Product Summary

u-connect

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Wireless connectivity software for u-blox short range radio modules
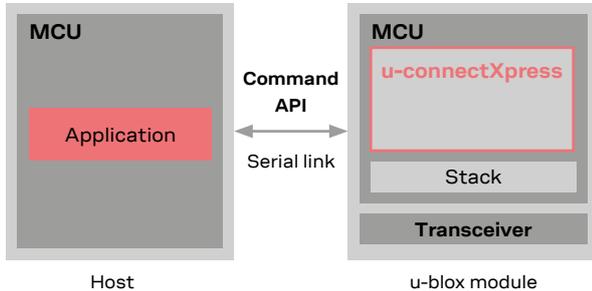
Benefits

- Accelerated time to market for Wi-Fi and Bluetooth connectivity

- Flexible design choices to fit application needs

- Secure IoT delivered out-of-the box

- Pre-flashed at delivery for efficient production

- High-performance, power and memory efficient script solution

- Enabling portability and re-use of applications across products and technologies

Go wireless in no time

u-connect software for u-blox short-range stand-alone modules makes it easy to integrate Bluetooth and Wi-Fi connectivity into new and existing products. Two variants of u-connect are available: u-connectXpress, which is used together with a host, and u-connectScript, which enables embedding applications directly on the module. u-connect accelerates the time-to-market by providing ready-to-use software to manage connectivity behind the scenes, reducing complexity of development.

u-connect is pre-flashed and caters to a broad range of IoT applications such as smart buildings, smart cities, smart industry and healthcare, including smart lighting systems, industrial sensor networks, asset tracking solutions, and building automation systems.

A multitude of use cases can readily be realized with u-connect, everything from cable replacement, configuration and control of equipment using smartphone/tablet to advanced Wi-Fi connectivity and sensor/gateway applications.

u-connectXpress

Easy to use command API with zero programming

Host   u-blox module

u-connectScript

Fast, easy, interactive development of embedded applications

u-blox module

u-connectXpress integrates connectivity through an extensive command API using industry standard AT commands together with u-blox additions that are common across u-blox products, thus enabling portability. Developed and tested for more than 15+ years, the software provides feature rich and stable functionality.
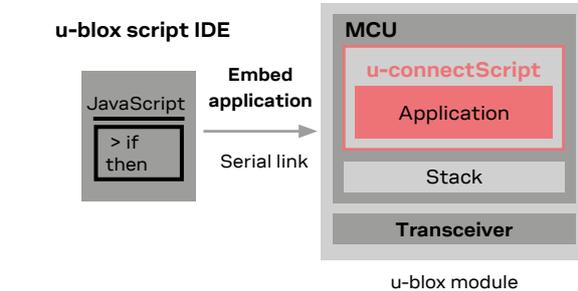
A host application can configure desired connectivity without the need to write complex code, thus enabling focus on time-to-market and the core application and not the connectivity part.

To facilitate efficient handling and management of data on both wireless and physical interfaces, u-connectXpress embeds the concept of u-connect streams, see next page.

u-connectScript is used to embed applications on the module using JavaScript with no need of a separate host, thus further optimizing costs. It provides a quicker and easier development process compared to using a traditional SDK environment.

Applications can be written with the provided u-blox IDE or in any other text editor of choice. JavaScript, widely adopted in the software community, provides for a short learning curve.

Contrary to many script solutions, performance and power consumption remains on par with traditionally developed embedded applications by the use of u-connect streams. For more about streams, see the next page.
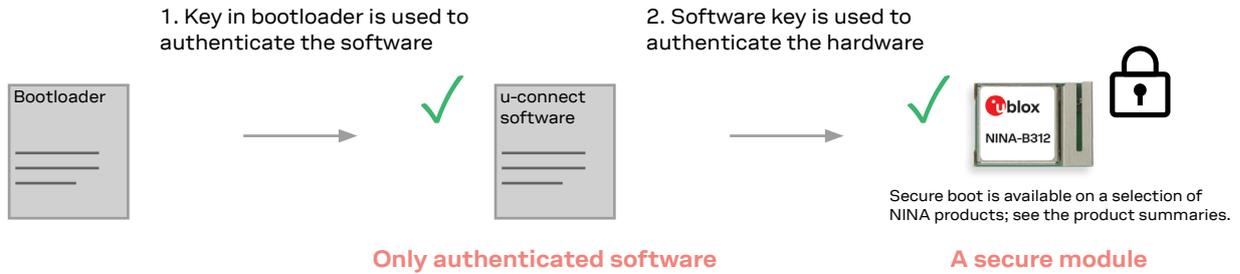
Product variants

u-connectXpress	Supported by ODIN-W2, NINA-W13, NINA-W15 NINA-B1, NINA-B2, NINA-B31, ANNA-B112
u-connectScript	Initially supported by NINA-B31

u-blox

u-connect

Secure IoT

Security is fundamental for IoT systems. u-connect incorporates secure boot and only boots up with an original certified u-connect software, thus preventing malicious attacks. Additionally, u-connect supports a high level of link and data security with support for Wi-Fi enterprise security (EAP-TLS), IP end-to-end security (TLS) and LE secure connections for Bluetooth.
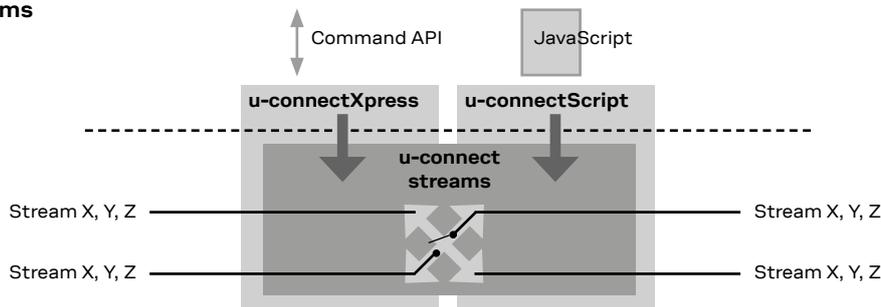
Secure boot with u-connect

1. Key in bootloader is used to authenticate the software

2. Software key is used to authenticate the hardware

Bootloader

✓

u-connect software

✓

NINA-B312

Secure boot is available on a selection of NINA products; see the product summaries.

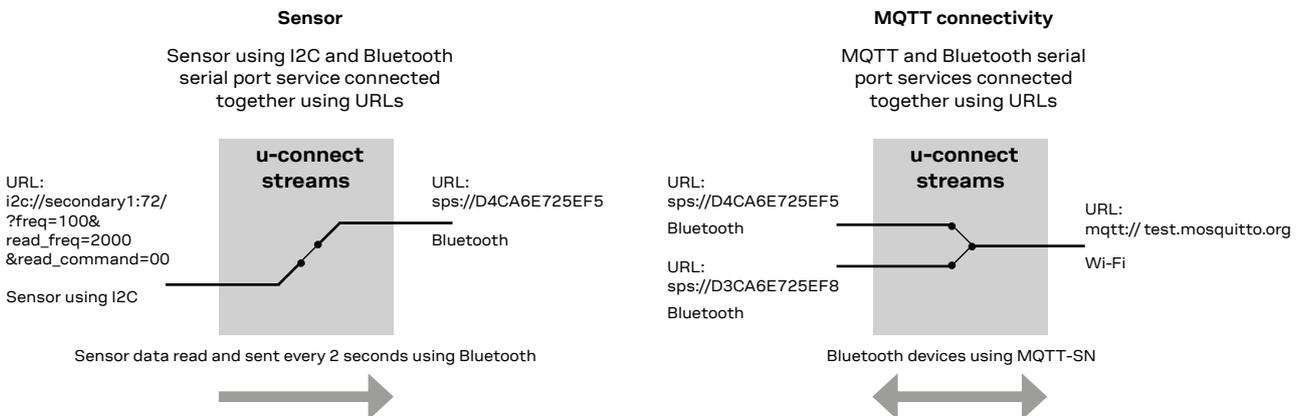**Only authenticated software**

A secure module

u-connect streams enabling IoT

u-connectXpress and u-connectScript are based on the unique u-connect stream concept by u-blox. This enables efficient management of data flows from wireless and physical interfaces, providing flexibility and excellent performance. An internet standard based URL scheme is used to define data streams, which can be of any type, from a physical interface such as I2C to a TCP, Bluetooth serial port service or an MQTT connection. Each stream has an input and output of data and can be connected to form use cases that support different applications.

u-connect streams

Command API

JavaScript

u-connectXpress

u-connectScript

u-connect streams

Stream X, Y, Z

Stream X, Y, Z

Stream X, Y, Z

Stream X, Y, Z

Examples

Sensor

Sensor using I2C and Bluetooth serial port service connected together using URLs

URL:
i2c://secondary1:72/
?freq=100&
read_freq=2000
&read_command=00

u-connect streams

URL:
sps://D4CA6E725EF5

Bluetooth

Sensor using I2C

Sensor data read and sent every 2 seconds using Bluetooth

MQTT connectivity

MQTT and Bluetooth serial port services connected together using URLs

URL:
sps://D4CA6E725EF5

Bluetooth

URL:
sps://D3CA6E725EF8

Bluetooth

u-connect streams

URL:
mqtt:// test.mosquitto.org

Wi-Fi

Bluetooth devices using MQTT-SN

Further information

For contact information, see www.u-blox.com / contact-us.

For more details on supported features, see the u-connect line card.