EVOLUTIQN

VERSION **4.2.8-p**

A Big Step Forward – And a Look Ahead

We are working hard on the revolutionized new Evolution. Due to several positive developments and ongoing enhancements, the upcoming major release will take a little longer than originally planned.

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Why Version 4.2.8-p Matters

While we prepare this next-generation Evolution release, we didn't want you to wait to benefit from exciting new features. That's why we're introducing Evolution BMS 4.2.8-p as a pre-release. This update delivers significant improvements, enhancements, and new capabilities that make your system more powerful and easier to use right now, while preparing the platform for the next big step forward.

What's New at a Glance

Version **4.2.8-p** takes Evolution BMS another step forward. Updates are now **smarter and more reliable**, with streamlined system notifications and cloud-based firmware handling. **Process point management has been refined**, including auto-creation of status data points and easier configuration options, making setup faster and less error-prone.

Visualization and analytics are sharper, with extended logging, better chart tools, and improved system insights. **Smart metering and DALI integration** are more intuitive and flexible, while **security and automation** have been strengthened with new notification and alarm features.

Connectivity also gets a boost: N**ode-RED and MQTT integration** open the door to faster IoT workflows and seamless cross-protocol automation. Finally, **templates and scenes are more flexible than ever**, giving integrators greater freedom to design, reuse, and share system logic.

What's New & Improved in Version 4.2.8-p

**1. New Configuration Panel in Webmin**
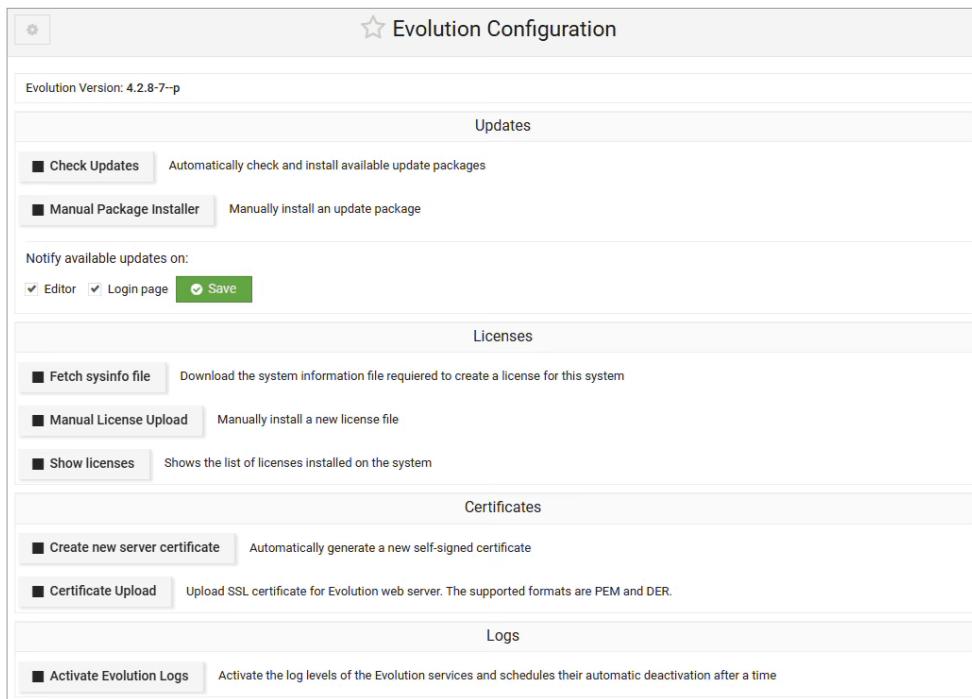
The server tool panel in Webmin has been completely improved and integrated to offer more streamlined and centralized administration. Key new features include:

- **Unified integration**: All server administration tools are now located in a single panel, simplifying management and avoiding menu clutter.
- **Smart Server Update**: A new tool that allows you to keep your server up-to-date more efficiently and securely.
- **License Management**: Ability to quickly and clearly view all licenses installed on your server.
- **SSL Certificate Installation**: A dedicated tool that makes it easier to install and manage security certificates.
- **System Log Control**: A new feature to enable, disable, and download system logs from the panel itself. Logs will be disabled after a configurable time.
- **Update Notifications**: You can now configure where to display available update notifications, either in the editor or directly in the visualization interface (Visu).

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2. Smarter System Updates

- **Firmware Update from the Cloud** – Easily keep your system up to date with direct cloud-based firmware upgrades.
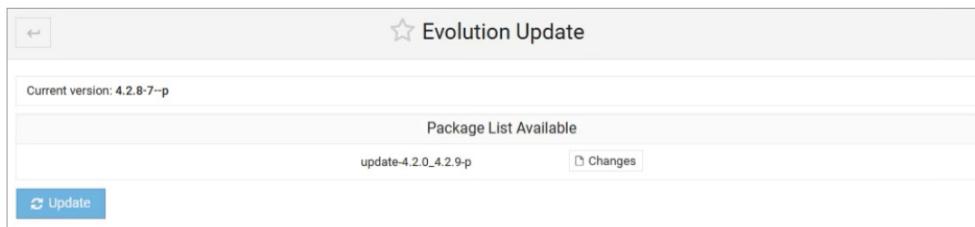
- **New Update Notifications** – Alert icons in the editor and login screen inform you instantly when a new update is available.
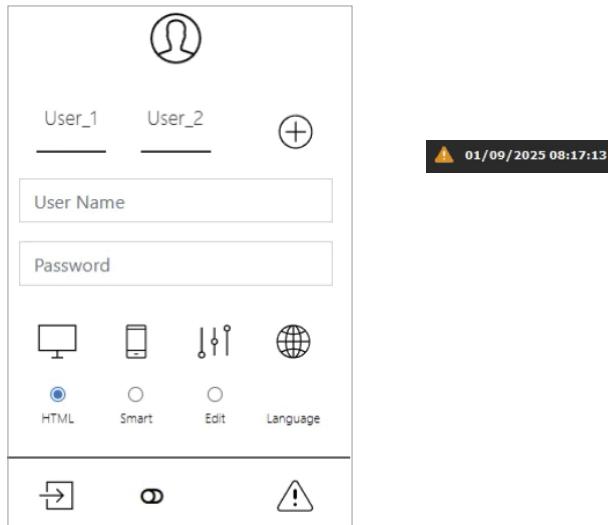
3. Enhanced Process Point Management

- Improved startup handling for smoother system initialization.
- Option to automatically send the **default** or **last received value** when the status is unknown.
- **Process point interpolation disabled by default** to maintain full control.
- **Import and Export Pages with Process Point Templates** – faster configuration and easier migration between projects.
- Improved import of **Group Addresses** from ESF and KNXPROJ files, prioritizing the first address to avoid duplicates.
- Allow **Status Group Address Imports** using **Prefix/Suffix Text Match**.

4. Automatically Add Status Data Point When Creating/Updating a Process Point:
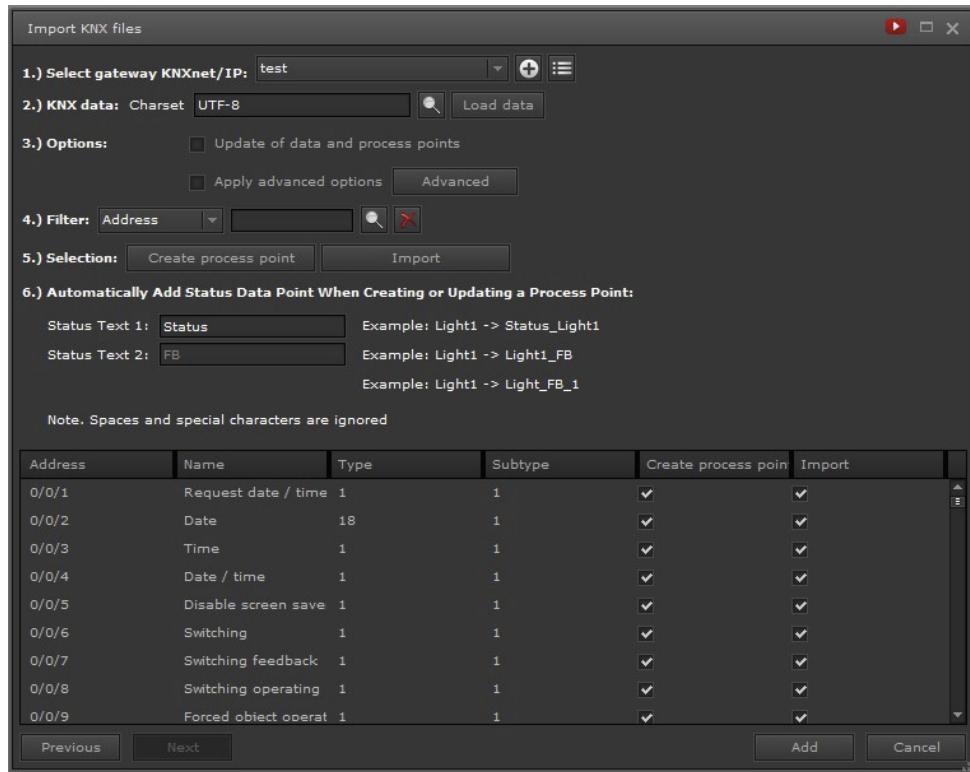
- The program can automatically detect and link the corresponding **Status Data Point** if the Status Group Address follows a naming pattern based on the **Sending Group Address**.

Required Fields:

- **Status Text 1 and Status Text 2 (optional)**: if one or both appear in the Status Group Address, the rest of the status text matches the Sending Group Address exactly. For example: sending ⟨livingroom/light⟩ , status ⟨_fb_livingroom/light⟩ ⟨(_fb_⟩ = status text; the rest ⟨livingroom/light⟩ = Sending Group Address).

Notes:

- Spaces and special characters are ignored.
- If only a status group address exists without a matching sending group address, a new process point will be created without the sending group.

Example 1 – Normal Case with Both Sending and Status Addresses:

- Sending Group Address: Light1
- Status Text 1: Status
- Status Text 2: FB
- Matched Status Group Addresses: Status_light1, Light1_FB, Light_FB_1
- Process Point Created:
  ◦ Sending Datapoint: Gateway:1/1/1 (**Sending flag activated**)
  ◦ Status Datapoint: Gateway:1/1/101 (**Read to bus flag activated**)

Example 2 – Only Status Group Address Exists:

- Process Point Created:
  ◦ Sending Datapoint: **None**
  ◦ Status Datapoint: Gateway:1/1/101 (**Read to bus flag activated**)

5. Process Point Configuration
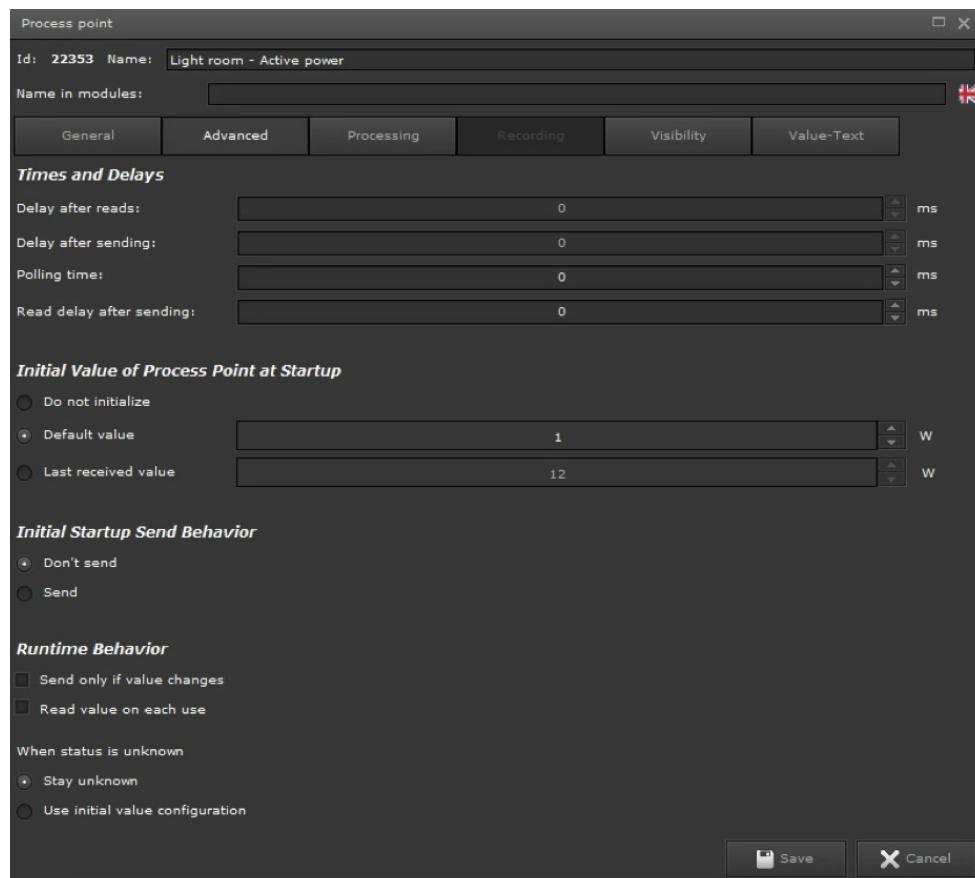
Times and Delays:

- Delay after Reads (ms)
- Delay after Sending (ms)
- Polling Time (ms)
- Read Delay After Sending (ms)

Initial Value at Startup:

- Do Not Initialize
- Default Value (**Recommended**)
- Last Received Value

Initial Startup Send Behavior:

- Don't Send
- Send Immediately

Runtime Behavior:

- Send Only If Value Changes (optional)
- Read Value on Each Use
- Unknown Status Handling:
  - **Stay Unknown (default)**
  - **Use Initial Value Configuration**

6. Better Visualization and Analytics

- **Advanced Chart Enhancements**:
  - Horizontal axis can use values from a Process Point
  - Choose unit of time for run-hours (seconds, minutes, hours)
  - Select which data columns to export
  - Export complete series data, including templates
  - Export respects locale configuration (decimal separators)
- Increased number of characters in alarm email messages
- Extended system log retention for historical tracking

7. Improved Smart Metering & DALI Integration

- Export DALI reports directly via the Export Tool
- Change ECG and Group names directly within the DALI Module
- Smart Metering favorites easier to manage and navigate

8. Security, Notifications & Automation

- Hysteresis support for alarm thresholds
- Email notifications can include exported files (up to 10MB)
- Added an Email field in user profiles

9. Upgraded Connectivity & IoT Integration

- Upgraded Mosquitto MQTT with Webmin Panel to enable/disable service
- Digest authentication and improved delay handling for network cameras
- New SRS Service for improved network camera streaming

10. More Flexible Templates & Scenes

- Fully customizable templates: any text, pass parameters, inherit values from parent templates
- Import and export complete scenes in XML format

11. Better Logging & System Insights

- Registry now logs login and logout events
- Notifications displayed directly on the dashboard

12. Evolution BMS – MQTT Integration

Introduction to MQTT

MQTT **(Message Queuing Telemetry Transport) is a lightweight, publish/subscribe messaging protocol** designed for **fast and efficient communication** between devices.

It is widely used in **IoT** and **building automation** because:

- It uses **minimal bandwidth.**

- It works reliably on **unstable networks**.
- It enables **seamless communication** between multiple devices.

In MQTT, communication is based on three main components:

- **Publishers** → Send messages to topics.
- **Subscribers** → Receive messages from topics.
- **Broker** → Manages message distribution between publishers and subscribers.

Node-RED and Evolution BMS

Node-RED is a powerful, **visual programming tool** integrated into **Evolution BMS**. It allows you to easily create **automation flows** between devices, services, and protocols **without complex coding**.

In Evolution BMS, Node-RED can interact directly with:

- **KNX**
- **BACnet**
- **Modbus**
- **DALI**
- **MQTT**
- And other supported communication protocols

Its **drag-and-drop interface** simplifies integration and automation, making it ideal for quickly creating flexible and powerful control logics.

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Evolution BMS MQTT Integration
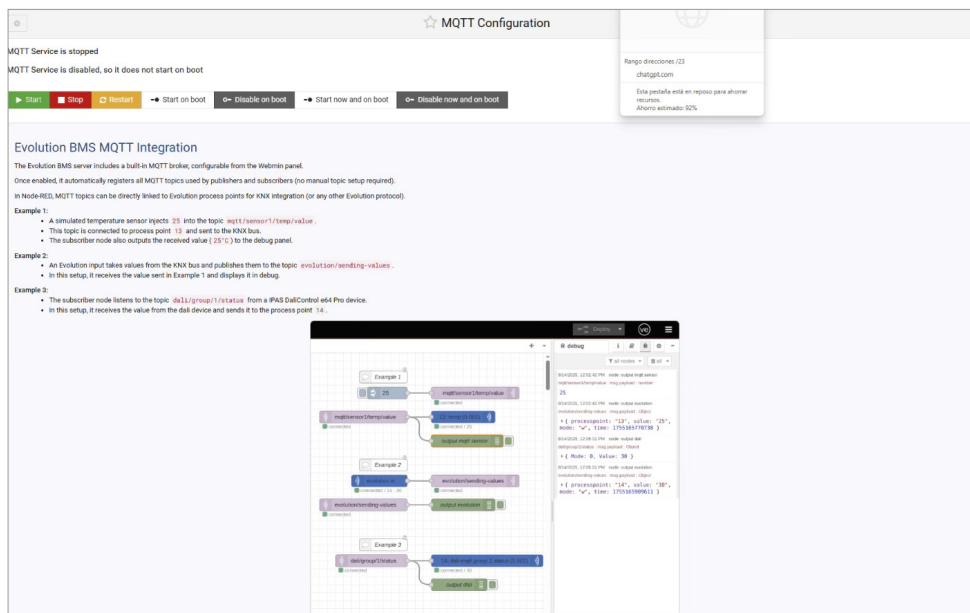
The **Evolution BMS** server includes a **built-in MQTT broker**, which can be fully configured via the **Webmin panel**.

Key Features:

- **Integrated MQTT Broker** → No need for external brokers.
- **Auto-Topic Registration** → All topics used by publishers and subscribers are automatically registered.
- **Node-RED Integration** → MQTT topics can be **directly linked** to Evolution process points for **KNX integration** or any other supported protocol.

Examples
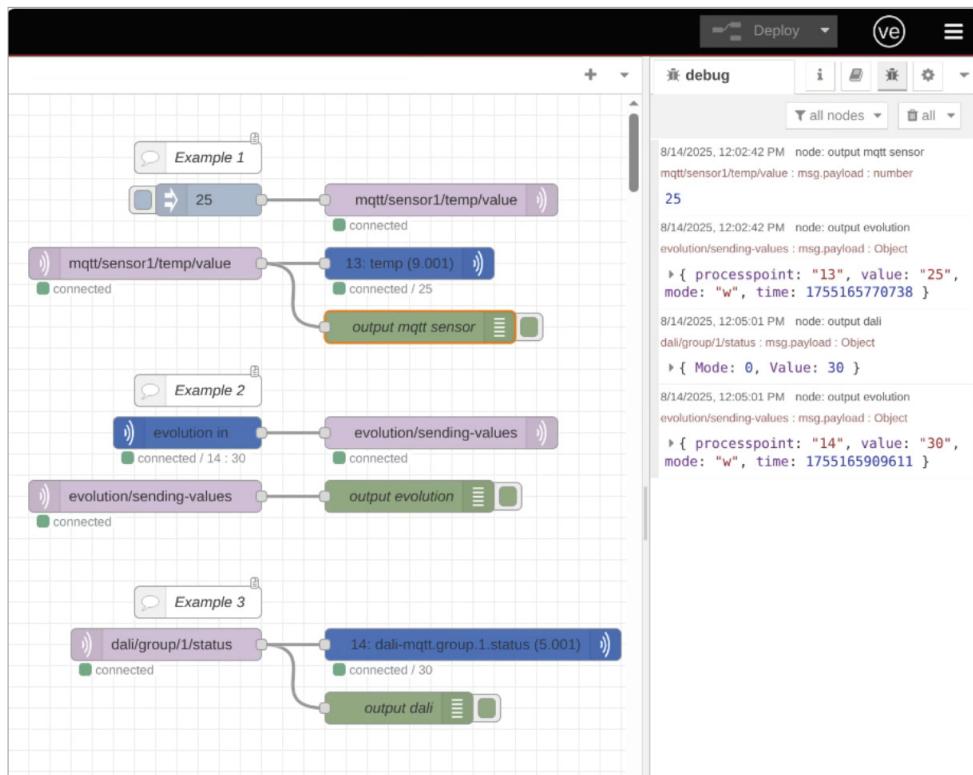
Example 1: MQTT Sensor → Evolution → KNX

1. A simulated temperature sensor **publishes** a value of **25** into the topic:
2. mqtt/sensor1/temp/value.
3. This topic is connected in **Node-RED** to **process point 13**.
4. Evolution **sends** the value to the **KNX bus**.
5. The **subscriber node** also displays the received value (25°C) in the **debug panel**.

Example 2: KNX → Evolution → MQTT

1. An **Evolution input** retrieves values from the **KNX bus**.
2. It **publishes** them to the topic:
3. evolution/sending-values
4. In this setup, it **receives the value** sent in **Example 1** and displays it in the **debug panel**.

Example 3: DALI → Evolution → KNX

1. **The subscriber node listens to the topic:**
2. **dali/group1/1/status**
3. **The values are received from an IPAS DaliControl e64 Pro device.**
4. **Evolution sends these values to the process point 14 for further use in KNX or other protocols.**

Summary & Best Practices

- Use the **built-in Evolution MQTT broker** for seamless integration.
- Use **Node-RED** to create flexible automation flows between different protocols.
- Always use **descriptive topic names** for better organization.
- Enable **TLS encryption** and **authentication** when exposing the MQTT broker externally.

Why Update to Evolution BMS 4.2.8-p?

This release focuses on **smarter updates, better data visualization, improved IoT integration**, and enhanced usability for both integrators and end-users. With streamlined configuration tools and more powerful analytics, Evolution BMS continues to lead as one of the most **versatile and scalable building management solutions** available. Upgrade today and be ready for the revolutionary next version!

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A look Ahead - Next big release Version 5.0

EVOLUTION BMS

KNX SECURE

LoRaWAN®
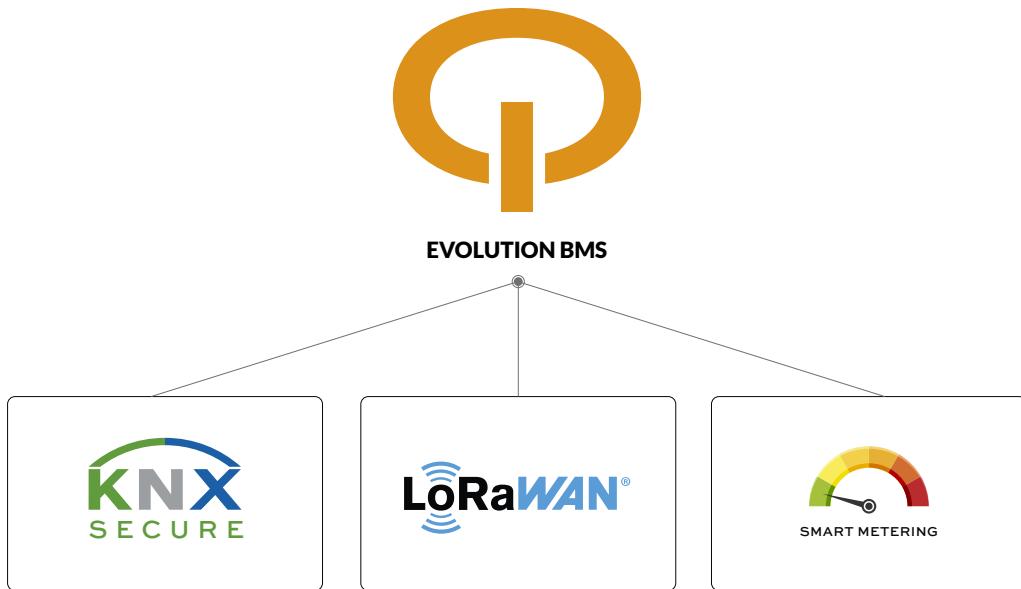
SMART METERING

- **Integration of LoRaWAN**
- **Implementation of KNX Secure, in line with the Cyber Resilience Act requirements for secure communication**
- **Advanced Smart Metering Module with extensive custom adaptations and a very complete Reporting Tool.**

These advancements make the next release significantly more powerful and future-proof, ensuring that Evolution continues to set new standards in building management. The upcoming major version will feature a completely redesigned user interface – modern, intuitive, and equipped with reusable, responsive widgets that can be flexibly used across dashboards. Additionally, it will introduce the Advanced Smart Metering Reporting Tool, integrating the most important widgets directly into the new dashboard for more powerful analytics.