

## QN902xQBlue-1.3.9 Release Notes

This release supports the QN902x-B2 (QN902xY) and B3 (QN902x/DY) and B4 (QN902x/EY) and fix some key issues and add improvements as well.

**Latest Version: 1.3.9**

**Created On: 25 May, 2016**

### Basic Configure

According to the device user is using, below items should be configured accordingly in `usr_config.h`.

1. QN9022 with SPI flash on board:

```
#define CFG_EXT_FLASH
```

2. QN9022 without SPI flash, external MCU to download firmware directly into RAM of QN9022 and execute code from RAM:

```
#define CFG_NO_FLASH
```

3. QN9022T chip version which supports working at 125 degrees Celsius

```
#define CFG_T_VERSION
```

4. Different chip version:

a) QN902x-B2 (QN902xY) and B3 (QN902x/DY): `#define CFG_9020_B2`

b) QN902x-B4 (QN902x/EY): `#define CFG_9020_B4`

c) Corresponding library file for different chip version should be selected in IDE while compiling.

5. Different demo board:

a) QN9021 MiniDK: `#define CFG_9021_MINIDK`

b) QN9022 MiniDK: `#define CFG_9022_MINIDK_V1_1`

### What's New

1. Supported QN9022T (QN9022 high temperature version) by defining macro 'CFG\_T\_VERSION'.
2. Supported QN9022 Mini DK board by defining macro 'CFG\_9022\_MINIDK\_V1\_1'.
3. Added Read Indication function, by which attribute read function would send message to application. The macro "CFG\_READ\_INDICATION" is used to enable the feature.
4. QBlueISPStudio is enhanced to distinguish chip by CHIP ID, and support fastboot option for B4.
5. Optimized MCU wakeup strategy for BLE event to achieve lower power consumption. Macro "CFG\_SLAVE\_LATENCY\_IMPROVEMENT" is used for enabling this feature but with 2kB more memory consumption.

6. Enhancement of using ADC to generate the real random number and invoke firmware's srand function to set seed to make QN9020 has real random resolvable address after power up.
7. Added macro QN\_PRIV\_EN to enable or disable resolvable random address function.
8. Improved PWM driver to support duty cycle is 0 or 1.
9. Enhanced OTA lib for app info backup.
10. In B4 chip, the issue of erasing/writing greater than 64K flash address was fixed. The workaround for it is not needed anymore if using B4.

## Bug Fixes

1. Added the missing message handler for B4 to respond bond request.
2. Fixed the issue that 32M crystal doesn't work in B4.
3. Added the handling for the received data packet larger than the default MTU size by throw the packet to avoid system crash.
4. Added a macro "CFG\_NO\_FLASH" to handle the case that running program in QN9022 without external flash.
5. Public address is distributed in Identity Address Information exchange phase for encryption successfully.
6. Fixed the issue of wrong error code returned when key missing in slave side.
7. Fixed the issue of bonding failure due to improper LTK handling.
8. Fixed bonding issue if a peer device supports secure connection with BLE4.2.
9. Fixed MITM\_NO\_BOND mode not work issue.
10. Created HID service database after BAS database to avoid service not discovered issue.
11. Added erase operation before writing App info area while doing OTA.

## Known Issues and Limitations

- 3.1 When QN902x is in central role, the "slave\_latency" in CONN\_REQ is always 0. The application program can use connection parameter update procedure to change slave latency after connection is established.
- 3.2 UART clock should be the same as APB clock when using DMA to read memory.
- 3.3 DMA cannot access low 32k SRAM space