



1 Introduction

About this release note

This release note is related to the SimpleMAC library which supports all the available STM32W108xx kits. This document describes the RF software library package.

The SimpleMAC library provides a set of APIs used to access the lower-MAC IEEE 802.15.4 functions of the STM32W108HB, STM32W108CB, STM32W108C8, STM32W108CZ and STM32W108CC microcontrollers (STM32W108xx). It supports point-to-point communications based on the IEEE 802.15.4 protocol.

This release note is updated periodically to keep you abreast of all software updates and of any problems or limitations found in this release. Visit the STM32W 32-bit RF microcontroller webpages for the latest version of this release note.

- Note:*
- 1 *The term application board refers to the STM32W108xx boards delivered with all available STM32W108xx kits. This term is not used for referring to the STM32-Primer2 + MB850 platforms.*
 - 2 *For more information, visit the STM32W 32-bit RF microcontroller webpages at www.st.com/stm32w*

These webpages provide full access to all STM32W108xx resources (kits, software packages and documents).

Table 1 lists the microcontrollers and tools concerned by this release note.

Table 1. Applicable products and tools

Type	Part numbers/product sub-classes
Microcontrollers	STM32W Wireless MCUs
Evaluation tools to MCUs	STM32W-EXT, STM32W-SK, STM32W-RFCKIT

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1.1 Overview of the release note

This document concerns release 2.0.0 of the SimpleMAC library for the STM32W108xx kits.

New features

This release adds support for the STM32W108xx standard library package.

Limitations

Refer to [Section 4](#).

Customer support

For more information or help concerning this software, visit the STM32W 32-bit RF microcontroller webpages at www.st.com/stm32w.

Software updates

To download software updates together with the latest documentation, visit the STM32W 32-bit RF microcontroller webpages at www.st.com/stm32w.

2 Read me first

This section provides important information about release 2.0.0 of the SimpleMAC library for the STM32W108xx kits.

Host PC system requirements

Release 2.0.0 of the SimpleMAC library requires a PC and compatible hardware running with the Windows XP® operating system.

3 Release 2.0.0 overview

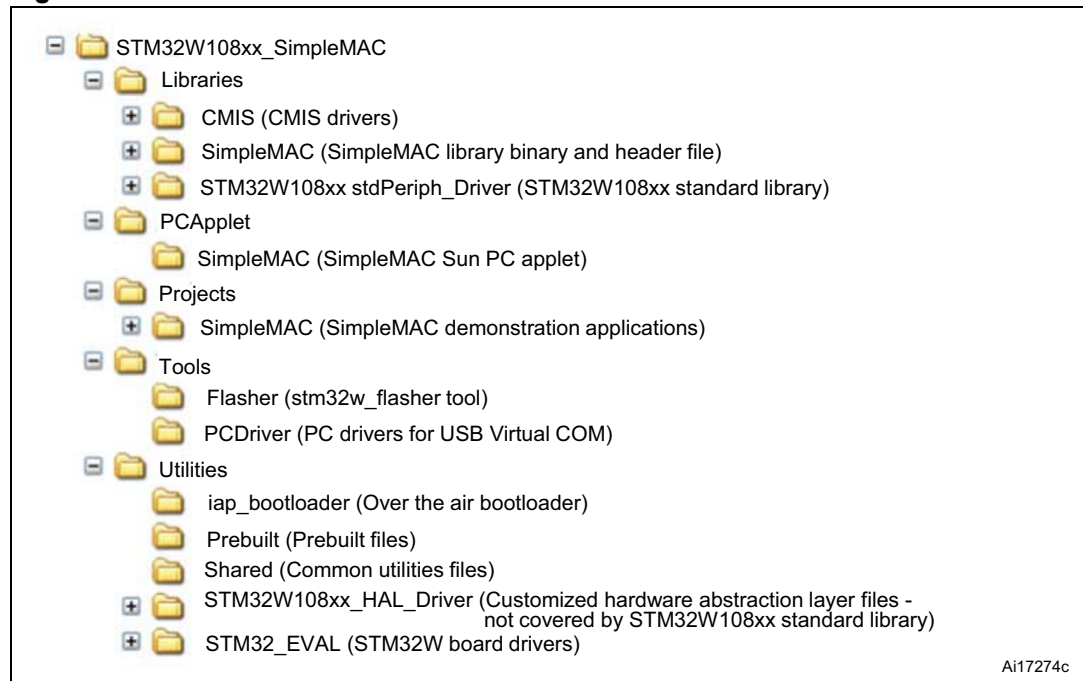
The SimpleMAC software library package is available from the STM32W 32-bit RF microcontroller webpages at www.st.com/stm32w. The SimpleMAC software library main components are:

- STM32W108 SimpleMAC library
- STM32W108 standard library APIs used for driving the STM32W108xx microcontrollers.
- STM32W108 HAL APIs not covered by the STM32W108 standard library but required for the SimpleMAC RF library and applications.
- SimpleMAC demonstration applications:
 - Sample demonstration application which allows setting up a basic star network
 - Talk demonstration application which consists in a simple program illustrating point-to- point IEEE 802.15.4 wireless communications
 - MEMS based mouse demonstration application
 - Bootloader demonstration application which allows uploading over the air the STM32W108 Flash image with a fixed application image
- SimpleMAC nodetest application meant for functional testing of RF modules (delivered only in binary format)
- stm32w_flasher utility which allows uploading the STM32W108xx with a binary image
- IAP bootloader application and IAP bootloader library binary image

3.1 SimpleMAC library software tree

After the installation process, the following software tree is available in the selected user installation folder.

Figure 1. Software tree



3.1.1 Release 2.0.0 main features

The STM32W108 SimpleMAC library supports the following API classes:

- Radio power state control APIs which control the overall radio initialization and power state
- Radio channel APIs which control channel selection and calibration
- Radio power APIs
- Radio transmit APIs which handle the transmission of packets
- Radio receive APIs which handle the reception of packets
- Radio Cryptography APIs which provide an interface to the hardware AES coprocessor
- Radio MAC timer APIs to interface with the MAC timer
- Miscellaneous radio APIs which perform MAC diagnostic and configuration actions

3.1.2 Corrections/changes

- Support for the STM32W108xx standard library.
- Support for the customized version STM32W108xx HAL APIs not covered from the STM32W108 standard library but required for the SimpleMAC RF library and applications.

3.2 Hardware and targets supported by release 2.0.0

The SimpleMAC library supports all STM32W108 family devices. The demonstrations application runs on the platforms available with the following kits:

- STM32W108xx starter kit (part number: STM32W-SK)
- STM32W108xx extension kit (part number: STM32W-EXT)
- STM32W108xx low-cost RF control kit (part number: STM32W-RFCKIT).

Note: For information about the STM32W108 kits, refer to user manuals UM0894 and UM1050 available from the STM32W 32-bit RF microcontroller webpages at www.st.com/stm32w.

4 Known problems and limitations

4.1 IAR toolset

None.

Note: For other supported tools, please refer to the available project within the SimpleMAC library software package.

4.2 SimpleMAC library

None.

5 Summary of previous releases

This section lists the information related to the previous major releases of the SimpleMAC library for the STM32W108xx kits.

Release 1.1.0 (October 2011)

- Crystal startup time has been optimized for time and power consumption (See [Table 2](#) below).
- Radio initialization has been optimized for time and power consumption.
- Recalibration of Mod DAC is now based on temperature change.
- Recalibration of LNA is now based on temperature change instead of VCO tune value.
- Callback `ST_RadioTxAckIsrCallback` has been added to indicate completion of MAC ack transmission.
- A new field called `minimumBackoff` on `radioTransmitConfig` has been added and we recommend setting it to zero.
- A set of weak definition for all callbacks and `radioTransmitConfig` is provided to avoid definition of unnecessary callbacks.
- The HAL layer has been modified to implement the power consumption and startup time optimizations described above (See [Table 2](#) below).
- Support for STM32W 256 K (requires IAR patch for Flash programming/debug above 128 K. See below).
- Added compilation option to run the CPU at 12 MHz.
- `stm32w_flasher.exe` has been updated to support STM32W 256 K.

Table 2. SimpleMAC API execution time comparison between version 1.0.3 and version 1.1.0

	SimpleMAC version		Unit	Comment
	1.0.3	1.1.0		
SimpleMAC API	1.0.3	1.1.0		Application compiled with IAR v5.41
<code>hallnit()</code>	10882	2485	uS	Without slowRC calibration.
<code>ST_RadioInit()</code>	1695	995	uS	With channel already calibrated
Wakeup from deep sleep	1932	557	uS	This includes hardware wakeup and software reinitialization
<code>ST_RadioInit()</code> after wakeup from deep sleep	1322	524	uS	

Release 1.0.3 (May 2011)

- SimpleMAC library now runs on all STM32W108 parts
- Added MEMS-based mouse demonstration
- MEMS API change to make it in line with HAL-style API
- MEMS default sampling frequency changed to 100 Hz
- Temperature sensor API change to make it in line with HAL-style API
- Removed unused error codes
- Bug fix for temperature sensor in MB954
- Fixed deep sleep power consumption issue with MB954
- Enabled S1 button in MB951
- Doxygen documentation improved
- Work around for receive start issue where the receiver is sometimes not enabled after the radio initialization
- stm32w_flasher.exe updates to STM32F Firmware to show up in the system as USB composite device including serial port and mouse

Release 1.0.2 (January 2011)

- Added support for multiple STM32W108xx application boards.

Release 1.0.1 (July 2010)

- Added support for IAP bootloader (Over-the-air and UART modes)
- Reviewed HAL and SimpleMAC library (APIs, comments clean-up and enhancement)
- Added new options to the stm32w_flasher utility
- Added description for the OTA bootloader demonstration application
- Added html document describing stm32w_flasher utility
- Added documentation for the SimpleMAC nodetest application

Release 1.0.0

Initial release.

6 Revision history

Table 3. Document revision history

Date	Revision	Changes
04-Mar-2010	1	Initial release.
19-Aug-2010	2	New release supporting the OTA bootloader, reviewed HAL and Simple MAC library and stm32w_flasher with new options.
25-Aug-2010	3	Added comments related to the IAP bootloader (OTA and UART modes).
08-Feb-2011	4	Updated Section 3.1.2: Corrections/changes on page 5 and added support for multiple STM32W108xx application boards.
04-Mar-2011	5	Updated kits in hardware and targets.
12-May-2011	6	SimpleMAC version updated to 1.0.3. Section 3.1.2: Corrections/changes updated. Changed “STM32W108 MB850 and application board schematics” to “STM32W108xx kits board schematics”. Added MEMS based mouse demonstration application.
24-May-2011	7	SimpleMAC version corrected to 1.0.3. Minor revisions.
03-Sep-2011	8	Changes to adapt to release note of the upcoming SimpleMAC 1.1.0 release: Added STM32W108C8, STM32W108CZ and STM32W108CC SimpleMAC version updated to 1.1.0 Updated Section 3.1.2: Corrections/changes on page 5 Added Table 1: SimpleMAC API execution time comparison between version 1.0.3 and version 1.1.0 on page 8 Updated Section 4.1: IAR toolset on page 6 Added Section 4.2: SimpleMAC library on page 6 Added Release 1.0.3 (May 2011) on page 8
27-Sep-2011	9	SimpleMAC version corrected to 1.1.0
25-Jul-2012	10	Added changes to adapt the release note to upcoming SimpleMAC software package 2.0.0.

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