



Application Note: JN-AN-1174

IEEE 802.15.4 Application Template for JN516x

This Application Note accompanies the software template for applications designed to run on NXP JN516x microcontrollers in IEEE 802.15.4-based wireless networks. This document introduces the template and directs you to the documentation which details how to use the template.

Application Overview

The software template provides a basis for your own application development for JN516x devices in IEEE 802.15.4-based networks. It is designed to streamline your application development and to help you rapidly achieve effective IEEE 802.15.4 applications. You can modify the supplied code to adapt it to your own application needs. Note that the code is relevant to non-beacon enabled networks only.

The supplied code provides the basic framework for getting a network up and running. It includes the necessary function calls for setting up the network, and then transmitting and receiving data. Separate code is provided for the network Co-ordinator and End Devices.

Compatibility

The software provided with this Application Note is intended to be used with the following NXP kits and SDK versions:

| Product Type | Part Number | Version |
|----------------------|--------------|---------|
| Evaluation Kit | JN516x-EK001 | - |
| SDK Libraries | JN-SW-4163 | V1052 |
| BeyondStudio for NXP | JN-SW-4141 | V1111 |

Where Next?

Before starting your IEEE 802.15.4 application development using the supplied template, you should refer to NXP's *IEEE 802.15.4 Stack User Guide (JN-UG-3024)*, which is available from the NXP Wireless Connectivity TechZone:

www.nxp.com/techzones/wireless-connectivity

Chapter 4 “Application Development” of this User Guide describes how to use the template provided in this Application Note. It describes the processes and function calls performed in the template code, as well as how to compile your finished application.

The *IEEE 802.15.4 Stack User Guide* should be consulted throughout your application development. It contains:

- **Introduction to the IEEE 802.15.4 standard:** If you are not already familiar with the standard, you are recommended to read the first chapter of this User Guide, which introduces the standard at an accessible level. You may find this chapter a useful starting point before accessing the detailed information available in the IEEE 802.15.4 specification (available from the IEEE).
- **Introduction to the NXP IEEE 802.15.4 software resources:** The User Guide indicates the software resources available from NXP to support IEEE 802.15.4 application development. This includes a Software Developer's Kit (SDK) containing an Application Programming Interface (API) which comprises a set of C functions and associated resources.
- **Guidance on use of the NXP 802.15.4 Stack API:** Common operations on the nodes of an IEEE 802.15.4 network are described with reference to the API functions needed to code them.
- **Resources of the NXP 802.15.4 Stack API:** The resources of the 802.15.4 Stack API are fully detailed, including functions, structures and enumerations.

Revision History

| Version | Notes |
|---------|----------------------------------|
| 1.0 | First release |
| 1.1 | Documentation references updated |
| 1.2 | Updated for BeyondStudio |

Important Notice

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. NXP Semiconductors takes no responsibility for the content in this document if provided by an information source outside of NXP Semiconductors.

In no event shall NXP Semiconductors be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, NXP Semiconductors' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the *Terms and conditions of commercial sale* of NXP Semiconductors.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors and its suppliers accept no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using NXP Semiconductors products, and NXP Semiconductors accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the NXP Semiconductors product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP Semiconductors does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using NXP Semiconductors products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). NXP does not accept any liability in this respect.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

All trademarks are the property of their respective owners.

NXP Semiconductors

For the contact details of your local NXP office or distributor, refer to:

www.nxp.com