NXP Semiconductors
Release Notes

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Kinetis Thread Stack v.1.2.5 Release Notes

Supporting KW41Z

1 Overview

These are the release notes for the Kinetis Thread Stack software version 1.2.5 implementing a wireless IPv6 mesh network protocol for Internet of Things devices. The release notes are included in the software package for which they apply.

See nxp.com/thread and www.threadgroup.org for more information about the Thread wireless network technology.

See nxp.com/wireless for more information about NXP Thread supported platforms.

Contents

2 Release Contents

The release contents are listed in the table below.

Table 1. Release Contents

Folder	Description
\middleware\wireless\nwk_ip_1.2.5\examples	Application source code, initialization and configuration files
\boards\<board_type>\wireless_examples\bluetooth\bluetooth	Bluetooth® profiles, host, controller and HCI transport for the multimode BLE and Thread functionality
\boards	Demo applications, driver examples, rtos examples and wireless application examples
\docs	Documents applying to the release
\boards\<board_type>\wireless_examples\thread\	Sample/demo projects for router eligible devices, end devices and host controlled device applications
\boards\<board_type>\wireless_examples\hybrid\	Sample/demo projects for Bluetooth Thread Router wireless UART, Bluetooth Thread Host Controlled Devices and Bluetooth 802.15.4 FSCI black box hybrid applications
\boards\<board_type>\wireless_examples\framework	Platform framework components
\tools\wireless\host_sdk	Thread Linux® OS Host Software (Python and C demos)
\boards\<board_type>\wireless_examples\ieee_802_15_4	IEEE® 802.15.4 MAC and PHY
\middleware\wireless\nwk_ip_1.2.5	Thread and network stack files
\devices	Platform linker configuration files for Thread applications
\tools\wireless	HostSDK, MyStarNetwork demo application, binary images, MAC/BLE/THREAD xml configuration files.
\rtos	Supported operating systems for the features included in the MKW41Z Connectivity Software package

3 Features Included

Kinetis Thread Stack 1.2.5 Release is a maintenance release for the KW41 platform.

The main features of this release are listed below.

- The stack provides Thread networking components over IEEE-802.15.4 MAC 2006 layer running on Kinetis MCUs which are enabled to use IEEE 802.15.4.
- The stack implements version 1.1 of the Thread Group core specification. The Thread stack has been certified by Thread Group.
- The stack comes with application examples for implementing Thread Router Eligible Device, Thread End Device (including Low Power/Sleepy End Devices) and Thread Border Router, with application examples for implementing the Over-The-Air Updates in a Thread Large Network, with support for MCUXpresso IDE and IAR® Embedded Workbench. It contains also application examples for multimode Bluetooth (BLE) and Thread.
- The stack comes with application examples and a Host API to implement the host MCU scenario where the Kinetis wireless MCU running the Thread stack is hosted by an application processor running a high-level operating system such as Linux OS, Android™ platform, or Windows® OS.

4 Software Deployment Considerations

- IAR Embedded Workbench for ARM® v7.80 or MCUXpresso IDE v.10.1.1 are required to build the example projects included in this release and deploy the protocol stack libraries.
- Folder paths for projects must be kept short to account for a nested directory path limit. Otherwise, compilation errors referring to header files which cannot be found can arise.

5 Platform Considerations

The current release of Thread stack includes EWARM and MCUXpresso projects for the following platforms.

- FRDM-KW41Z
- USB-KW41Z

The Thread stack architecture is RTOS-agnostic. Sample applications in the current release use the FreeRTOS OS configurations.

6 Known Limitations

- This release supports only the IAR Embedded Workbench, the MCUXpresso toolchains and the FreeRTOS kernel. A bare metal (task scheduler only) system is not supported.
- Maximum file path length in Windows® 7 Operating System: "Windows OS 7 imposes a 260-character maximum length for file paths. When installing the release, please place it in a directory close to the root, to prevent file paths from exceeding the maximum character length specified by Windows OS. The recommended location is the C:\NXP folder."
- The Thread Border Router application is available only for the USB-KW41Z board.

7 Recommended Memory Configurations

The following are default memory configurations for the different Thread projects available in this release.

- Thread border router (BR) default configurations:

	Memory Footprint (KB)	
	Flash	RAM
Default Apps	7	1
SDK, Tools, Framework	52	47
MAC/PHY	23	5
Thread	194	12
Total	276	65

- Thread router eligible end device (REED) default configurations:

	Memory Footprint (KB)	
	Flash	RAM
Default Apps	6	1
SDK, Tools, Framework	51	34
MAC/PHY	23	5
Thread	179	12
Total	259	52

- Thread end device (ED) default configurations:

	Memory Footprint (KB)	
	Flash	RAM
Default Apps	5	1
SDK, Tools, Framework	51	25
MAC/PHY	20	2
Thread	126	5
Total	202	33

- Thread low power end device (LPED) default configurations:

	Memory Footprint (KB)	
	Flash	RAM
Default Apps	5	1
SDK, Tools, Framework	44	24
MAC/PHY	20	1

Thread	111	4
Total	180	30

- BLE Thread Host Controlled Device default configurations:

	Memory Footprint (KB)	
	Flash	RAM
Default Apps	11	3
SDK, Tools, Framework	57	56
MAC/PHY	24	5
Thread	200	13
Bluetooth	131	7
Total	423	84

- BLE Thread Router Wireless UART default configurations:

	Memory Footprint (KB)	
	Flash	RAM
Default Apps	12	3
SDK, Tools, Framework	61	50
MAC/PHY	24	5
Thread	179	12
Bluetooth	109	7
Total	385	77

8 Revision History

This table summarizes revisions to this document.

Table 2 Revision history		
Revision number	**Date**	**Substantive changes**
0	09/2016	Initial release
1	04/2017	Updates for the KW41 MCUX GA release
2	01/2018	Updates for KW41 Maintenance Release
3	02/2018	Version update for the KW41 ZigBee 3.0 RFP/GA MCUX release

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