

NILE

Bluetooth Low Energy 5.4

USB DEVICE BLE UART

1 Overview

The USB device BLE UART App Note shows the communication between USB (commonly known as virtual COM port) to DVK,USB(commonly known as virtual COM port) to mobile with Nordic UART service.

2 Hardware Requirements

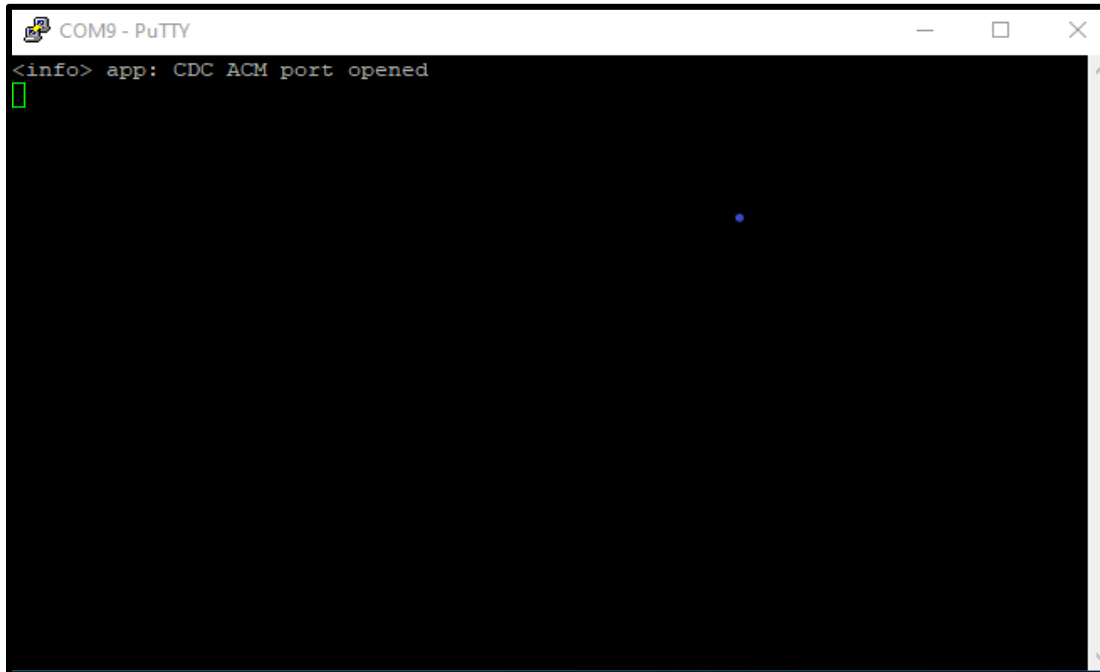
- NILE DVK
- Micro USB Cables - 2
- PC/Laptop with latest SEGGER Embedded Studio and nRF5 SDK

3 Software Requirements

- SEGGER Embedded Studio IDE. Click on the below link to download the IDE, [SEGGER Embedded Studio](#) and extract the downloaded file
- NRF5 SDK latest version. Click on the below link to download the latest SDK, [nRF5 SDK](#) and extract the downloaded file
- PuTTY terminal
- Install nRF Connect APP in mobile from App Store/Google Play store

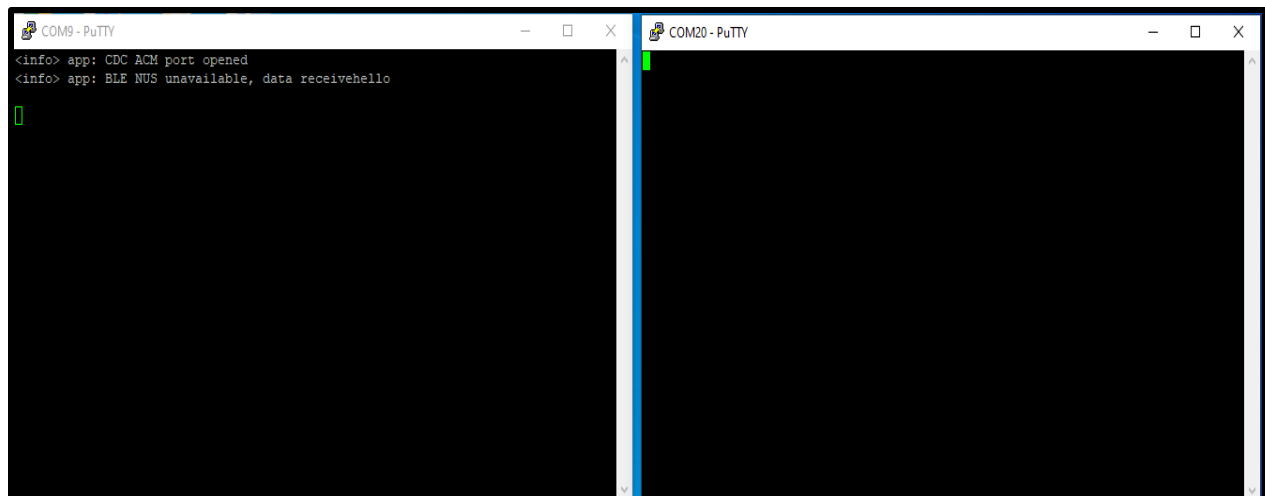
4 Procedure

- Connect the NILE DVK to the PC or Laptop with the micro USB cable (J2)
- Power ON the DVK by toggling the power switch (SW8) and observe that LED5 is ON on DVK
- Open nRF5 SDK->Examples->Peripherals->usbd_ble_uart->pca10056->s140->SES-> open Embedded Project file (.EM PROJECT FILE)
- Compile and run the application. Observe that LED1 is toggling on DVK. This indicates that the application is advertising
- Now connect the micro USB Cable at **nRF USB** port and Observe that LED3 is toggling on DVK
- Now Open Device manager and check for the COM ports.
- The COM ports of **J-link CDC UART** and **USB** are COMx and COMx. Note down the COM ports.
- Now Open the PuTTY terminal with **J-link CDC UART** COM port with COMx and change the baud rate to 115200. Click on Open.
- Now Open the puTTY terminal with **USB** COM port with COMx and change the baud rate to 115200. Click on Open.
- Now Observe the response in the J-link PuTTY Terminal as CDC ACM port opened. Observe that LED3 is ON on DVK.



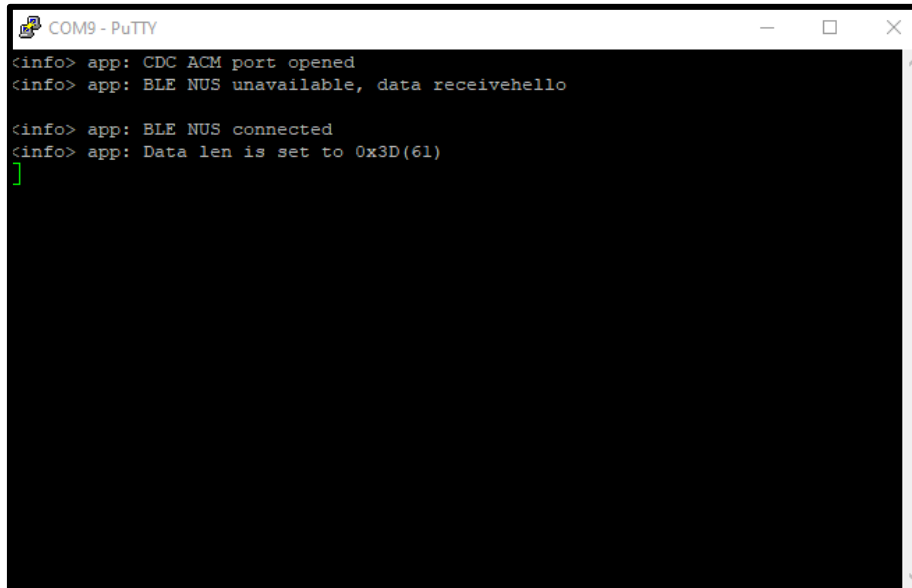
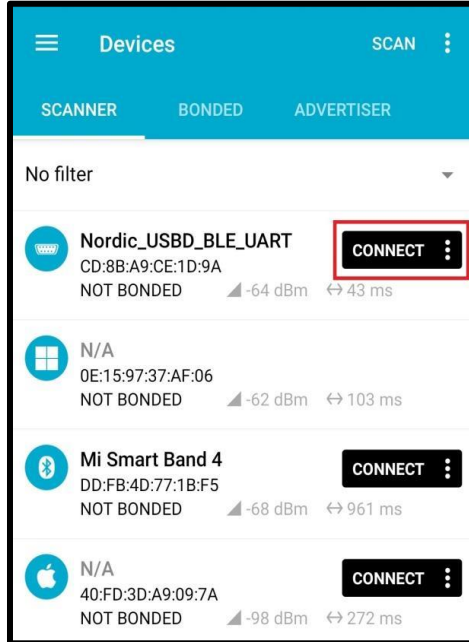
- Now send the data from USB terminal to DVK and observe the data in J-link terminal and LED4 is ON on the DVK.

Note: The data which we are trying to send from USB to DVK is not visible in the USB terminal while typing and it will receive in the J-Link terminal in the following way

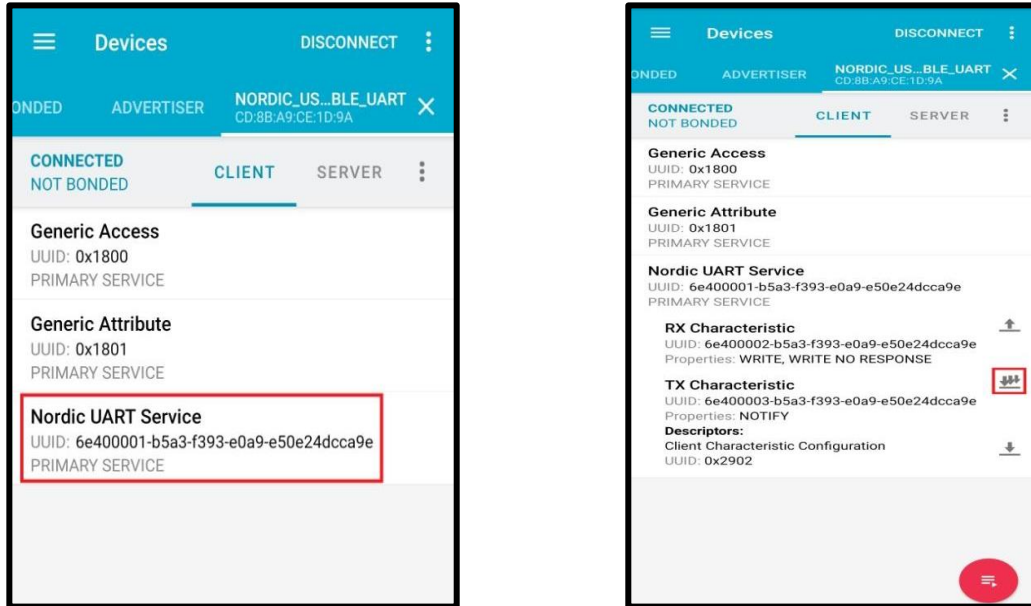


- Open the nRF Connect app in the mobile
- Tap on the SCAN and check for the device is advertising as “Nordic_USBD_BLE_UART”

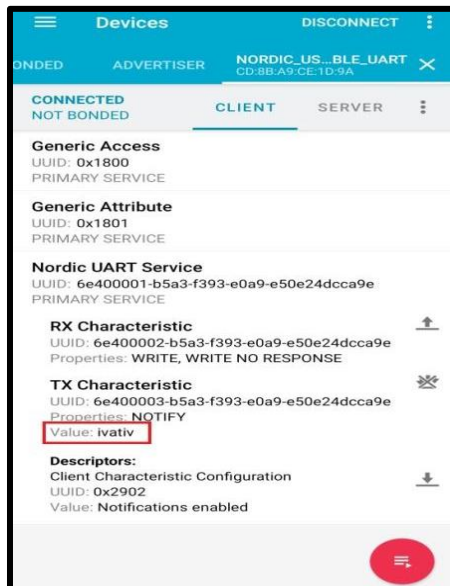
- Click on **CONNECT** button next to the “Nordic_USBD_BLE_UART”. Observe that LED1 is ON. This indicates that the connection is established and observe the status of UART service as BLE NUS connected in J-link PuTTY Terminal.



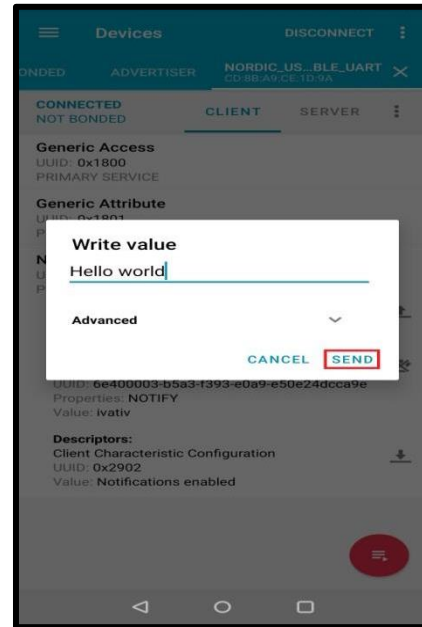
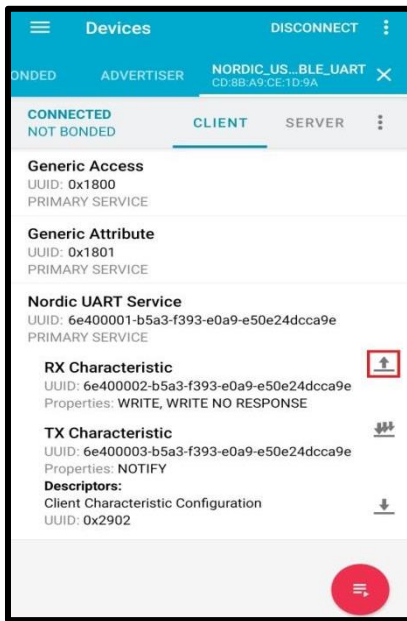
- Click on the **Nordic UART Service** and enable the notification by clicking the three down arrows next to the Tx characteristic.



- Send the data from USB terminal and Observe the data in Tx characteristic in mobile.



- Click on the UP arrow next to Rx characteristic and write the value and click on send.



- Observe the data received in the USB terminal from the nRF connect app and LED2 is ON on DVK. We can also observe the data whatever we sent from nRF connect app in RX Characteristic

