

# Atmosic SDK 5.2.0

## Release Notes

**SUMMARY:** This document provides the release notes for Atmosic SDK 5.2.0 and associated tools and utilities enabling design and development of solutions based on ATM2, ATM3, ATM33 and ATM33e Wireless SoC series. It lists the new features and known issues for this release.

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## 1. Purpose

This release note provides details on new features/fixes/known issues as part of the Atmosic Software Development Kit (SDK). This Atmosic SDK 5.2 supports Evaluation Kit (EVK) platform based on following devices:

ATM2 Series	ATM3 Series	ATM33/e Series
ATM2201	ATM3201	ATM3330e 7x7 mm package
ATM2202	ATM3202	ATM3330 7x7 mm package
ATM2221	ATM3221	ATM3325 5x5 mm package
ATM2231	ATM3231	
ATM2251		

### 1.1 OS, IDE and tool chains

This section listed the OS and debug tools supported by the ATM33/e series:

Category	Features Supported
OS	MacOS (x86)
	Linux, Windows 10
IDE	Keil with ARM C++ compiler
	IAR Workbench
	SEGGER Embedded Studio
Debug Tools	J-Link Debugger (on board)
	OpenOCD debug
OTA Support	OTA FW Update

Please visit Atmosic Support website for the following documents:

- ATM33/e Series SDK User Reference Manual
- ATM33/e Series EVK User Guide
- ATM33/e (Rev. B0) Series Release Notes
- ATM33/e Series Register Specification
- ATM33/e Digital Biquad Filter Software Implementation Application Note
- Complete Doxygen-style reference of all APIs provided by this SDK
- Bluetooth LE functionality, including GAP, GATT, and various profiles

Additional references for developing applications using third party IDE Software:

- IAR Workbench User Guide
- Keil MDK Configuration Guide
- SEGGER Embedded Studio User Guide

Please contact Atmosic FAE for access credentials to the Atmosic Support Website.

## 2. New Features / Functionality

### 2.1 SDK and Application Version

SDK and application versions are displayed as part of the boot up messages:

@009404ab SDK Version: 5.2.0

@00940504 APP Version: 0.0.0.9

- SDK version is located in version.h folder in <ROOT>/atmosic\_sdk
- App version can be specified using APP\_VERSION defined during make.

### 2.2 Supported Devices

This release combines the support for all the Atmosic SoC Series - ATM2, ATM3 and ATM33/e.

ATM2		ATM3		ATM33/e
ATM2201-x0x	ATM2201-x1x	ATM3201-x0x	ATM3201-x1x	ATM3330e-5DCAQN
ATM2202-x0x	ATM2202-x1x	ATM3202-x0x	ATM3202-x1x	ATM3330-5DCAQN
ATM2221-x0x	ATM2221-x1x	ATM3221-x0x	ATM3221-x1x	ATM3325-5DCAQK
	ATM2231-x1x		ATM3231-x1x	
	ATM2251-x1x			

### 2.3 Features

This section describes the features for the ATM33/e series supported by the SDK 5.2.0 release.

Category	Features Supported
AoA - Angle of Arrival (BT5.1)	AoA Transmitter (For Asset Tags)
	AoA Receiver (Functional) - For Locator
Bluetooth LE Core Features	Bluetooth LE Power Control
	Peripheral and Broadcaster role

Category	Features Supported
	Central role (multiple master)
PHY Rates	1 Mbps
	2 Mbps
	Bluetooth LE Coded PHY
Clocks	16 MHz
	32 MHz
	64 MHz
Internal RC	32 kHz Internal RC oscillator (RCOSC)
Audio Interfaces	PDM
Peripherals	I2C Master
	UART
	SPI Master
	PWM
	IR Tx Support (PWM FIFO based)
	GADC
Audio Codecs and Software	ADPCM
	Google 1.0 Voice Support
	mSBC (APIs)
	Programmable Filters/Equalizer, Bi-quad support
Power Management Unit	3 V Battery Extension mode (3 V Battery and Supercap)

Category	Features Supported
	Storage Configuration/Type
	VBAT_LI LDO Enablement: Full operating range; Auto control
Harvesting Recharge (applicable to ATM3330e only)	Direct recharging from harvesting when VBAT_LI < 3.4V
	HSC operation/ recharge using discrete booster
	Li-Ion Battery 4.2 V, operation+recharging (functional)
Energy Harvesting (applicable to ATM3330e only)	Standalone Multi-cell PV support
	Standalone Single-cell PV support - 500 mV
	RF - 2.4 GHz
	RF - 900 MHz
	Non-concurrent harvesting (PV or RF)
	Concurrent harvesting without MPPT (multi-cell PV and RF)
	Overvoltage protection of Battery/HSC
	Harvesting power meter (GADC based)

### 3. Major Changes / Bug Fixes

- Major changes and bug fixes in SDK 5.2.0 include:
  - ATM33/ATM33e
    - Support for Rev A1 is deprecated
    - OTA Firmware Updates now use the signed .bin file and deprecates the use of the signed .ubin file.
    - Support for OTA Firmware Update with Atmosic Mobile App
    - Secure Boot support for ECDSA (P-256) image signature verification in MCUBoot.
    - ATMWSTK (ATM Wireless Stack) integrity check is performed by the SPE (bootloader) for secure boot.
    - Secure journal driver and tools for CAL/ATE data viewing
    - Functional support for operations from Li-Ion battery
    - Functional support recharging the Li-Ion battery with energy harvesting
  - ATM2/ATM3
    - HID\_mouse example: using 0 dBm Tx power by default
    - HID\_mouse example: fixed not entering hibernate issue if enable STATIC\_RAND\_BDA compile option

### 4. SDK Platform Working Directory

Following is a list of all Atmosic SDK platform working directories

- 1) For ATM3330/ATM3330e devices use the directory:
  - a) platform/atm33/ATM33xx-5
- 2) For ATM2/ATM3 devices use the following directories based on the device revision being used:
  - a) platform/atm2/ATM22xx-x0x
  - b) platform/atm2/ATM22xx-x1x
  - c) platform/atm3/ATM32xx-x0x
  - d) platform/atm3/ATM32xx-x1x



## 4.1 Reference Examples and Applications

The reference examples and applications supported with this release are:

- ATM2/ATM3:
  - Same as SDK 5.1.0 release
- ATM33/e:
  - ATM\_cap
  - ATM\_pwm
  - ATM\_timer
  - BLE\_adv
  - BLE\_adv\_scan
  - BLE\_att\_client
  - BLE\_att\_server
  - BLE\_harv\_adv
  - BLE\_scan
  - BLE\_scan\_adv
  - GPIO
  - HCI
  - HCI\_vendor
  - HIB\_restore
  - HID\_remote
  - HID\_thermometer
  - I2C\_client
  - I2C\_server
  - TPUTP\_server
  - TPUTP\_client
  - button\_demo
  - led\_demo

- lis2dh12\_demo
- pm\_demo
- uart0\_raw\_demo
- vkey\_test

## 5. ATM33/e Tx Power Settings

Tx output power settings default to 0 dBm or +4 dBm for the supported examples and applications listed in the Reference Examples and Applications section. To enable Tx output power higher than +4 dBm, please contact Atmosic FAE for additional details.

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## 6. Limitations and Known Issues

Following limitations and known issues apply to this release for ATM2/ATM3 and ATM33/e devices.

### 6.1 ATM2/ATM3

<b>Issue</b>	ATM2/3 HCI UART Rx Overflow under stress [G-1767]
<b>Impact</b>	Minor. When stressing the HCI UART (HCI example) with the ATM2 FTDI UART board and PySerial, an RX overrun is detected in the uart0 driver. This issue was observed intermittently with the ota_demo application which pushes a significant amount of data over the FTDI UART board through the HCI interface. This is the only known occurrence of this problem.
<b>Resolution</b>	To be fixed in the next release.

### 6.2 ATM33/ATM33e

<b>Issue</b>	Undervoltage protection (brownout) support not enabled in current release
<b>Impact</b>	Cannot enable brownout protection
<b>Resolution</b>	To be fixed in the next release

<b>Issue</b>	Assert with HCI app asserts after 15 minutes if no packets are sent to it [P-220]
<b>Impact</b>	Low. This issue can be avoided by sending packets to the application sooner than the 15 minute timeout period
<b>Resolution</b>	To be fixed in a later release

<b>Issue</b>	Failed to gather coredump after test failure [S-1472]
<b>Impact</b>	Moderate. Coredump collection is still being implemented
<b>Resolution</b>	To be fixed in the next release.

<b>Issue</b>	HID_remote application voice search with ADT3 may not work if enabling OTA and compiling ATVV version to use 0.4e [P-1502]
<b>Impact</b>	Moderate. Application will use ATVV version 1.0 by default.
<b>Resolution</b>	To be fixed in the next release.

<b>Issue</b>	HID_remote application voice search doesn't work with ADT3 after reconnection if enabling OTA [P-1574]
<b>Impact</b>	Moderate. There is no problem if not enabling OTA or after first pairing. ADT3 box will not do MTU exchange in the reconnection stage. If the box or TV will do MTU exchange, the voice search function can work.
<b>Resolution</b>	To be fixed in the next release.

<b>Issue</b>	I2C_client/server example doesn't work [P-1454]
<b>Impact</b>	Moderate. I2C master functionality is supported and available through other sensor based examples
<b>Resolution</b>	To be fixed in the next release.

<b>Issue</b>	Assert seen in HID Remote app during OTA process when paired with another ATM33 EVK board running HCI app configured for OTA [ P-1527]
<b>Impact</b>	Low. This issue is only seen when running the HID remote with the BD_address set to 00-00-00-00-00
<b>Resolution</b>	To be fixed in the next release.

## Revision History

Date	Version	Description
August 17, 2022	1.00	Initial version created for SDK 5.2.0 release

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