

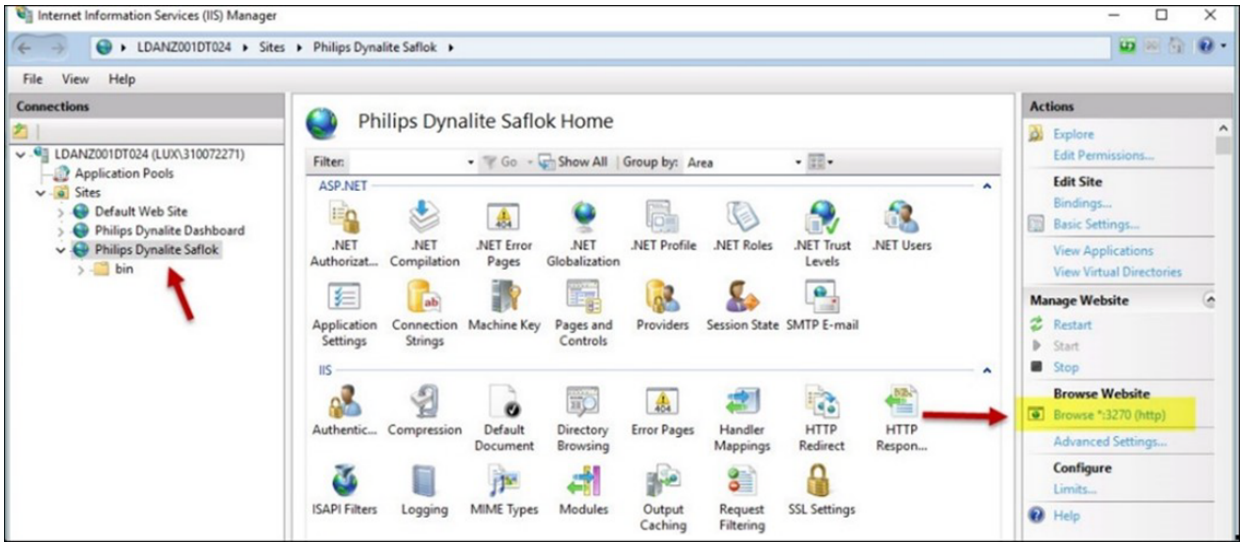
On the Multiroom Dashboard **Room View** page, access control events are shown in the **Event Timeline** and the occupancy status is shown in the room status bar.

Set up Saflok integration:

1. Open **Site Settings > System Settings > Hotel Settings > Saflok** and set the **Entrance door events based on door open and closed messages** checkbox to *False*.
2. Open **Site Settings > Access Control > Saflok**. This page shows a monitor window to display access control events.



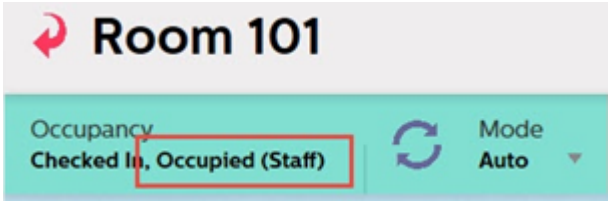
3. Select the **Enable** checkbox.
4. For the Saflok server, configure the subscription URL in the HOTEL LENS application using the following format: `\http://[hostname]:[port]/api/EventNotification`
   - **[hostname]** = IP address of the SM server.
   - **[port]** = *3270*
   - **Webservice** = *REST Protocol*.



11.4. VingCard integration

VingCard integration enables room access control and monitoring. Interact is a client of VingCard. SM makes long poll HTTP(S) API calls to the ASSA ABLOY (Visionline) server and VingCard reports on the following door events:

OpCode	Sub OpCode	Command
4C	**80**	Door Guest Entrance
4C	**81**	Door Staff Entrance
4C	**82**	Door Inside Open (Generic egress)
4C	**83**	Door Deadbolt Thrown
4C	**84**	Door Deadbolt Released
4C	**85**	Door Closed

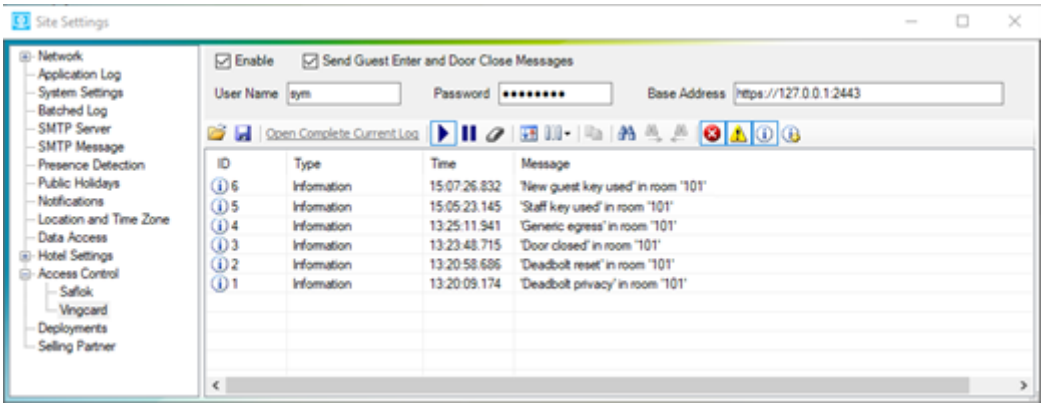


A **Door Guest/Staff Entrance** message needs to be followed up with an Occupancy message from the room so that the room tile will change to *Occupied (Guest)* or *Occupied (Staff)*.

On the Multiroom Dashboard **Room View** page, access control events are shown in the **Event Timeline** and the occupancy status is shown in the room status bar.

Set up VingCard integration:

1. Open **Site Settings > System Settings > Hotel Settings > VingCard** and set the **Entrance door events based on door open and closed messages** checkbox to *False*.
2. Open **Site Settings > Access Control > VingCard**. This page shows a monitor window to display access control events.



3. Select the **Enable** checkbox.
4. Select the **Send Guest Enter and Door Close Messages** checkbox ONLY if there are no door switches on the entrance doors.

The room controller sends **Door Guest Entrance** and **Door Closed** DyNet messages when the door switch detects the door open/closed. With VingCard integration these events are also sent out from SM when notified by VingCard. To prevent this issue, **Send Guest Enter and Door Close Message** is disabled by default. Only if a hotel does not install door switches on hotel room doors and has VingCard integration would this setting be enabled. **Staff Guest Entrance** is always sent out with VingCard integration.

5. Enter the following information to connect SM to the VingCard server:
   - **Username**
   - **Password** (encrypted by the application)
   - **Base Address** and **Port number**
6. Install the Visionline software and log in to Visionline using the default System Manager credentials "*sym*" and "*sym*". Ensure the ASSA ABLOY consultant maps the doors to the hotel room numbers, i.e. **View > Doors**.

11.4.1. Changing VingCard port number

VingCard recommends installing the server on a separate machine. In that case, there should be no need to change the port number.

When installed on the SM Server machine, the default VingCard port number 443 conflicts with the Dashboard, which uses the same port number 443. You must change the VingCard server to a different port number such as 2445.

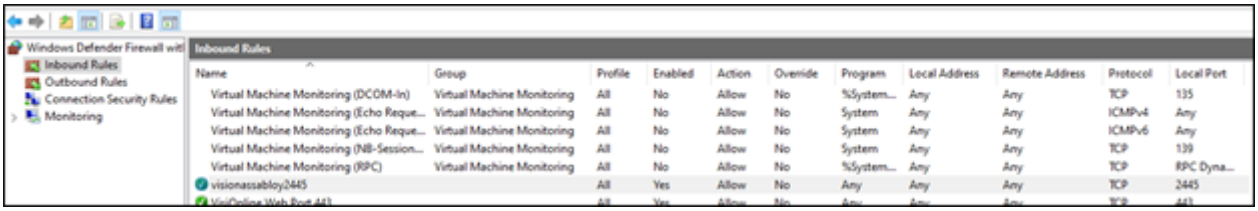
Change VingCard server port number:

1. Open the following file in a text editor:
   `C:\ProgramData\ASSA ABLOY\Visionline\webserver\tomcat\conf\server.xml`
2. On line **98**, change `443` to another port number such as `2445`

```
clientAuth="false" sslProtocol="TLS" />
-->

<!--
      The list of allowed ciphers is based on the Mozilla Server Side TLS guide:
            https://wiki.mozilla.org/Security/Server_Side_TLS
-->
<Connector port="443" protocol="org.apache.coyote.http11.Http11Protocol" SSLEnabled="true"
           maxThreads="150" scheme="https" secure="true"
           keystoreFile="${catalina.base}/conf/keystore"
           keystorePass="secret" clientAuth="false"
           sslProtocol="TLS" sslEnabledProtocols="TLSv1.2,TLSv1.1,TLSv1"
           ciphers="TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256,
                    TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256
                    TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256,
```

3. Add a firewall rule to allow messages from this port number.



4. Restart the server machine after editing the file to load the configuration changes.

11.4.2. Establishing a secure connection to VingCard

For System Manager to trust the VingCard server, it must have a valid TLS certificate and the SM Server machine must have the certificate imported into its certificate store. This can be done with either a self-signed certificate (described below) or with a CA certificate. The VingCard server comes by default with a self-signed certificate, but it is recommended to replace that with one generated specifically for the site.

If VingCard is already installed in the hotel by a VingCard professional, then it may already be set up with a valid SSL certificate and that certificate would already be trusted by Windows. In this case you only need to complete the final two testing steps below.

Install VingCard server TLS certificate:

1. Install VingCard server.
2. Create a java keystore for the server to access.
   VingCard installation comes with its own copy of java's keytool.
   - Open `cmd.exe` and run the command
     `cd C:\ProgramData\ASSA ABLOY\Visionline\webserver\jre\bin`
   - Run the command below (set your own values for the items in **bold**):

     ```
     keytool -genkey -keyalg RSA -alias mykeyalias -keystore keystoreIAH.jks -storepass
     strongpassword -validity 7300 -keysize 2048 -dname "CN=172.27.89.23" -ext
     "SAN=IP:172.27.89.23,IP:127.0.0.1"
     ```

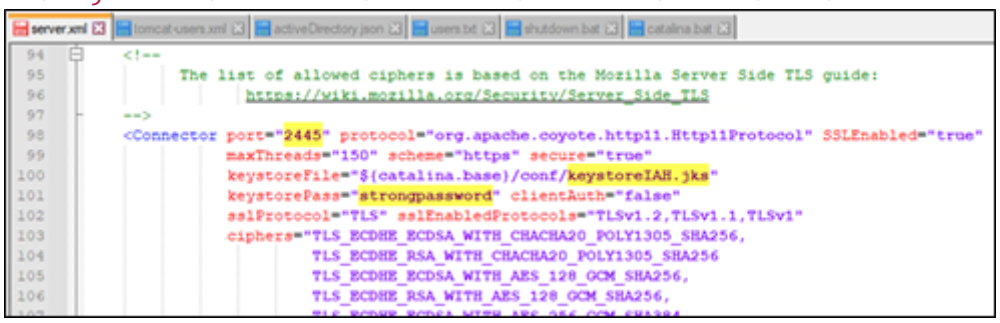
   - Press **Enter** to accept key password is same as keystore password.
   - If your VingCard server is on the same machine as SM, then you only need one subject alternative name. Change the last part to `-ext "SAN=IP:127.0.0.1`.
3. Export certificate from the keystore.

- Run the command below (set your own values for the items in **bold** to match the values used in the previous step):

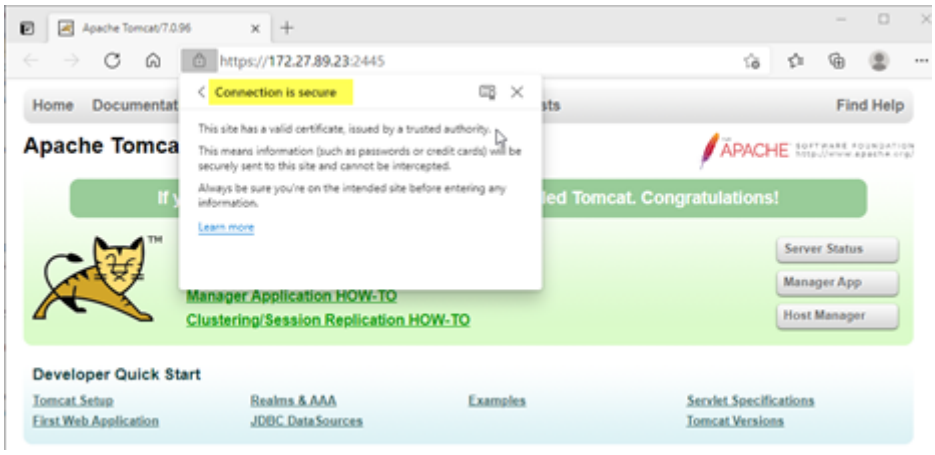
```
keytool -export -alias mykeyalias -keystore keystoreIAH.jks -rfc -file X509_certificate.cer
```

- You will be prompted for the keystore password.

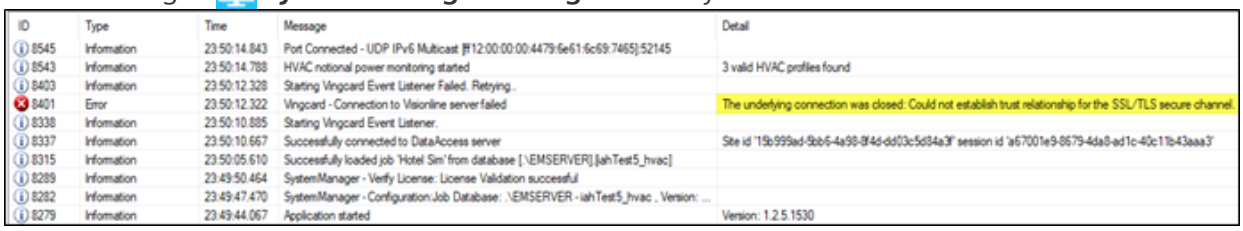
4. Set up Apache Tomcat to use the new keystore.
   - Copy **keystoreIAH.jks** to `C:\ProgramData\ASSA ABLOY\Visionline\webserver\tomcat\conf\`
   - Edit the highlighted items in this file: `C:\ProgramData\ASSA ABLOY\Visionline\webserver\tomcat\conf\server.xml`



5. Import the certificate to Windows certificate store.
   (We recommend doing the remaining steps on the VingCard machine first, as a test.)
   - Copy the file **X509_certificate.cer** to the SM Server machine.
   - Double-click the certificate in Windows Explorer (if prompted, choose to open with **Crypto Shell Extensions**).
   - Click **Install Certificate…**
   - Select **Store Location** = *Local Machine* (you need admin rights for this) and click **Next**.
   - Select **Place all certificates in the following store** = *Trusted Root Certification Authorities* and click **Next** and **Finish**.
6. Restart the VingCard machine to load Tomcat configuration changes.
7. Test in a browser.
   - Point a browser to the VingCard server IP address (e.g. `https://172.27.89.23:2445`).
     Use Chrome or Edge for this step, as Firefox has its own certificate store.
   - Make sure the IP/port is not blocked by the firewall. You should see the Tomcat server homepage with a valid secure connection.



8. Check that SM is connected to the VingCard server.
   - You may need to restart SM Server to confirm the changes to the certificate store.
   - Check the log in **System Manager Configuration** - you should **not** see this error.



ID	Type	Time	Message	Detail
8545	Information	23:50:14.843	Port Connected - UDP IPv6 Multicast [ff12:00:00:00:4479:6e61:6c69:7465]:52145	
8543	Information	23:50:14.788	HVAC notional power monitoring started	3 valid HVAC profiles found
8403	Information	23:50:12.328	Starting Vingcard Event Listener Failed. Retrying..	
8401	Error	23:50:12.322	Vingcard - Connection to Visionline server failed	The underlying connection was closed: Could not establish trust relationship for the SSL/TLS secure channel.
8338	Information	23:50:10.885	Starting Vingcard Event Listener.	
8337	Information	23:50:10.667	Successfully connected to DataAccess server	Site id '15b999ad-9bb6-4a98-8f4d-dd03c5d84a3f' session id 'a67001e9-8679-4da8-ad1c-40c11b43aaa3'
8315	Information	23:50:05.610	Successfully loaded job 'Hotel Sim' from database [.\EMSERVER].[iahTest5_hvac]	
8289	Information	23:49:50.464	SystemManager - Verify License: License Validation successful	
8282	Information	23:49:47.470	SystemManager - Configuration Job Database: .\EMSERVER - iahTest5_hvac , Version: ...	
8279	Information	23:49:44.067	Application started	Version: 1.2.5.1530

11.5. CoolAutomation Integration

Integration with the CoolAutomation HVAC control system enables centralized and in-room HVAC control and monitoring. Integration is performed with a CoolMasterNet bridge in combination with dedicated HVAC Ethernet gateways and AntumbraDisplay user interfaces.

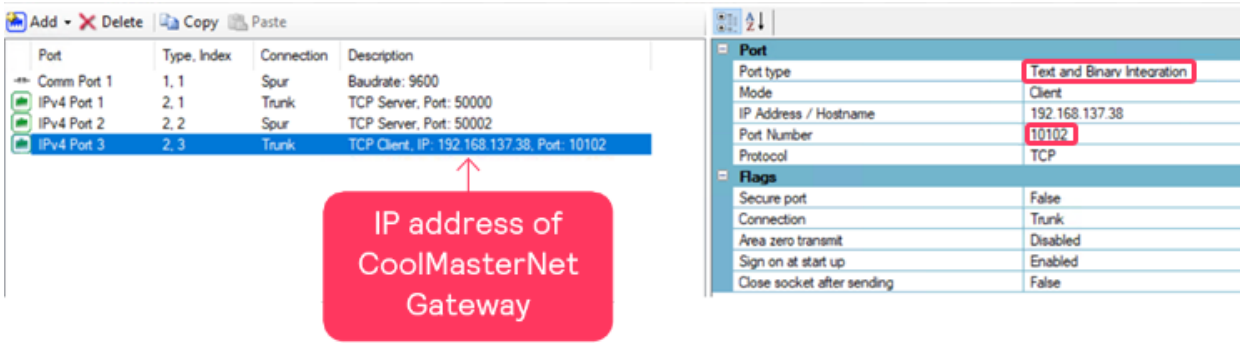
One CoolMasterNet gateway can support up to 6 simultaneous TCP connections. If there are more than six Ethernet gateways to be connected, add more CoolMasterNet gateways or consult with a CoolMaster technician to overcome this limitation.

Only one-way communication is possible in the current CoolMaster task template. Any changes made to HVAC settings outside of the AntumbraDisplay will not be updated in the panel.

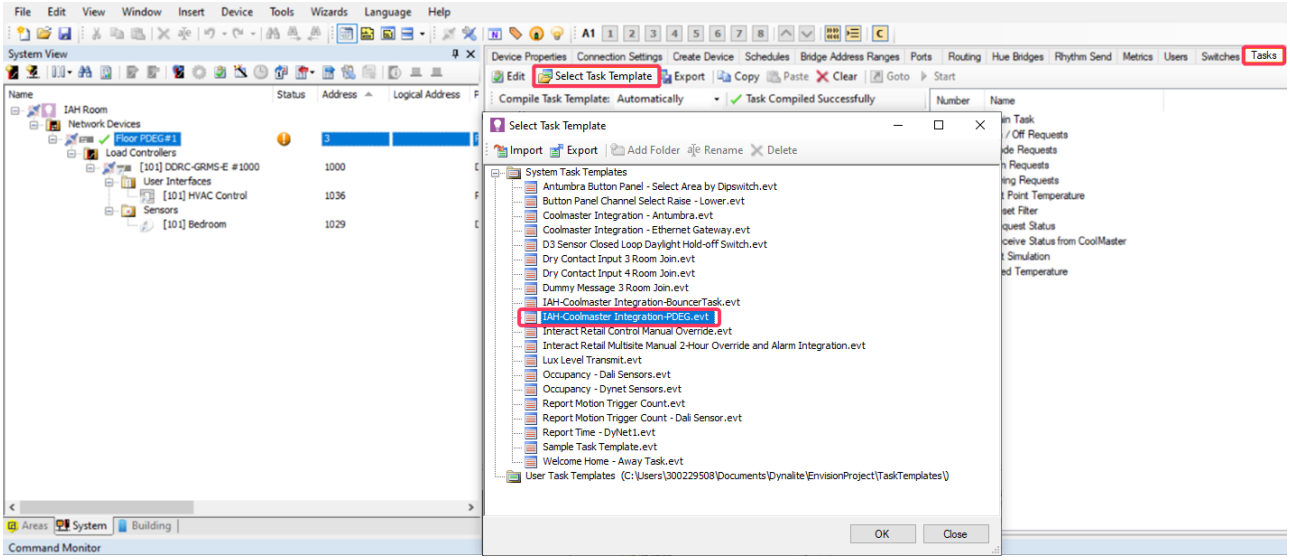
The task template can work in both PDDEG-S and PDEG Ethernet gateways.

Configure a floor gateway port for CoolMasterNet gateway integration:

1. In the PDDEG-S/PDEG **Ports** Editor, click **Add > IPv4 port** and select the following:
   - **Port type**: *Text and Binary Integration*
   - **Mode**: *Client*
   - **IP Address**: The supplied address for the CoolMasterNet gateway.
   - **Port Number**: Unless specified otherwise, *10102* is the CoolMasterNet gateway default.
   - **Protocol**: *TCP*



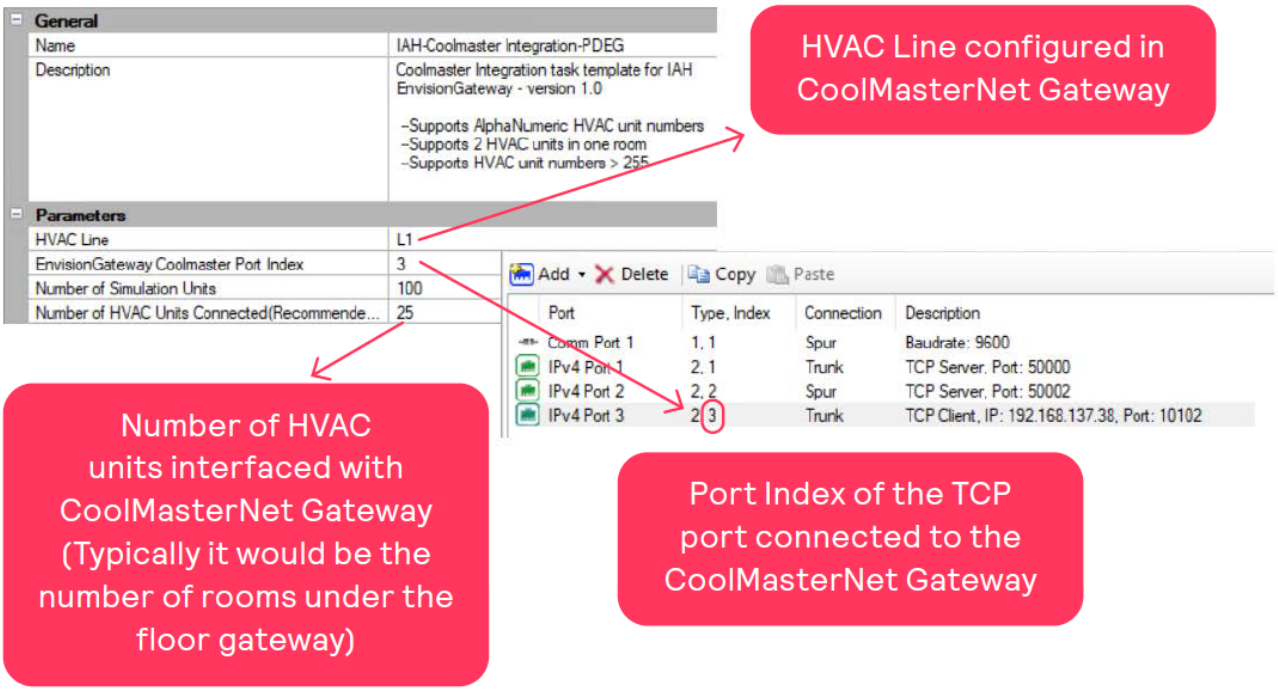
2. Open the master job file and select a floor gateway. Then in the **Tasks** Editor click **Select Task Template** and choose *IAH-Coolmaster Integration-PDEG.evt*.



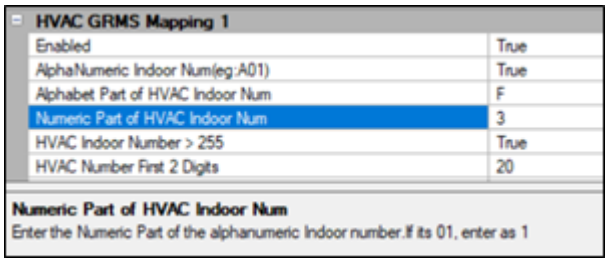
IAH-CoolMaster task templates are available in System Builder from STR/Multiroom v2.3 (System Builder v3.31.8) onwards.

Ensure that you choose the correct IAH-specific task template, **not** the Coolmaster task template for Dynalite projects.

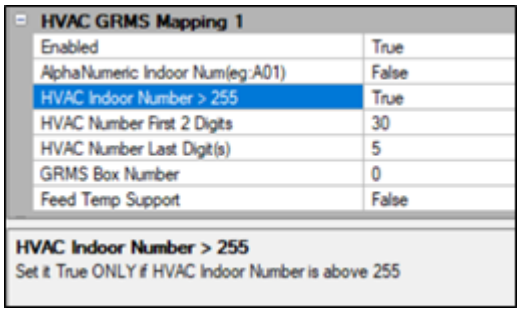
3. In the task template, under **Parameters**, enter the **HVAC Line** configured in the CoolMasterNet gateway, **Port Index** of the TCP port created in the PDDEG-S/PDEG that is connected to the CoolMasterNet gateway, and the **Number of HVAC Units** mapped for integration.



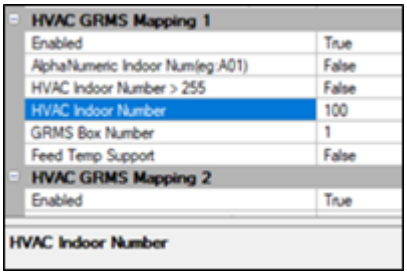
4. In the **HVAC GRMS Mapping [unit number]** section, enter the following details:
   - **Enabled**: *True* - enables mapping and opens the related configuration settings.
   - **AlphaNumeric Indoor Num**:
     - *False* if HVAC unit number is only numeric.
     - *True* if HVAC unit number is alphanumeric (e.g A01, F04, etc.), enabling two new properties:
       - **Alphabet Part of HVAC Indoor Num**
       - **Numeric Part of HVAC Indoor Num**
       - e.g. if the unit is *F03*, enter *F* and *3* in the respective fields. *0* does not have to be specified.



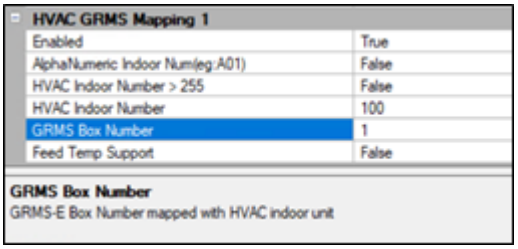
5. Set **HVAC Indoor Number > 255** to:
   - *False* if HVAC unit number is below 255.
   - *True* if HVAC unit number is above 255 (2 bytes), e.g. 301, 505, 515 etc.
     As the task can only handle 1-byte values for processing, numbers over 255 must be split and entered as **First 2 Digits** and **Last digit(s)** (everything after the first two digits).



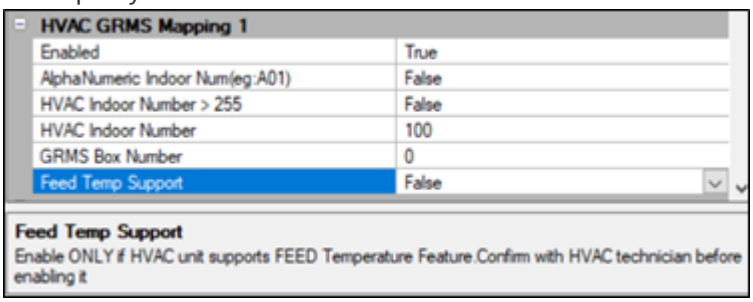
6. **HVAC Indoor Number**: If the HVAC Indoor number is not alphanumeric and the value is below 255, enter the value directly in this text field.



7. **GRMS Box Number**: Each HVAC unit will be mapped to the corresponding room via the GRMS box number. Enter the GRMS box number for the room that is connected to the HVAC unit number mentioned in the previous steps.

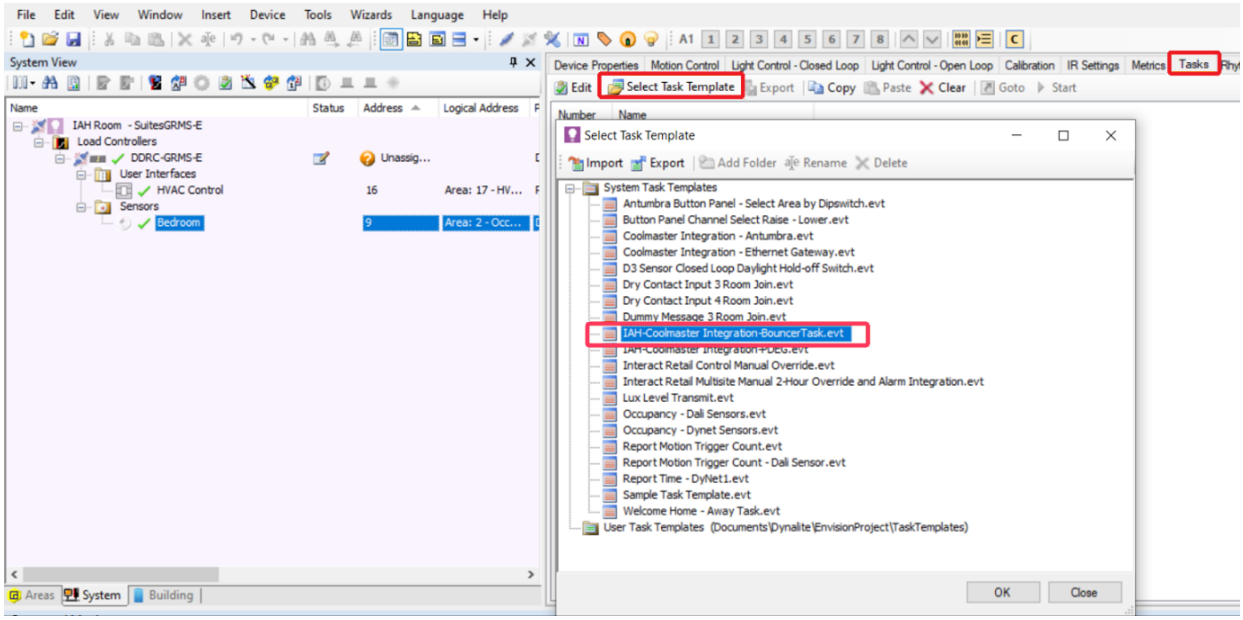


8. **Feed Temp Support**: *True* ONLY if the HVAC unit supports and uses the temperature recorded by third-party sensors such as Antumbra.

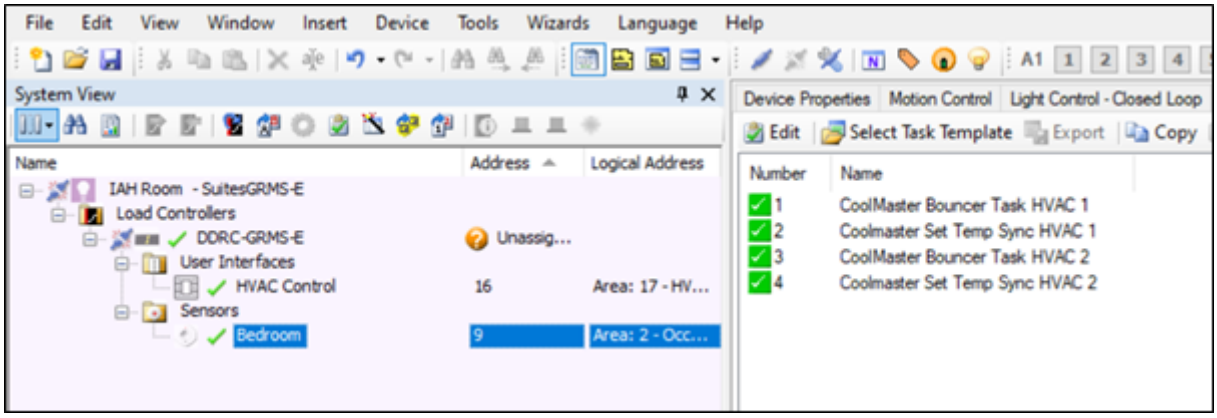


9. Configure bouncer tasks in one of the room devices to convert the STR-specific HVAC control preset messages to channel level messages that are used in the CoolMaster template.

   - Open the room profile job file and select one of the room devices *other* than the HVAC Antumbra Panel - preferably a device with no other tasks running on it.
     In the example shown below, the bouncer tasks are copied to the bedroom sensor.
   - Select the device, then in the **Tasks** editor, click **Select Task Template** and choose *IAH-Coolmaster Integration-BouncerTask.evt*.



- The task will convert the Multiroom HVAC preset messages to CoolMaster-specific channel level messages.
  Also, setpoint temperature changes from the Multiroom Dashboard will be forwarded to the CoolMasterNet gateway.



- Repeat this procedure for each room using CoolMaster integration.

11.6. BMS integration

To integrate System Manager with building management systems such as HVAC and power, or link to networked systems, we provide a range of open protocol and proprietary integration options including BACnet, Modbus, and CoolAutomation.

11.6.1. BACnet

BACnet integration allows the BMS to trigger tasks and time-based events by recalling presets in the Multiroom system, and enables the system to report current system status to the BMS.

The BACnet gateway provides:

- Read/Write access for preset control, channel level control, and HVAC temperature control.
- Read access for HVAC temperature reporting, sensor light values, DALI driver status, and device status.

For more information refer to:

- CoolAutomation Integration
- System Builder > Ethernet Gateways
- System Builder > Modbus Power Meters

Chapter 12. Handover

The commissioning engineer:

- Requests that the customer's IT team configures HTTPS access to the Multiroom Dashboard by installing a TLS certificate (cannot be used without).
- Ensures preprogrammed rooms are connected to our server, loaded onto the Dashboard, and made ready for use.
- Checks System Manager and Dashboard functionality.
- Tests integration functionality.
- Documents the as-built system (functionality list, single-line drawings, as-installed drawings from electrical contractor).
- Delivers training (how to use the Dashboard, user management, emergency lighting testing).
- Provides reference and support information.
- Receives customer handover sign-off.
- Confirms services, warranties, and maintenance agreements are in effect.