

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 BlueNRG Mesh Software Development Kits (SDKs) simplify Bluetooth Low Energy adoption, reduces development costs and accelerates time-to-market. They offer easy-to-use networking APIs for developers based on a certified Mesh Profile Library, Mesh Server and Client Profile, and Bluetooth LE stack. Mobile apps for Android and iOS are available.

KEY FEATURES

- Bluetooth Mesh 1.0.1 certified Profile Library
- Bluetooth Mesh 1.0 certified Server and Client Model
- 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 of 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

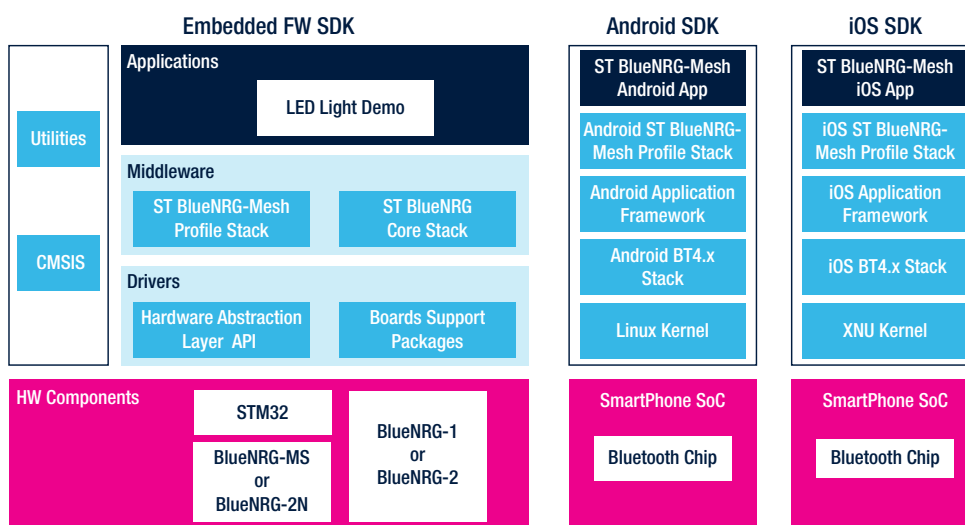
Embedded firmware and mobile software SDKs

The Mesh over Bluetooth Low Energy (**STSW-BNRG-Mesh** for BlueNRG Wireless Processors, and **X-CUBE-BLEMESH1** for BlueNRG Network Processors) packages let you easily create your own application for a 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 a 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.

Several application notes are available to complement the existing documentation. **AN5285** will help you properly configure low power features, and **AN5410** will support you in configuring the neighbor information database.

Mesh over Bluetooth Low Energy SDK architecture



Development Tools

	BlueNRG Mesh SDK	BlueNRG device	BlueNRG evaluation kit	
	STSW-BNRG-MESH (BlueNRG Wireless Processor)	BlueNRG-1	STEVAL-IDB007V2	
		BlueNRG-2	STEVAL-IDB008V2	
			STEVAL-IDB009V1	
			STEVAL-BCN002V1B (BlueNRG-Tile)	
 STM32 Open Development Environment NUCLEO-L152RE NUCLEO-L476RG NUCLEO-F303RE	X-CUBE-BLEMESH1 (BlueNRG Network Processor)	BlueNRG-M2SA	STEVAL-IDB008V1M	
		BlueNRG-MS	STEVAL-BLUEPLUG1(*)	
			BlueNRG-M0A	X-NUCLEO-IDB05A2
			BlueNRG-2N	X-NUCLEO-BNRG2A1
BlueNRG-M2SP				
NUCLEO-L152RE NUCLEO-L476RG NUCLEO-F303RE	FP-SNS-BLEMESH1 (BlueNRG Network Processor)	BlueNRG-M2SA	STEVAL-MKSBOX1V1(*) (SensorTile.box)	

Note: (*) Based on SPBTLE-1S (NRND)



ST COMMUNITY

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



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