# Commissioning IoT Applications in Homes and Buildings

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# Outline

- **Commissioning IoT Devices**

- **Smart Home Commissioning**

- **Smart Building Commissioning**

- **Resources available to developers**

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# Commissioning IoT Devices

Unbox    Configure    Attest    Connect

Commissioning IoT devices can be difficult and time consuming.
For consumers and professional installers, this can lead to poor experiences and higher cost installations.

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# Smart Home Wireless Commissioning

**#1 Reason for Returns:**

**Consumer was not able to install device**

**Market Need:**

**Easy, Secure, Intuitive Wireless Commissioning**

**Trending Technologies:**

# Smart Home Commissioning Technologies

| | **NFC** | **SMART START** | **Bluetooth** | **matter** |
|---|---|---|---|---|
| **Ease of use** | The most Intuitive | Use Smart Phone | From Smart Phone | Uses Bluetooth for Commissioning |
| **Proximity** | Need to come close to device | Remote | Remote | Remote or QR code |
| **Scalable?** | No | Yes | Yes | Yes |
| **Added Cost?** | Yes, Antenna and Circuitry | No | No | BLE for Commissioning |

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# Smart Building Technologies

The new normal is driving more wireless in the building

### Device Shipments [1000s units]
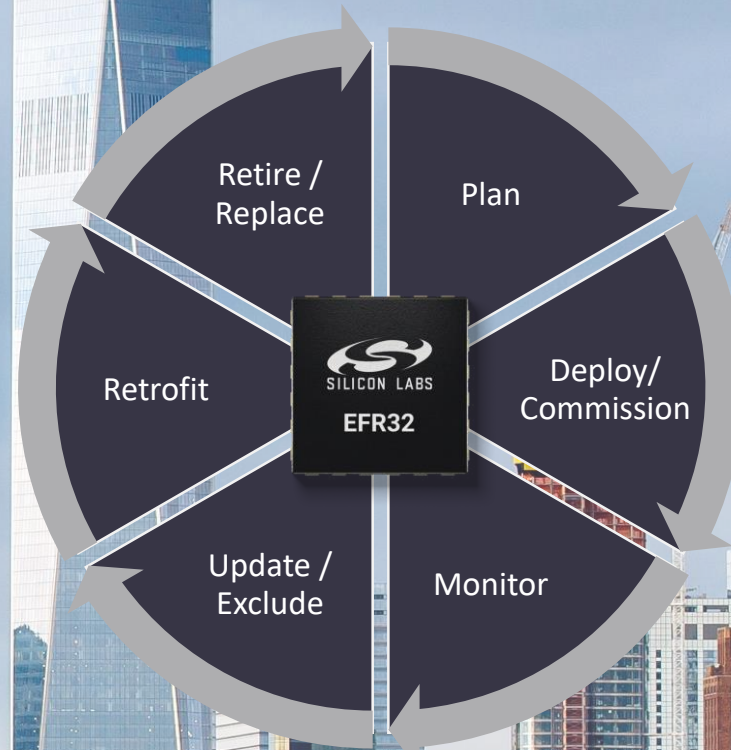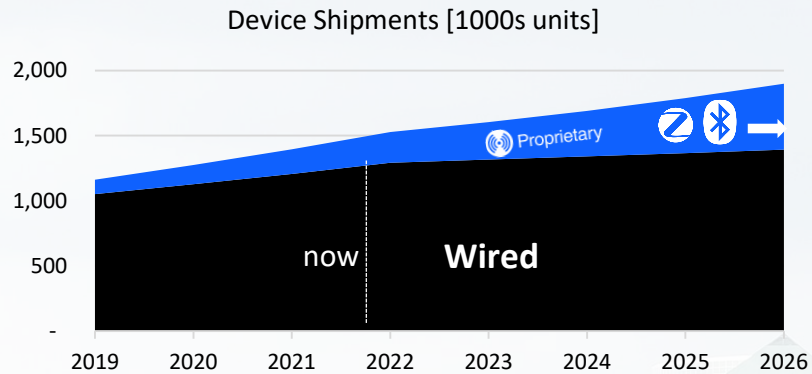


Wireless connectivity is driving profitability for the entire device life cycle

# Wired Commissioning Pain-points



Technician (with proper training) needs to physically commission devices on the network one by one (Extremely time consuming)

Wireless can make fault detection and debugging a lot simpler

Only a few devices per field bus connectors

Running wires is expensive and cannot be revoked once set up

Manual device configuration is error prone

Wireless can automate and streamline commissioning maps

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# Wired/Wireless Hybrid

Early adopters are looking at adding end node wireless connectivity for commissioning and diagnostics



Bluetooth remote commissioning enables commissioning via a smartphone app

Establishing a zero-trust secure connection is necessary for wireless remote commissioning
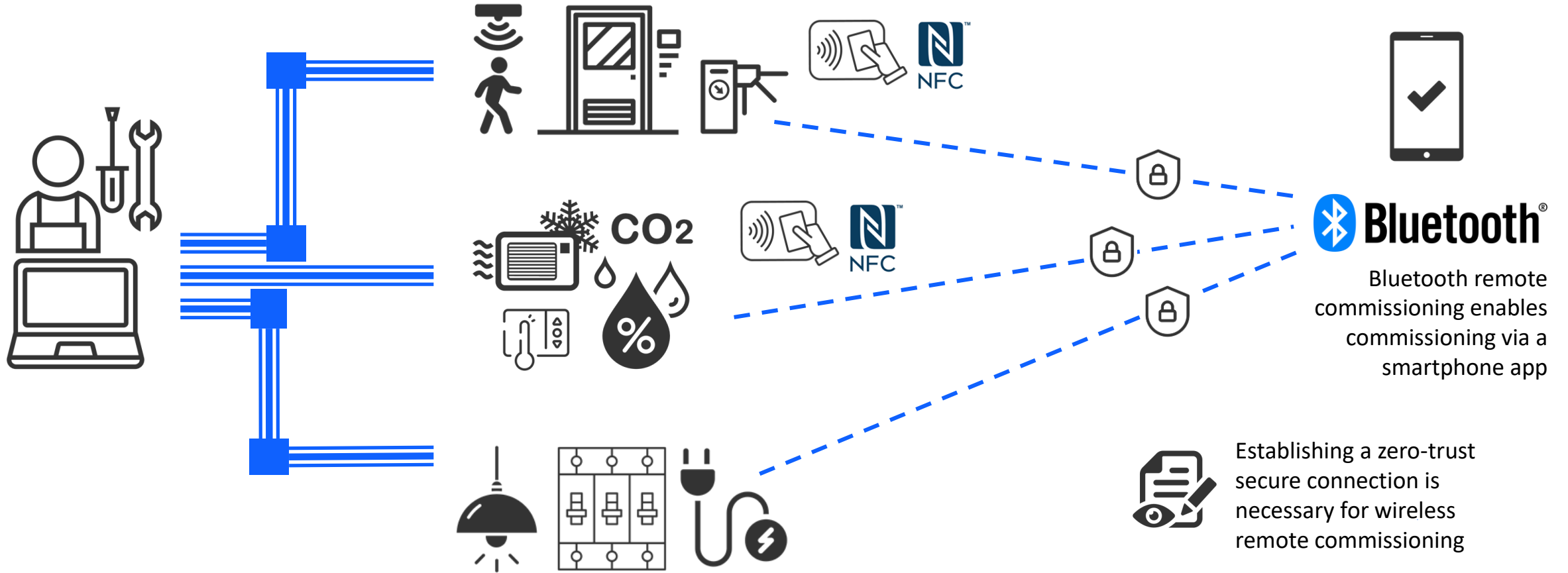
# Wired/Wireless Hybrid **Provisioning** Technologies

| | NFC | Bluetooth | Button | LED |
|---|---|---|---|---|
| **Benefits** | All-in-one operation | Perfect for difficult to reach devices | The most intuitive | Clear indication of device-action |
| | Passive NFC doesn't not require a powered device | No additional cost to implement | Does not require external equipment for commissioning | Cheap to implement |
| | Device can be fully enclosed | Supports entire device lifecycle (diagnostics, updates, security) | | Can be used to identify device at a distance |
| **Challenges** | Added cost of NFC antenna and silicon (large antenna footprint) | Latency | Requires physical access to device | Requires special feature in enclosure to pass light |
| | Requires proximity to device | | Added cost | Requires technical expertise to operate |

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# Wireless Smart Buildings

✓ **Planning and physical deployment made easy**

    ✓ Removing human error / increasing data quality for monitoring and control

○ **Concerns about secure commissioning and reliable connection (immature adoption)**

    ✓ However, provides advantage of remote provisioning

✓ **Added advantage of configuring from smart device (without being tethered to sensor).**

    ○ The challenge is connecting to the desired node in a dense network.

✓ **Sensors/Controllers can be easily debugged**

✓ **Battery lifetime is getting longer**
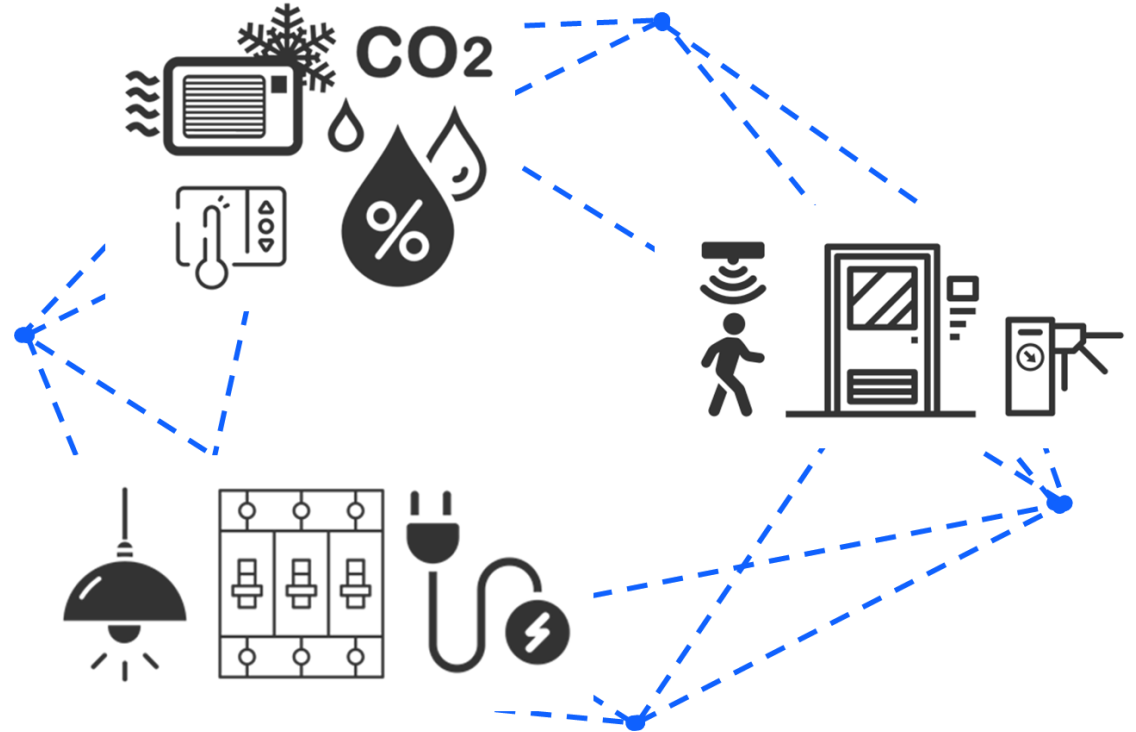
# The Future of Wireless Commissioning



Market need: zero-touch reliable, secure and simple wireless commissioning
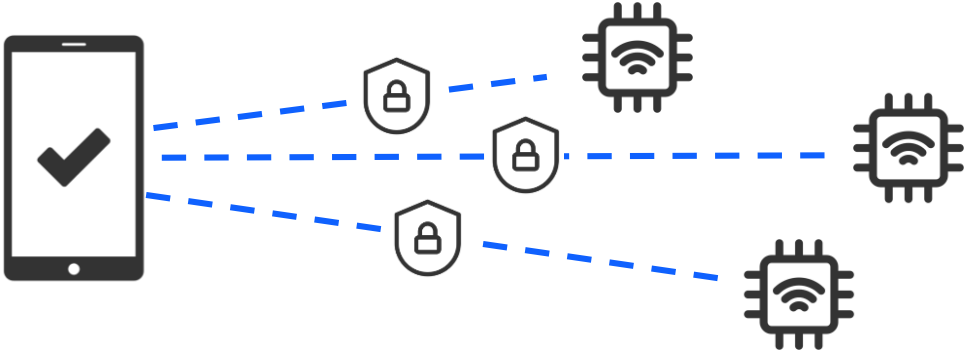
# Resources

SILICON LABS | SUPPORT & COMMUNITY     Products ∨   Share ∨   Blogs          silabs.com   Help

## Knowledge Article

**Related Sessions:**

ZIGBEE

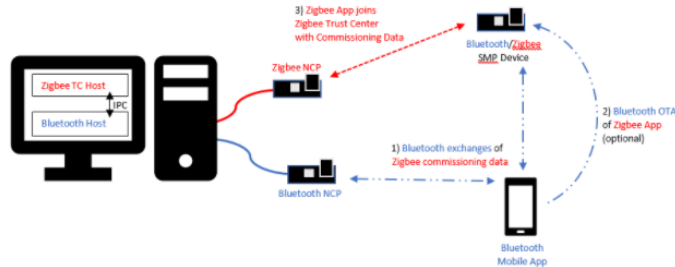### (Part 1 of 2) Bluetooth Commissioning Test System -- Switched Multiprotocol (SMP

🕐 Jul 17, 2021 · Knowledge

**DETAILS**
**Introduction**

This set of sample apps provided in the Gecko SDK Suite (from v1.0.1) is designed to demonstrate Mobile App-based commissioning of a Switched Multiprotocol Bluetooth Low Energy (BLE) / Zigbee joining device using a Trust Center with both BLE and Zigbee communications. It is described in section 8 of UG267.

[NOTE: As of Q3 2017, this suite of sample applications and documentation is currently broken. This KBA will detail the areas in the applications which have problems and will be updated when the bugs are corrected.]

This KBA is intended to describe the structure of the system, how the it should work, and give some step-by-step instructions for using it as a supplement to UG267.

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### SEC-201: Applying Security to Verify Deployed Products are Authentic

Tue Sep 14, 12:00 PM - 12:45 PM CDT  (45 Min)

### WIR-201: RF Range Extension Solutions for Homes and Buildings

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Thank you

# Abstract

- **Commissioning IoT applications in homes and buildings – How wireless, mobility, and cloud are enabling simpler and faster ways to add IoT devices to a network.**

  User experience starts from the minute the user unboxes the product.   If the IoT product is difficult to set up, consumer ratings tank and your brand is on the line.   In large commercial deployments, the challenge is even worse – commissioning IoT devices equates to time and money, and cloud-to-silicon security is paramount.

  In this session, learn about the various ways that unboxing, commissioning, and provisioning can be achieved in a simple and secure way.   This session will discuss the major trends and discuss the various solutions from QR codes, NFC, Z-Wave (Smart start), Bluetooth, and more by comparing the pros and cons of each.

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