

## Product Change Notification

This document describes the RIIM SDK product changes. This document is applicable for the following modules:

**RC1882-IPM**

**RC1882HP-IPM**

**RC1892HP-IPM**

Further details are described in the latest revision of the Data Sheet, User Manual, and Errata Note if applicable.

## SDK Product Change Notification

Radiocrafts defines product changes in firmware (FW) by:

**C:** Correction of an existing feature

**N:** Introduction of new features

**P:** Performance improvement

FW Revision	Change Notification	Date
0.9.1	<b>N</b> New product pre-release	2019-07-05
1.0.0	<b>N</b> New product release	2019-09-24
	<b>N</b> Sleepy Leaf nodes supported	
	<b>N</b> New ICI application examples	
	<b>P</b> Improved building system for ICI applications with helper scripts	
1.1.0	<b>P</b> More readable and detailed documentation	2020-02-28
	<b>N</b> New platform for Border Routers without Microchip ENC28J70	
	<b>N</b> UDP API added	
	<b>N</b> CoAP packet without response added ("Fire and forget")	
	<b>N</b> Multicast support added	
	<b>N</b> Link Layer Security (LLSEC) added	
	<b>N</b> Added static port maps in Border Router for direct access to all nodes in the network from outside (Ethernet)	
<b>N</b> Added Robustness Factor		
1.2.0	<b>P</b> Default startup output power set to 0 dBm	2020-04-30
	<b>N</b> Channel hopping added for 868 and 916 MHz	
	<b>N</b> Single channel support for both 868 and 915 MHz bands	
	<b>N</b> Support for RC1882HP and RC1892HP modules	
	<b>N</b> New ICI application example for UDP	

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2.0.0	<b>P</b>	Default output power set to module maximum	2020-01-22
	<b>P</b>	Number of user defined CoAP resources increased from 1 to 5	
	<b>N</b>	Added SLIP connection	
	<b>N</b>	Added possibility to read input voltage (e.g. Battery)	
	<b>P</b>	Increased number of GPIO handlers to 9, one for each GPIO	
	<b>N</b>	Added Adaptive Frequency Agility	
	<b>N</b>	Added Listen Before Talk	
	<b>N</b>	Added support for 1-hop multicast	
	<b>P</b>	Easier to use platform update scripts	
	<b>N</b>	New ICI application examples: <ul style="list-style-type: none"> <li>- Redundant Border Router example</li> <li>- Transparent UART example</li> <li>- EEPROM example</li> <li>- Clock example</li> </ul>	
3.0.0	<b>N</b>	Added TX/RX pin control on UART for RS485	2021-09-17
	<b>N</b>	Added new UART reception termination criteria: <ul style="list-style-type: none"> <li>• Intra byte timeout</li> <li>• Total transmission timeout</li> <li>• Termination byte</li> <li>• Use of length byte</li> </ul>	
	<b>N/C</b>	Wake on UART / GPIO responds faster in sleeping nodes	
	<b>N</b>	Reason of last module reset can be queried in ICI application	
	<b>C</b>	Removed implicit RSSI measurement in links	
	<b>P</b>	Reduced power consumption in TSCH sleeping mesh routers from minimum 180 uA to minimum 118 uA	
	<b>P</b>	Improved throughput in TSCH mode for data to border router.	
	<b>C</b>	Updated examples	
	<b>N</b>	Added possibility to set and get Ethernet MAC address.	
	<b>C</b>	Changed name from MAC to EUI64 in UAPI_Node.h	
	<b>N</b>	New frequency hopping bands for Vietnam and India	
	<b>N</b>	New selectable predefined TSCH settings: <ul style="list-style-type: none"> <li>• Low power</li> <li>• Balanced</li> <li>• Low latency</li> <li>• High throughput</li> </ul>	
		Stability and bug fixes	
3.1.0	<b>N</b>	Microsoft Visual Code integration	2021-11-12
	<b>C</b>	Faster retransmission of lost packets in TSCH	
	<b>C</b>	Fixed issue with corrupt UART buffers when used together with I2C	
	<b>C</b>	UDP unable to send using IPv4 addressing is fixed	

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3.2.0	<b>C</b>	getNetworkState always returns ONLINE for BR	2022-02-11
	<b>P</b>	Multicasts can now be sent continuously without the need for occasional longer pauses	
	<b>P</b>	Network.setMaxBroadcastRate changes EB interval quicker	
	<b>C</b>	Crash when using multicast fixed	
	<b>N</b>	Setting PANID to 0xFFFF makes the node attempt to join networks with any other PANID	
	<b>N</b>	TSCH parameters can be set/changed in an active network	
	<b>N</b>	GPIO now has PWM control	
	<b>C</b>	UDP port number improvement when using Ethernet and IPv4	
	<b>N</b>	Added 2 new examples in SDK: <ul style="list-style-type: none"> <li>• Auto joining using PANID 0xFFFF</li> <li>• CoAP sprinkler example</li> </ul>	
	<b>P/C</b>	Better TSCH timing synchronization between nodes	
3.2.1	<b>C</b>	Fixed erroneous TSCH hopping sequence resulting in instability and less reliable network	2022-03-14
3.2.2	<b>N</b>	Leaf nodes and mesh routers supports deep sleep	2022-05-10
	<b>C</b>	Fixed MultiSourceFiles example	
	<b>C</b>	Fixed stability issues in UART when also using I2C	
	<b>P</b>	RSSI and robustnessfactor improvement	
	<b>P/N</b>	UART intercharacter timeout does now not start until one character is received	
3.2.3	<b>C</b>	TSCH fix for RF_BAND_915	2022-08-12
	<b>C</b>	Fix a bug where sleepy leaf nodes in Single Channel periodically(every 8 hours) left and rejoined the network. Now they do not leave.	
	<b>C</b>	Fixed printout error in AutoJoin_PAN example	
4.0.0	<b>N</b>	Support for 150 kbit/s data rate	2023-04-17
	<b>N</b>	NodeInfo includes MAC information and bootloader version	
	<b>N</b>	MPL settings are now configurable	
	<b>N</b>	Internal power calibration of modules	
	<b>N</b>	RPL settings are now configurable	
	<b>N</b>	Structs are used to configure RIIM	
	<b>P</b>	Power usage lowered	
	<b>P</b>	System can now be optimized for faster joining	
	<b>P</b>	Data capacity/throughput increased	
	<b>P/N</b>	Debug.PrintSetup prints more information	
	<b>P/N</b>	Simple MAKE is replaced with CMake and Ninja	
	<b>C</b>	Fixed I2C always returning true	
	<b>C</b>	Fixed reset reason code	
	<b>C</b>	Fixed TSCH mode not changing properly	
	<b>C</b>	Fixed nodes not rejoining because of timer wraps	
	<b>C</b>	Fixed hopping sequence for 915 MHz band. This change is not compatible for radio with older SDK using this band.	
	<b>C</b>	Fixed resets on BR due to fast radio access	
	<b>C</b>	SLIP not working fixed	
<b>C</b>	Fixed unstable operation on BR with Ethernet due to memory corruption. BR with Ethernet now supports 900 nodes instead of 1000 Ref RIIM_SDK_Errata_Note_20230329		
4.0.1	<b>C</b>	Fixed setting of MPL parameters	2023-06-21
	<b>C</b>	Fixed setting of RPL parameters	

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4.0.2	C	Fixed 32-bit limitation on ToD and Epoch offsets. 64-bit is now supported throughout the Clock API.	2023-06-30
4.0.3	C	Fixed setting of number of join channels	2024-01-04
	C	Fixed setting of DIO timings	
4.1.0	N	Support for multiple UDP connections simultaneously and more advanced UDP functions	2024-11-13
	N	SLIP now supports setting of IPv6 prefix	
	N	Second UART added	
	N	New API interface to set parameter values	
	N	Possibility to set MPL lifetime	
	N	Possibility to set MPL guard time	
	N	New callback function triggered when network changes state	
	N	New API for using internal FLASH memory for storage	
	N	Debug.printSetup prints out radio bitrate	
	N	NodeInfo struct in Node API includes radio bitrate	
	P	New set of updated drivers from silicon providers. Please note that this update may introduce minor adjustments to interface timings. These changes are expected to be subtle and should not significantly impact performance.	
	C	Fixed issue with packet length on SendClockToAll API function	
	C	I2C does not lock up if peripheral is missing or not responding	
	C	GPIO open drain is configured correctly	
C	CoAP port numbers are compatible with common libraries		
C	MPL stability fixes		
C	UART stability fixes		
4.1.1	C	OTA does now work for images larger than 128KB	2024-12-13
4.2.0	N	Flooding OTA enabling parallel OTA to several nodes automatically	2025-08-29
	N	printf implemented for SECUART	
	C	OTA delayed stray reset due to reset command resend fixed	
4.3.0	N	All platforms are combined into one configurable platform. Now, bitrate, platform type, MAC type can be configured runtime on the same platform binary	2026-03-31
	N	Supports bitrate 5kbps	
	N	Support for TSCH leaf (non-routing) nodes	
	N	Adaptive power control of individual links in the network	
	N	Number of neighbors and number of nodes total in network is configurable	
	N	Stack monitoring and fault detection/reset if overflow is detected	
	N	New RF bands: Brazil, Taiwan (922 MHz), Korea (922 MHz)	
	N	High-power, single-hop TSCH for Europe, using 869.525 MHz	
	N	Long range broadcast for small, important messages	
	N	SDK includes files for use with AI/large language models for querying and generation of code	
	P	Debug.printSetup prints much more information	
	C	The listening window in TSCH when not receiving a packet is slightly larger than before, resulting in a slight baseline current increase in the order of 2-3µA. The minimum current consumption is still within datasheet specification.	
	C	As described in RIIM_SDK_Errata_Note_20260323, Udp.send4 is fixed	

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## Known issues

Modules with bootloader 2.2.x or earlier will not be able to work with upgrades 2.0.0 or later. Bootloader 2.2.x has been used in a minor sample production in 2019.

## Hardware Product Change Notification

No hardware is changed

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