NXP Semiconductors
Release Notes

Document Number: MKW41ZTHREAD126RN
Rev. 3, 08/2018

Kinetis Thread Stack v.1.2.6 Release Notes

Supporting KW41Z

1 Overview

These are the release notes for the Kinetis Thread Stack software version 1.2.6 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_1.2.6\examples	Application source code, initialization and configuration files
\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_1.2.6	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 1.2.6 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® **v8.22.2** or MCUXpresso IDE **v10.2.1** 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.
- This release is compatible with the Test Tool for Connectivity Products **v12.8.2** or later. It is recommended to use the *ThreadIP_1.2.6.xml* file found in the *tools/wireless/xml_fsci* folder of this package or the Test Tool installation, with the Test Tool Command Console functionality to interact with the FSCI black box applications provided in this package. For more information, please refer *TTUG.pdf* included in the Test Tool installation.

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 usbkw41z_kw41z board type.

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	08/2018	Updates for KW41 Maintenance Release1

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