Release Note

Topic **u-blox connectivity software v1.0.0 for NINA-B31 series**
UBX-18051902
Author Erik Carlberg
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1 General Information

1.1 Scope

This release note describes the u-blox connectivity software v1.0.0 for NINA-B311 and NINA-B312.

1.2 Supported hardware

Hardware	Description	Data code
NINA-B311	External antenna, u-blox connectivity software	900200.0301.000 and later
NINA-B312	Internal antenna, u-blox connectivity software	900300.0401.000 and later

It is possible to update existing NINA-B311 and NINA-B312 Engineering Samples (ES) with the u-blox connectivity software v1.0.0. Note that the software cannot be run on product versions with status previous to Engineering Samples, because it requires hardware configurations and keys that are set during production, and which were not set for the earlier versions.

1.3 Released software image

File	Description
NINA-B31X-CF-1.0.json	Release configuration file
NINA-B31X-SI-1.0.0-072.txt	Secure boot signature of the u-blox connectivity software
NINA-B31X-SW-1.0.0-072.bin	u-blox connectivity software binary image
NINA-S140-SD-6.1.0.bin	Nordic SoftDevice binary image
NINA-S140-SI-6.1.0.txt	Secure boot signature of the Nordic Softdevice

1.4 Updated documentation

Document	UBX number
NINA-B3 Data Sheet	UBX-17052099
NINA-B3 System Integration Manual	UBX-17056748
NINA-B30 Product Summary	UBX-17052930
NINA-B31 Product Summary	UBX-17052931
NINA-B31 Series Getting Started	UBX-18020603
EVK-NINA-B3 User Guide	UBX-17056481
EVK-NINA-B3 Quick Start	UBX-18020772
u-blox Short Range Modules AT Commands Manual	UBX-14044127
Extended Data Mode Protocol Specification	UBX-14044126

1.5 Released software tools

The s-center version 4.6.1 evaluation software with support for NINA-B31 has been released and is available for download from u-blox.com.

2 Supported features

This section describes the main features supported in the u-blox connectivity software v1.0 for NINA-B31.

2.1 GATT server and client

NINA-B31 supports the Generic Attribute Profile (GATT) in the Bluetooth Low Energy specification. It can act as both GATT server and GATT client, simultaneously.

2.2 Peripheral and central roles

NINA-B31 can have both peripheral and central roles. A module can be peripheral and central simultaneously.

2.3 Serial Port Service

Serial Port Service (SPS) is implemented according to u-blox Low Energy Serial Port Service. SPS is implemented on top of GATT and provides a serial data connection over Bluetooth Low Energy similar to the Serial Port Profile (SPP) in Bluetooth BR/EDR. u-blox provides example code for implementation of the SPS protocol in Android and iOS devices.

2.4 2 Mbps link speed

Support for the physical layer for up to 2 Mbps link speed introduced in the Bluetooth 5.0 specification is included.

2.5 Coded physical layer

The Bluetooth 5.0 specification provides a physical layer with reduced throughput, but with extended error coding. This enables improved sensitivity and thereby longer range communication.

2.6 Advertising extensions

Support for enhanced advertising messages in the Bluetooth 5 specification is implemented. This includes longer broadcast messages and use of more advertising channels.

2.7 Extended Data Mode

When setting the module to data mode, multiple connections can be configured. Extended Data Mode (EDM) allows individual control of each individual connection. This makes it possible to transmit data to one specific remote device and to know from what remote device the data is received.

2.8 Configuration over air

With configuration over air enabled, the module accepts the AT commands sent from a remote device connected via Bluetooth low energy.

2.9 GPIO control

GPIO pins available on the NINA-B31 module can be configured, written to, and read from using an AT command from the host over the UART interface. By using the configuration over air functionality, the NINA-B31 GPIO pins can be controlled also from a remote device using Bluetooth low energy.

2.10UART host interface

For communication with the host system, a UART interface is implemented. Baud rate up to 921600 is supported.

2.11 NFC

NFC tag capabilities are included, which enables features such as simplified pairing or initiation of an activity in the device.

2.12 Out-of-band pairing

With the Bluetooth security mode out-of-band pairing, two Bluetooth devices can be paired to each other by sharing the pairing information via media other than Bluetooth. For example, this media could be NFC.

2.13 Secure boot

The NINA-B31 modules implement a secure boot procedure assuring that the modules only start in the presence of software authorized by u-blox. This ensures that the malicious software can't be injected in the module. As a consequence, the NINA-B31 series cannot be used by customers developing their own software to run on the module MCU. For this purpose, u-blox provides the NINA-B30 series with open CPU.

3 Known limitations

Description
NINA-B3 crashes when extended advertisements are disabled after enabling them. Workaround: Rewrite advertisement data with maximum of 28 bytes before disabling advertisement extensions.
The response to "Maximum allowed output power" (AT+UBTCFG param_tag 4) is the unsigned representation of the configured value.
Flow control should be enabled when transmitting more than 8 kBytes of data to avoid module reset.
Extended advertisement supports up to maximum message length of 232 bytes and not 252 bytes as targeted.
Wrong frame size reported in the EDM Connect Event. Workaround: Use frame size from Resend Connect Events (0x0056).
The command to read multiple GATT characteristics (AT+UBTGRM) is not functional and returns an error response.
It is not possible to configure two modules to start in data mode and connect using 2 Mbps physical layer (PHY). Workaround: After connection is established which is always done on 1 Mbps, change PHY to 2 Mbps.
Not possible to read out negotiated PHY in ACL connection with AT+UBTLEPHYR.