# Product summary
u-connectXpress

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Wireless connectivity software for u-blox short range radio modules

Benefits

- Accelerated time-to-market for Bluetooth and Wi-Fi connectivity
- Secure IoT delivered out-of-the box
- Pre-flashed at delivery for efficient production
- Portability and re-use of applications is enabled across products and technologies
- Easy-to-use command API
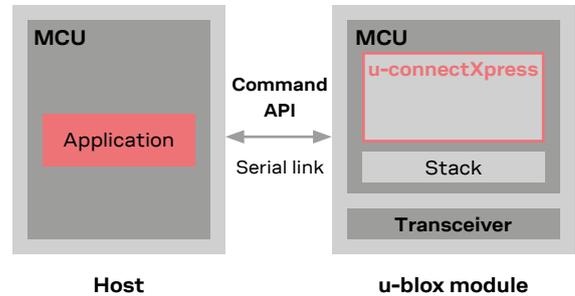
Go wireless in no time

u-connectXpress software for u-blox short range stand-alone modules makes it easy to integrate Bluetooth and Wi-Fi connectivity into new and existing products. u-connectXpress accelerates the time-to-market by providing ready-to-use software to manage connectivity behind the scenes, reducing complexity of development.

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

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

Products that support u-connectXpress

ANNA-B112, ANNA-B41, NINA-B1, NINA-B2, NINA-B31, NINA-B41, NINA-W13, NINA-W15, NORA-W36, and ODIN-W2; for details see page 2.

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.

By means of their application on the host, integraters can configure the desired connectivity without needing to write complex code, and thus focus on time-to-market and the core application, and not the connectivity details.

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

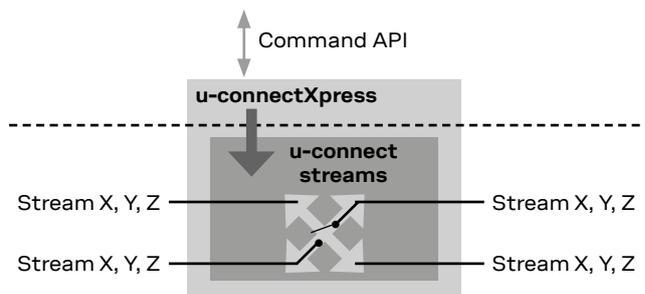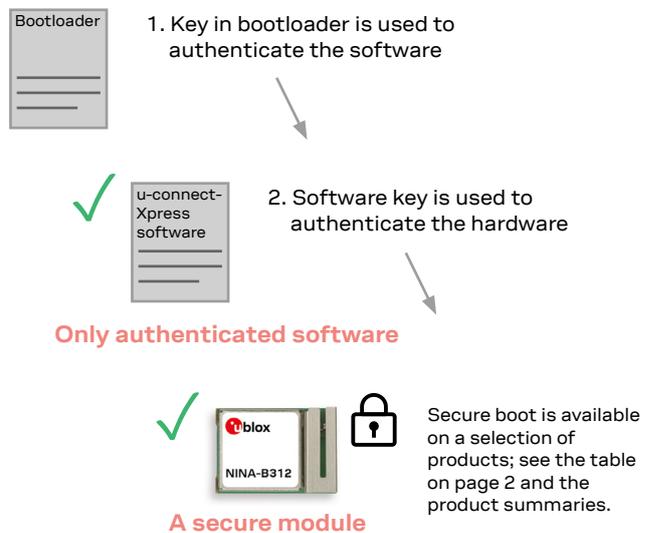### u-connectXpress streams enabling IoT *

u-connectXpress is based on the unique u-connect streams concept by u-blox. This enables efficient management of data flows from wireless and physical interfaces, providing flexibility and excellent performance. A URL scheme based on internet standards is used to define data streams, which can be of any type, from a physical interface such as 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.

* Not supported on NORA-W36

Secure IoT

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

Secure boot with u-connectXpress

1. Key in bootloader is used to authenticate the software

2. Software key is used to authenticate the hardware

Only authenticated software

A secure module

Secure boot is available on a selection of products; see the table on page 2 and the product summaries.

u-blox

u-connectXpress

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u-connectXpress – overview of products and features

	ANNA-B1 / NINA-B1	ANNA-B41 / NINA-B41	NINA-B31	NINA-B2	NORA-W36	NINA-W15	ODIN-W2	NINA-W13
Bluetooth Technology								
Bluetooth qualification [version]	5.0	5.1	5.0	4.2	5.0	4.2	4.2	
Bluetooth profiles *	G		G	S, G	G	S, G	S, D, P, G	
Bluetooth BR/EDR				•		•	•	
Wi-Fi provisioning over Bluetooth LE					•			
Advertisement extensions (BT 5.0)	•	•	•					
2 Mbps phy (BT 5.0)	•	•	•		•			
Long range, coded phy (BT 5.0)		•	•					
Number of parallel links	7 central 1 peripheral	7 central 1 peripheral	7 central 1 peripheral	7 central 1 peripheral	2 central 1 peripheral	7 central 1 peripheral	7 central 1 peripheral	
Simultaneous Central & Peripheral	•	•	•	•	•	•		
Multiple central	•	•	•		•			
Beacon	•	•	•	•	•	•	•	
Serial port service, simultaneous GATT	•	•	•	•	•	•	•	
Wi-Fi Technology								
Wi-Fi IEEE 802.11 standards					a/b/g/n	b/g/n	a/b/g/n	b/g/n
Micro access point					•	•		•
Simultaneous client & access point					•	•		•
Simultaneous Wi-Fi & Bluetooth					•	•	•	
Max connections					5	10	10	10
Roaming 802.11r							•	
Network and IoT								
HTTP(S)					•	•		•
MQTT/MQTT-SN					•	•	•	•
TCP					•	•	•	•
UDP					•	•	•	•
Simple network time protocol (SNTP)					•	•		•
Point-to-point protocol (PPP)					•	•	•	•
Bridge interface						•	•	•
DHCP Client & Server					•	•	•	•
DNS Client					•	•	•	•
Adress conflict detection						•	•	•
IP forwarding						•	•	•
TCP keep-alive					•	•	•	•
Ping command					•	•	•	•
Security								
Secure Boot		•	•	•	•	•		•
Wi-Fi security					WPA2/ WPA3	WPA/WPA2/ WPA3	WEP 64/128, WPA/WPA2	WPA/WPA2/ WPA3
Wi-Fi Enterprise security					PEAP, EAP-TLS	PEAP, EAP-TLS	LEAP, PEAP, EAP-TLS	PEAP, EAP-TLS
Wi-Fi security - protected mgt frames							•	
LE secure connection	•	•	•		•	•		•
Bluetooth privacy							•	
SSL/TLS certificate & private key mgr					•	•	•	•
TLS (Transport layer security)					•	•	•	•
Flash encryption					•			
u-connect streams								
Supported streams	SPS, UART	SPS, UART	SPS, UART	SPI, SPP, SPS, UART	SPS, UART	MQTT, SPI, SPP, SPS, TCP, TLS, UART, UDP	MQTT, SPP, SPS, TCP, TLS, UART, UDP	MQTT, SPI, TCP, TLS, UART, UDP
System and interfaces								
Configuration over the air (COA)	•	•	•	•		•	•	•
Multi-drop / Extended data mode	•	•	•	•		•	•	•
NFC Tag	•	•	•					
GPIO	•	•	•	•		•	•	•
SPI				•		•		•
RMII (Ethernet)						•	•	•
UART	•	•	•	•	•	•	•	•

* Bluetooth Low Energy: G=GATT   Bluetooth profiles: S=SPP, P=PAN, D=DUN

Further information

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

For more details, see the product summaries of the products that support u-connectXpress.