

Smart Buildings Solution HRC – Large Suite

Application Specific Integration Guide



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Section 1 - Overview

This guide will provide comprehensive guidelines on the expansion capability of the Hotel Room Controller (HRC) when linked with other HRCs.

Below is a summary of the use cases:

- Multiple HRCs used in a large suite
- Multiple adjacent rooms interconnected by internal doors
- Multiple rooms interconnected by a common vestibule

Prerequisites

- HRC Application Package 1.6.0
- HRC with Bios Version BIOS 596.06

Section 2 - Who Should Read this Guide

This guide is for integrators of Smart Building solutions. It provides important information for getting you started with the set-up and configuration of your building efficiency management system.

Ensure you follow the instructions to ensure a successful and trouble-free installation at the client's side.

Plan and Prepare

The information contained here helps you work effectively and minimizes the likelihood of any critical issues occurring during installation. Successful integration of the solution requires proper preparation and planning. Planning saves resources, prevents wasted effort, and saves time and money for you and your customer.

About this Guide

This document provides guidance for supporting large suite (either pre-build or formed on demand) with Hotel Room Controller (HRC) solution.

For more information visit the Hotel Guest Rooms website on Schneider Electric Exchange:
<https://shop.exchange.se.com/apps/40149/hotel-guest-room-management#!overview>

Disclaimer

This document does not attempt to describe the proposed solution in its entirety. Users are solely responsible for compliance with national and international safety laws and regulations. Users are also responsible for the provision and maintenance of system cybersecurity. Solution functionality depends on specific versions of software and hardware as described and may change as products are upgraded. Performance measurements do not guarantee future performance. This document does not replace any specific product documentation.

Section 3 - Multiple HRCs Used in a Large Suite

Expand the capability of a single HRC by using up to 4 HRCs in the same room.

This allows using separate rooms in the same suite or expanding larger suites with extra Room Controllers or Glass Touch Panels.

Specifications

- Separate or grouped control of the lighting between the HRCs.
- Display of the room status (DND/MUR) from any of the HRCs.
- Control of the setpoints on all HRCs from the Master.
- Communication between each HRC is done using Modbus TCP.
- By default, the HRCs are operating independently.

Shared Functionalities

Bell: When a visitor rings the door bell, all the HRCs will ring their bell.

DND: When the guest activates DND in any room, the DND state will be applied to all the suite HRC.
If DND is active, MUR will be turned off for all devices.
The Bell will be disabled on all panels.

MUR: When the guest activates MUR in any room, the MUR state will be applied to all the suite HRC.
If MUR is active, DND will be turned off for all devices and the Bell will be active on all panels.

Occupancy logic: The occupancy configuration will be synchronized between all connected devices. Door status and Motion can come from any HRC.

Master HRC

- When configuring the HRC as Master, you can enter up to 3 IP addresses for slave HRCs.
- The Master HRC is polling each slaves every 200ms for Door, Motion, BELL, DND and MUR statuses.
- The Master HRC is the brain of the suite and manages the occupancy control logic and scenes.

Slave HRC

Receives the following settings from the Master HRC:

- Rental status
- Occupancy control configuration
- HVAC parameters (e.g. Setpoints, Fan mode, System Mode)
- Light Scenes

Configuration

Master HRC

1. Select the **System** page from the Main top menu.
2. To configure Multiple HRCs, select **Multiple HRC** from the side menu bar.
3. Define up to 3 Slave HRCs. For large suites, select **Suite Controlled by Multiple HRCs**.

Single
 Master
 Slave

Suite Controlled by Multiple HRCs ▾

HRC Slave Setting

Name	IP Address
Slave 1	10.175.249.15
Slave 2	10.175.249.16
Slave 3	10.175.249.17

Save

4. Check the Slave option for the other HRCs. This will make the Slave listen for the room status and shared functionalities from the Master HRC.

The Monitoring page on the Master HRC will show the Status of the Slave HRCs.

HRC Slaves:

Slave-1 ONLINE

Slave-2 ONLINE

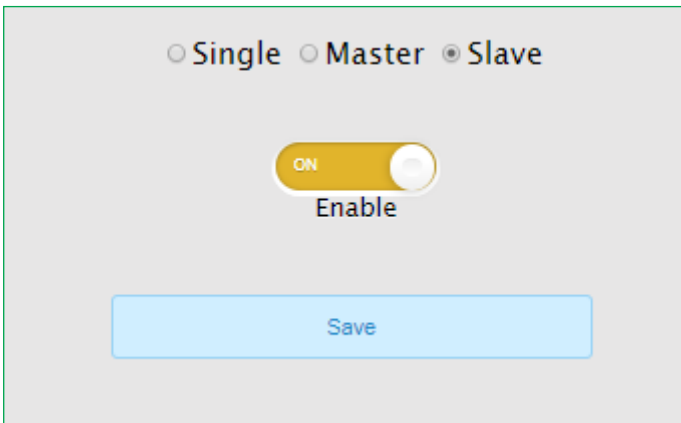
Slave-3 ONLINE

Slave HRCs

1. Select the **System** page from the Main top menu.
2. To configure Multiple HRCs, select **Multiple HRC** from the side menu bar.
3. Set the HRC to **Slave**.

On the Slave HRCs, the configuration page will show a visual indication if the room is being linked.

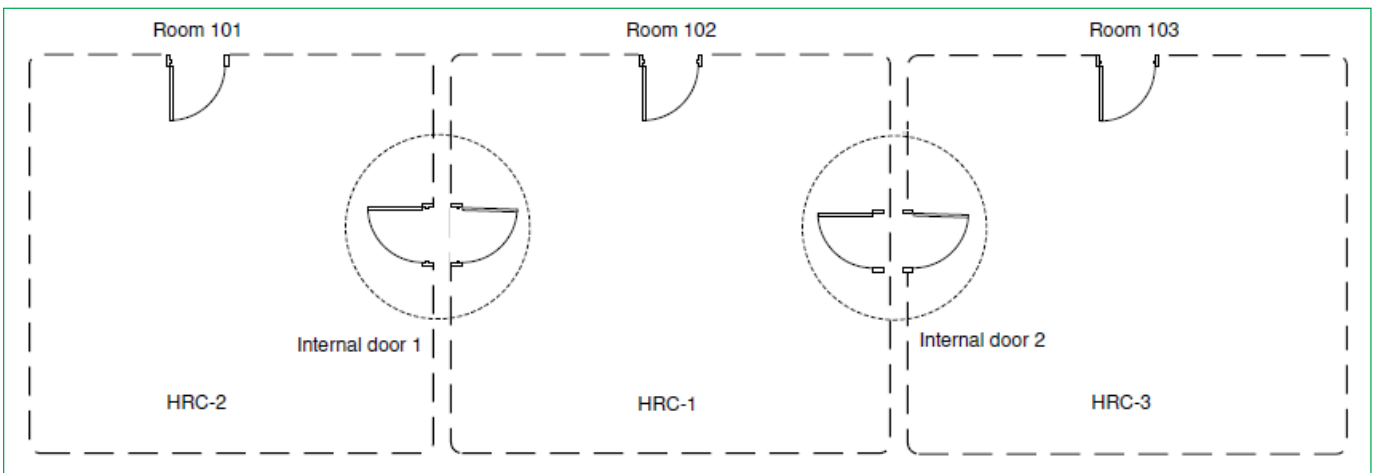
When the Slave HRC is being controlled by the Master HRC, the indicator will show ON.



Section 4 - Multiple Adjacent Rooms Interconnected by Internal Doors

The internal door defines a door that joins another room from the inside.

When rooms are joined, the room is check-in and function as a single room.



I.e. Room 101 and Room 102 can be linked by opening the internal door 1 between them (the internal doors are locked when the two rooms rented separately).

Specifications

- Separate or grouped control of the lighting between the rooms.
- Display of room status (DND/MUR) from one of the rooms.
- Control of the setpoints.
- HRCs have the capability to be linked (master, slave or single).
- By default, the HRCs are operating as single.
- Unlinked rooms function as individual rooms.
- When the rooms are joined, and the internal doors are open, the room function as a large room.
- Maximum 4 rooms can be linked together.
- Link/Unlink rooms can be done via BACnet object "Room Link Options" or physical input.

Shared Functionalities

- Bell:** When the guest rings the Bell on the common door, all the HRCs shall ring their bell.
When a guest rings on the individual Bell, the specific slave HRC shall ring its bell.
- DND activation:** When the guest activates DND in any room, the DND state will be applied to all connected rooms.
If DND is active, MUR will be turned off for all devices.
The Bell will be disabled on all panels.
- MUR activation:** When the guest activates MUR in any room, the MUR state will be applied to all connected rooms.
If MUR is active, DND will be turned off for all devices and the Bell will be activated on all panels.
- Occupancy logic:** The occupancy state will be synchronized between all connected rooms.
- Link/Unlink on demand:** The hotel operator can link rooms using:
- **Local toggle buttons:**
In this case, the hotel operator needs to come to the room and manually enable/disable the suite linking using the local switches, which must be hidden somewhere to prevent guests from triggering them by mistake.
 - **Guest Room Management System (GRMS):**
The operator can link/unlink the room remotely using the GRMS User Interface.
Note: As HRC only displays the linked room option via BACnet object ("Room Link Options"), a user-friendly interface is to be created in the EcoStruxure Building Operation (EBO) for the operator.
 - **A signal from the Property Management System (PMS):**
The benefit of this approach is the room will be automatically linked based on the signal from the PMS. However, commissioning will be more complicated, and it will also depend on which PMS is used. For some PMS (e.g. Opera), a virtual room will be created for the linked rooms and the check in signal will be sent to the virtual room.
I.e. Virtual Room 3001 is for the linked suite of Rooms 101 and 102.
Therefore, in Guest Room Expert (GRE), a script needs to be developed in order to connect the PMS signals to the HRC BACnet object (Room Link Options).

Master HRC

- Check-in and combine two or more rooms as 1 large room with internal or common doors.
- When configuring the HRC as Master, you can enter up to 3 IP addresses for slave HRC.
- The Master HRC is polling each slaves every 200ms for Door, Motion, BELL, DND and MUR statuses.
- The Master HRC is the brain of the suite and manages the occupancy control logic and scenes.

Slave HRC

Receives the following settings from the Master HRC:

- Rental status
- Link or Unlink
- Occupancy control configuration
- HVAC parameters (e.g. Setpoints, Fan mode, System Mode)
- Light Scenes triggered in all the rooms

Configuration

Master HRC

1. Select the **System** page from the Main top menu.
2. To configure Multiple HRCs, select **Multiple HRC** from the side menu bar.
3. Define up to 3 Slave HRCs. Set the configuration to **Master** and select **Suite Linked by Internal Door**.

4. Configure the different **Room Link Setting** options for the different combinations.

Single Master Slave

Suite Linked by Internal Door ▾

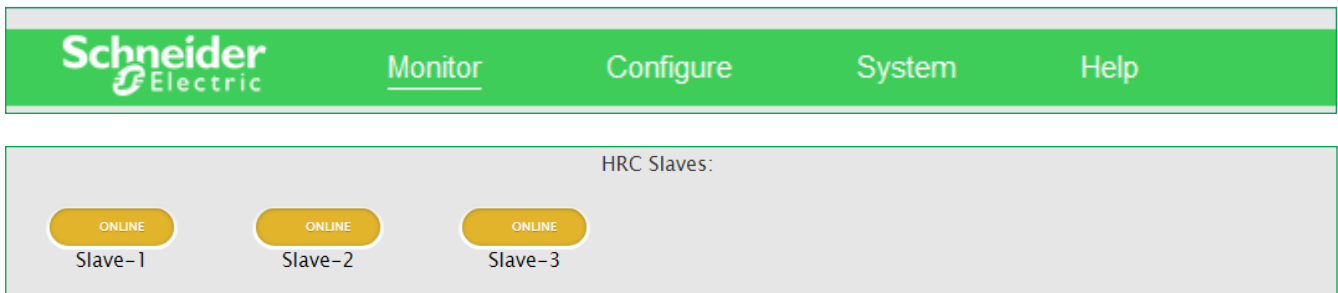
HRC Slave Setting

Name	IP Address
Slave 1	10.175.249.15
Slave 2	10.175.249.13
Slave 3	

Room Link Setting

Option	Active	Linked HRCs	Common Door Input	Output
0	<input type="radio"/>	None		
1	<input checked="" type="radio"/>	<input checked="" type="checkbox"/> Slave 1 <input type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3		
2	<input type="radio"/>	<input type="checkbox"/> Slave 1 <input checked="" type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3		
3	<input type="radio"/>	<input checked="" type="checkbox"/> Slave 1 <input checked="" type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3		
4	<input type="radio"/>	<input type="checkbox"/> Slave 1 <input type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3		

The Monitoring page on the Master HRC will show the status of the Slave HRC.



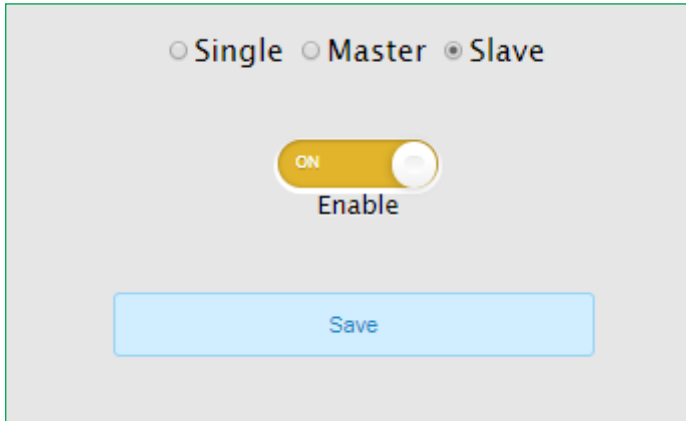
Slave HRC

1. Select the **System** page from the Main top menu.
2. To configure Multiple HRCs, select **Multiple HRC** from the side menu bar.
3. Set the HRC to **Slave**.

On the Slave HRC, the configuration page will show a visual indication if the room is being linked.

When the Slave HRC is being controlled by the Master HRC, the indicator will show ON.

When the room is Unlinked, the indicator will show OFF. In this case, the room can accept a check-in status from the PMS and will behave like a Single room.



Scene Configuration

Master

On the Master HRC, scenes must be configured to activate on the Slave HRC. In the following picture, the scenes to be replicated on the Slave must be configured for each device.

Room 101

Save Import Export

Master On		Master Off	
Device	Value	Device	Value
Light 1	On	Light 1	Off
Curtain 1	Open	Curtain 1	Close
HRC Slave-1 Scene	Master On	HRC Slave-1 Scene	Master Off
HRC Slave-2 Scene	Master On	HRC Slave-2 Scene	Master Off
HRC Slave-3 Scene	Master On	HRC Slave-3 Scene	Master Off

Slave

Slave HRCs can also control scenes on the Master HRC. The following picture shows that input mapping on each Slave HRC can trigger a scene on the Master.

The screenshot shows the Schneider Electric software interface. At the top, there are navigation tabs: Monitor, **Configure**, System, and Help. Below the tabs, there is a 'Room' input field and buttons for Save, Import, and Export. On the left, a green sidebar contains menu items: Device, Scene, **Input**, HVAC, Touch Panel, and Others. The main area displays the 'Input Mapping' table:

No.	Function	Physical Input	Target
1	Trigger Scene	DI1	HRC Master - Master On
2	Toggle Scene	DI2	scene 1: HRC Master - Master On scene 2: HRC Master - Master Off
3	Trigger Scene	DI3	HRC Master - Scene 5

Option Selection

After creating the combinations, the Hotel front desk can use different options to manage the linking. The options can use physical inputs or remote selection using BACnet.

Linking from Physical Input

The action of opening a monitored door or using a physical switch can change the desired room linking option. The Slave HRC will link or unlink from the Master depending on the selected option.

Link/Unlink by physical input

The screenshot shows the 'Input Mapping' table with the following configuration:

No.	Function	Physical Input	Target
1	Link/UnLink Suite by Contar	DI1	Link Option-1

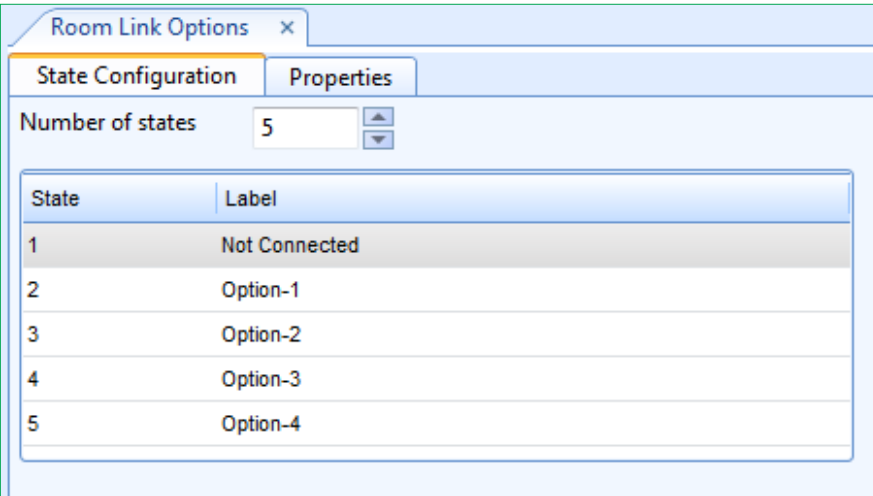
Link/Unlink by door contact with a duration delay

The screenshot shows the 'Input Mapping' table with a detailed configuration for door contact:

No.	Function	Physical Input			Target
		Door Input	Link when input is	Unlink delay ([1-127]m)	
1	Link/UnLink Suite by Comm	DI1	Active	0	Link Option-1

Linking from BACnet

The Master HRC will expose a BACnet object Room Link Options. This object will receive the desired option configuration. The Slave HRC will link or unlink from the Master depending on the selection.



Room Link Options x

State Configuration Properties

Number of states 5

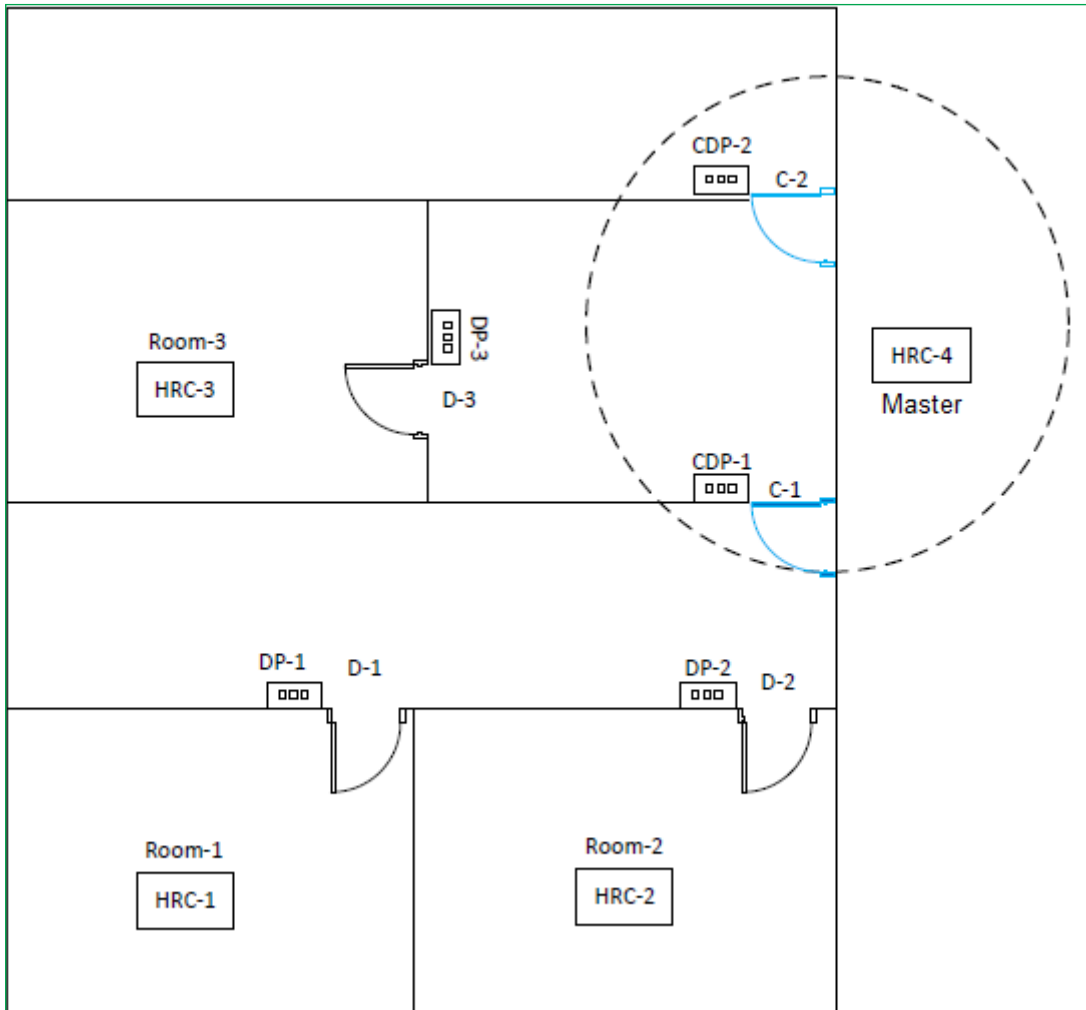
State	Label
1	Not Connected
2	Option-1
3	Option-2
4	Option-3
5	Option-4

Section 5 - Multiple Rooms Interconnected by a Common Vestibule

The common door defines a vestibule that you enter to get to other rooms.

When rooms are joined, they function as a single suite.

The Master HRC is needed to manage the common door input, outdoor panels, as well as to link the Slave HRC.



NOTES:

- A Master-HRC (HRC-4 here) will be used to manage the room combinations.
- All the common doors and door panel will connect to Master HRC.
- All the options must be pre-configured in the Master HRC. For each option, specify rooms to be linked, common door to be used and desired output to energize the door panel.
- An ELV door panel can be used. In this case, an output from the HRC can activate the desired ELV Panel.
- In the same application, two common doors can work together to join three rooms. In this case, the HRC can receive the signal from the two sensors on the same input.

Specifications

- Separate or grouped control of the lighting between the rooms.
- Display of room status (DND/MUR) from one of the rooms.
- Control of the setpoints.
- HRCs have the capability to be linked (master, slave or single).

- By default, the HRCs are operating as single.
- Unlinked rooms function as individual rooms.
- When the rooms are joined, and the internal doors are open, the room function as a large room.
- Maximum 3 rooms can be linked together.
- Link/Unlink rooms can be done via BACnet object "Room Link Options" or physical input.

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Master HRC

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Single Master Slave

Suite Linked by Common Door ▼

HRC Slave Setting

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Slave 2	10.175.249.15
Slave 3	10.175.249.16

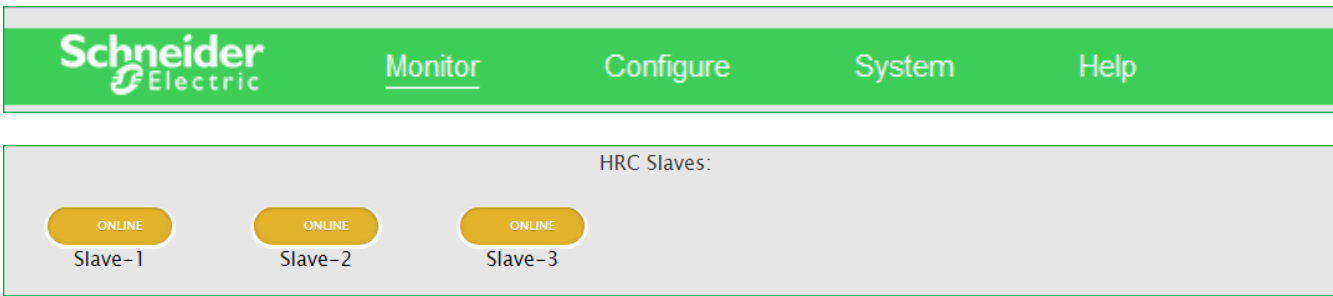
Room Link Setting

Option	Active	Linked HRCs	Common Door Input	Output
0	<input type="radio"/>	None		
1	<input checked="" type="radio"/>	<input checked="" type="checkbox"/> Slave 1 <input checked="" type="checkbox"/> Slave 2 <input checked="" type="checkbox"/> Slave 3	DI2 ▼ <input checked="" type="radio"/> N.O. <input type="radio"/> N.C.	DO2 ▼
2	<input type="radio"/>	<input checked="" type="checkbox"/> Slave 1 <input checked="" type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3	DI1 ▼ <input type="radio"/> N.O. <input type="radio"/> N.C.	DO1 ▼
3	<input type="radio"/>	<input type="checkbox"/> Slave 1 <input type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3	▼ <input type="radio"/> N.O. <input type="radio"/> N.C.	▼
4	<input type="radio"/>	<input type="checkbox"/> Slave 1 <input type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3	▼ <input type="radio"/> N.O. <input type="radio"/> N.C.	▼

Save

4. Configure the different Room Link Setting options for the different combinations. See the next section for advanced instructions regarding I/O configuration.

The Monitoring page on the Master HRC will show the Status of the Slave HRC.



I/O Configuration

Specific I/O configuration is done in the following Room Link Setting menu.

Room Link Setting				
Option	Active	Linked HRCs	Common Door Input	Output
0	<input checked="" type="radio"/>	None		
1	<input type="radio"/>	<input checked="" type="checkbox"/> Slave 1 <input checked="" type="checkbox"/> Slave 2 <input checked="" type="checkbox"/> Slave 3	DI2 ▼ <input checked="" type="radio"/> N.O. <input type="radio"/> N.C.	DO2 ▼
2	<input type="radio"/>	<input checked="" type="checkbox"/> Slave 1 <input checked="" type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3	DI1 ▼ <input checked="" type="radio"/> N.O. <input type="radio"/> N.C.	DO1 ▼
3	<input type="radio"/>	<input type="checkbox"/> Slave 1 <input type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3	▼ <input checked="" type="radio"/> N.O. <input type="radio"/> N.C.	▼
4	<input type="radio"/>	<input type="checkbox"/> Slave 1 <input type="checkbox"/> Slave 2 <input type="checkbox"/> Slave 3	▼ <input checked="" type="radio"/> N.O. <input type="radio"/> N.C.	▼

E.g.:

- DI-1 serves as the common door for Slave-1 and Slave-2;
- DI-2 serves as the common door for Slave -1, Slave -2 and Slave -3;

The DO is used to support the door panel, which is attached to the common door:

- The door panel needs to be connected to the Master HRC.
- There are two use cases for the common door panel:
 - **Glass Touch Panel:** The DO is used to cut/restore the power of the Glass Touch Panel. Therefore, when common door is used to link the room, the associated panel will be functional as well, and vice versa.
 - **ELV Switches:** Like the Glass Touch Panel, but the wiring is more complicated, as it needs a single throw double poles switch to cut/restore the 5V and GND connections.

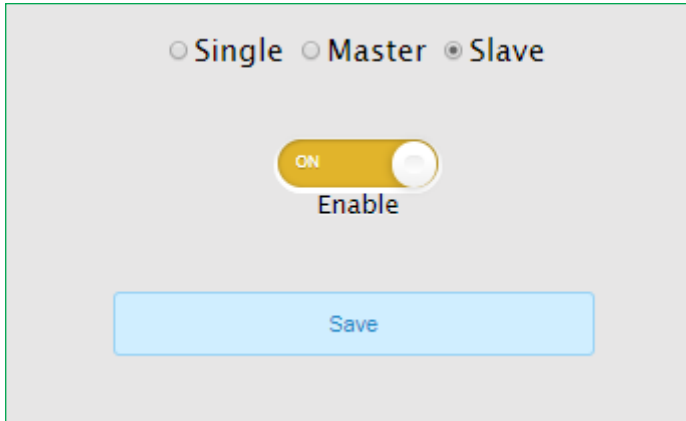
Slave HRC

1. Select the **System** page from the Main top menu.
2. To configure Multiple HRCs, select **Multiple HRC** from the side menu bar.
3. Set the HRC to **Slave**.

On the Slave HRC, the configuration page will show a visual indication if the room is being linked.

When the Slave HRC is being controlled by the Master HRC, the indicator will show ON.

When the room is Unlinked, the indicator will show OFF. In this case, the room can accept a check-in status from the PMS and will behave like a Single room.



Scenes Configuration

Master

On the Master HRC, scenes must be configured to activate on the Slave HRC. In the following picture, the scenes to be replicated on the Slave must be configured for each device.

The screenshot shows the Schneider Electric configuration interface for Room 101. The top navigation bar includes 'Monitor', 'Configure', 'System', and 'Help'. A left sidebar lists configuration categories: Device, Scene, Input, HVAC, Occupancy Control, Touch Panel, and Others. The main area displays two tables for scene configuration: 'Master On' and 'Master Off'. Each table has columns for 'Device' and 'Value'. The 'Master On' table lists devices like Light 1, Curtain 1, and HRC Slave-1/2/3 Scenes with values 'On', 'Open', and 'Master On'. The 'Master Off' table lists the same devices with values 'Off', 'Close', and 'Master Off'. Buttons for 'Save', 'Import', and 'Export' are located above the tables.

Master On		Master Off	
Device	Value	Device	Value
Light 1	On	Light 1	Off
Curtain 1	Open	Curtain 1	Close
HRC Slave-1 Scene	Master On	HRC Slave-1 Scene	Master Off
HRC Slave-2 Scene	Master On	HRC Slave-2 Scene	Master Off
HRC Slave-3 Scene	Master On	HRC Slave-3 Scene	Master Off

Slave

Slave HRC can also control scenes on the Master HRC. The following picture shows that input mapping on each Slave HRC can trigger a scene on the Master.

No.	Function	Physical Input	Target				
1	Trigger Scene	DI1	HRC Master - Master On				
2	Toggle Scene	DI2	<table border="1"> <tr> <td>scene 1</td> <td>HRC Master - Master On</td> </tr> <tr> <td>scene 2</td> <td>HRC Master - Master Off</td> </tr> </table>	scene 1	HRC Master - Master On	scene 2	HRC Master - Master Off
scene 1	HRC Master - Master On						
scene 2	HRC Master - Master Off						
3	Trigger Scene	DI3	HRC Master - Scene 5				

Option Selection

After creating the combinations, the Hotel front desk can use different options to create the linking. The options can be using physical inputs or remote selection using BACnet.

Linking from Physical Input

The action of opening a monitored door or using a physical switch can change the desired room linking option. The Slave HRC will link or unlink from the Master depending on the selected option.

Link/Unlink by physical input

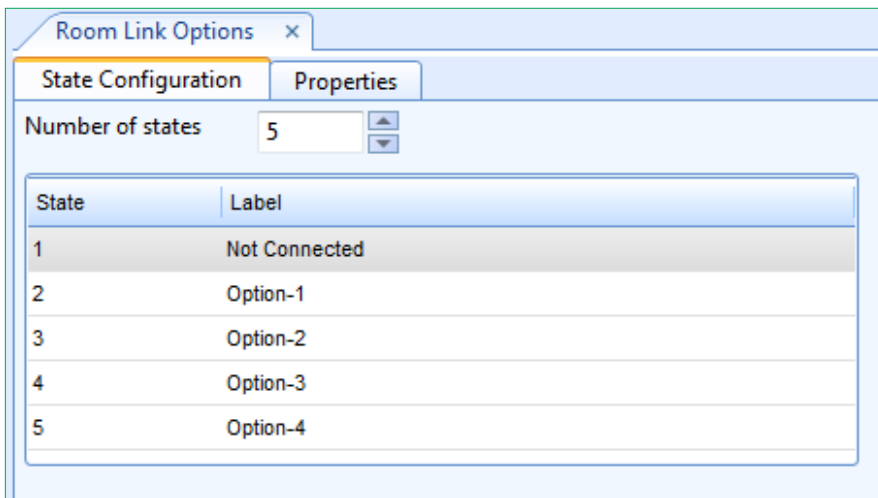
No.	Function	Physical Input	Target
1	Link/UnLink Suite by Contar	DI1	Link Option-1

Link/Unlink by door contact with a duration delay

No.	Function	Physical Input			Target					
1	Link/UnLink Suite by Comm	<table border="1"> <tr> <th>Door Input</th> <th>Link when input is</th> <th>Unlink delay ([1-127]m)</th> </tr> <tr> <td>DI1</td> <td>Active</td> <td>0</td> </tr> </table>	Door Input	Link when input is	Unlink delay ([1-127]m)	DI1	Active	0	Link Option-1	
Door Input	Link when input is	Unlink delay ([1-127]m)								
DI1	Active	0								

Linking from BACnet

The Master HRC will expose a BACnet object Room Link Options. This object will receive the desired option configuration. The Slave HRC will link or unlink from the Master depending on the selection.



State	Label
1	Not Connected
2	Option-1
3	Option-2
4	Option-3
5	Option-4

Section 6 - Appendix

Training manual for the Hotel Room Controller can be downloaded here:

<https://community.exchange.se.com/t5/Segment-Specializations-Forum/HRC-Configuration-User-Guide/td-p/148925>

Technical Support

For any issues with EcoStruxure Solution, contact Schneider Electric Technical Support according to your region.

Level 1

- In-country support via SE Branches or SI Partners
- CCC / SRC / CSS

Level 2 - For product support, open ticket in BFO

- For Building Expert related issues*: PSS Advanced and Experts
- For EcoStruxure BMS issues: PSS Advanced

Level 2 - For solutions/application support

- Country Champion / Solution Architects / App Center

Level 3

- For Building Expert related issues*: SBS Support team
- For EcoStruxure BMS issues: PSS Experts

Level 4 - For solutions/application support

- For Building Expert related issues*: SBS Solutions, Offer Management and R&D
- For EcoStruxure BMS issues: Global Sustain Team

*Only for P1 issues (high impact, urgent and complex), country champion have the option of opening a ticket in Jira to escalate directly to Level 3

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About Schneider Electric

Schneider Electric is leading the Digital Transformation of Energy Management and Automation in Homes, Buildings, Data Centers, Infrastructure and Industries.

With global presence in over 100 countries, Schneider is the undisputable leader in Power Management – Medium Voltage, Low Voltage and Secure Power, and in Automation Systems. We provide integrated efficiency solutions, combining energy, automation and software.

In our global Ecosystem, we collaborate with the largest Partner, Integrator and Developer Community on our Open Platform to deliver real-time control and operational efficiency.

We believe that great people and partners make Schneider a great company and that our commitment to Innovation, Diversity and Sustainability ensures that Life Is On everywhere, for everyone and at every moment.

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