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# Buy time creating Bluetooth mesh networks with AT commands

**With u-connectXpress, you can configure and deploy a Bluetooth mesh network using simple AT commands, freeing up time that you can spend perfecting your product. Test it today!**



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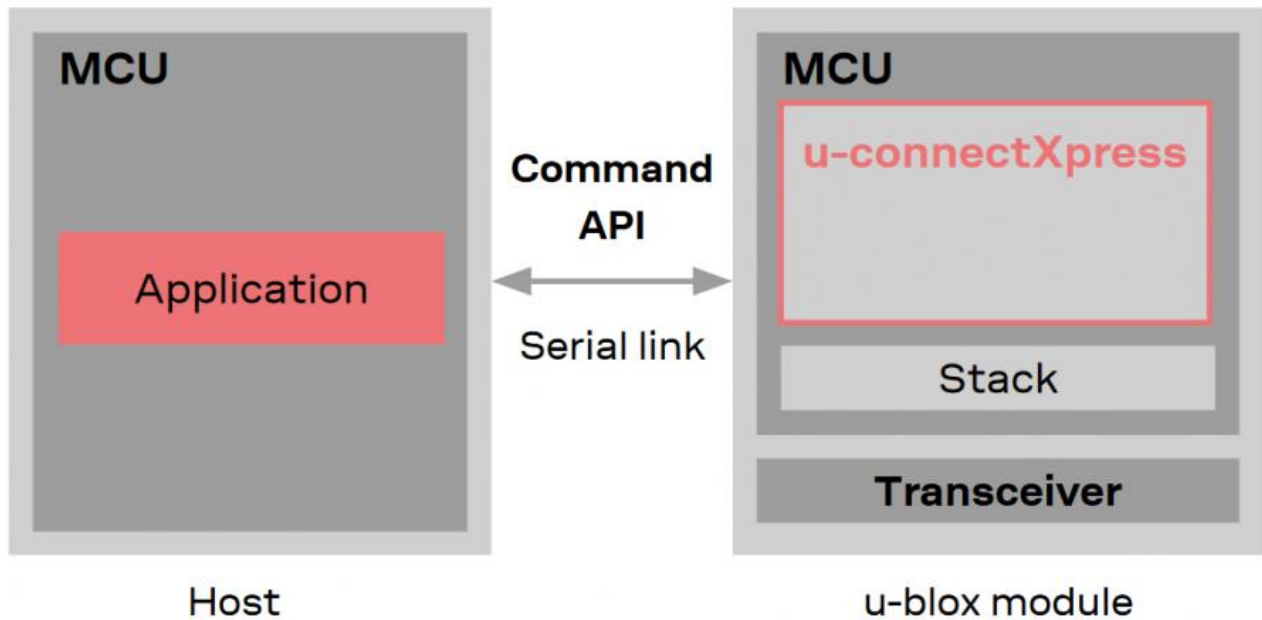
There's power in numbers. It's true in tech too. Connecting up to a staggering 32'767 nodes into a single mesh network ([at least in theory](#)), Bluetooth mesh technology sends messages across the network, hopping node to node from their source to their destination with a maximum of [127 hops per trip](#). In addition to massively scaling up the coverage a Bluetooth network can achieve, the mesh-based implementation increases the resilience of service when compared to a more conventional star-shaped topology, where a single point of failure can shut down an entire portion of the network.

Its properties made Bluetooth mesh an obvious enabler of smart lighting networks, which is why the Bluetooth SIG tailored the first version of their Bluetooth mesh standard specifically to that industry's needs. With a single flip of a switch in a building's control center, a message can fire off across an entire network, switching the lights on or off in concert.

We have supported Bluetooth mesh deployments on most openCPU variants of our BLE module portfolio since shortly after the standard was first released back in 2017 and continue to do so today. To date, customers, mainly in the smart lighting vertical, have resorted to creating their own applications using an SDK (software development kit). But there has been a lack of approaches simple enough to let customers develop and deploy their applications in-house without extensive expertise.

That's why we're so excited to give you a chance to test our addition to [u-connectXpress](#), our feature-rich configuration software for our short range module portfolio. Still in an experimental release, and available on our [NINA-B1](#), [ANNA-B1](#), and [NINA-B3](#) modules, u-connectXpress Bluetooth Mesh takes the pain out of configuring and provisioning Bluetooth mesh networks by using simple AT commands. The software (which you can download [here](#)) includes all the data structures for the predefined "models" – the basic building blocks that make up Bluetooth mesh applications – specified by the Bluetooth standard. If necessary, custom models can be defined and added using AT commands.

The host application, hosted on a separate MCU, can then use AT commands and events to publish or receive data via the mesh network, for example, operating a light switch or receiving sensor data.



*Architecture of a mesh node using u-connectXpress*

u-connectXpress is all about making an otherwise complex process as simple as possible. It takes four commands to set the network key, the device key, the application key, and the unicast address for each client node. Then, it takes just a few more to bind the mesh nodes to the network.

In addition to making provisioning mesh nodes simple, u-connectXpress also makes it efficient, even when a large number of devices are deployed simultaneously. Using our [s-center](#) software solution, you can prepare the configuration files for each node containing all the necessary AT commands and data ahead of time, then connect each device to a PC, and provision them with a few easy clicks.

Alternatively, in particular for small deployments such as in smart homes, you can provision, configure, and reconfigure your nodes using an open source smartphone app. Because it's open source, you can customize the app to meet the specific needs of your application, and voilà, you have an easy-to-use configuration interface that is ready to hit the market.

We hope that this experimental release of u-connectXpress Bluetooth Mesh will help you get your ideas off the ground. Your feedback will be invaluable in helping us improve our solution before we move onto a final release. So give it a try, send us your feedback via our [customer portal](#), and contribute to making Bluetooth mesh networks even quicker and simpler to deploy. We'd love to hear from you!

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