

6. Radios & Protocols

SMHUB integrates multiple radios to support a **broad range of smart home and IoT protocols**, making it a true **multi-radio coordinator and Matter bridge**.

6.1 Zigbee

- **Chipset:** TI CC26xx series.
 - **Port:** /dev/ttyS1
 - **Baudrate:** 115200
 - **RTS/CTS:** false
 - **Protocol:** Zigbee 3.0 and legacy devices.
 - **Software:** Zigbee2MQTT (Z2M).
 - **Integration:**
 - Pairs and manages Zigbee devices directly.
 - Publishes states/events via the preinstalled **Mosquitto MQTT broker**.
 - Compatible with Home Assistant, OpenHAB, Node-RED, and other MQTT platforms.
 - **Coordinator Mode:** Can operate as a standalone Zigbee coordinator, without additional servers.
-

6.2 Thread

- **Chipset:** Silicon Labs EFR32MG series.
 - **Port:** /dev/ttyS2
 - **Baudrate:** 115200
 - **RTS/CTS:** false
 - **Protocol:** Thread 1.1/1.2.
 - **Integration:**
 - Acts as an **OpenThread Border Router (OTBR)**.
 - Works with **Matterbridge**, exposing Thread/Zigbee devices into Matter.
 - **Use Cases:**
 - Bridging Zigbee sensors to Matter.
 - Running mixed Zigbee + Thread networks.
-

6.3 Z-Wave

- **Radio Module:** EFR32ZG23 expansion module.
 - **Port:** /dev/ttyS3
 - **Baudrate:** 115200
 - **RTS/CTS:** false
 - **Protocol:** Z-Wave 700/800 series, including **Z-Wave Long Range (LR)**.
 - **Software:** Managed via Z-Wave JS (installable).
 - **Integration:**
 - Local Z-Wave or Z-Wave LR networks.
 - Automation via Node-RED and MQTT.
 - **Hardware:** Dedicated LED and reset/flash pins for diagnostics and firmware updates.
-

6.4 4G/LTE (in development)

- **Module:** SIM7672G LTE modem.
 - **Port:** /dev/ttyS4
 - **Baudrate:** 115200
 - **RTS/CTS:** false
 - **Capabilities:**
 - LTE Cat 1 connectivity.
 - Interfaces: USB, debug UART.
 - Antenna connectors for LTE and GNSS.
 - SIM slot with SIM detection.
 - **Status:** Hardware fully integrated, **software support is in active development.**
 - **Planned Functions:**
 - LTE fallback connectivity.
 - Remote site deployments without Ethernet/Wi-Fi.
-

6.5 Wi-Fi

- **Bands:** Dual-band **2.4 GHz** and **5 GHz**.
 - **Modes:** Access Point (AP) and Client.
 - **Use Cases:**
 - 2.4 GHz: long range, high compatibility.
 - 5 GHz: higher bandwidth, reduced interference.
 - **Integration:** Used for device connectivity and as a network backbone when Ethernet is not available.
-

6.6 Bluetooth

- **Version:** Bluetooth 5.0.
 - **Support:** Bluetooth Low Energy (BLE).
-

6.7 Multi-Radio Operation

- Zigbee + Thread + Wi-Fi + Bluetooth operate simultaneously out of the box.
 - Z-Wave and 4G/LTE are available via expansion modules.
 - Hardware and firmware are designed to minimize interference and ensure stable concurrent radio operations.
-

6.8 Matter Bridge

SMHUB can function as a **Matter bridge**, allowing non-Matter devices to join modern ecosystems:

- Bridges Zigbee and Thread devices into Matter.
 - Compatible with Google Home, Apple Home, Amazon Alexa, SmartThings.
 - Entirely **local bridging** — no third-party cloud services required.
-

Revision #2

Created 8 September 2025 16:31:51 by Support3

Updated 6 October 2025 13:42:15 by Taras