RN0095
Release note

SPIRIT1 development kit

Introduction

This release note (RN0095) relates to version 2.0.1 of the SPIRIT1 development kit.

The SPIRIT1 development kit is a software package which has all the capabilities for building SPIRIT1 applications. The kit also allows proprietary radio protocols and wireless M-BUS applications to be targeted.

The RN0095 lists the changes, new features, and recent corrections in release 2.0.0 of the SPIRIT1 development kit. This release note also provides information on the hardware and microcontrollers supported by the current kit and it gives the known problems and limitations. Finally, this document traces the updates made to each previous release of the SPIRIT1 development kit.

The RN0095 will be revised regularly to keep you abreast of any software updates, problems, limitations, or corrections in the SPIRIT1 development kit.

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1 Read me first

This section provides information about:

- Host PC requirements
- Software requirements

1.1 Host PC requirements

The host PC should support Windows 7 operating systems (64 and 32 bit version) and Windows XP operating systems (32 bit edition).

1.2 Software requirements

- The Microsoft SQL Server Compact 3.5 Service Pack 1 is required to run the Wireless-MBUS GUI.
- The IAR Embedded Workbench for ARM (version 6.40) is required for application development.

2 SPIRIT1 development kit, release 2.0.1

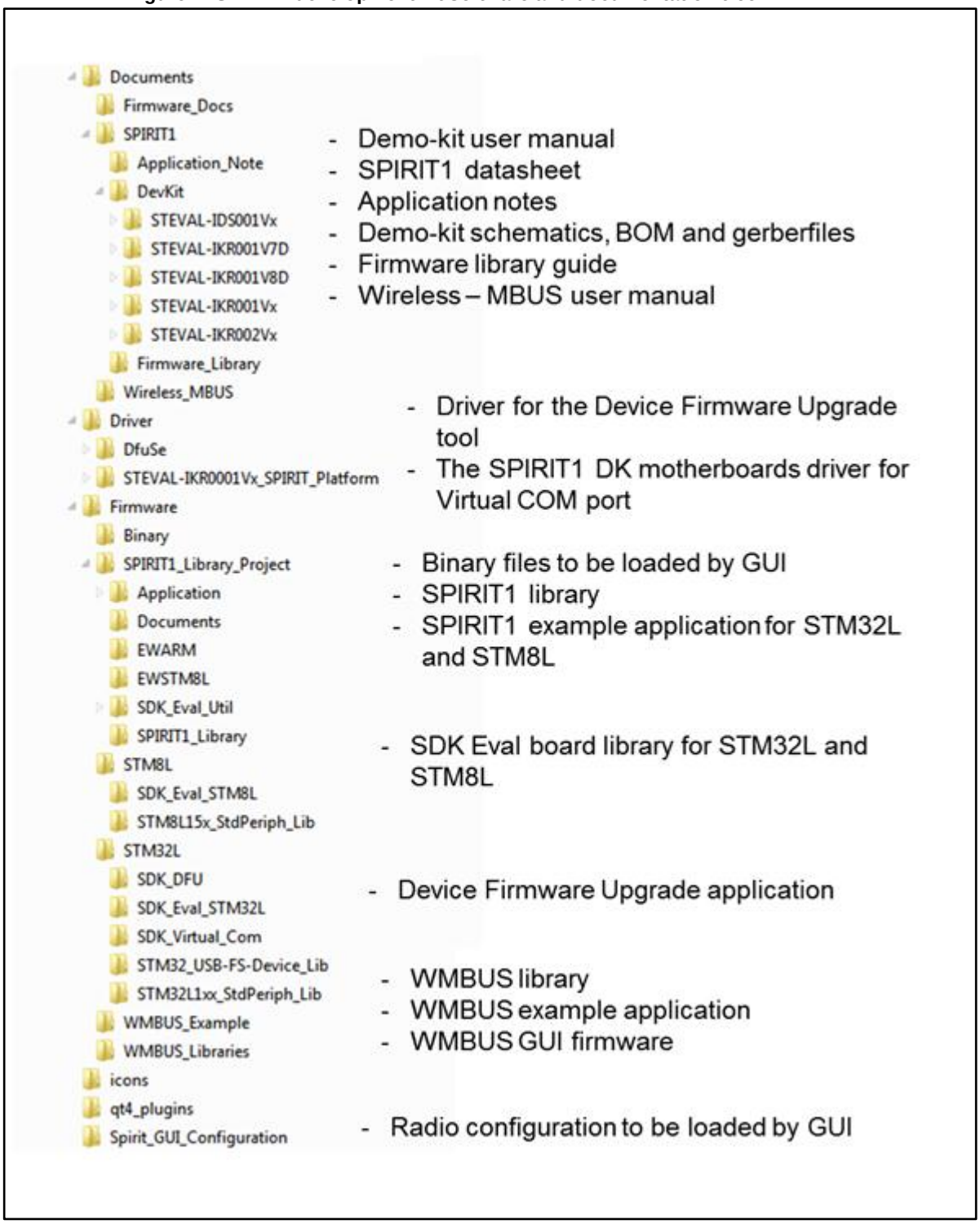
2.1 Summary of changes in release 2.0.1

The SPIRIT1 development kit is delivered as a PC installer file. The installer file contains the following software and documentation components:

- SPIRIT1 firmware library
- SPIRIT1 wireless M-BUS library
- SPIRIT1 example applications
- SPIRIT1 wireless M-BUS example application
- SdkEval library for the STM32L microcontroller
- SPIRIT1 DK GUI suitable for RF performance evaluation
- SPIRIT1 wireless-MBUS GUI suitable for wireless MBUS concentrator demonstrations
- SPIRIT1 development kit user manual
- SPIRIT1 development kit release notes
- Doxygen documentation for the SPIRIT1 driver
- Doxygen documentation for the SPIRIT1 wireless M-BUS library
- SPIRIT1 datasheet
- Motherboard and RF module schematics, BOM, and gerber files

Once the installation process is complete, the software and documentation tree shown in *Figure 1* becomes available in the selected user installation folder.

Figure 1: SPIRIT1 development kit software and documentation tree



2.1.1 New features of release 2.0.1

- Firmware and GUI have now support for decimal crystals. The GUI allows the user to change the crystal frequency in case he wants to replace the XTAL on board for any reason.

2.1.2 Corrections and changes to release 2.0.0

- Since the STEVAL-IKR002V7D has changed its crystal from 50 to 49.96MHz, the EEPROM data-format of daughter-boards has been slightly changed to store this value also.
- Registers export was not complete in 2.0.0 . Some registers, described in the datasheet were missed. Version 2.0.1 fixes this bug allowing the user to export the complete registers table and allowing to bring on firmware the register configuration found with the GUI.
- Registers have been documented with more details. Register detail is available with a double click on a register name.
- Changed the channel setting in the WMBUS library. Now, the channels of the WMBUS submodes are implemented changing the base frequency registers (SYNTHx) to have a higher precision.
- Minor change in WMBUS mode N physical layer. The last byte of the SYNC word is used to recognize the link layer packet format (A or B).

2.2 Hardware and microcontrollers supported by release 2.0.1

The software of the SPIRIT1 development kit release 2.0.1 is intended for use with the following SPIRIT1 evaluation kits:

- STEVAL-IKR002Vx
- STEVAL-IDS001Vx
- STEVAL-IKR001V7D
- STEVAL-IKR002V7D
- STEVAL-IKR001V8D
- STEVAL-IKR001Vx

All firmware delivered is intended for use with the STM32L microcontroller. The SPIRIT1 library and some firmware examples also support the STM8L microcontroller.

2.3 Known problems and limitations of release 2.0.1

There are no known problems or limitations for the:

- SPIRIT1 development kit installer
- IAR toolset
- SPIRIT1 development kit

3 Updates made to previous releases of the SPIRIT1 development kit

3.1 Release 1.0.3

- Initial release

3.2 Release 1.0.4

- Spirit1 library: added workaround for VCO calibration issue (critical update).
- Spirit1 DK GUI: added an automatic firmware upgrade function and a save/store configuration function.
- Wireless M-BUS library: firmware support added to manage encrypted messages.

3.3 Release 1.0.5

- Spirit library: provided further support for the previous version of SPIRIT1; provided additional support for the RF module with the range extender tuned for 169 MHz.
- Wireless MBUS library: added information about the RSSI associated with the packet received.

3.4 Release 1.0.6

- Spirit1 library: fixed the intermediate frequency calculation (critical update).
- Wireless MBUS library: added information about the RSSI associated with the packet received.
- Spirit1 DK GUI: fixed the automatic identification of the RF module (critical update).

3.5 Release 1.0.7

- SPIRIT1 library: added the low level driver for the STM8L microcontroller (SDK_Eval_STM8L); added an IAR project with example applications to be run with the STM8L microcontroller (can be found in the SPIRIT1_Library_Project/EWSTM8L folder)
- SDK Eval STM32L: added the following support for a new demonstration kit: STEVAL-IKR002Vx, STEVAL-IKR001V8D, and STEVAL-IDS001Vx.

3.6 Release 2.0.0

- The firmware for the GUI has been totally replaced. It is now based on a command line and can be used when opening a terminal and typing low level commands to call the exported APIs. The old firmware is not compatible with the new GUI. When you open the GUI with the board and the old firmware connected, you are asked to update the GUI through the device firmware upgrade (DFU).
- The GUI is now supported with a SPIRIT1 emulator. This allows you to set registers so you can achieve a specific configuration without having to connect the evaluation board.
- The GUI is also supported with register tables. This allows register configurations to be saved into files and for .c files to be generated from registers. This is suitable for users who do not want to use the SPIRIT1 library in their embedded application.

- The WMBUS/packets sniffer is now available and supported by the WMBUS GUI.
- The WMBUS library supports the modes C1/C2.
- The WMBUS GUI now uses the VCOM profile to talk with the firmware.
- The WMBUS stack has been optimized in terms of time when the state of the device changes.

4 Revision history

Table 1: Document revision history

Date	Revision	Changes
27-Nov-2014	1	Initial release
27-May-2015	2	Document adapted to SPIRIT1 development kit, release 2.0.1

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