Release Note

This document describes upgrades and known issues related to a new release of Radiocrafts Industrial IP Mesh (RIIM™) SDK, and the included platform images and examples

Known Issues

Revision	Issue	Workaround
1.0.0 and prior	The Boarder Router platform has a built-in driver for Ethernet connection, and therefore needs to be connected to a working Ethernet Controller. It is not necessary to connect an Ethernet cable	Connect a Microchip ENC28J60-I/ML (and associated hardware) to the module via SPI. **or** Use Radiocrafts RC1882-BRB.
1.2.0 and prior	Setting PAN ID in TSCH platforms does not work	Use default PAN ID (0x9812)
2.0.0	TSCH Mesh routers occasionally reset during joining phase	None. Nodes are stable when part of a network
3.0.0	Using I2C and UART together introduces extra byte in UART buffer	Disable UART when using I2C and vice versa
	Sending UDP packets using IPv4 addressing does not work	Use IPv6 addressing instead. To use IPv4 addressing, the prefix should be 64:FF9B . The last 4 bytes in the IPv6 address must be the actual IPv4 address
	Lost packet retransmission too slow in TSCH. This can lead to congestion if packets are sent too frequently	Do not send packets more often than every 10 seconds
3.1.0	Using multicast sometimes crashes the module	None. Do not use multicast.
3.1.0 and prior	TSCH timing between nodes may drift too much resulting in nodes disjoining network	Set Network.setTschMaxBroadcastRate to 16 or lower
3.2.0	For the border router, call to the Clock API can only be made > 100ms after StartBorderRouter command	Ensure access of the Clock API after 100ms using for instance Timer callbacks (Timer.create(…))
	TSCH hopping sequence is wrong, resulting in unstable behavior and possible reboots on border router.	Border router **standalone** platform does not reboot, but still uses wrong hopping sequence.
3.2.1 and prior 3.x.x	In TSCH, older meshrouters are incompatible with newer border routers	Upgrade older mesh routers if using newer border router
	Using I2C and UART at the same time may trigger an UART callback indicating a reception of one byte although none are actually received on the UART.	- Do not use I2C and UART at in the same ICI application, **or** - In the UART callback function, do a dummy printout, for instance: **Util.printf("");**

Product Change Notification

Radiocrafts defines product changes by:

- **C:** Correction of an existing feature
- **N:** Introduction of new features
- **P:** Performance improvement

Revision	Changes		Date
0.9.1	**N**	New product pre-release	2019-07-05
1.0.0		New product release	
	N	Sleepy leaf nodes supported	2019-09-24
	N	Added new examples ICI applications	
	P	Improved building system for ICI application by introducing easy to use click-> compile_and_upload functions	
	P	Updated most of the documentation for better readability and more detailed description	
1.1.0		Product update, new features and enhancements	2020-02-28
	C	New platform for Border Routers without Microchip ENC28J60	
	N	UDP API added	
	N	CoAP packet without response added (“Fire and forget”)	
	N	Multicast support added	
	N	Link layer security (LLSEC) added	
	N	Added static port maps in Border Router for easy direct access to all nodes from the outside (Ethernet) network	
	N	Added Robustness Factor for network stability	
	P	Stability fixes	
1.2.0		Product update, new features and enhancements	2020-04-30
	C	Default startup output power set to 0 dBm	
	N	Channel hopping (TSCH) for 868 and 915 MHz	
	N	Single Channel (CSMA) supports both 868 and 915 MHz	
	N	Support for RC1882, RC1882HP and RC1892HP	
	N	Added UDP example	
	P	Stability fixes	
2.0.0		Product update, new features and enhancements	2021-02-01
	N	Added redundant border router example	
	N	Added transparent UART example	
	N	Added EEPROM example	
	N	Added Clock example	
	P	Split upload platform scripts into TSCH and Single Channel	
	N	Added Clock API and Clock CoAP resource	
	P	User defined CoAP resources increased from 1 to 5	
	N	Added SLIP connection	
	N	Added possibility to read voltage input (Battery)	
	P	Increased number of GPIO handlers to 9 (all GPIOs)	
	N	Added support for 1-hop multicast	
	P	Stability fixes	
	N	Added Adaptive Frequency Agility	
	N	Added Listen Before Talk	

3.0.0		Product update, new features and enhancements	2021-09-17
	N	Added TX/RX pin control on UART for RS485	
	N	Added new UART termination criteria/parameters for reception (RX): • Intra byte timeout • Total transmission timeout • Termination byte • Use of length byte	
	N	Wake on UART	
	C	GPIO responds (wakes up) faster in sleeping nodes	
	N	User can get node reset reason	
	C	Removed RSSI measurement in network links	
	P	Reduced power consumption in TSCH sleeping mesh routers from minimum 180 uA to minimum 118 uA	
	P	Improved throughput in TSCH mode for data to border router.	
	N	Examples updated	
	N	Added possibility to get and set Ethernet MAC address	
	C	Changed name from MAC to EUI64 in UAPI_Node.h	
	N	New frequency bands for Vietnam and India	
	N	New selectable predefined TSCH settings: • Low power • Balanced • Low Latency • High throughput	
	P	Stability and bug fixes	
3.1.0		Product update, new features and enhancements	2021-11-12
	N	Microsoft Visual Code integration	
	C	Faster retransmission of lost packets in TSCH	
	C	Fixed issue with corrupt UART buffers when used together with I2C	
	C	UDP with IPv4 is fixed	
3.2.0		Product update, new features and enhancements	2022-02-11
	C	getNetworkState always returns ONLINE for BR	
	P	Multicasts can now be sent continuously without the need for occasional longer pauses	
	P	Network.setMaxBroadcastRate changes EB interval quicker	
	C	Crash when using multicast fixed	
	N	Setting PANID to 0xFFFF makes the node attempt to join networks with any other PANID	
	N	TSCH parameters can be set/changed in an active network	
	N	GPIO now has PWM control	
	C	UDP port number improvement when using Ethernet and IPv4	
	N	Added 2 new examples in SDK: • Auto joining using PANID 0xFFFF • CoAP sprinkler example	
	P/C	Better TSCH timing synchronization between nodes	
3.2.1		Product update, new features and enhancements	
	C	Fixed erroneous TSCH hopping sequence resulting in instability and less reliable network	2022-03-14

3.2.2	**N** **C** **C** **P** **P/N**	Leaf nodes and mesh routers supports deep sleep Fixed MultipleSourceFiles example Fixed stability issues in UART when also using I2C RSSI and robustnessfactor improvement UART intercharacter timeout does now not start until one character is received	2022-05-10

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