UM10950

Start-up Guide for FRDM-KW41Z Evaluation Board Bluetooth Paring example with NTAG I²C *plus*

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422211

User manual
COMPANY PUBLIC

Document information

Info	Content
Keywords	NTAG I²C *plus*, FRDM-KW41Z
Abstract	This document gives a start-up guide for Bluetooth BLE pairing demonstration between FRDM-KW41 and NFC mobile device with use of NTAG I²C *plus*.

Revision history

Rev	Date	Description
1.1	20170307	Text: LPCXpresso IDE changed to Kinetis Design Studio IDE
1.0	20170307	Initial version

Contact information

For more information, please visit: http://www.nxp.com

1. Steps to flash the firmware

Follow the steps below.

1. Download and install the J-Link Software and Documentation Pack from: https://www.segger.com/downloads/jlink

Fig 1. Download J-Link Software window

2. Download and install the Kinetis Design Studio from: www.nxp.com/kds
3. Open the Kinetis Design Studio IDE
4. Make a right click at the Project Explorer and klick Import

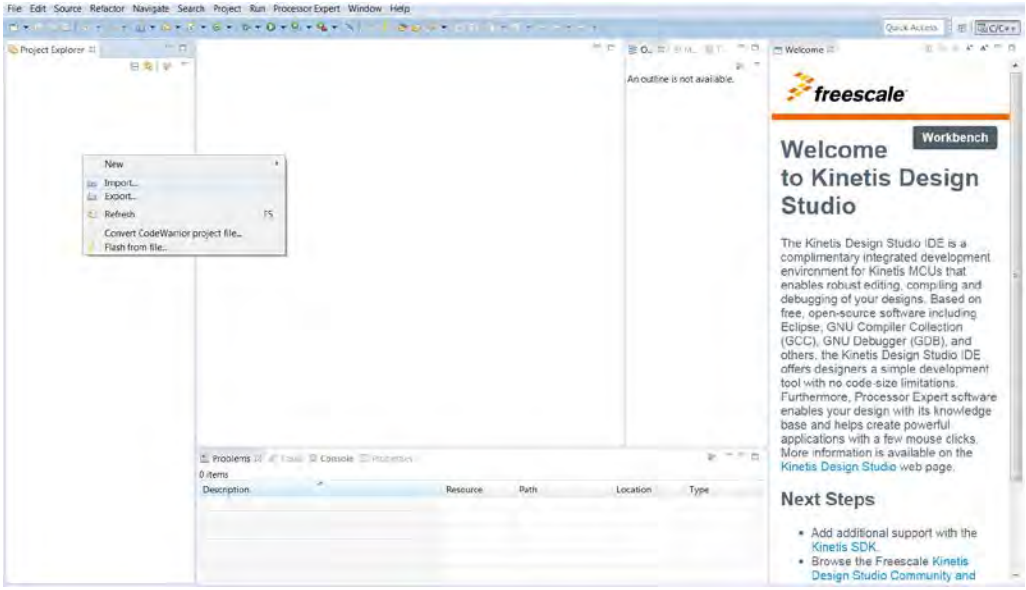

Fig 2. Where to import .zip project in Kinetis Design Studio IDE

5. Choose “Existing Projects into Workspace”

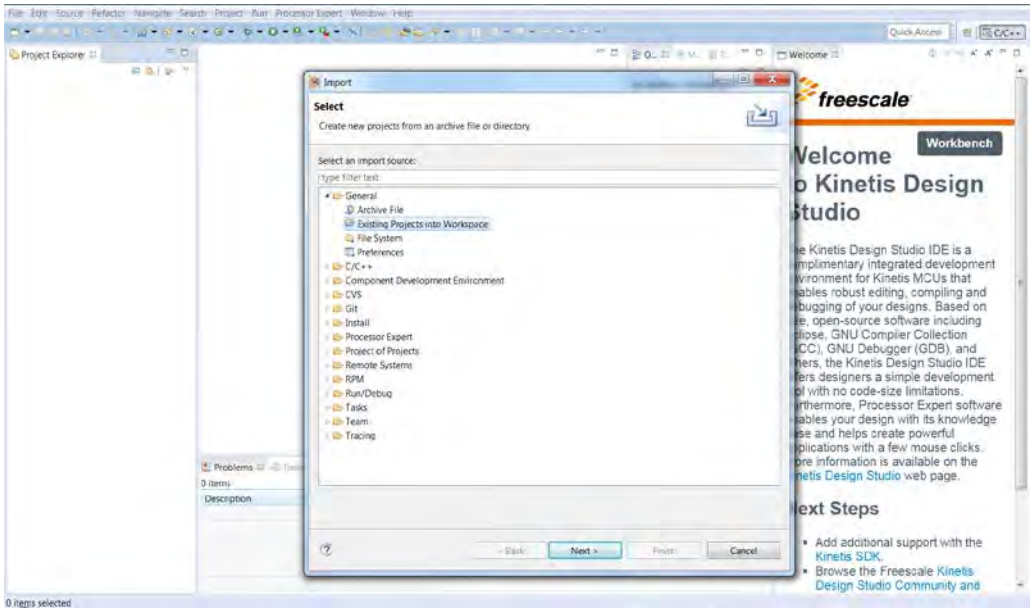

Fig 3. Select "Existing Projects into Workspace in Kinetis Design Studio IDE

6. Choose previously downloaded .zip file
7. Press "Finnish"

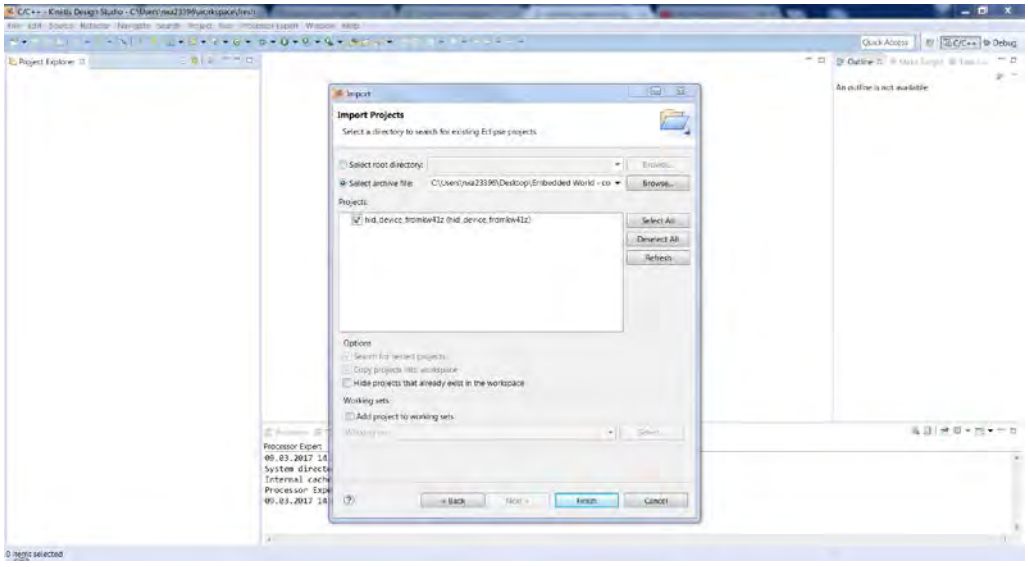

Fig 4. Check just 2nd checkbox in Kinetis Design Studio IDE

8. Go to the Debug icon and select Debug Configuration

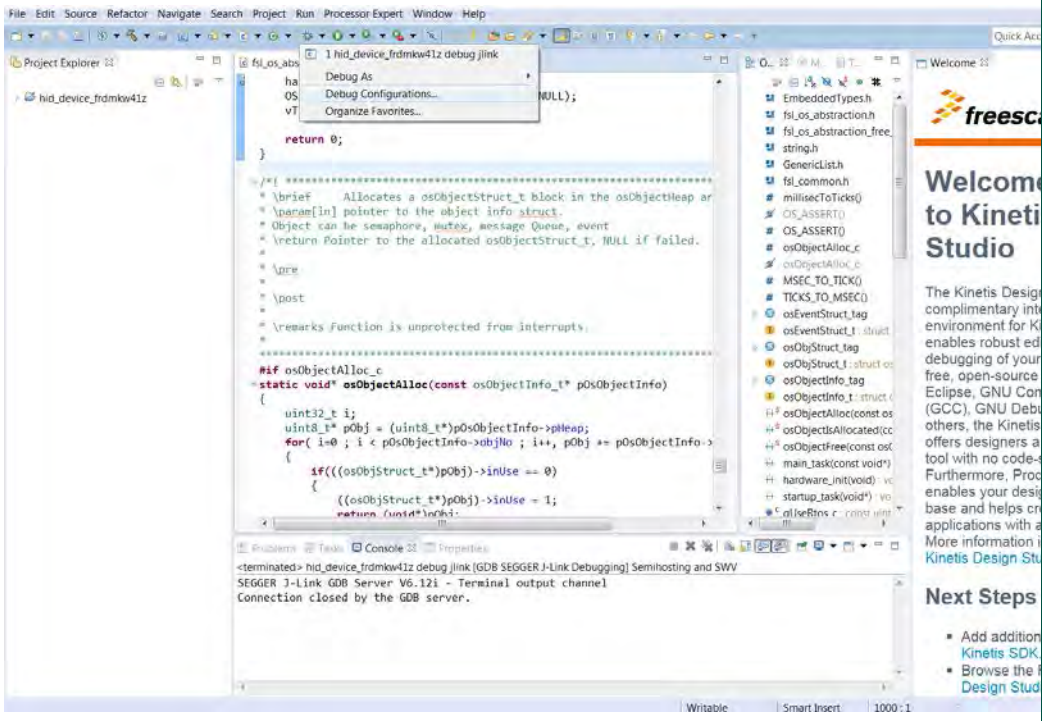

Fig 5. Select Debug Configuration in Kinetis Design Studio IDE

9. Select the “hid_device_frdmkw41z debug jlink“ Configuration

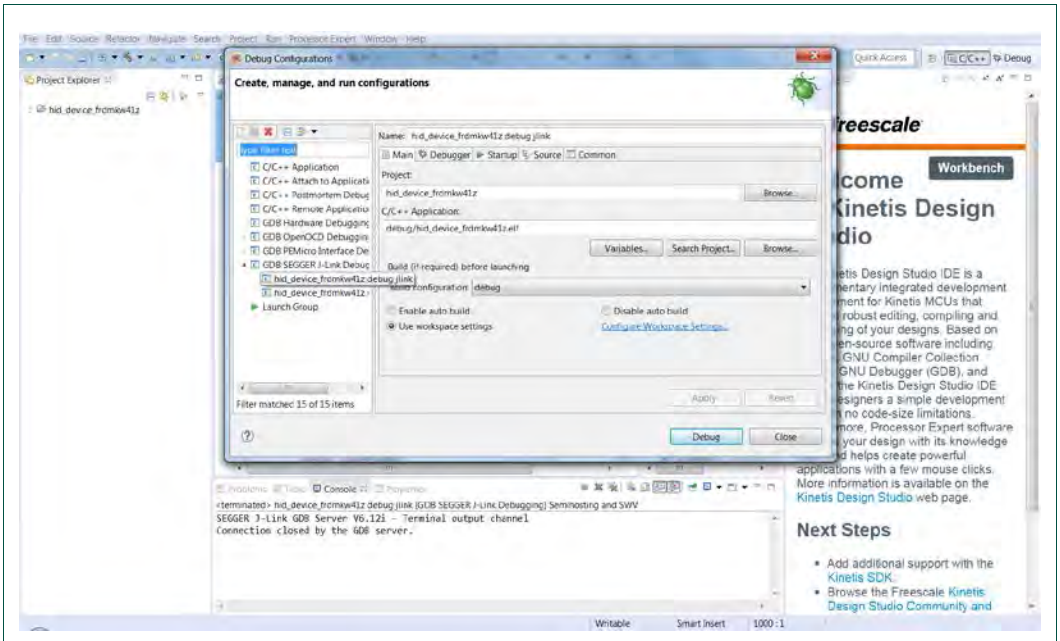

Fig 6. Select Debug hid_device_frdmkw41z debug jlink in Kinetis Design Studio IDE

10. Plugin the board and connect it to the NTAG (it doesn’t matter if you use antenna Board or the adapter)

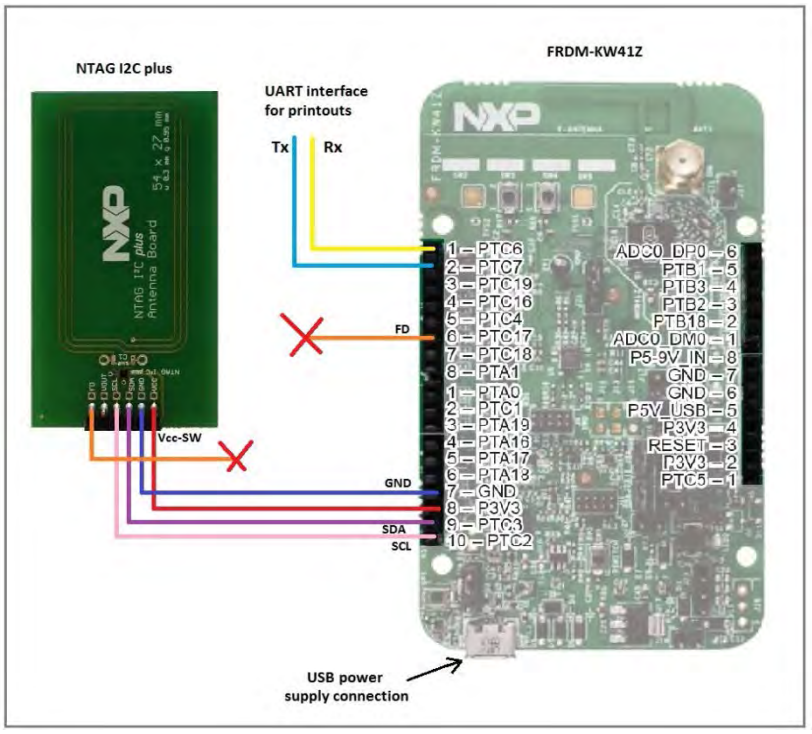

Fig 7. Wiring Explorer Kit´s (OM5569/NT322E) Antenna board to KW41

Fig 8. Arduino shield connected to the FRDM-Board

11. Click on Resume when the Project was uploaded successfully

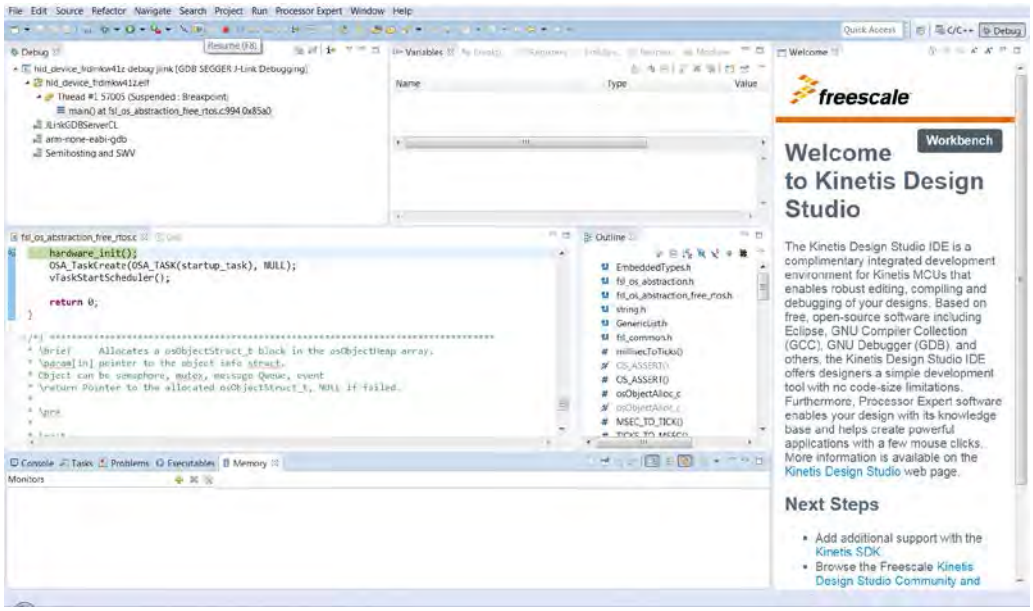

Fig 9. Press “Resume” to start debugging session in Kinetis Design Studio IDE

12. Now you can pair your Phone to the Bluetooth device using the NTAG. Tap the NTAG I²C *plus* Antenna Board with NFC enabled Phone.

2. How to show the demo

Steps from chapter [1] should be taken in advance. It is recommended to flash firmware built in release mode. Before flashing via J-link, it is necessary to change to the build configuration.

1. Button from the KW41 board pressed
2. K41 writes Bluetooth pairing information according to NFC Form into NTAG I²C
3. Taps NTAG I²C board with the NFC enabled Android phone
4. The Android phone reads the pairing information and connects to the Bluetooth device according to the pairing information. No third-party implementation needed on this part. In case the NTAG I²C demo app is open on the phone, the app needs to forward the pairing information to the Android system, so that Android can take care about handling the BLE (Bluetooth Low Energy) pairing.
5. Once the pairing information is read out of the NTAG I²C, the KW41 removes the pairing content and turns back into normal operation mode. In this mode, an external device can pair with the Bluetooth on the KW41 and operate the NTAG I²C/BLE demo with the Android app.
6. Amendment: The NTAG I²C demo app does not pair the phone. That is done by the Android system. The NTAG-I2C demo app just passes the Bluetooth pairing information to the Android system.

2.1 How to alternatively configure NTAG for Bluetooth pairing

If you don't have possibility to connect to the NTAG Board with KW41 board within 10 seconds, please use following approach:

a. The NXP TagWriter application from Play Store to be used with Android smartphone: https://play.google.com/store/apps/details?id=com.nxp.nfc.tagwriter&hl=en

- Launch the TagWriter. Go to the "Write tags -> New Dataset -> Bluetooth (Bluetooth on the mobile has to be switch "ON") -> Create new Bluetooth.

  Fill the Device name with "FSL_HID"

  The MAC is "00:04:9F:00:00:04"

- Write the pairing message to the NTAG Board

2.2 Additional demo feature

If the KW41 is paired with the smartphone, you can go to the Bluetooth settings on the smartphone and press the paired FLS_HID. Then the demo is connecting to the mobile phone. If connection is OK, the blue LED is on and the "mouse" pointer is moving on the screen of the mobile phone.

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4. List of figures

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