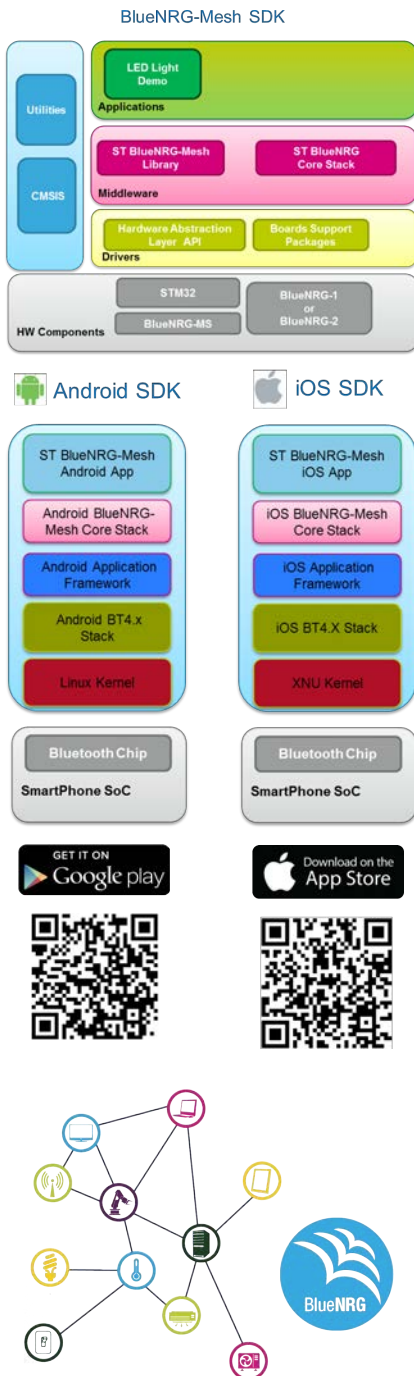


Mesh over Bluetooth low energy



Features

- Mesh network with Bluetooth low energy (BLE) nodes enabling communication between a BLE device and a Smartphone
- Control and monitor applications involving short packets
- Advertising packets used for data communication using managed flooding method
- Multi-hop data transmission up to 126 hops
- Network node support up to 32,767 nodes
- Multiple communication scenario
 - Smartphone to node communication with unicast addressing
 - Smartphone to node communication with multicast (Group) addressing
 - Smartphone to node communication with broadcast addressing
 - Node to node communication
- Secure communication
 - Devices added to a network are provisioned using proven security algorithms using 256-bit elliptic curves
 - All messages in the network are encrypted with AES-128 CCM mode
 - Privacy through obfuscation
 - Protected against security attacks like Brute-force, Bit-Flipping, Eaves Dropping, Replay, Trashcan, Man in the middle and physical insecure device attacks
- Supported features
 - Publish-subscribe paradigm (up to 10 groups)
 - Node UUID configurable by user
 - Transport layer handling up to 384-byte packets
 - Provisioning and network layer based on Mesh profile v1.0
 - Heartbeat
 - Provisioned node database transfer among smartphones via e-mail and cloud applications
 - Multiple element per node support
 - Key refresh
 - Initialization vector update procedure
 - Whitelist and blacklist filtering
- Supported models
 - Configuration model
 - Health model
 - Generic model on-off, level example
 - Lighting model example
 - Vendor model
- Embedded SDK available
 - Demo Application source code for user application development
 - Mesh stack provided as precompiled/object library
 - Support for BlueNRG product family

Product summary	
STEVAL-IDB008V2 evaluation platform based on the BlueNRG-2	STEVAL-IDB008V2
STEVAL-IDB007V1 evaluation platform based on the BlueNRG-1	STEVAL-IDB007V1
STEVAL-IDB007V2 evaluation platform based on the BlueNRG-1	STEVAL-IDB007V2
Bluetooth Low Energy expansion board based on SPBTLE-RF module for STM32 Nucleo	X-NUCLEO-IDB05A1
STM32 Nucleo-64 development board with STM32L152RE MCU, supports Arduino and ST morpho connectivity	NUCLEO-L152RE

- Ready examples for STEVAL-IDB007V1 and STEVAL-IDB007V2, STEVAL-IDB008V2, and X-NUCLEO-IDB05A1 with NUCLEO-L152RE
- Over-the-air (OTA) firmware upgrade example for BlueNRG-2 over GATT
- Android and iOS SDK available
 - Demo App source code available
 - Mesh implementation provided as library
 - Android App available on Google Play Store
 - iOS App available on iTunes
- Supported devices:
 - BlueNRG-1
 - BlueNRG-2
 - BlueNRG-MS with STM32L152RE
 - Module support for SPBTLE-RFTR (BlueNRG-MS) and SPBTLE-1S (BlueNRG-1)
 - Embedded SDK is easily portable on other evaluation boards using BlueNRG family of products by modifying the board support package (BSP)
- BT SIG Mesh 1.0 Certification

Description

BlueNRG-Mesh is a software solution for connecting multiple BLE (Bluetooth low energy) devices in Mesh networks for Internet of Things (IoT) solutions. It enables true two-way communication between Bluetooth-enabled devices in powerful, secure, integrated and range-extending Mesh networks.

The solution is compatible with the ST BlueNRG product family range.

Applications

- Smart home (lighting, HVAC, security and access control, healthcare)
- Asset tracking
- Assisted living
- Smart city (street lighting, general purpose messaging)

1 Licensing and other information

Developer-friendly license terms

The initial BlueNRG-Mesh is built over Motorola's Mesh Over Bluetooth Low Energy (MoBLE) technology.

The present solution involving both the Mesh library and applications is developed and maintained solely by STMicroelectronics.

Revision history

Table 1. Document revision history

Date	Version	Changes
21-Sep-2017	1	Initial release
14-Jun-2018	2	Updated cover page image, features and description Added cover page product summary table. Removed Section 1: Evaluation board compatibility.
02-Aug-2018	3	Updated cover page features.

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