

SpaceLogic Room Controllers

SE8000 ZigBee Sensors Integration Guide

Pairing SE8000 Room Controllers with Zigbee Sensors



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Overview

This procedure shows how to pair a SpaceLogic SE8000 Room Controller with one of the following Zigbee Sensors:

- Wall-mounted motion sensor (SED-WMS-P-5045)
- Motion/Temperature/Humidity sensor (SED-MTH-G-5045)
- Water leak sensor (SED-WLS-G-5045)
- Window/Door sensor (SED-WDC-G-5045)
- Temperature & humidity sensor (SED-TRH-G-5045)
- CO2, temperature & humidity sensor (SED-CO2-G-5045)

The Zigbee Sensors can be paired with a stand-alone Room Controller, or with a Room Controller joined to a BMS network. When pairing a Zigbee Sensor with a Room Controller on a BMS network, the Room Controller must first be joined to a SpaceLogic AS-P/AS-B Automation Server or RP-C/RP-V Room Purpose Controller using EcoStruxure Building Operation (EBO) software version 3.3 or higher.

The Automation Server and Room Purpose Controller use the SpaceLogic Wireless Adapter - Advanced, a USB adapter that enables Zigbee 3.0 wireless network connectivity. The Wireless Adapter - Advanced is compatible with SE8000 Room Controllers with firmware version 2.4 and higher with onboard Zigbee or the optional Zigbee add-on module with firmware revision 30 or higher.

You can pair up to 20 Zigbee Sensors per Room Controller. Each Automation Server can connect wirelessly to a maximum combination of 64 Room Controllers or Zigbee sensors, with a maximum of 20 Zigbee Sensors. Each Room Purpose Controller can connect wirelessly to a maximum of 4 Room Controllers and 20 Zigbee Sensors.

BMS ROOM CONTROLLER SUPPORT LIMITATIONS

The following conditions apply to the support of Room Controllers under an Automation Server Zigbee wireless network:

- In EBO software version 3.3, when connecting a Room Controller to the Automation Server Zigbee wireless network, you cannot connect Zigbee Sensors to the Room Controller. If you already have Zigbee Sensors connected to a Room Controller, you must either reconnect them to the Automation Server or upgrade to EBO software version 4.0.
- When you connect Room Controllers to the Automation Server Zigbee wireless network, you cannot use multiple Room Controllers as sensors to control a single setpoint in a single zone.

The following conditions apply to the support of Room Controllers under a Room Purpose Controller Zigbee wireless network:

- In EBO software version 3.3 and version 4.0 or higher, when connecting a Room Controller to the Room Purpose Controller Zigbee wireless network, you cannot connect Zigbee Sensors to the Room Controller. If you already have Zigbee Sensors connected to a Room Controller, you must reconnect them to the Room Purpose Controller.
- When you connect Room Controllers to the Room Purpose Controller Zigbee wireless network, you cannot use multiple Room Controllers as sensors to control a single setpoint in a single zone.
- Support for Room Controllers under the Room Purpose Controller Zigbee wireless network is limited to display and onboard or wired sensor functionality, and they are not supported as HVAC controllers.

ZIGBEE NETWORK SECURITY LEVELS

Starting with SE8000 Room Controllers with firmware version 2.4, a new Security Levels parameter with Low and Normal values was added to the Zigbee network. Starting with firmware version 2.6, a third High value was added to the Security Levels parameter.

- **Low:** Disables new security features in Zigbee 3.0 to be fully backwards compatible with Zigbee Home Automation 1.2 devices, and therefore compatible with all of our sensors. The Low Security Level is not compatible with a Room Controller as part of a BMS Zigbee 3.0 network, and can only be used with a stand-alone Room Controller.
- **Normal:** Enables the typical new features of Zigbee 3.0. This means that legacy Zigbee Home Automation 1.x devices cannot join a Normal security network. The Normal Security Level is compatible with a BMS Zigbee 3.0 network and Zigbee SED wireless sensors. If the Normal Security Level is selected with old NYCE or Centralite sensors, they will be removed from the network.
- **High:** Same features as the Normal Security Level, but will also encrypt the initial network key transport from the network coordinator to the joining Room Controller. This will protect the joining process from eavesdropping attacks (also known as sniffing or snooping attacks). When the Security Level is set to High, a third Zigbee Network screen becomes available that contains the information required to join a high security Zigbee network.

NOTICE

UPGRADE OF ZIGBEE FIRMWARE REVISION 24 TO 30

The upgrade from Zigbee firmware revision 24 to 30 will **not** support the Green Power Sensor (SED-CO2-G-5045 or SED-TRH-G-5045). It will therefore need to be recommissioned.

Failure to follow these instructions can result in equipment being disconnected from the network.

ZIGBEE DEVICE IMPORT FILES

The Zigbee device import files are XML files that define the properties of a specific Zigbee device. When imported, the corresponding Zigbee device type is created and added to the system. A logical Zigbee device is created based on the Zigbee device type. The logical Zigbee device is then associated to a corresponding physical Zigbee device. The logical Zigbee device will interact with the physical Zigbee device and send read/write properties and execute commands from EBO.

Each Zigbee device type is imported to the Type Library. You only have to import the file once when the first device is created, then the device type will be available when creating other devices.

The Zigbee device import files are downloaded from <https://bms-applications.schneider-electric.com/type/ZD>.

RELATED INFORMATION

For more information about Zigbee networks refer to the following:

- SpaceLogic - Hardware Reference Guide
- EcoStruxure Building Operation - Technical Reference Guide
- EcoStruxure Building Management System WebHelp – <https://ecostruxure-building-help.se.com/bms>

BMS Coordinator Configuration

This procedure shows how to pair a Room Controller to a SpaceLogic AS-P/AS-B Automation Server or RP-C/RP-V Room Purpose Controller using EcoStruxure Building Operation (EBO) WorkStation.

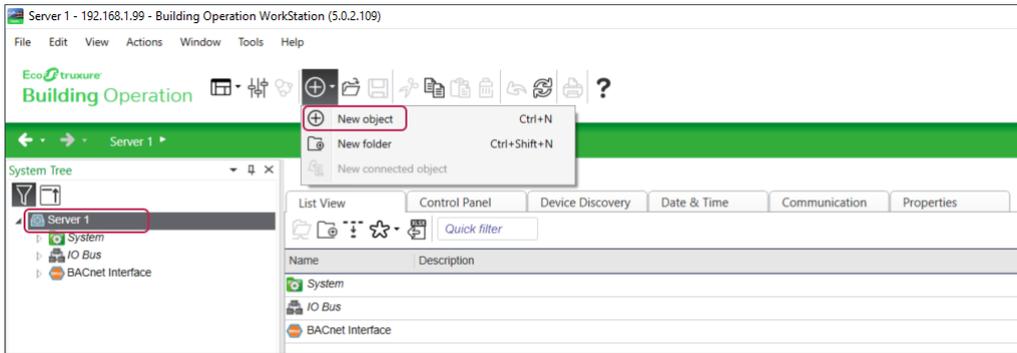
Before starting the configuration, make sure to plug in the Wireless Adapter dongle into the USB-port on the Automation Server or RP Controller.

CREATE ZIGBEE NETWORK

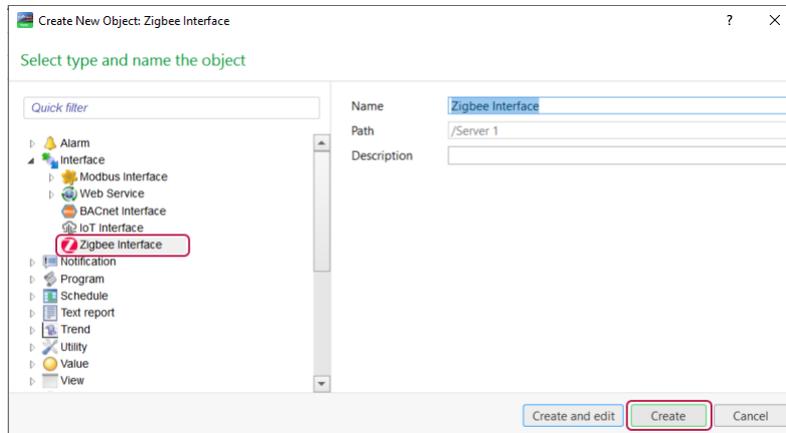
Creating a Zigbee network is done only once. Skip these steps if the Zigbee network was created previously.

Automation Server:

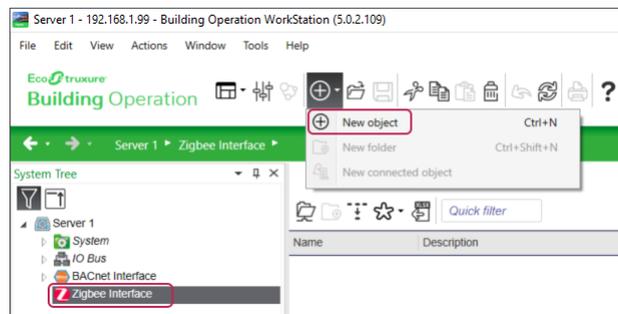
1. In the System Tree, click on the **Server** then click **New object**.



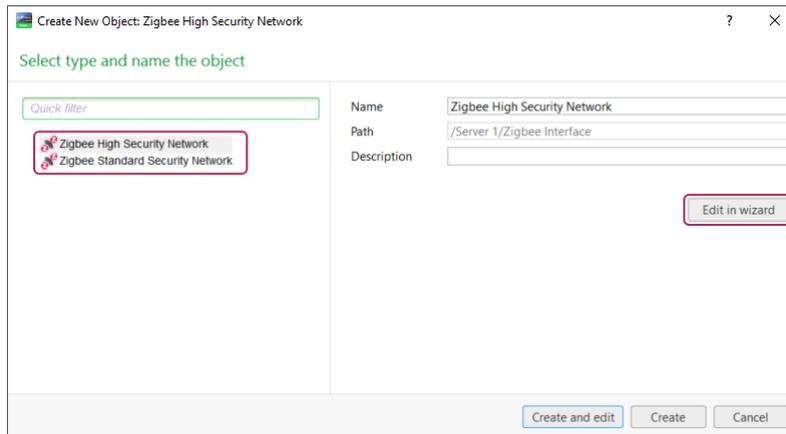
2. In the Create New Object window, expand Interface, click **Zigbee Interface** then click **Create**. The Zigbee Interface will be added to the System Tree.



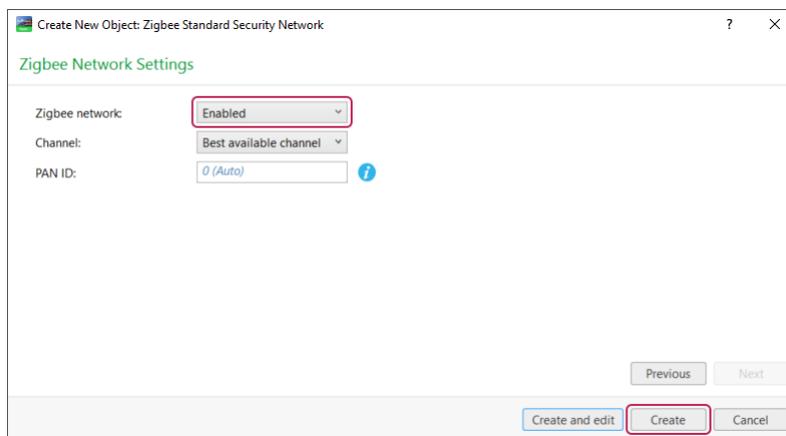
3. Click on **Zigbee Interface** then click **New object**.



4. In the Create New Object window, select the **Zigbee Network** type (High or Standard Security), then click **Edit in wizard**.

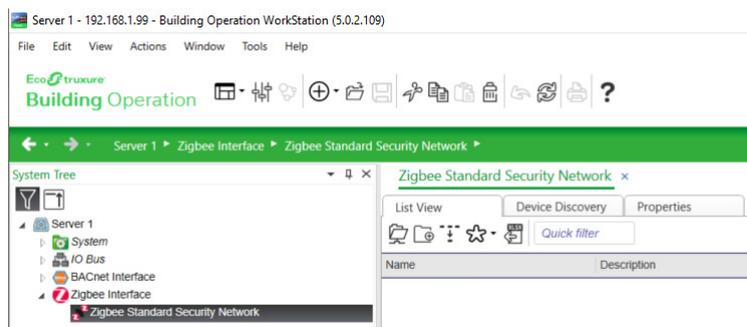


5. In Zigbee Network Settings, **enable** the Zigbee network, select the Zigbee channel, then click **Create**.



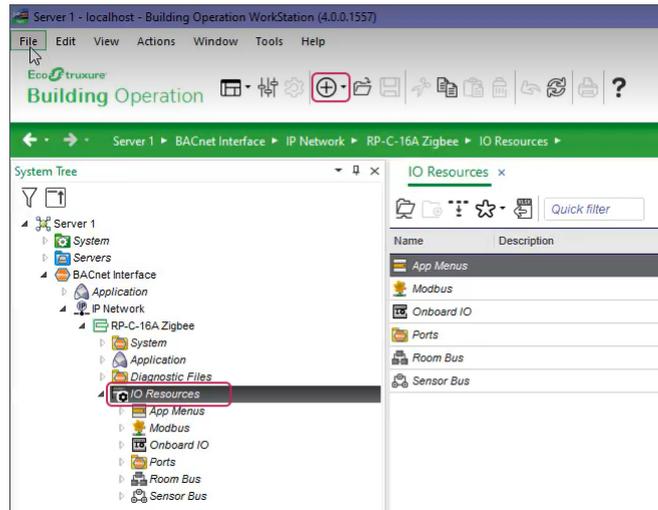
Note: The PAN ID is auto generated. You cannot select your own PAN ID. If you enter a PAN ID into the PAN ID text box, the system will change it to an auto generated number.

6. The Zigbee Network will be added to the System Tree under Zigbee Interface.

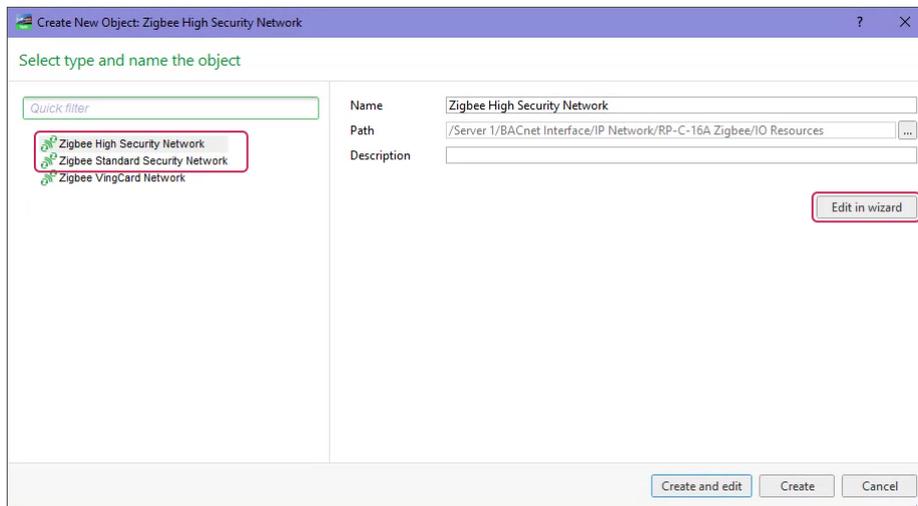


Room Purpose Controller:

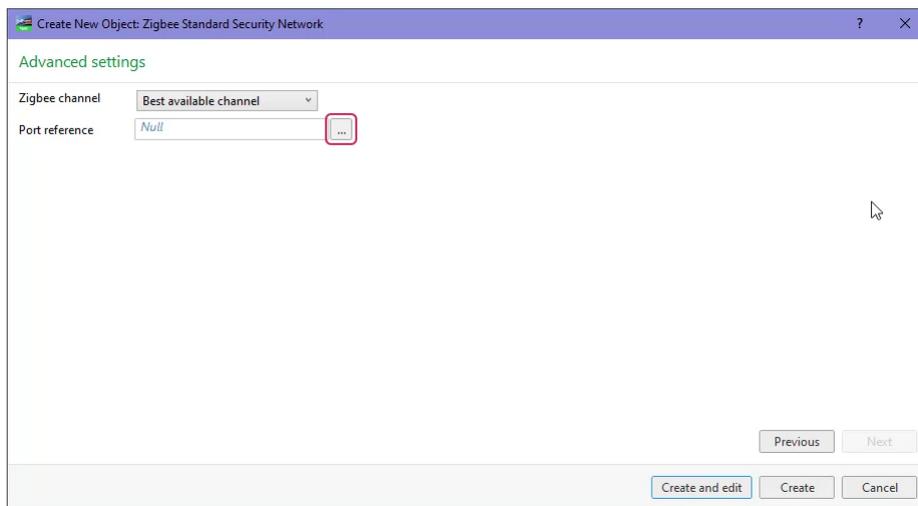
1. In the System Tree, navigate to Server > BACnet Interface > IP Network > RP-C > **IO Resources** then click **New object**.



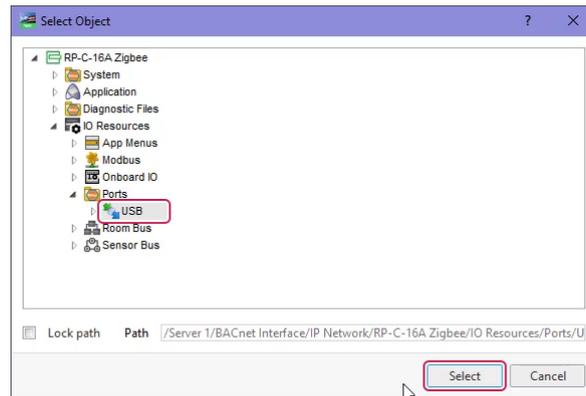
2. In the Create New Object window, select the **Zigbee Network** type (High or Standard Security) then click **Edit in wizard**.



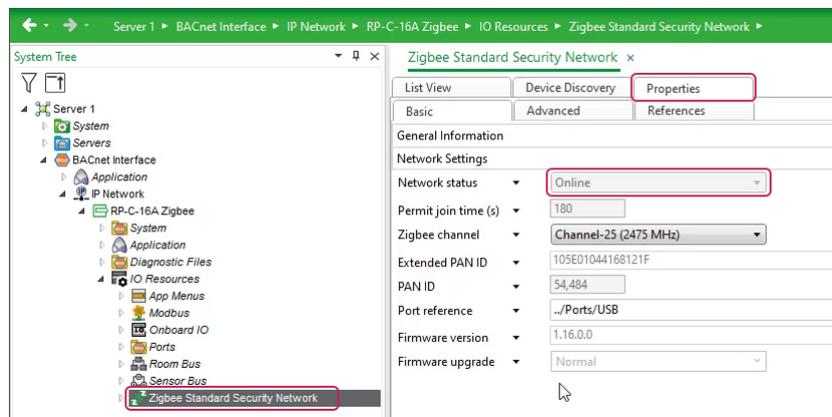
3. In Advanced settings, select the Zigbee channel, then click the **Port reference configure button**.



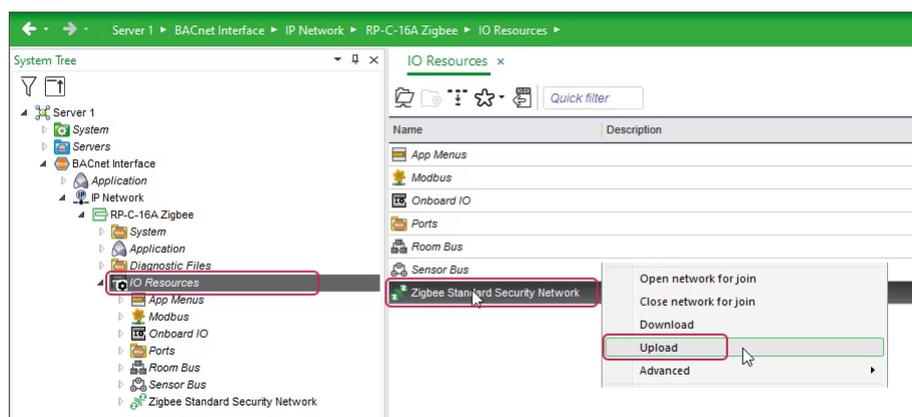
4. In the Select Object window, navigate to IO Resources > Ports > USB then click **Select**.



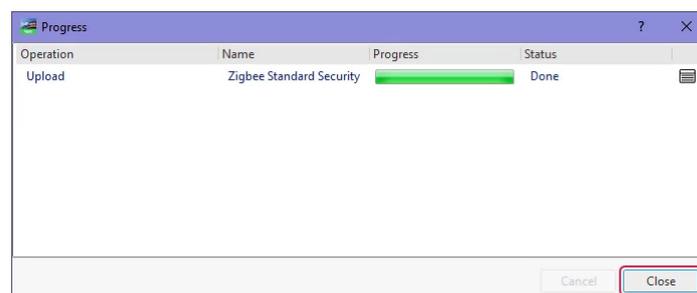
5. Returning back to the Create New Object window, click **Create**. The Zigbee Network will be added to the System Tree under IO Resources.
6. In the System Tree, click the **Zigbee Network** then click the **Properties** tab. In the Basic tab under Network Settings, check that the Network Status is **Online**.



7. In the system Tree, click on **IO Resources**, then in the List View right click on the **Zigbee Network** and select **Upload**.



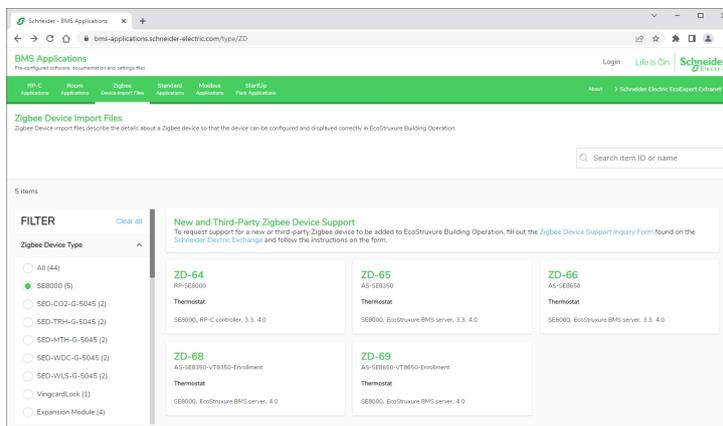
8. The Progress window will open showing the upload progress. When the upload is done, click **Close**.



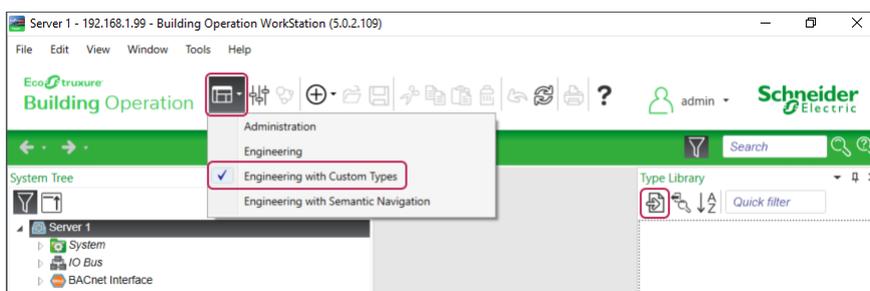
IMPORT ZIGBEE DEVICE IMPORT FILES

Importing a Zigbee device import file is done only once for each device type. Skip these steps if the Zigbee device import file was imported previously.

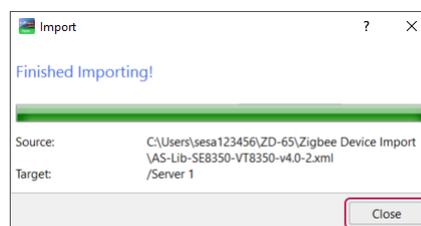
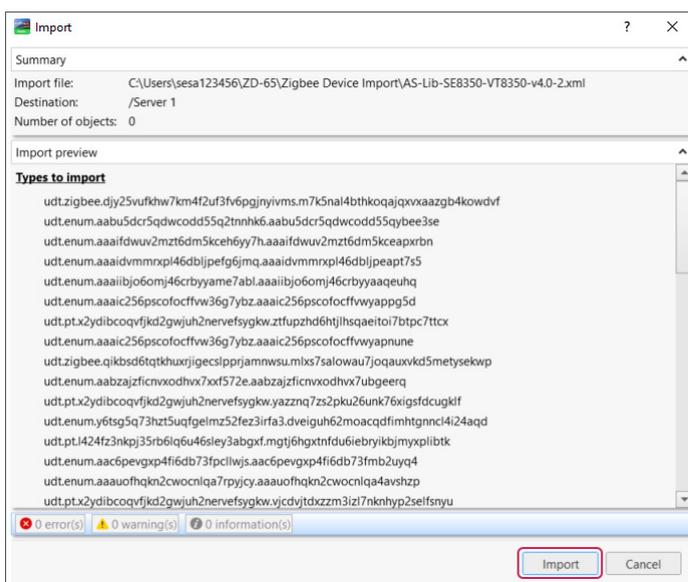
1. Download the Zigbee device import file from <https://bms-applications.schneider-electric.com/type/ZD>.



2. In EBO Workstation, click the **Workspaces** icon then select **Engineering with Custom Types**. The Type Library will appear on the right. In the Type Library, click on the **Import to Type Library** icon.



3. In the Open window, select the Zigbee device import file then click **Open**.
4. In the Import window, click **Import**. When the import is finished, click **Close**.



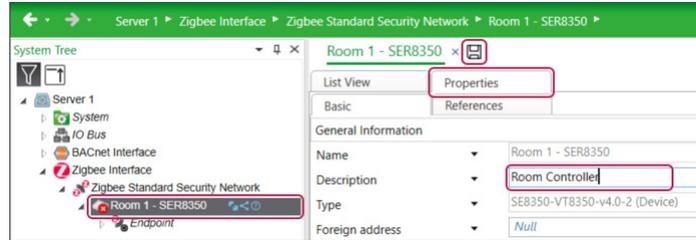
5. The Zigbee device will be added to the Type Library.



6. Repeat the steps above for other device types that will be added to the Zigbee network.

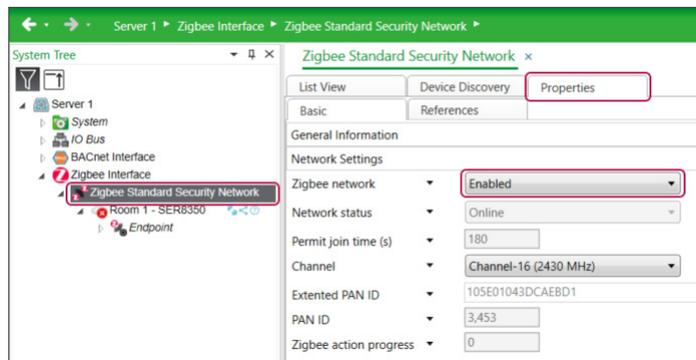
CREATE LOGICAL ZIGBEE DEVICE

1. In the **Type Library**, drag the device type to the **Zigbee Network** in the System Tree. The Logical Zigbee Device will be added to the Zigbee Network.
2. Select the **Logical Zigbee Device** and rename it.
3. Select the **Properties** tab and add a description (optional), then click the **Save** button.

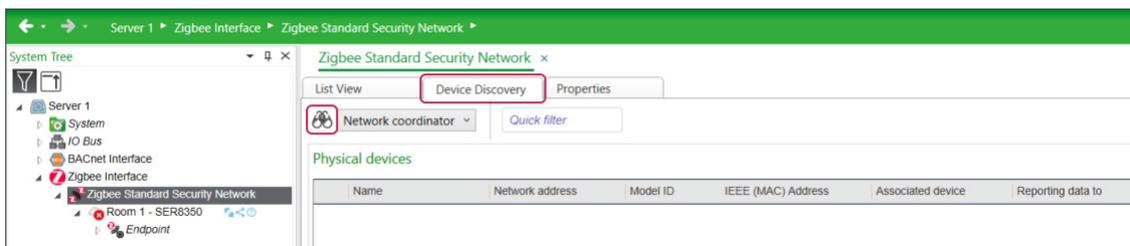


DISCOVER PHYSICAL ZIGBEE DEVICE

1. In the System Tree, select the **Zigbee Network** then click the **Properties** tab. Under Network Settings, make sure that the Zigbee network is **enabled**, and if required click the **Save** button.



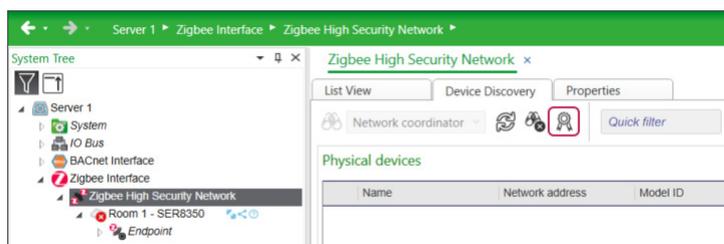
2. Make sure that the Room Controller Zigbee Network settings are the same as the Coordinator Zigbee Network. Refer to “Room Controller Configuration” on page 12.
3. Click the **Device Discovery** tab, then click the **Open for join** button.



Note: The network is open for join for 180 seconds. This period is restarted when a device joins a network. You can also increase the time by clicking Reset join time in the Device Discovery toolbar.

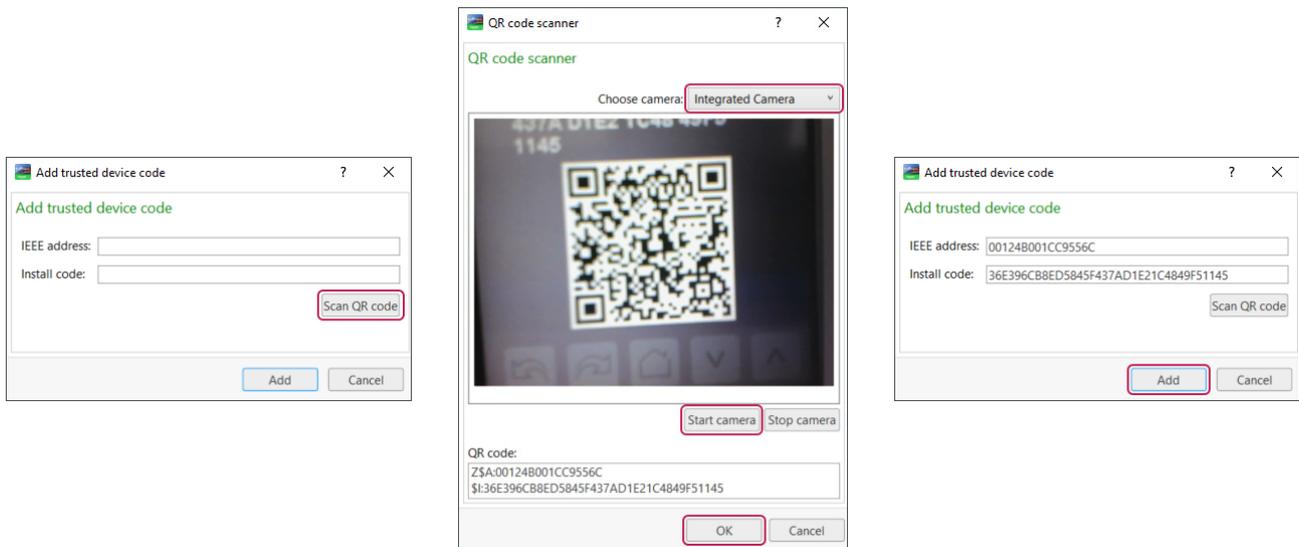
For a Zigbee High Security Network:

1. Click the **Add trusted device code** icon.

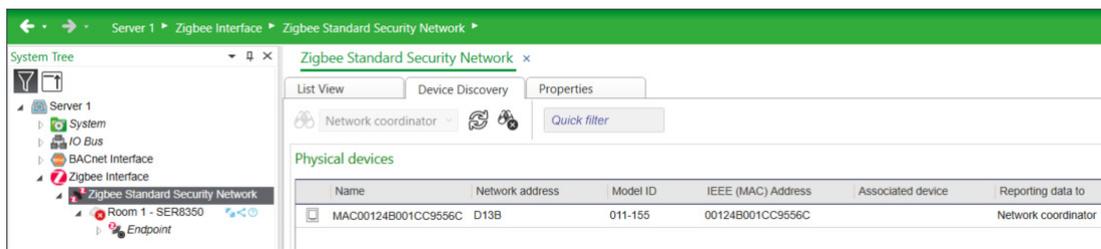


2. Go to the Room Controller 3/3 Zigbee Network screen and enter the **IEEE address** and the **Install code** into the Add trusted device code text boxes.

- Alternatively, click **Scan QR code** to open the QR code scanner window, **choose your camera**, click **Start camera**, then scan the QR code on the Room Controller 3/3 Zigbee Network screen. The IEEE address and Install code will show in the QR code text box. Click **OK** then Click **Add**.

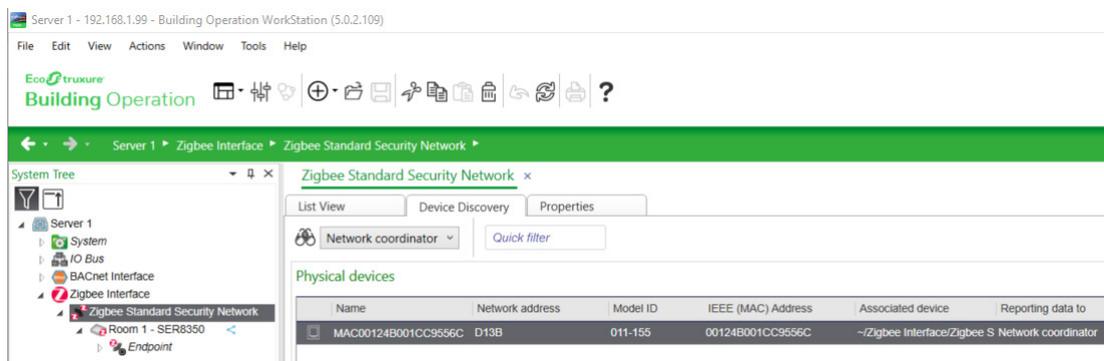


The Zigbee device will be displayed in the Physical devices list.



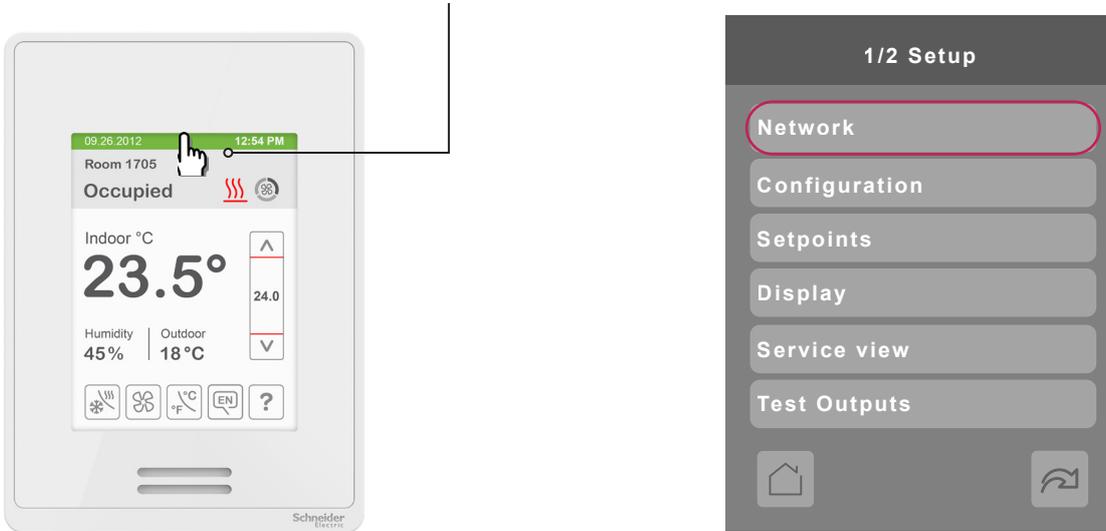
ASSOCIATE LOGICAL WITH PHYSICAL ZIGBEE DEVICE

- In the System Tree, drag the **Logical Zigbee Device** to the **Physical Zigbee Device** in the Physical devices list. You can also drag the **Physical Zigbee Device** to the **Logical Zigbee Device**.
Tip: You can re-associate a device by dragging it onto another device.
- Click the **Save** button. In the Physical devices list, the logical device will show in the Associated device column. On the Room Controller Zigbee Network Screen, the Network status will change to Online.

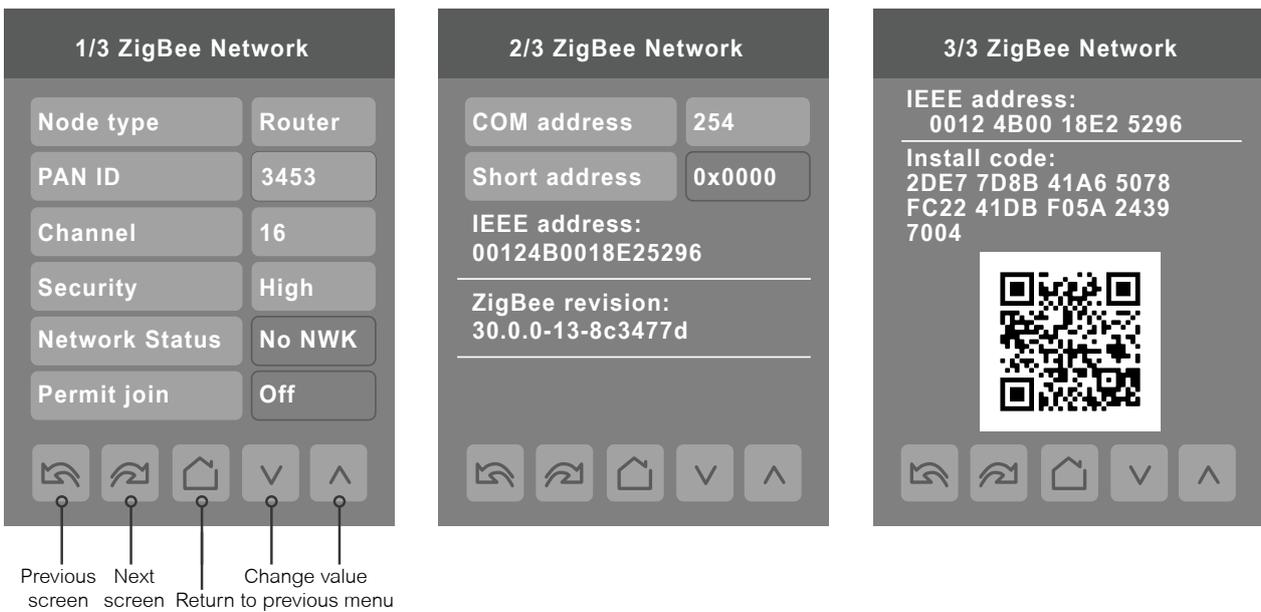


Room Controller Configuration

1. Touch and hold screen for 3 seconds to enter setup mode.



2. Select **Network** then select **Next screen** to access the Zigbee Network screens.



Note: To change the parameters, press the field name and use the up/down change value buttons.

3. To join a BMS Zigbee network, set the **Node type** to **Router**. For a stand-alone Room Controller, set the **Node type** to **Coordinator**.
4. Select the **COM address**. Make sure the COM address is unique to each device.
5. Select the **PAN ID**. Make sure it matches the PAN ID of the BMS Coordinator device.
6. Select the **Channel**. Make sure it matches the Channel of the BMS Coordinator device.
7. Select the **Security** level. For Zigbee 3.0 networks, the security is set to **Normal** or **High**.

Note: The 3/3 Zigbee Network screen is displayed only when Security is set to High.

Pair Zigbee Sensor

SET PERMIT JOIN TO ON

For Room Controllers joined to a BMS Coordinator:

1. In EBO Workstation, select the **Zigbee Network** in the System Tree, click the **Device Discovery** tab, then click the **Open for join** button.
2. The Room Controller Zigbee Network Permit join parameter will switch to On.

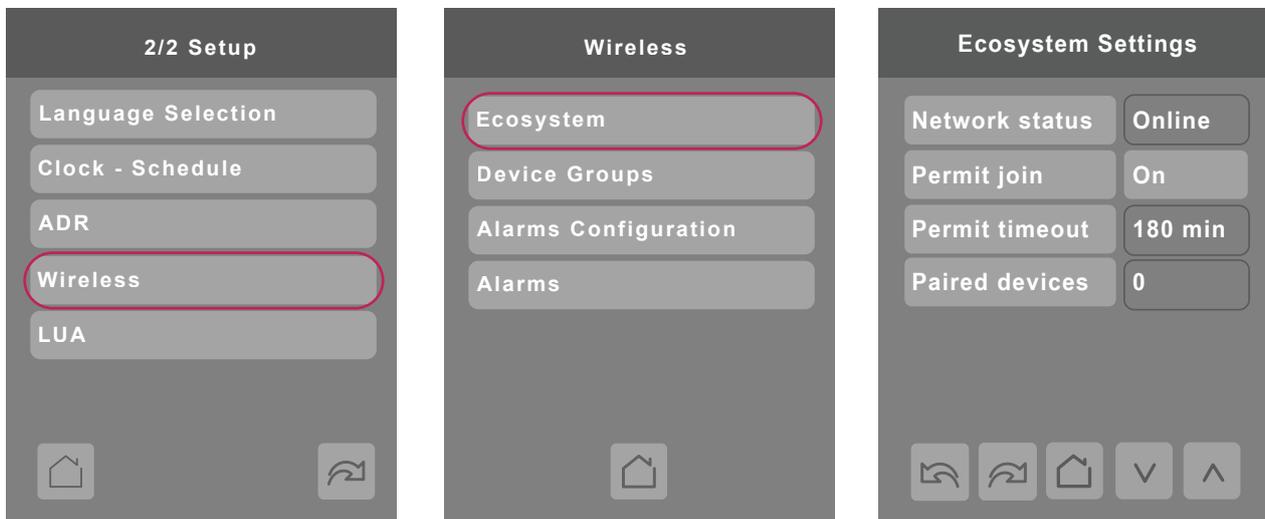
For stand-alone Room Controllers:

1. On the Room Controller Zigbee Network screen or the Ecosystem Settings screen, set the **Permit join** parameter to **On**.

The Zigbee sensors can now join the Zigbee Network.

PAIR ZIGBEE SENSOR WITH ROOM CONTROLLER

1. Navigate to the **Ecosystem Settings** screen and verify that the **Network status** is **Online** and that the **Permit join** is **On**.



Note: The Permit timeout parameter is shown only on stand-alone Room Controllers with Node type set to Coordinator.

IMPORTANT: The Room Controller attempts to pair itself with a sensor when you open the Ecosystems Settings screen. If for any reason you exit from the Ecosystems Settings screen, you must wait 30 - 60 seconds before attempting to enter the Ecosystems Settings screen again. The Room Controller cannot pair itself with a sensor if you access the Ecosystems Settings screen without waiting for the necessary amount of time to pass.

2. Insert the battery or remove the pull tab (for contact sensors) to activate the Zigbee sensor.
3. Hold the Zigbee sensor in close proximity to the Room Controller and press the **function key** on the Zigbee sensor (consult the Zigbee sensor installation guide to determine the location of the function key and LED). The required number of times to press the function key is as follows:

Zigbee Sensor	Pair with a Controller	Factory Reset
SED-WMS-P-5045	Press 1 time	Press 10 times rapidly
SED-MTH-G-5045) SED-WLS-G-5045 SED-WDC-G-5045	Press 3 times within 1 second	Press 3 times within 1 second then press and hold for 10 seconds
SED-TRH-G-5045 SED-CO2-G-5045	Press 1 time	Press and hold for 10 seconds

Note: If the Zigbee sensor pairing fails or the sensor is decommissioned or moved to another controller, do a factory reset of the sensor. The sensor will now be ready to pair with a controller. Removing the battery and inserting it back into the sensor will also perform a factory reset.

4. Ensure the LED on the Zigbee sensor flashes in the following sequences:

1. ●●● YRY Searching for Network
2. ●●● YGY Device Being Configured
3. ●●● GGG Device Joined

5. The following sequence shows if there is a problem with pairing:

- RRR Device Failed to Join

6. For any other sequence of LED flashes, consult the Zigbee sensor installation guide to determine how to troubleshoot.



Restrictions and limitations

When pairing Zigbee sensors in a networked environment where multiple Room Controllers are bound to a single BMS, **it is necessary to make certain that one Room Controller at a time is being bound with a Zigbee sensor.**

When **Permit Join** is set to **On** for a BMS, all Room Controllers paired to it also have **Permit Join** set to **On**. A Zigbee sensor trying to pair with a Room Controller will pair with the first Room Controller in range that has the **Ecosystem Settings** screen open in the **Wireless** section of the interface.

If more than one Room Controller in range of the Zigbee sensor has the Ecosystem Settings screen open, the pairing may fail. Make sure to never have more than one Room Controller at a time with the Ecosystem Settings screen open when pairing with a Zigbee sensor.

7. Once the Zigbee sensor has joined the network, a new Device screen will appear, and the Paired devices parameter will increment by 1. Verify that the IEEE address on the back of the sensor matches the address on the Device screen.



8. After the sensor has paired with Room Controller, make sure the **Function** parameter matches the Zigbee sensor type, and if required change it accordingly to one of the following choices:

- None** No status reported to Room Controller
- Window** Window sensor installed
- Door** Door sensor installed
- Motion** Device set to detect motion
- Env. data** Temperature, Humidity, CO2 sensor installed
- Remove** Removes device from Device list
- Water** Water leak sensor installed
- Refrig.** Refrigerator temperature sensor installed
- Freezer** Freezer temperature sensor installed

If the incorrect function is configured, then either the **Comm. status** changes to **Invalid** (when incorrectly setting motion<-->contact), or incorrect responses get triggered in the Room Controller (example window<-->door). For example, the Room Controller can tell the difference between a contact sensor and a motion sensor, but it needs to be told if the contact is a window sensor or door sensor.

SET PERMIT JOIN TO OFF

After confirming that you have successfully joined all the Zigbee sensors needed with the Room Controller, set the **Permit Join** parameter to **Off**. This prevents any other Zigbee sensors from accidentally joining the network.

Once the pairing procedure is complete, proceed with the physical installation of the Zigbee sensor(s) according to the instructions in the **Installation Guide** appropriate to the model(s) of Zigbee sensor(s) being used.

Technical Support



For any issues with EcoStruxure Building Operation or SpaceLogic devices, contact Schneider Electric Technical Support according to your region.

North America (NAM) Product Support
Building Management Systems (BMS): www.nampss.com

Global Product Support
Building Management Systems (BMS): productsupport.BMS@schneider-electric.com

Schneider Electric
CS 30323
F-92506 Rueil-Malmaison Cedex
France

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