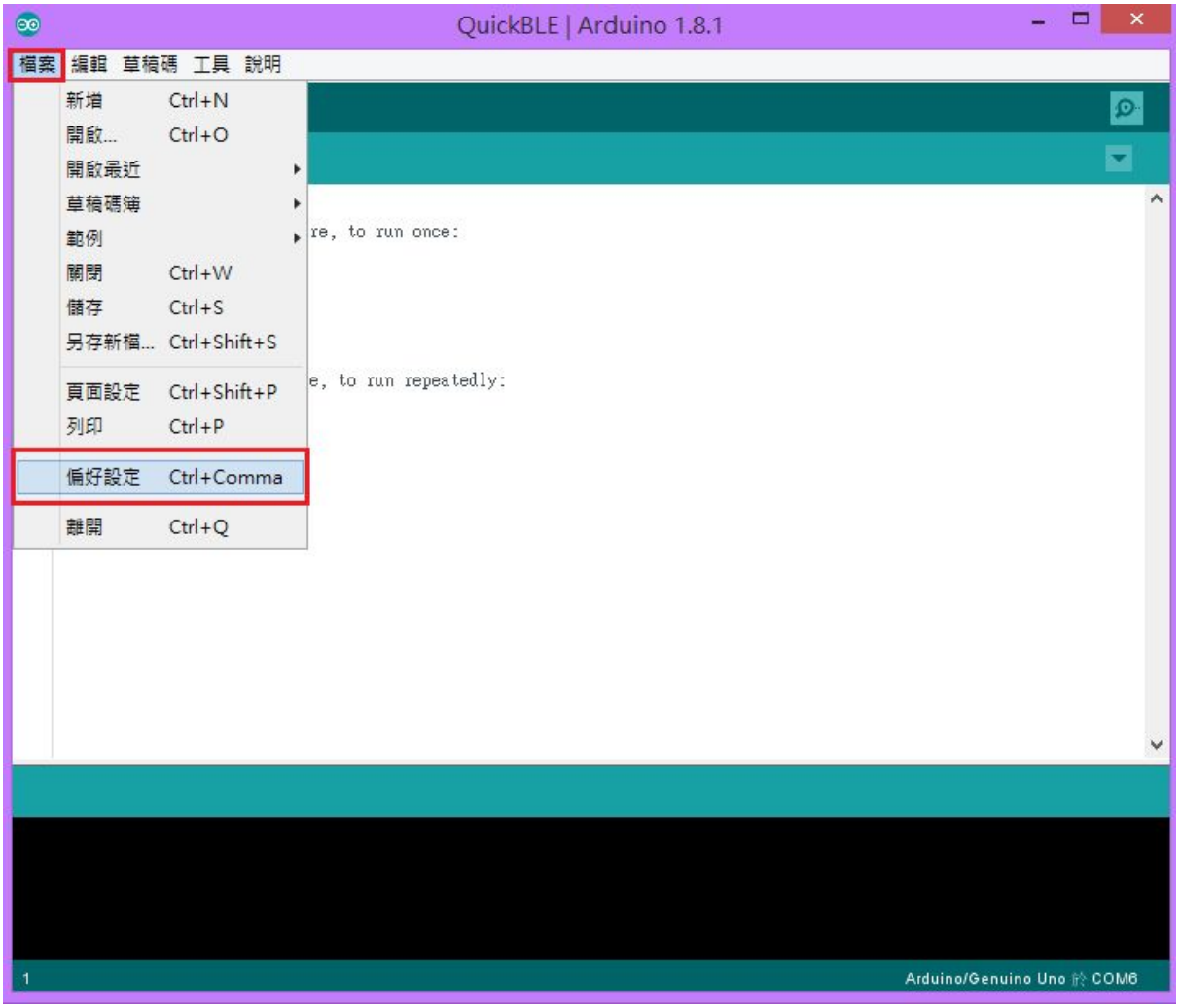
使用Arduino IDE 開發QuickBLE

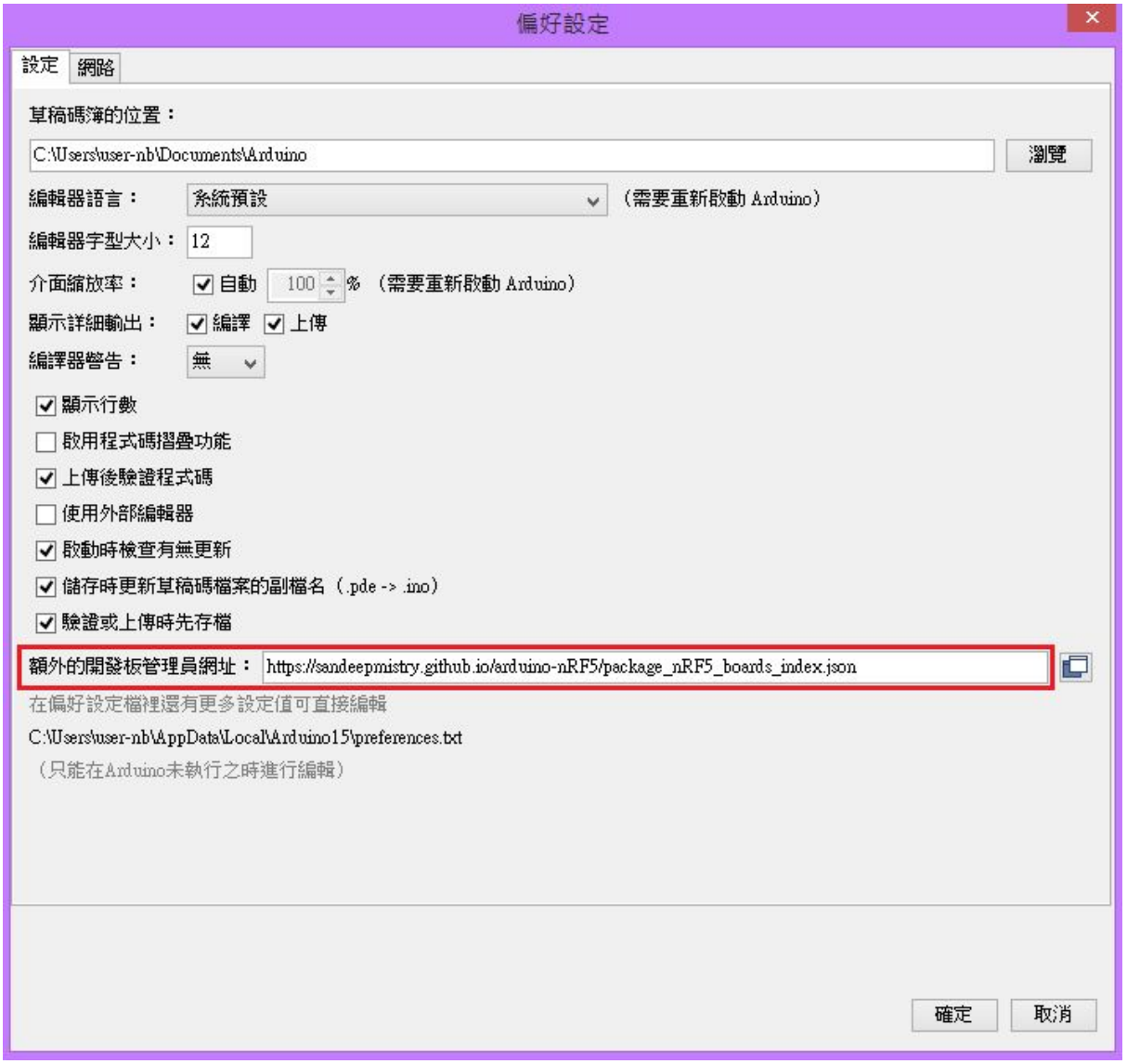
一、Arduino IDE對於QuickBLE的基本設置

1. 於下方網址下載並安裝 Arduino IDE(版本至少要 V1.6.12)
   https://www.arduino.cc/en/Main/Software

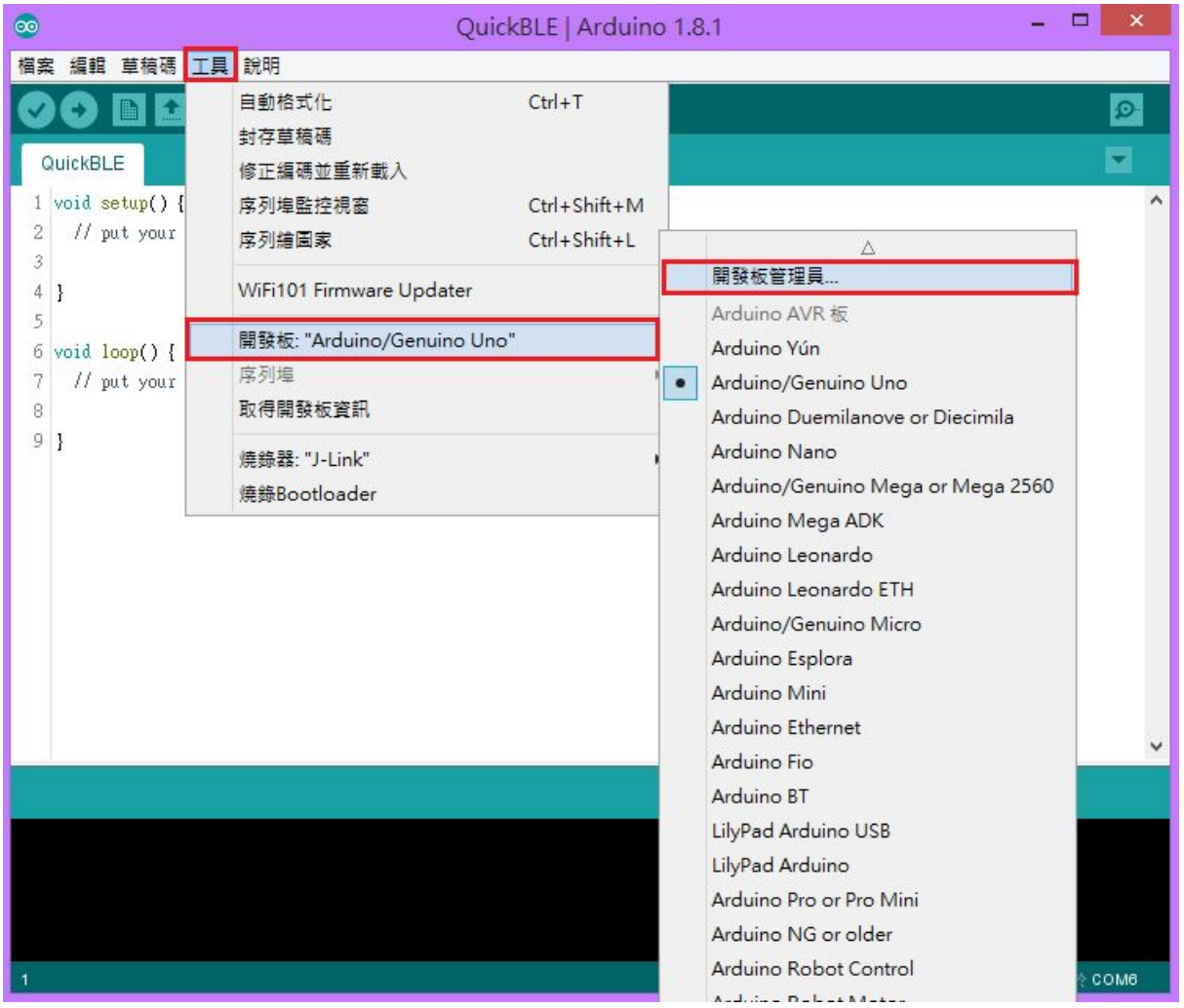
2.開啟Arduino IDE。點選 "**檔案**" -> “**偏好設定**”



將下方網址複製於 "**額外的開發版管理員網址**"
https://sandeepmistry.github.io/arduino-nRF5/package_nRF5_boards_index.json

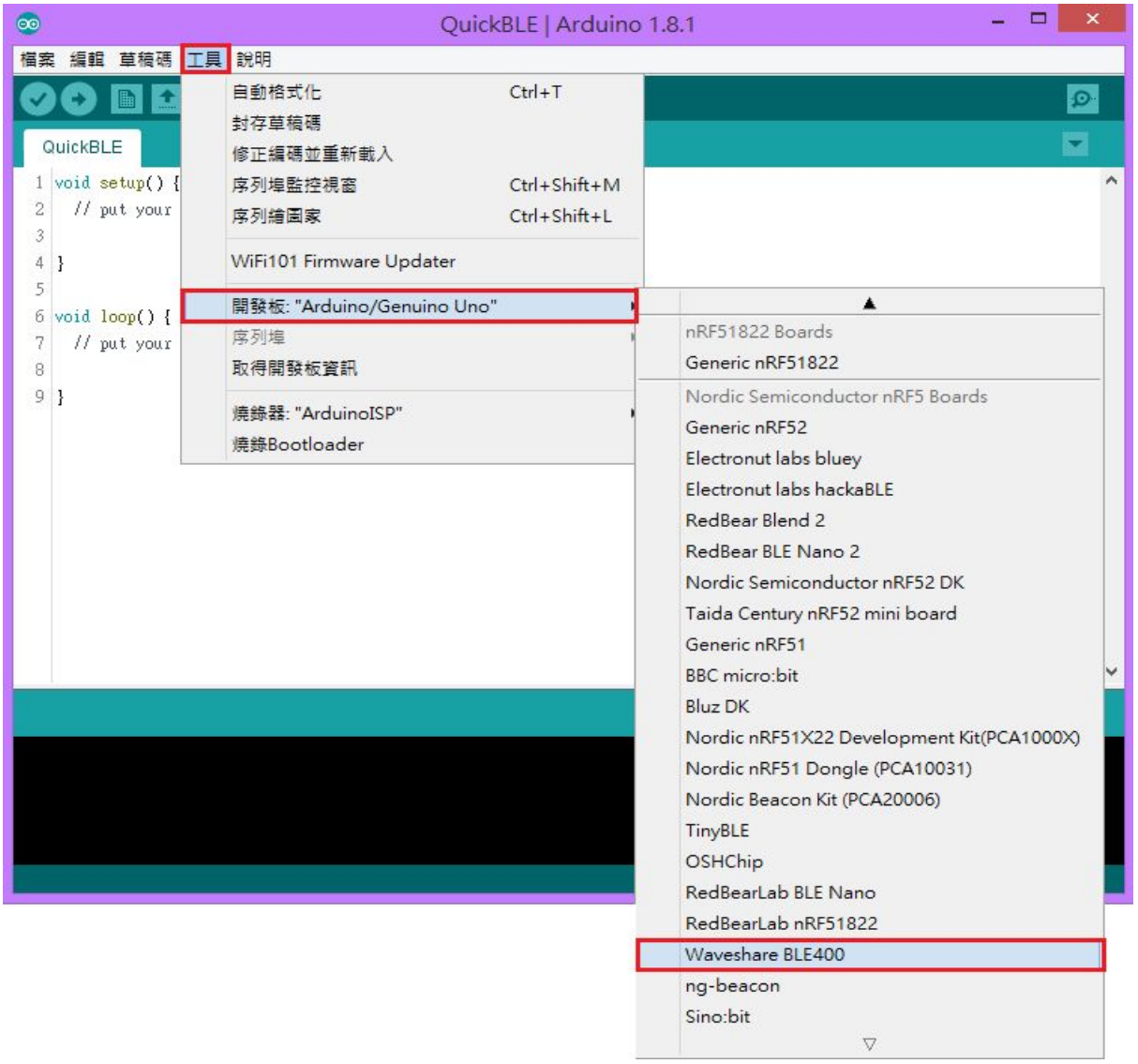


3.點選 "**工具**" -> "**開發板**" -> 選擇 "**開發板管理員**"

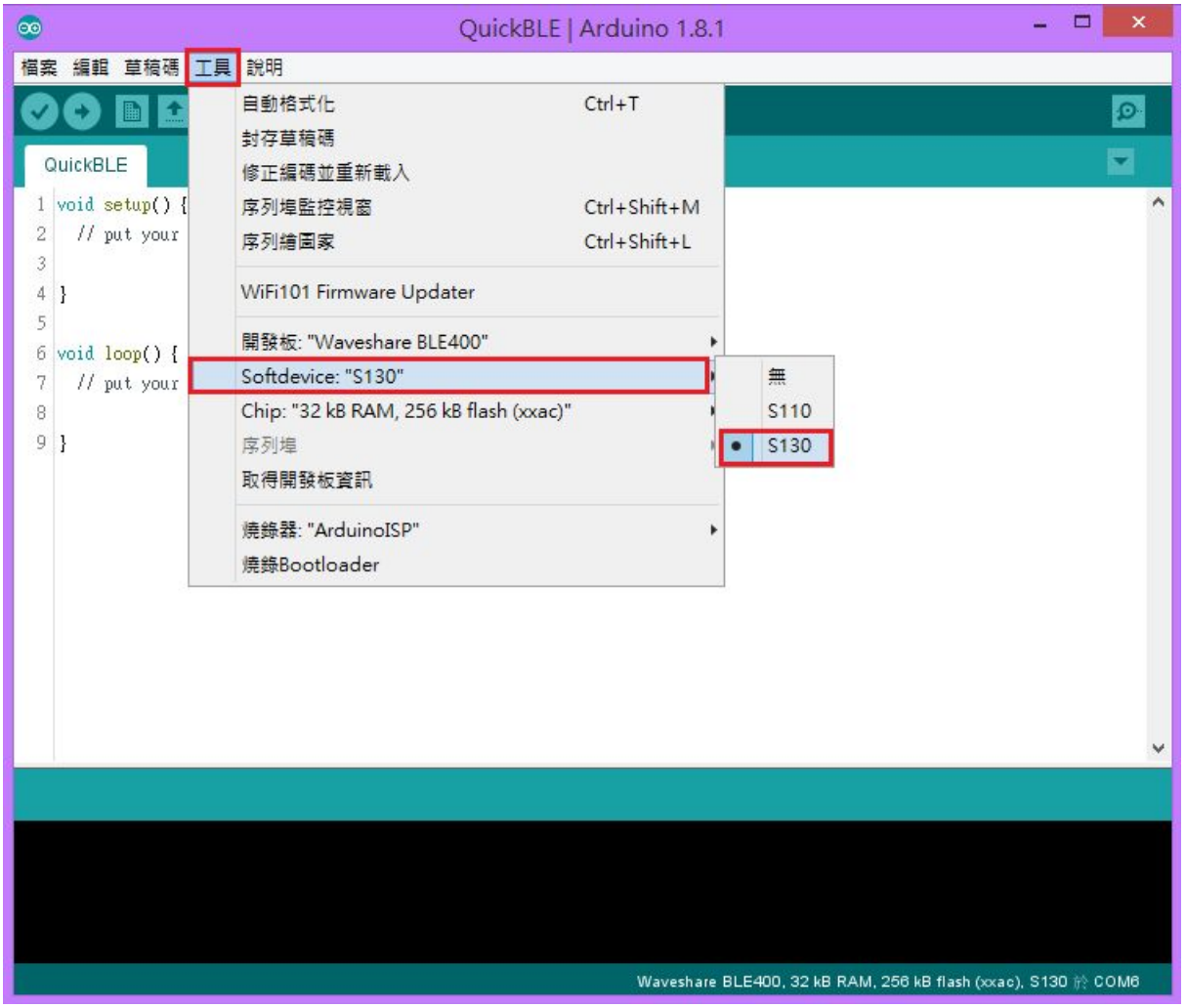


搜尋 Nordic Semiconductor nRF5 Boards 並安裝

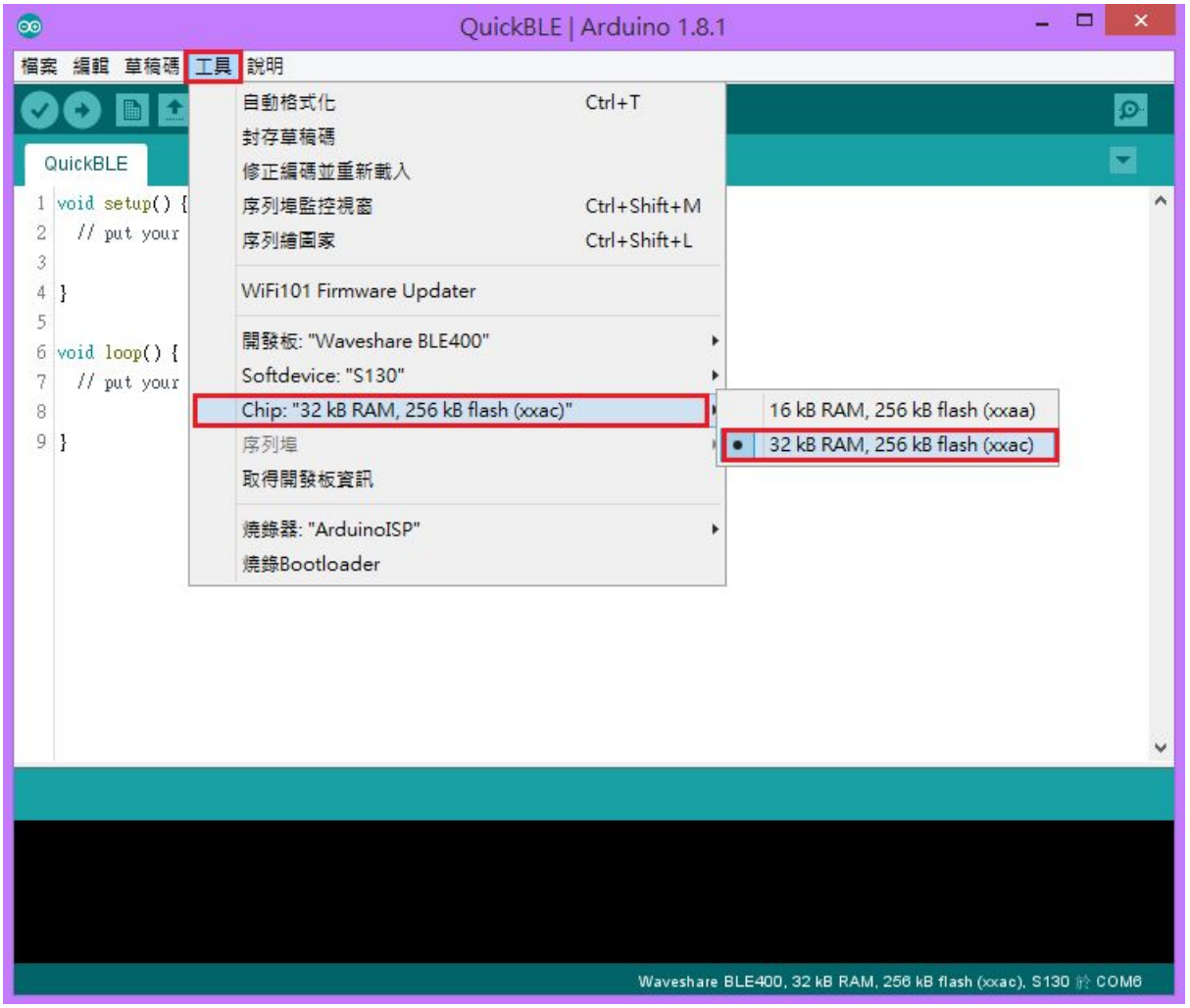
4. 於 "**工具**" -> "**開發版**"選擇 "**Waveshare BLE400**"



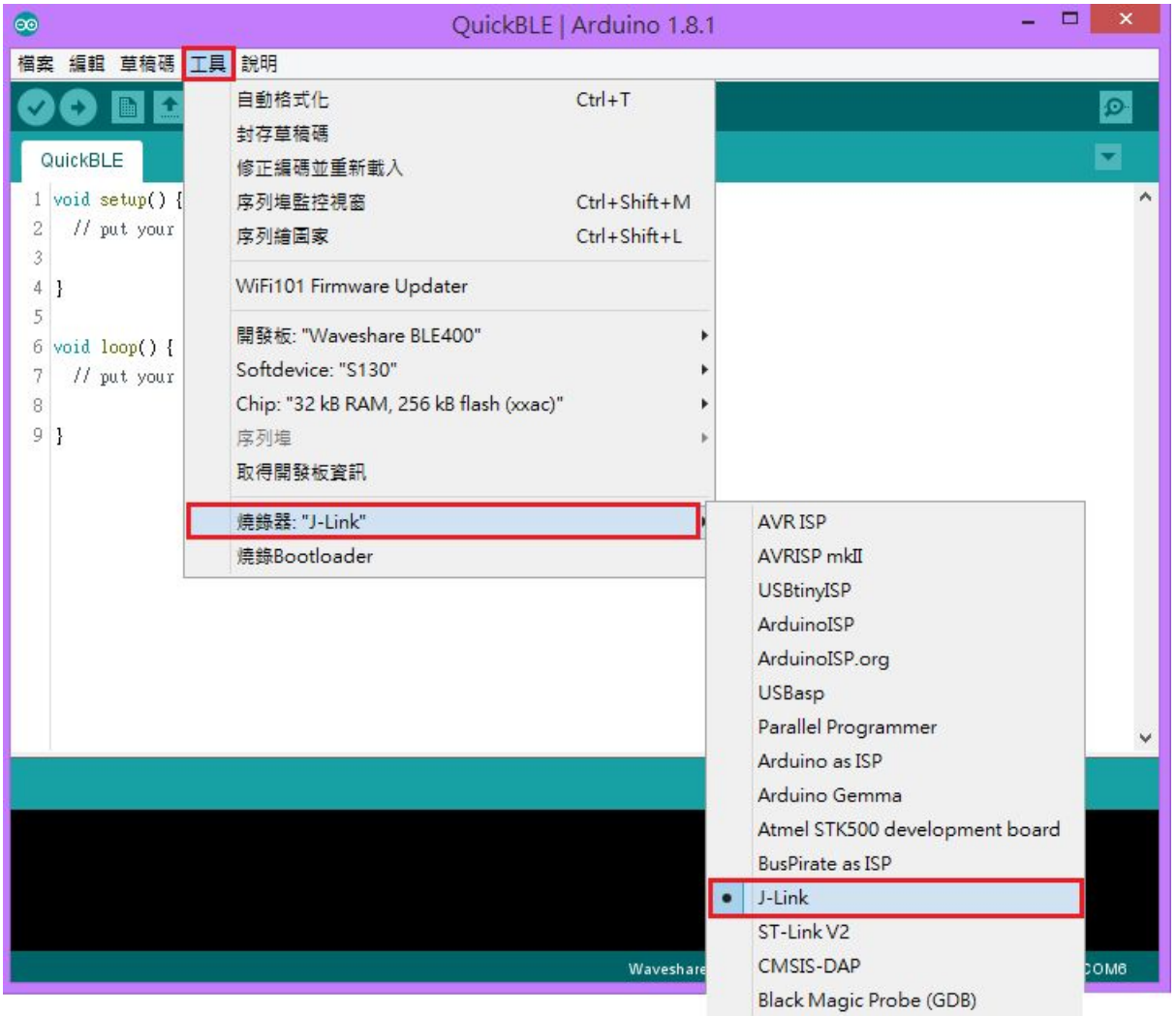
"工具" ->"Soft device" 選擇 "S130"



"工具" ->“Chip”選擇 “32kB RAM 256kB flash(xxac)”

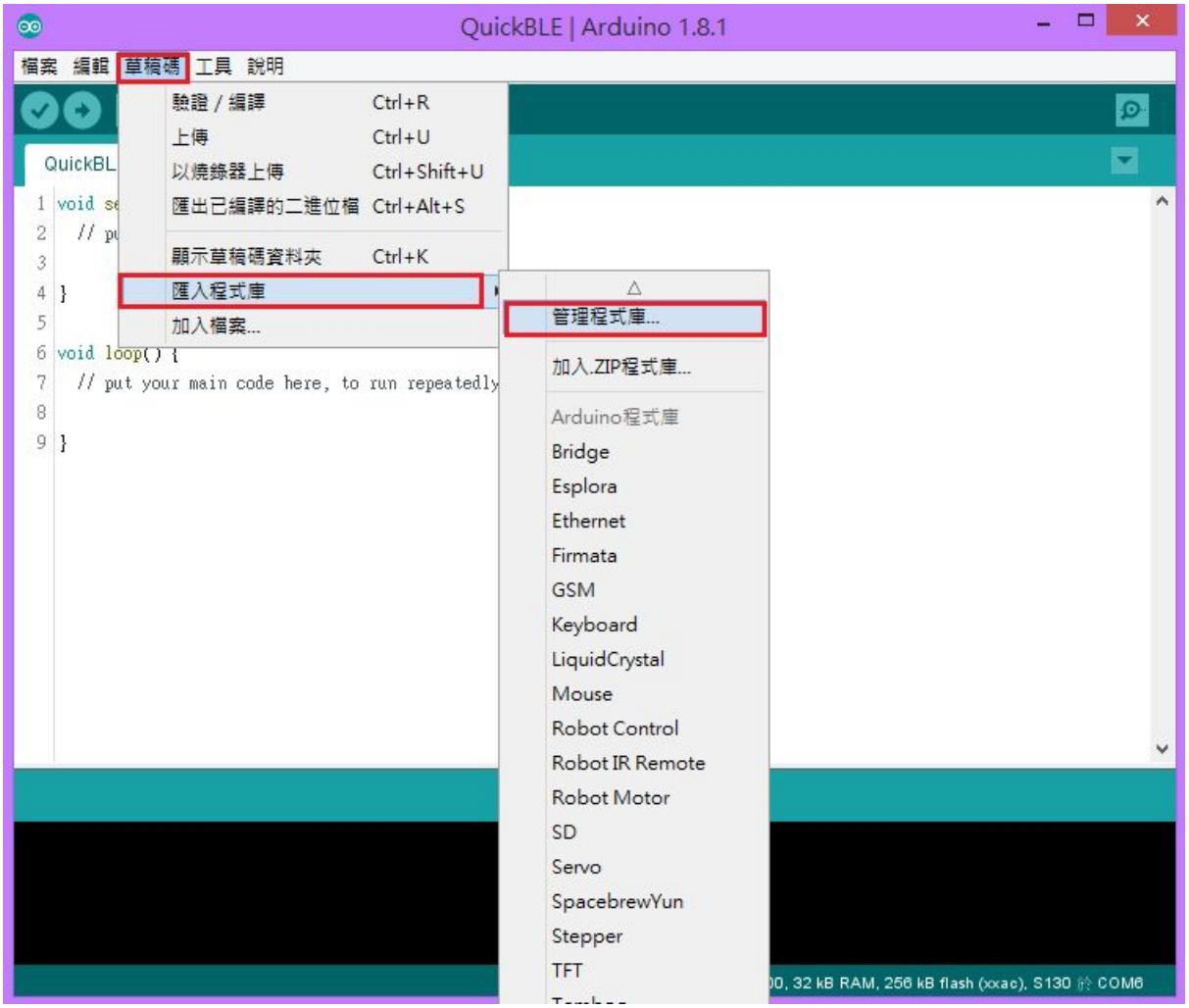


"工具" ->“燒錄器"選擇"J_Link"



5. 下載 Arduino BLE 函式庫。

點選"草稿碼" ->"匯入程式庫" ->選擇"管理程式庫"

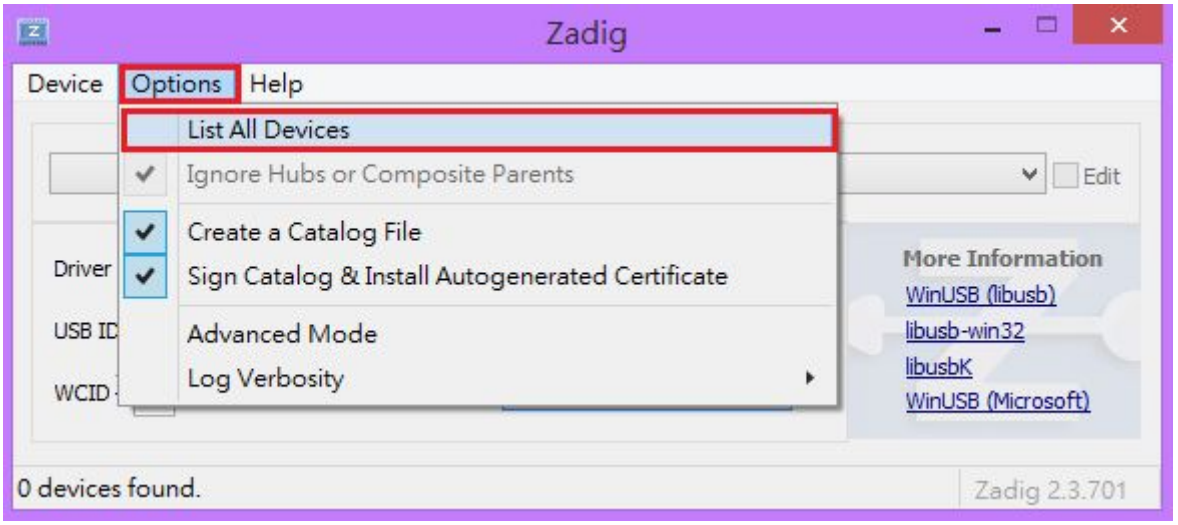


搜尋 BLEPeripheral 並安裝(版本0.4.0)

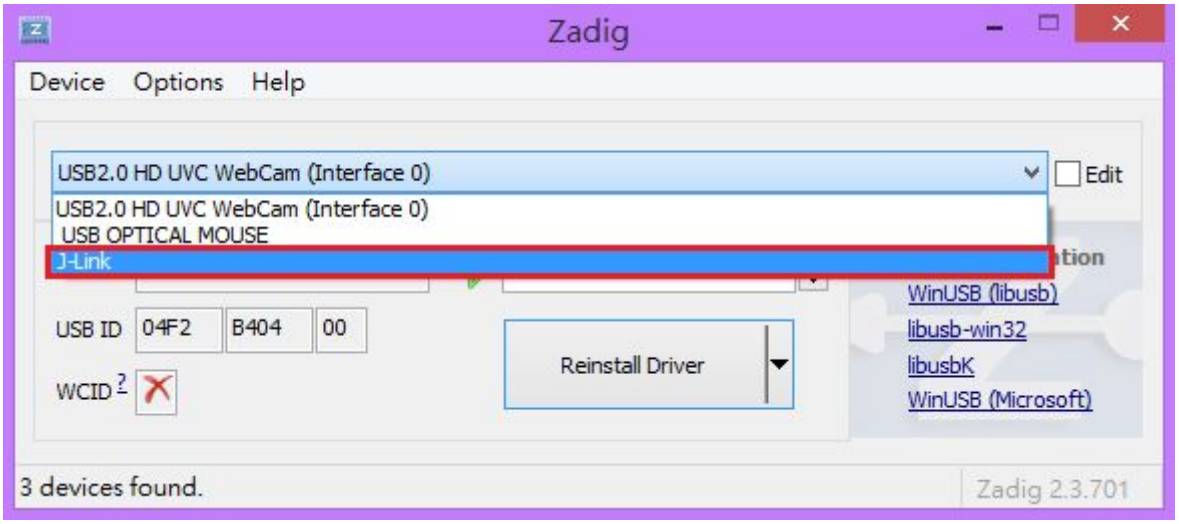
二、安裝J_Link驅動程式

1.於下方網址下載並安裝 Zadig http://zadig.akeo.ie/downloads/zadig-2.3.exe

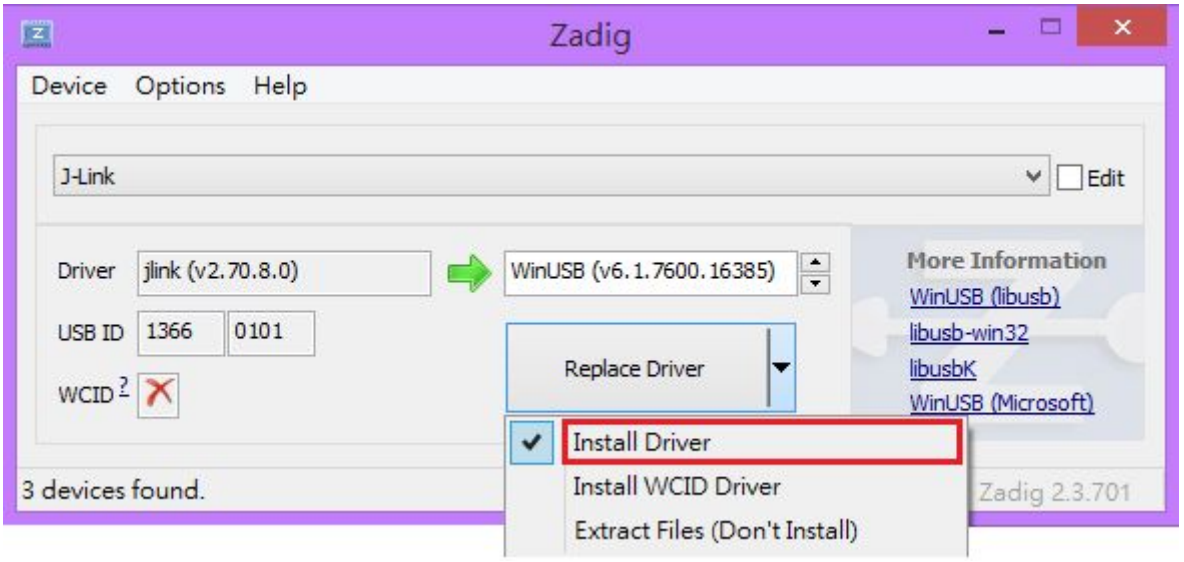
2.開啟 Zadig。點擊 “**Options**” ->選擇 “**List All Devices**”



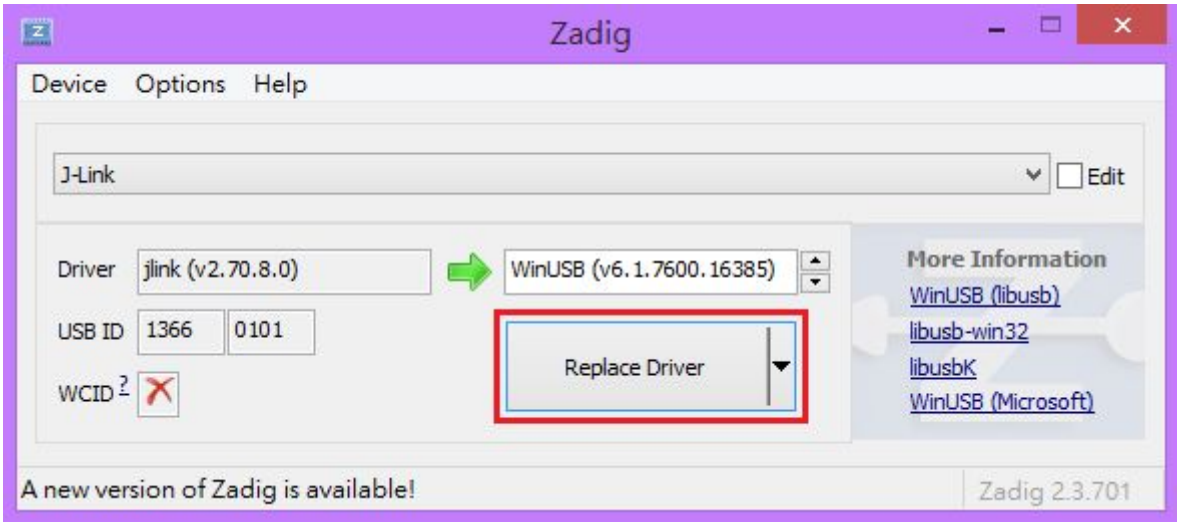
於選單中選擇 **J_Link**(請先與電腦連接J_link設備)



完成後選擇 ”**Install Driver**”

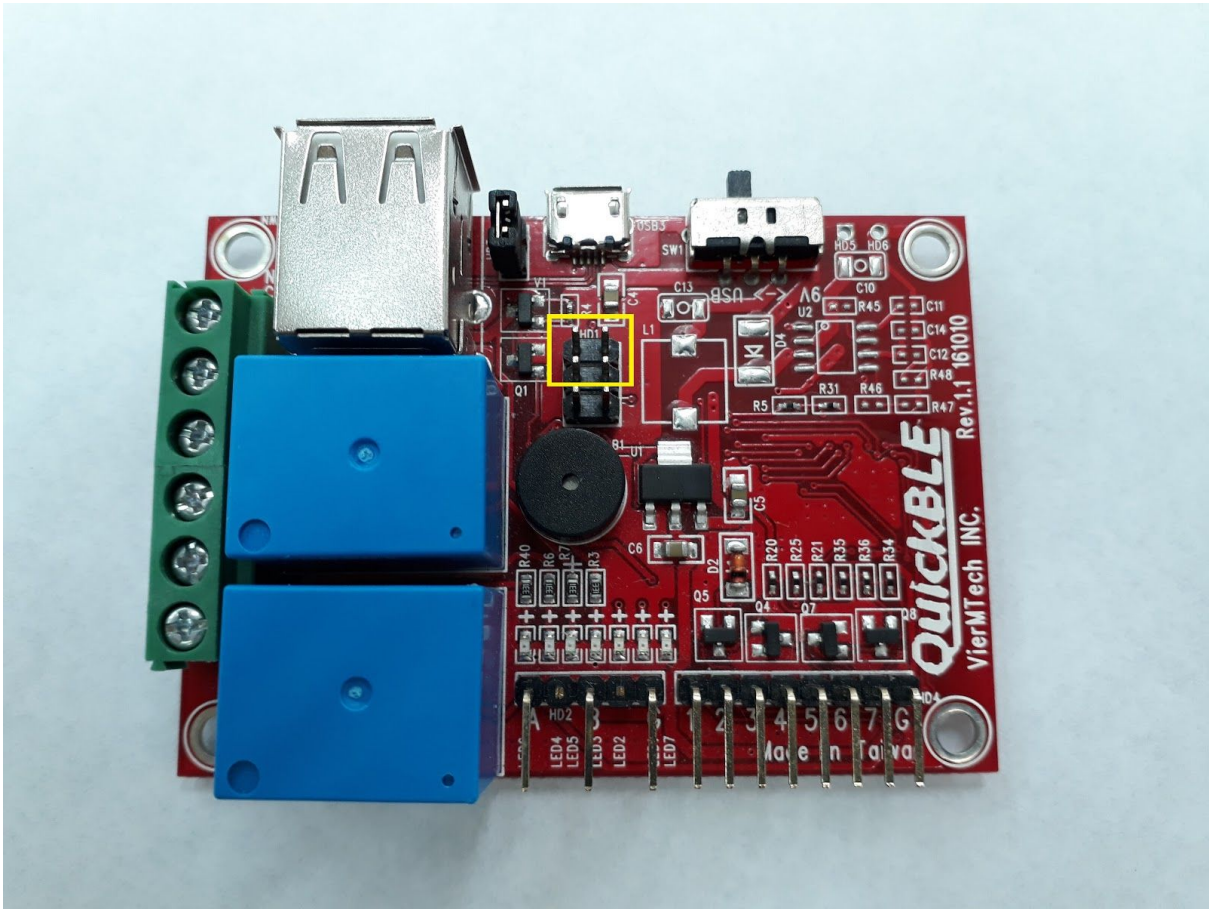


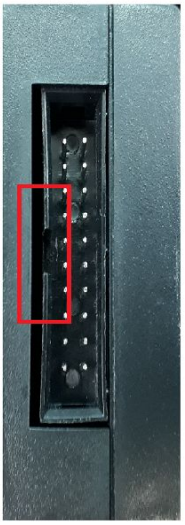
點選 ”**Replace Driver**” 進行安裝

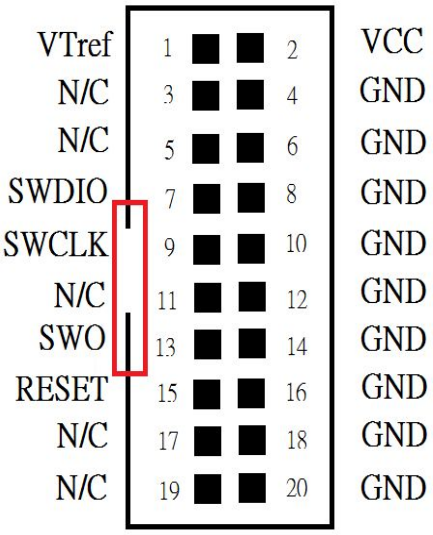


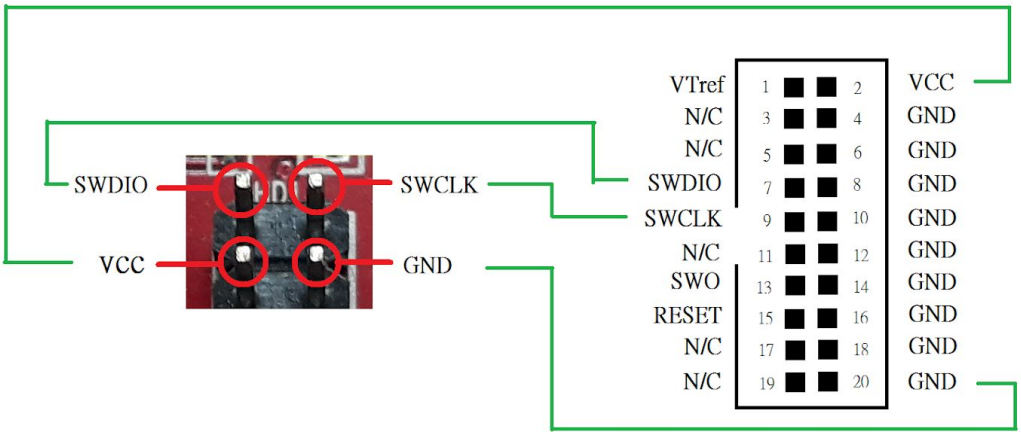
三、Arduino IDE 燒錄

1.設備連接

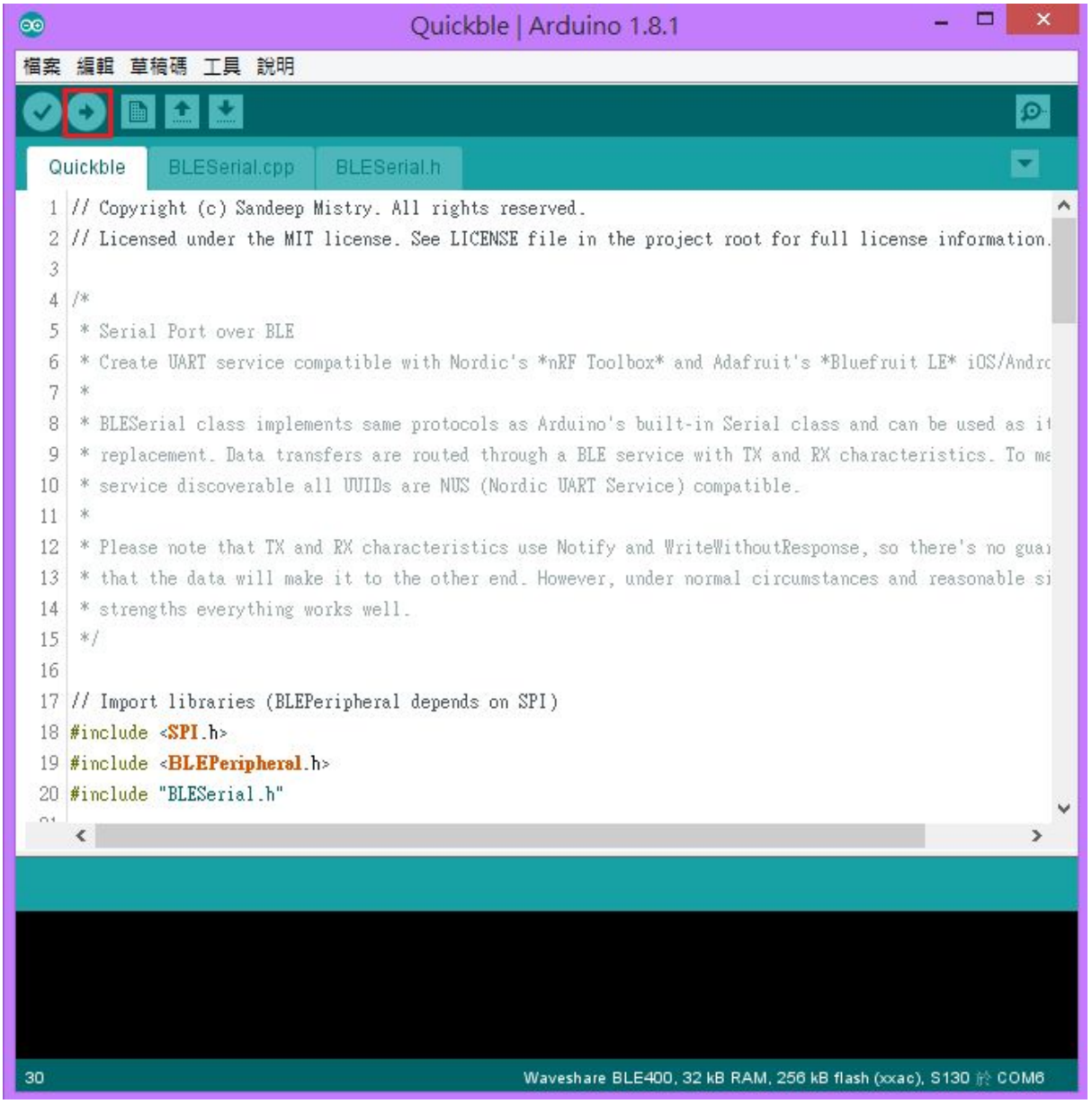





VTref 1 2 VCC
N/C 3 4 GND
N/C 5 6 GND
SWDIO 7 8 GND
SWCLK 9 10 GND
N/C 11 12 GND
SWO 13 14 GND
RESET 15 16 GND
N/C 17 18 GND
N/C 19 20 GND

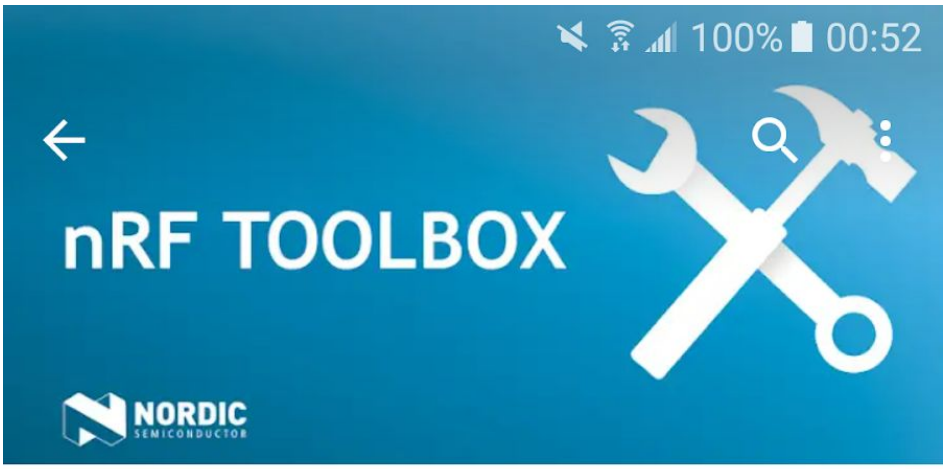

SWDIO
SWCLK
VCC
GND
VTref 1 2 VCC
N/C 3 4 GND
N/C 5 6 GND
SWDIO 7 8 GND
SWCLK 9 10 GND
N/C 11 12 GND
SWO 13 14 GND
RESET 15 16 GND
N/C 17 18 GND
N/C 19 20 GND

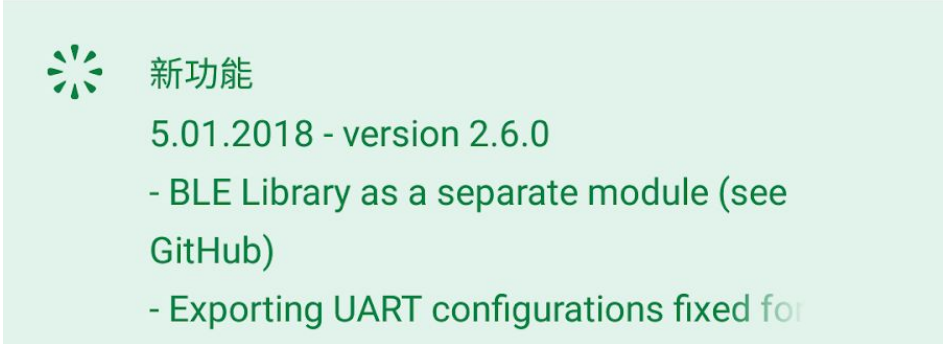
2.開啟範例程式 "**Quickble.ino**"，點擊箭頭進行燒錄



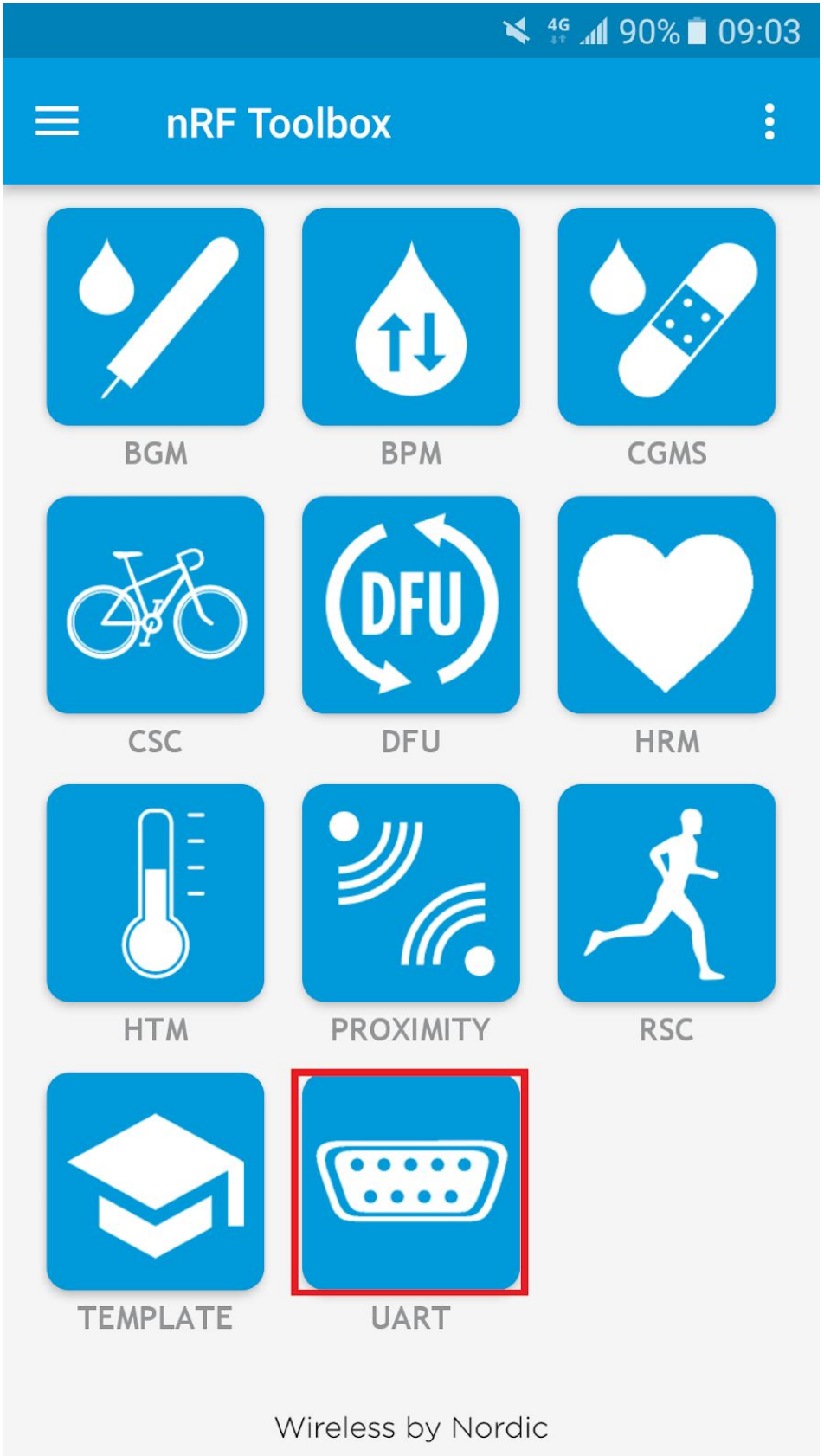
四、安裝手機app

下載及安裝 **nRF Toolbox** app





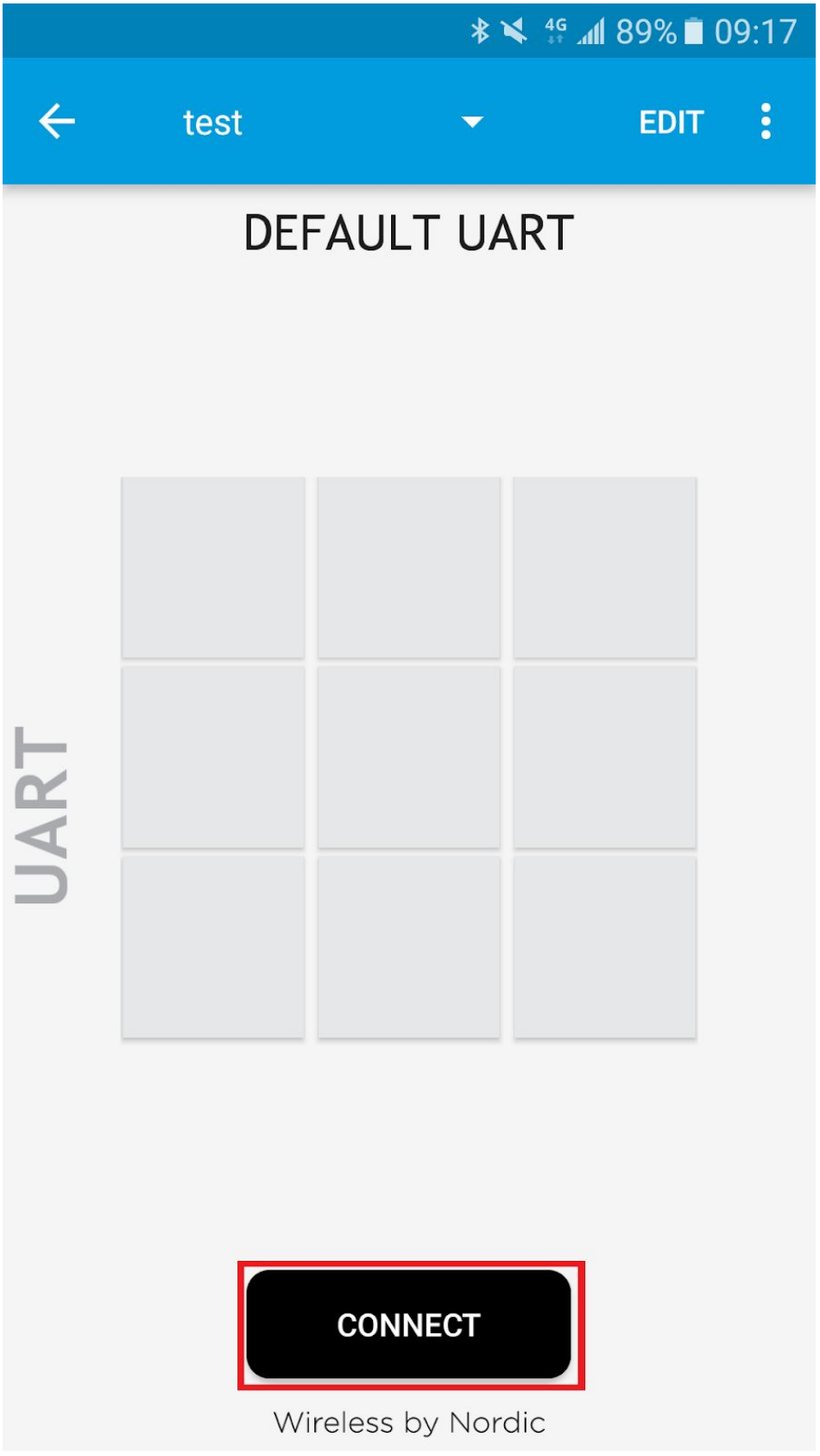
開啟 nRF Toolbox，點選 "**UART**"



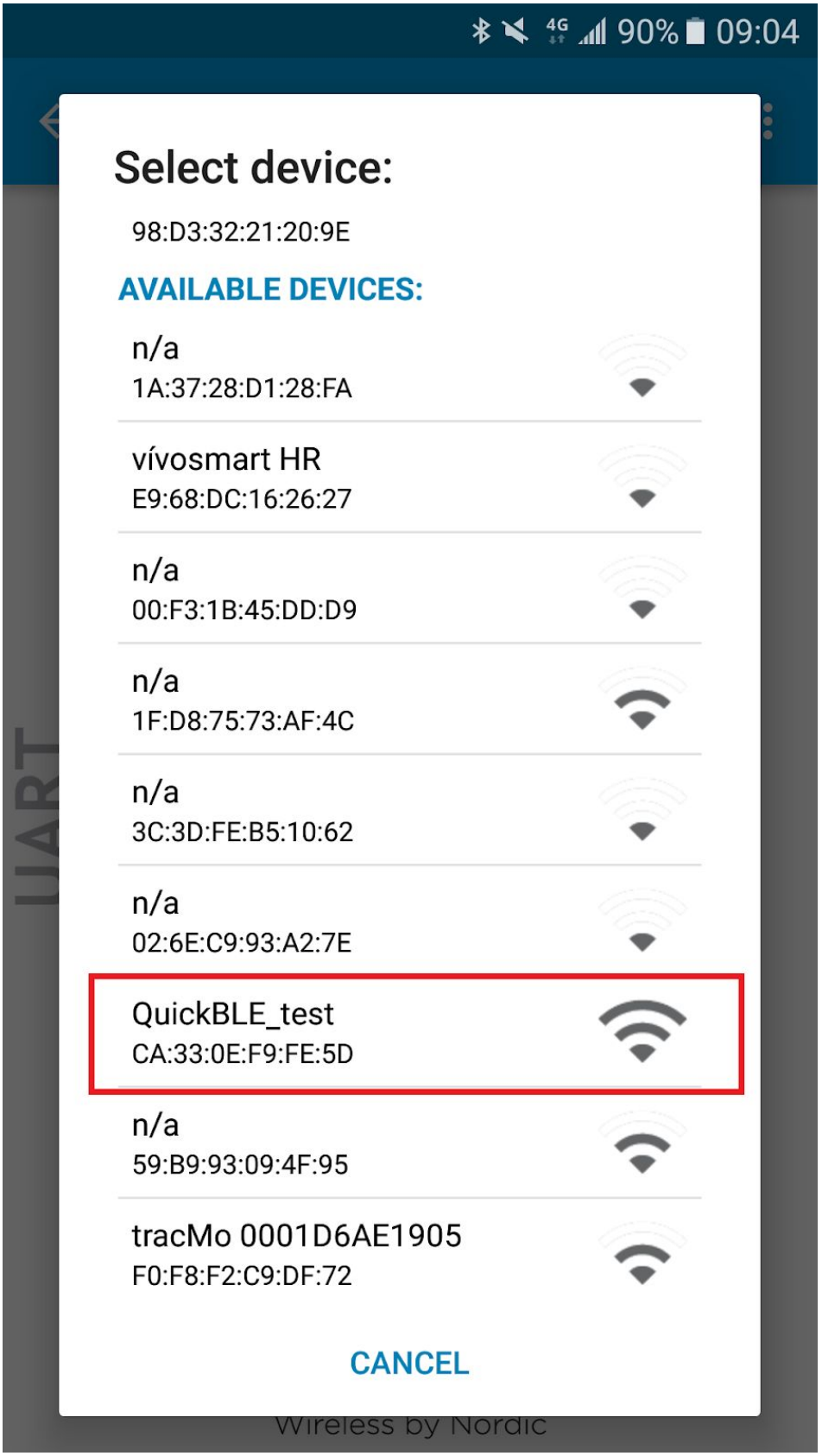
開啟藍芽

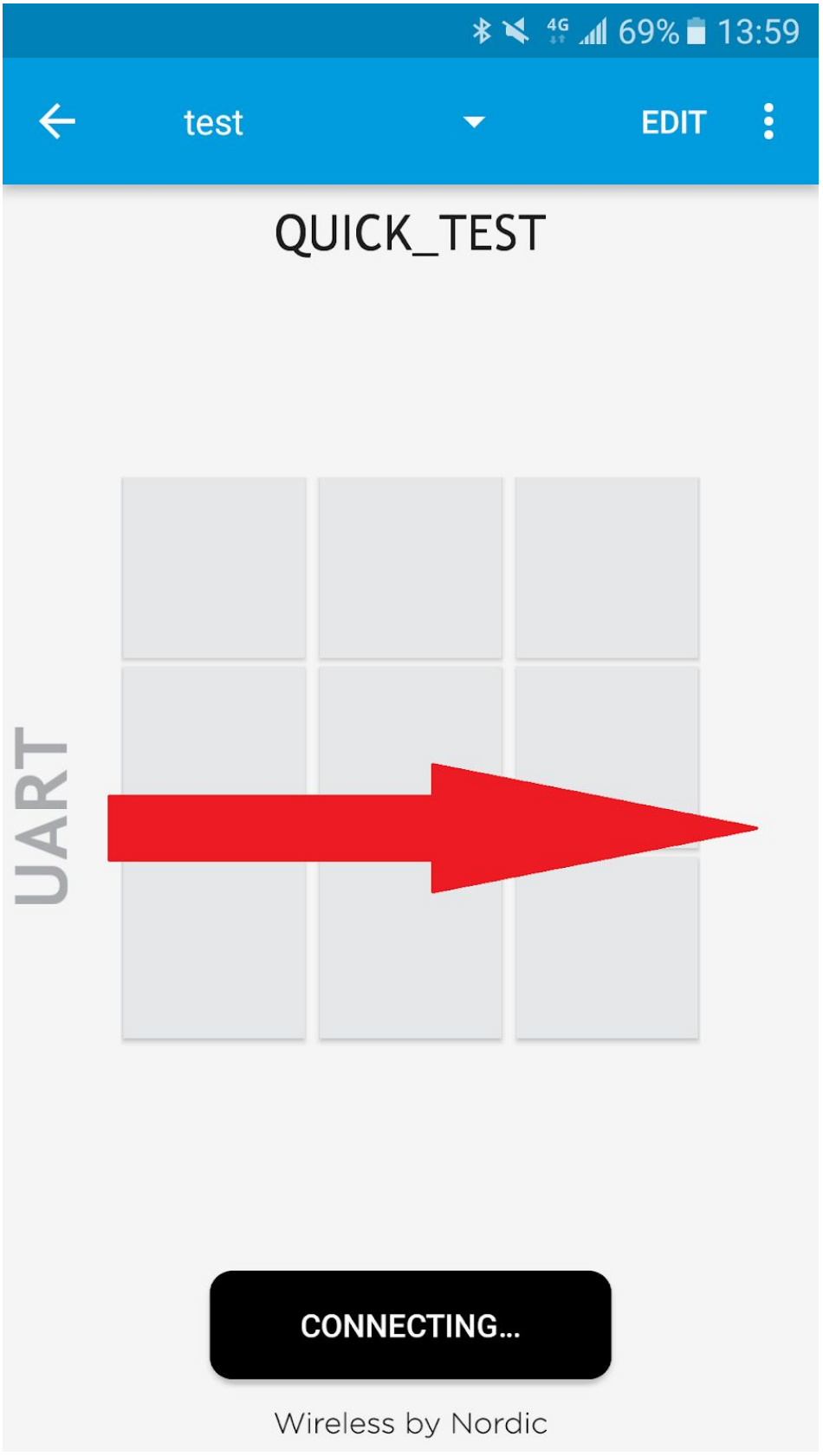

89% 09:13
test
EDIT
DEFAULT UART
UART
應用程式正要求開啟藍牙的權限。
允許嗎？
否
是
CONNECT
Wireless by Nordic

點擊 "**CONNECT**"

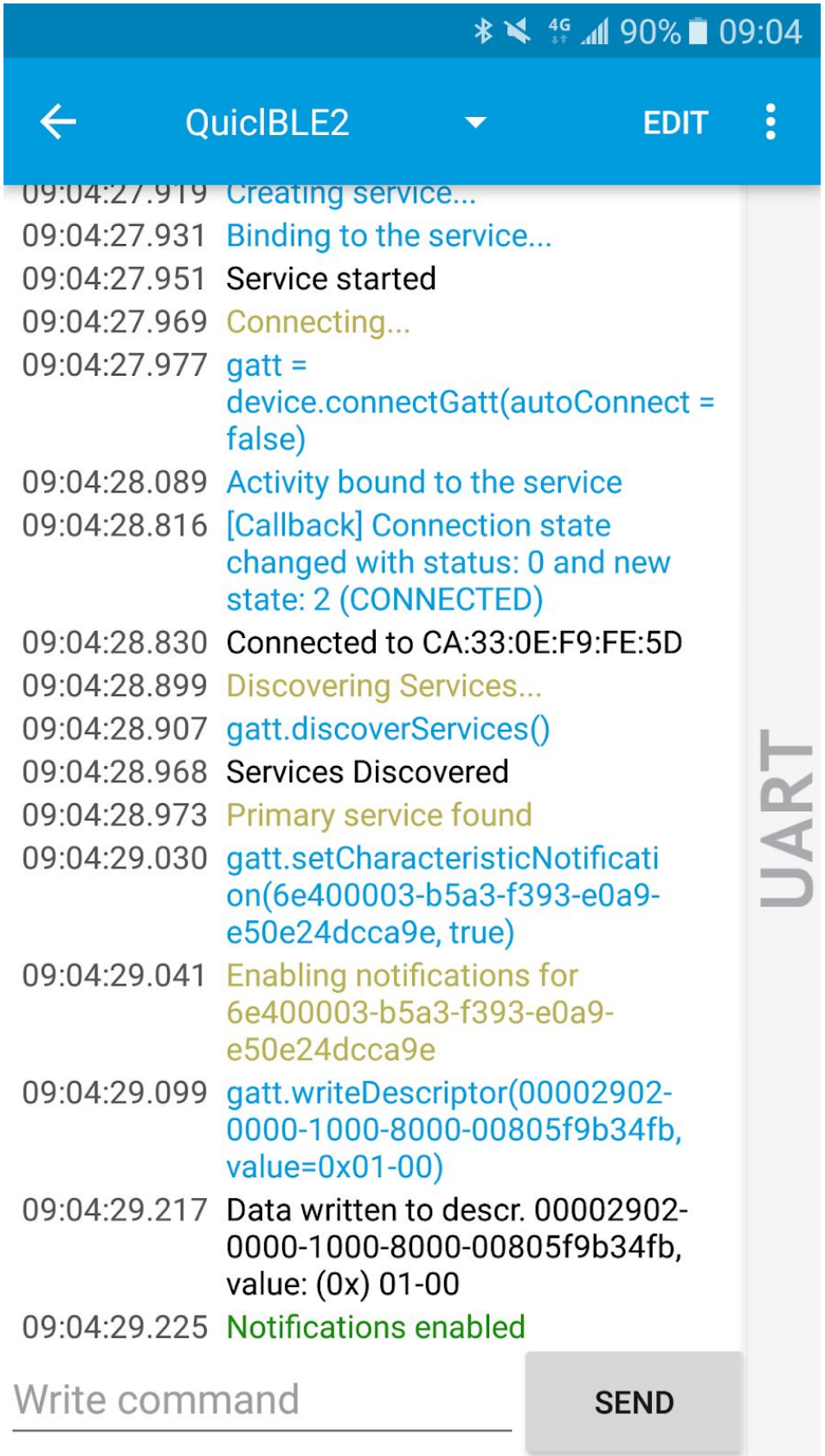

89% 09:17
test
EDIT
DEFAULT UART
UART
CONNECT
Wireless by Nordic

選擇設備廣播名稱


90% 09:04
Select device:
98:D3:32:21:20:9E
AVAILABLE DEVICES:
n/a
1A:37:28:D1:28:FA
vívosmart HR
E9:68:DC:16:26:27
n/a
00:F3:1B:45:DD:D9
n/a
1F:D8:75:73:AF:4C
n/a
3C:3D:FE:B5:10:62
n/a
02:6E:C9:93:A2:7E
QuickBLE_test
CA:33:0E:F9:FE:5D
n/a
59:B9:93:09:4F:95
tracMo 0001D6AE1905
F0:F8:F2:C9:DF:72
CANCEL
UART
Wireless by Nordic

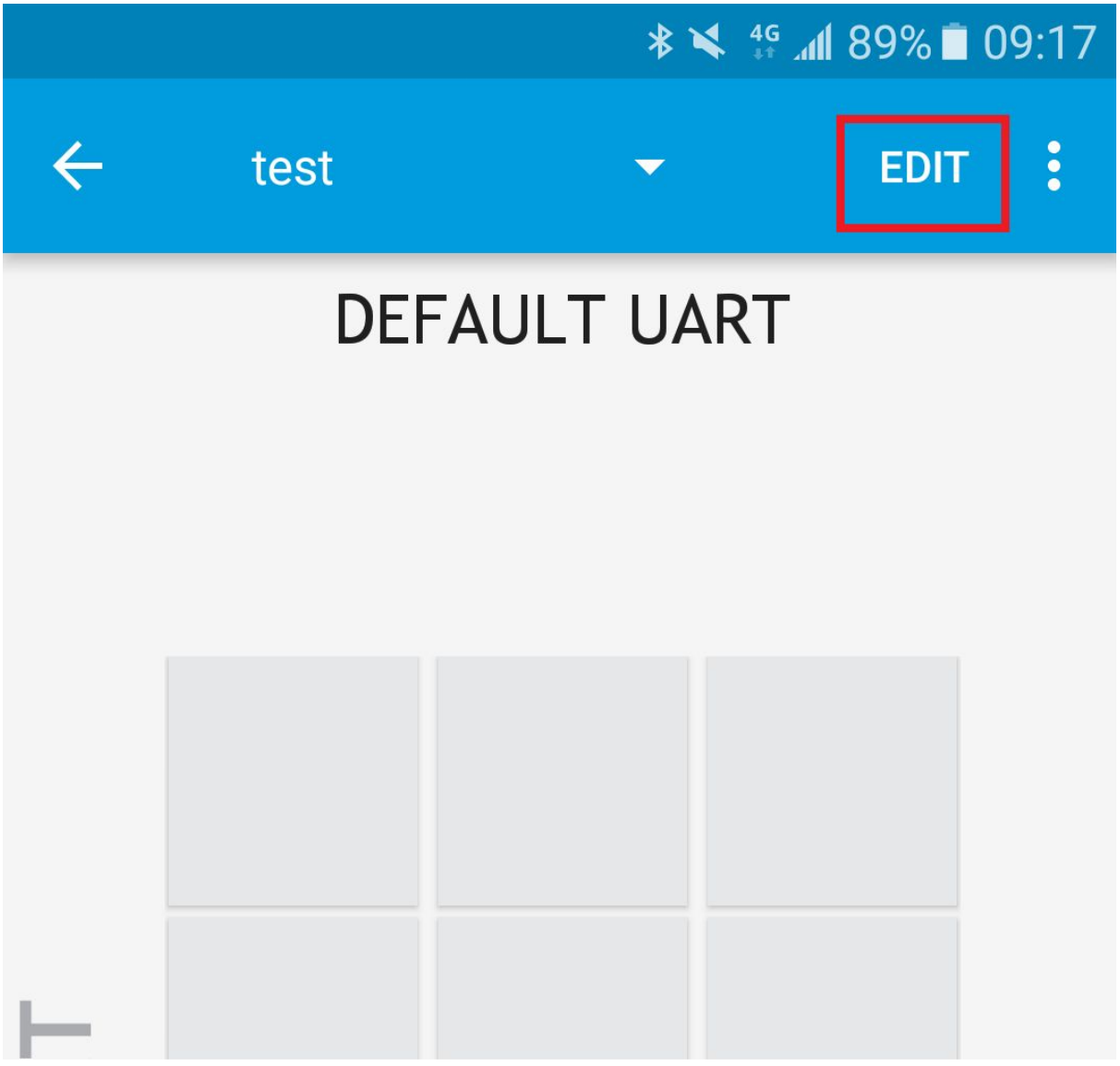

69% 13:59
test
EDIT
QUICK_TEST
UART
CONNECTING...
Wireless by Nordic

連接成功

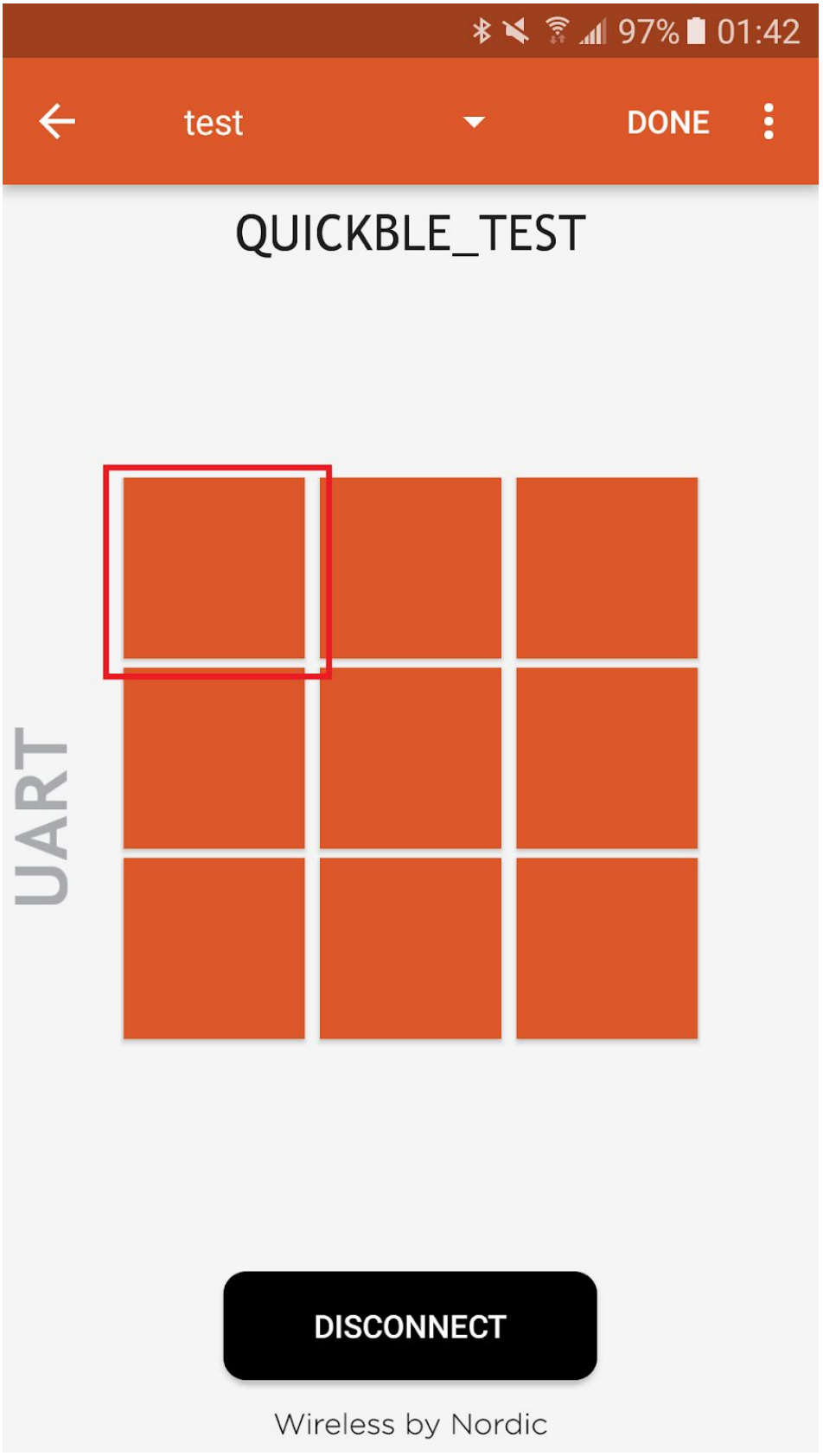

90% 09:04
QuicIBLE2
EDIT
09:04:27.919 Creating service...
09:04:27.931 Binding to the service...
09:04:27.951 Service started
09:04:27.969 Connecting...
09:04:27.977 gatt = device.connectGatt(autoConnect = false)
09:04:28.089 Activity bound to the service
09:04:28.816 [Callback] Connection state changed with status: 0 and new state: 2 (CONNECTED)
09:04:28.830 Connected to CA:33:0E:F9:FE:5D
09:04:28.899 Discovering Services...
09:04:28.907 gatt.discoverServices()
09:04:28.968 Services Discovered
09:04:28.973 Primary service found
09:04:29.030 gatt.setCharacteristicNotification(6e400003-b5a3-f393-e0a9-e50e24dcca9e, true)
09:04:29.041 Enabling notifications for 6e400003-b5a3-f393-e0a9-e50e24dcca9e
09:04:29.099 gatt.writeDescriptor(00002902-0000-1000-8000-00805f9b34fb, value=0x01-00)
09:04:29.217 Data written to descr. 00002902-0000-1000-8000-00805f9b34fb, value: (0x) 01-00
09:04:29.225 Notifications enabled
Write command
SEND
UART

可於下方 “**Write command**” 輸入指令，並點擊 "**SEND**" 傳送指令，來控制QuickBLE的設備。

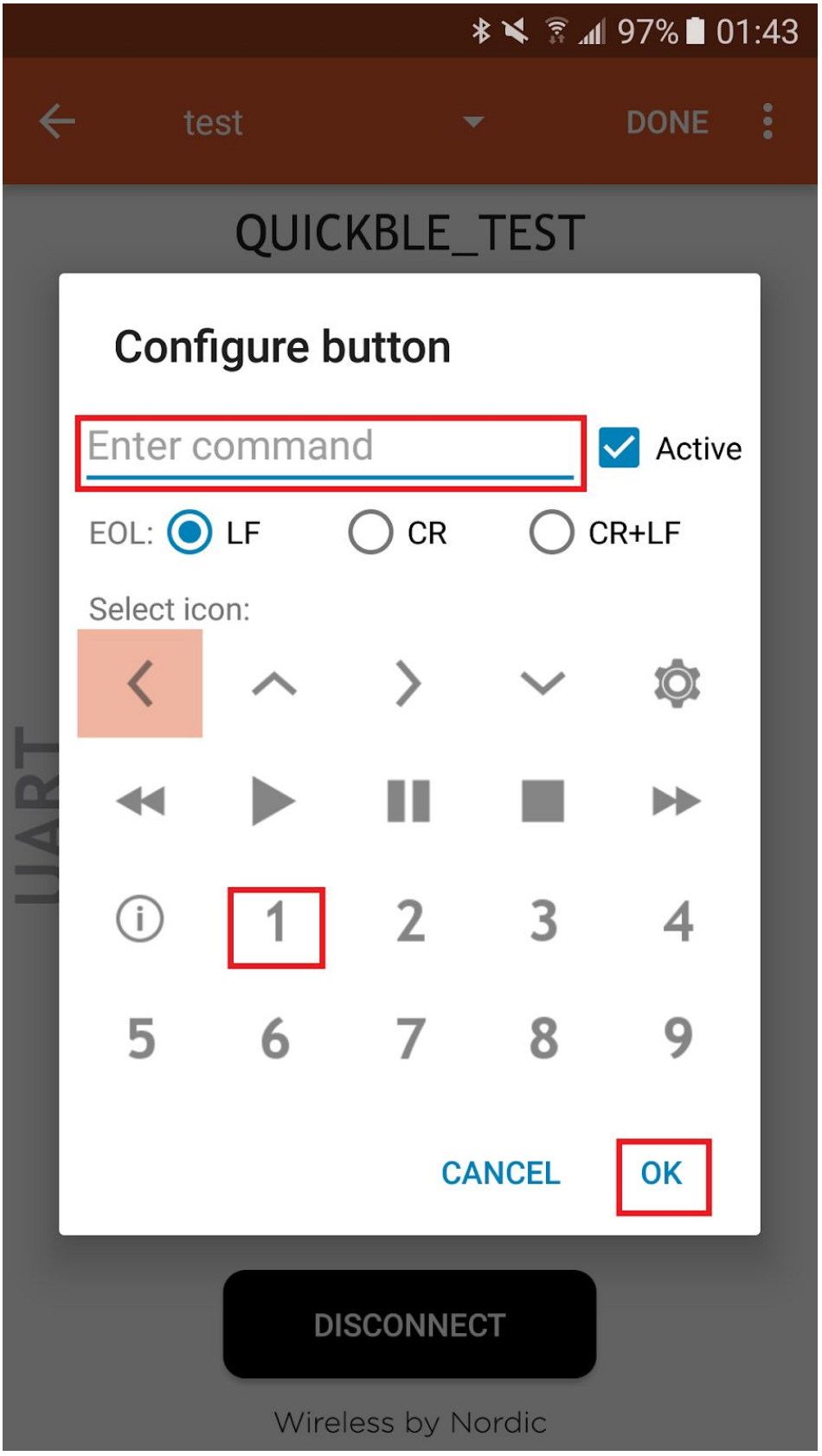
或是點擊右上方 "**EDIT**" 編輯按鈕



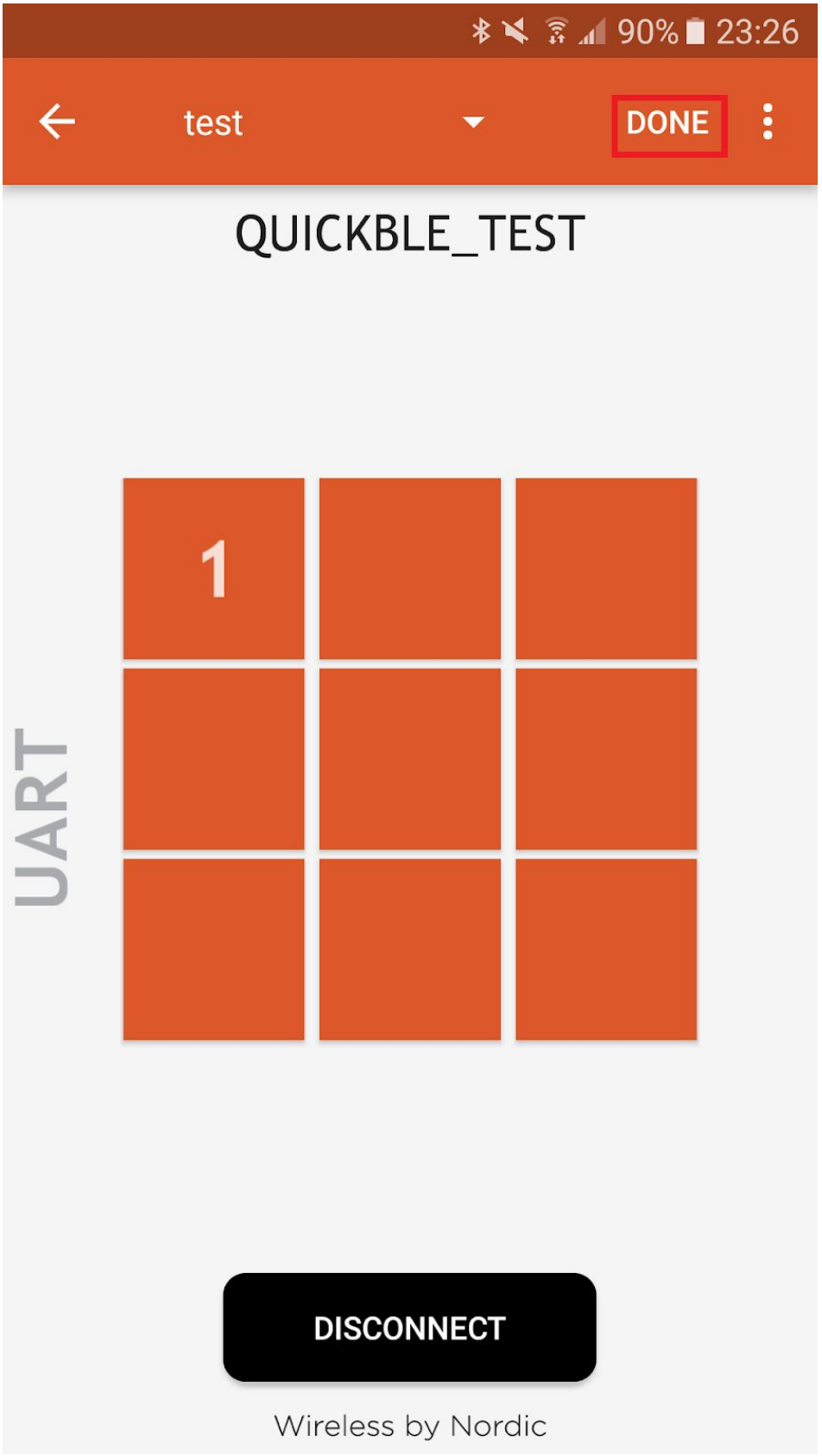
點擊任意方格來建立按鈕



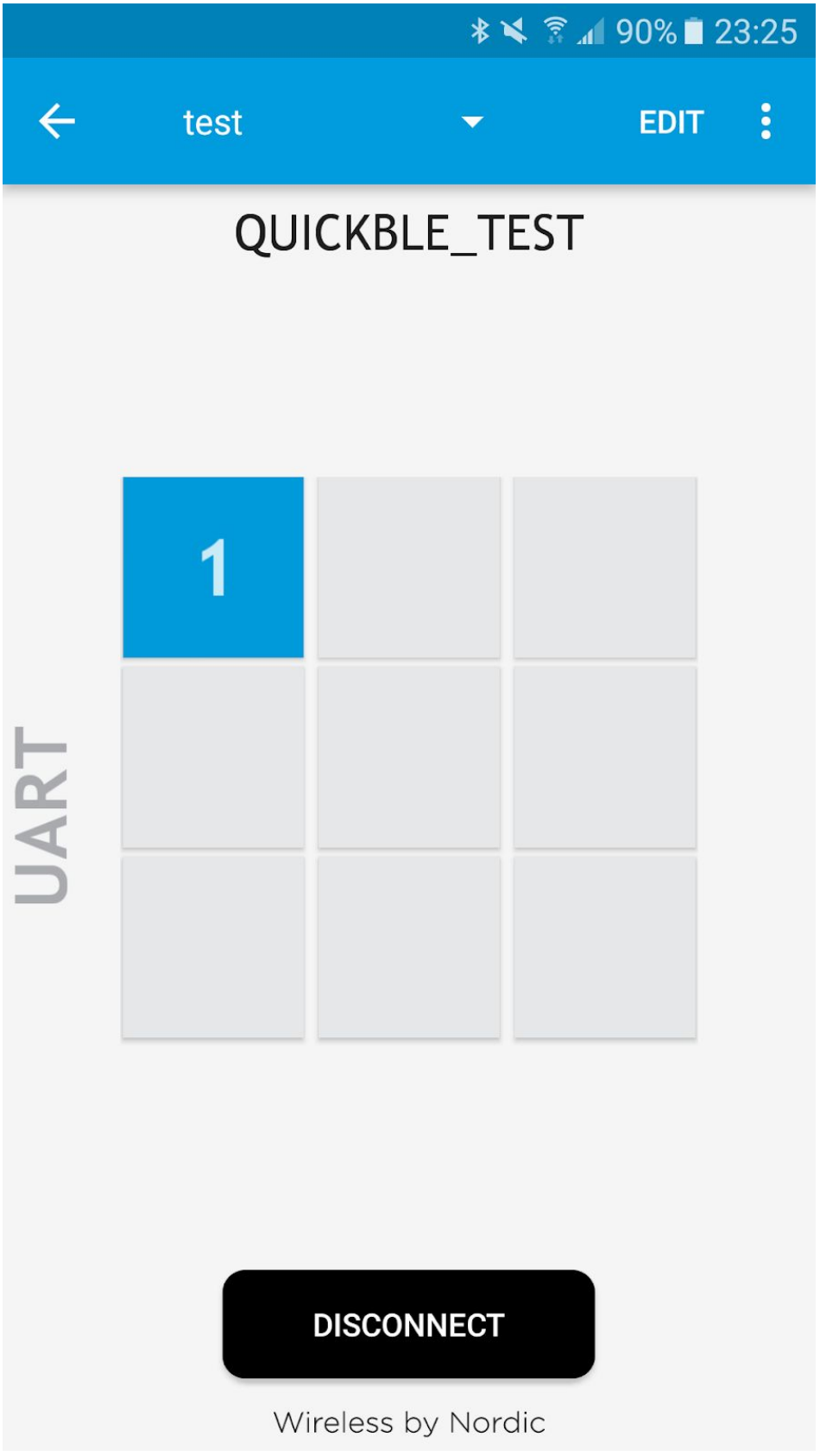
"**Enter command**" 輸入指令，於 "**Select icon**" 選擇按鈕符號，設定完成點擊"**OK**"。



點擊 "**DONE**" 完成按鈕的設定。



點擊按鈕可以對QuickBLE設備進行控制。



五、指令

指令	動作
buzzerON	開啟蜂鳴器
buzzerOFF	關閉蜂鳴器
usb1ON	開啟 USB1
usb1OFF	關閉 USB1
usb2ON	開啟 USB2
usb2OFF	關閉 USB2
relay1ON	開啟 Relay1
relay1OFF	關閉 Relay1
relay2ON	開啟 Relay2
relay2OFF	關閉 Relay2
DO1HIGH	腳位6 輸出5V
DO1LOW	腳位6 輸出0V
DO2HIGH	腳位7 輸出5V
DO2LOW	腳位7 輸出0V
Pin1State	腳位1 狀態為 5V,回應 “**PIN1 is HIGH**” 腳位1 狀態為 0V,回應 “**PIN1 is LOW**”
Pin2State	腳位2 狀態為 5V,回應 “**PIN2 is HIGH**” 腳位2 狀態為 0V,回應 “**PIN2 is LOW**”
Pin3State	腳位3 狀態為 5V,回應 “**PIN3 is HIGH**” 腳位3 狀態為 0V,回應 “**PIN3 is LOW**”