

BlueNRG-Mesh

Bluetooth Low Energy networking for a smarter home



BlueNRG-Mesh brings Smart Home appliances to your fingertips

Bluetooth mesh networking is an emerging technology designed to ensure network connectivity over large areas using the Bluetooth Low Energy protocol, going beyond the simple one-to-one and one-to-many connections.

ST's Mesh SDK (STSW-BNRG-Mesh) simplifies Bluetooth Low Energy adoption, reduces development costs and accelerates time-to-market. It offers easy-to-use networking APIs for developers based on a certified Mesh Profile Library and Bluetooth LE stack. Mobile apps for Android and iOS are available.

KEY FEATURES

- Bluetooth® Mesh 1.0 **certified**
- Up to 32767 nodes and 126 hops
- **Managed flooding** based networking
- **Proxy protocol**, using legacy Bluetooth LE GATT connectivity
- Two-layer **security**, thanks to 128-bit AES-CCM encryption and 256-bit ECDH protocol
- **Low-power** and **Friendship** features
- Publish-subscribe paradigm
- Provisioned node database transfer among smartphones via Email and Cloud application
- Supports all **BlueNRG** family devices

KEY BENEFITS

- Extends network coverage to large areas
- Use Bluetooth LE enabled smartphone to monitor and control multiple BLE nodes
- Protection from multiple attacks, including Replay, Bit-Flipping, Eavesdropping, Man-in-the-Middle and Trashcan

KEY APPLICATIONS

- Smart Home and Building Automation
- Smart Industry and Industrial Automation
- Smart City
- Smart Meters and Energy Management
- Asset Monitoring and Tracking
- Healthcare



COMPREHENSIVE DEVELOPMENT ECOSYSTEM

Embedded firmware and mobile software SDK

The Mesh over Bluetooth Low Energy (STSW-BNRG-Mesh) package lets you easily create your own application for range extending BLE mesh networks, offering a ready-to-use Mesh Profile library, a complete set of compatible APIs, and a lighting reference design demo application.

A specific user manual (UM2295) helps you

during the Firmware development stage. The package also contains source code to build your own mobile app on both Android and iOS devices with BLE capability. BlueNRG Mesh API guides (UM2290 and UM2417) help you with Android- and iOS-based devices (smartphones, tablets, etc.) with Bluetooth low energy capability.

Pre-built mobile apps are available for evaluating and developing Mesh over Bluetooth low energy solutions. Manuals UM2180 and UM2361 explain how to provision, un-provision and control nodes in the Mesh network using your own Bluetooth LE enabled smartphone.

MESH OVER BLUETOOTH LOW ENERGY SDK ARCHITECTURE

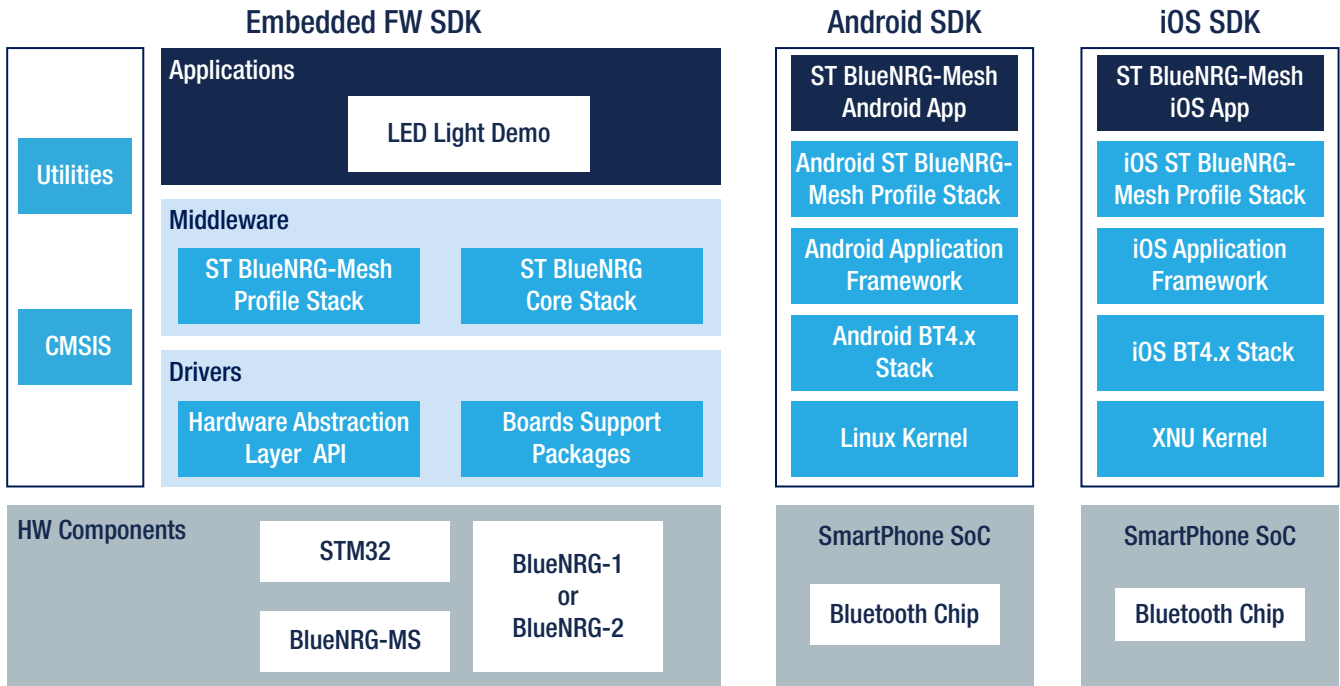



TABLE OF SUPPORTED EVALUATION KITS

BlueNRG chip	Evaluation board	Note
BlueNRG-2 Application Processor	STEVAL-IDB008V2	-
	STEVAL-BCN002V1B	BlueNRG-Tile Bundle Kit
BlueNRG-1 Application Processor	STEVAL-IDB007V1 / V2	-
	STEVAL-IDB007V1M	Software porting available upon request
	STEVAL-BLUEMIC1	
BlueNRG-MS Network Processor	X-NUCLEO-IDB05A1	 STM32 Open Development Environment NUCLEO-L152RE NUCLEO-L476RG NUCLEO-F401RE



ST COMMUNITY

<https://community.st.com/blimesh>

