

Rayson Technology Co., Ltd.

How to Use the BTM-NL15C DK UART Service with the nRF Toolbox APP

July 2025

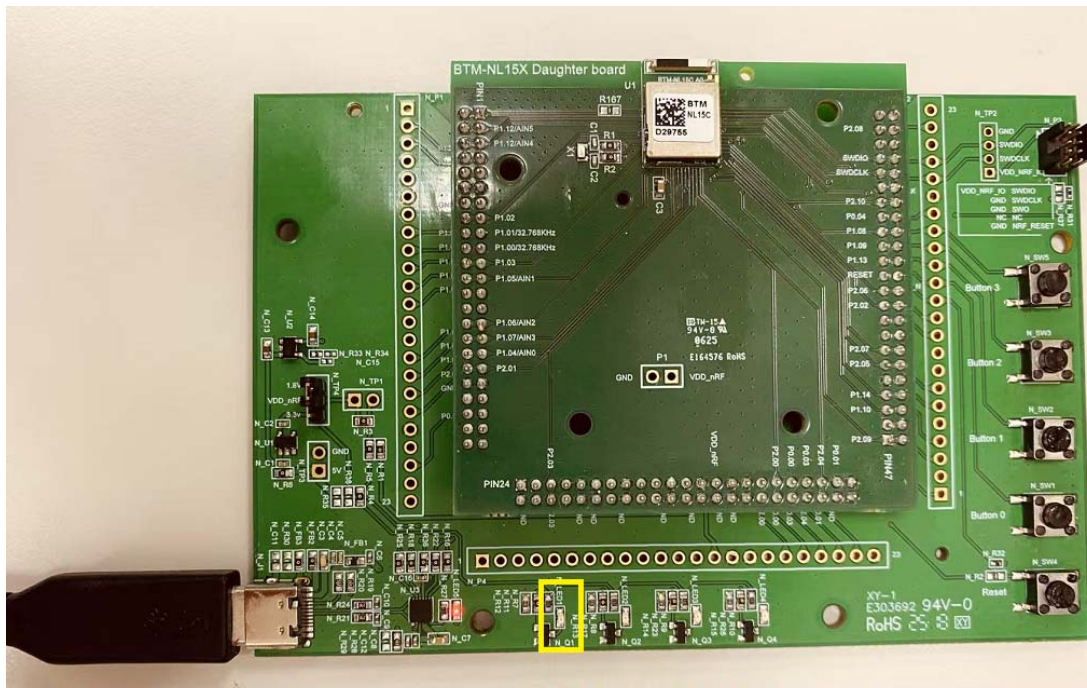
1. Install the Mobile Application :

Please install the **Nordic nRF Toolbox** app on your mobile device.



2. Connect Device Power:

Use a USB Type-C cable to power the DK. After power is applied, the LED (N_LED1) will start blinking, indicating that the device has entered Bluetooth advertising mode.

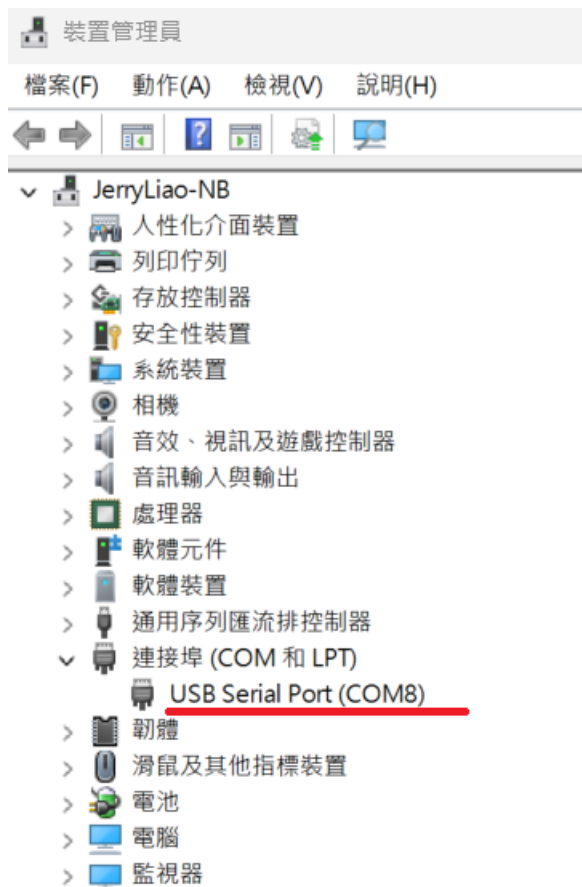


N_LED1(廣播狀態) : 閃爍

N_LED1(已連線狀態) : 恆亮

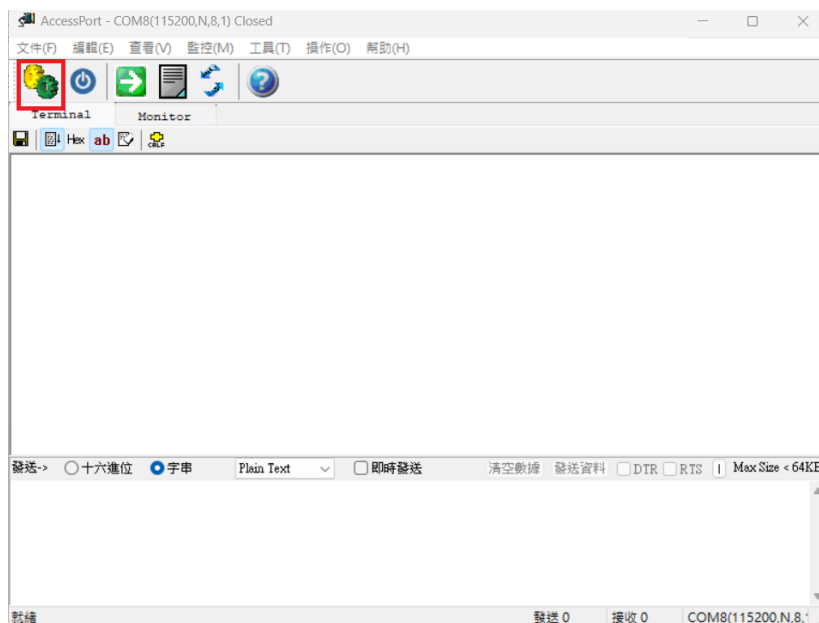
3. Check Device COM Port:

Open **Device Manager** on your computer to verify the COM port number assigned to the device.



4. Launch the UART Communication Tool:

Open the UART communication software and go to the settings page.



5. Configure Communication Parameters:

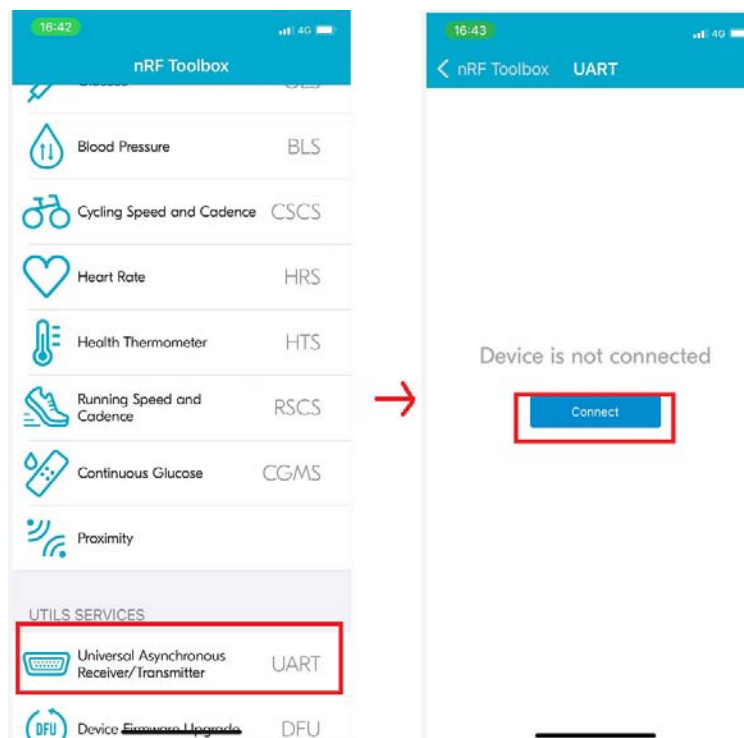
In the UART tool, set the following parameters:

- **COM Port:** Use the COM port number found in Step 3
- **Baud Rate:** Set to the specified baud rate (e.g., 115200)
- **Flow Control:** Choose according to system requirements (e.g., None, 8, 1)



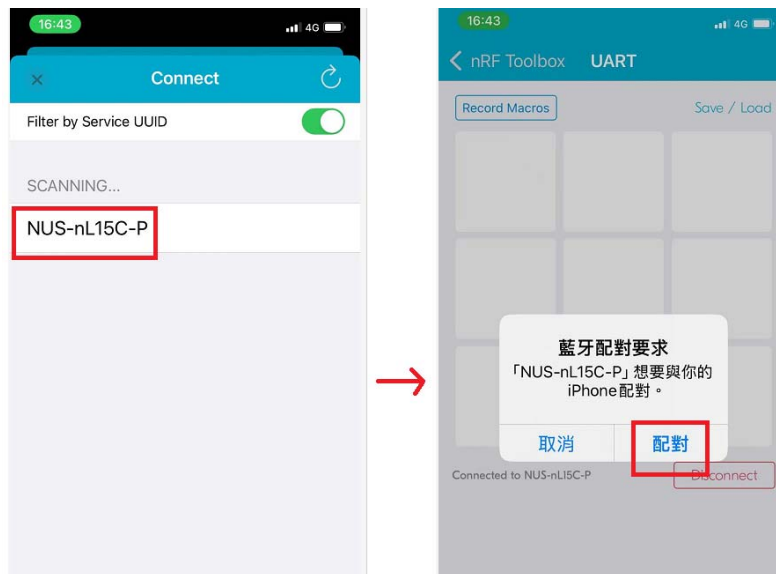
6. Connect the Mobile Device to the DK:

- Enable Bluetooth on your mobile device
- Open the nRF Toolbox app, select the **UART** module, and tap **Connect**



7. Scan and Pair with the Device:

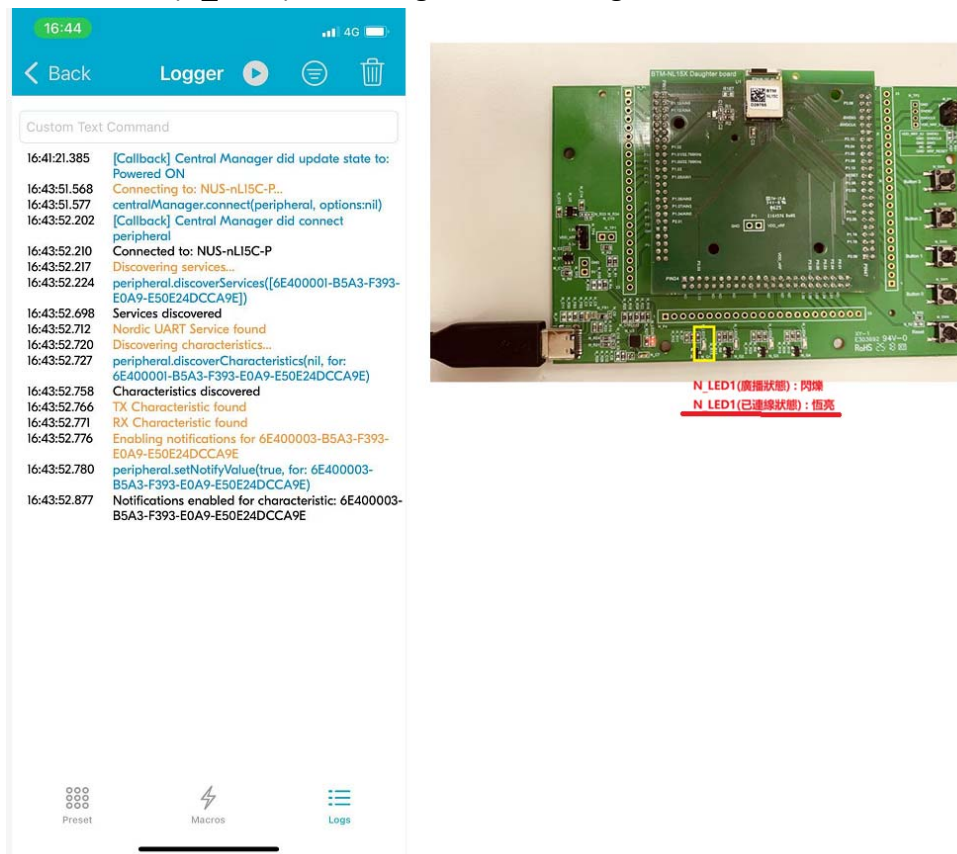
The app will automatically scan for Bluetooth devices. Select **NUS-nL15C-P** and tap to pair.



8. Confirm Connection Status:

After a successful pairing:

- The mobile app will display a connection message
- The LED (N_LED1) will change from blinking to solid on



9. Bidirectional Data Transmission Test:

At this point, the connection between the mobile app and the UART tool on the computer is established, allowing data to be transmitted in both directions..

The image illustrates the bidirectional data transmission test setup. It consists of several interconnected components and data flows:

- (1.)** The 'AccessPort - COM8(115200,N,8,1) Opened' window shows the connection status. The 'Terminal' tab is active, displaying a log of communication events. A red box highlights the '十六進位' (Hex) button in the '發送' (Send) section.
- (2.)** The 'Logger' application on the mobile device shows a list of received data. A red box highlights the '十六進位' (Hex) button in the '發送' (Send) section.
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The log data in the 'AccessPort' window includes the following entries:

```
16:41:21.385 [Callback] Central Manager did update state to: Powered ON
16:43:51.568 Connecting to NUS-nLISC-P...
16:43:51.577 centralManager.connect(peripheral, options:nil)
16:43:52.202 [Callback] Central Manager did connect peripheral
16:43:52.210 Connected to NUS-nLISC-P
16:43:52.217 Discovering services...
16:43:52.224 peripheral.discoverServices([6E400003-B5A3-F393-EDA9-E50E24DCCAE])
16:43:52.698 Services discovered
16:43:52.712 Nordic UART Service found
16:43:52.720 Discovering characteristics...
16:43:52.727 peripheral.discoverCharacteristics(nil, for: 6E400003-B5A3-F393-EDA9-E50E24DCCAE)
16:43:52.758 Characteristics discovered
16:43:52.766 TX Characteristic found
16:43:52.771 RX Characteristic found
16:43:52.776 Enabling notifications for 6E400003-B5A3-F393-EDA9-E50E24DCCAE
16:43:52.780 peripheral.setNotifyValue(true, for: 6E400003-B5A3-F393-EDA9-E50E24DCCAE)
16:43:52.877 Notifications enabled for characteristic: 6E400003-B5A3-F393-EDA9-E50E24DCCAE
16:48:59.754 Notification received from 6E400003-B5A3-F393-EDA9-E50E24DCCAE, with value: 0-6576672747373323433
16:48:59.778 'events1243' received
16:49:53.343 Writing to characteristic: 6E400003-B5A3-F393-EDA9-E50E24DCCAE, with value: 0-6576672747373323433
16:49:53.354 'events1243' sent
```