UM10945

NTAG I²C *plus* Explorer Kit Program and Debug Start-up

Rev. 1.0 — 16 February 2016 **User manual**
364310 **COMPANY PUBLIC**

Document information

Info	Content
Keywords	NTAG I²C *plus*, Explorer Kit, Android, NFC tag, OM5569/NT322
Abstract	This User Manual aims at describing the procedure how to flash firmware to OM5569/NT322X Connected Tags Explorer Board and use Android application to check successful flashing.

Revision history

Rev	Date	Description
1.0	20160216	First version

Contact information

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1. Object

NTAG I²C *plus* Explorer kit is an all-in-one demonstration and development resource to demonstrate the unique properties of the NTAG I²C *plus* tag chip. By including a full complement of hardware and software tools, users can not only investigate the capabilities of the chip through the various demonstrations, but also develop and test their own applications (additional LPC-Link2 debug probe[1]).

This User Manual explains how to upload new firmware using LPCLink2 to Connected Tags Explorer Boards Rev 2.0 (and up) and older version Rev G.

Technical aspects related to the IC functioning are beyond the scope of this document. In order to get further technical details please consult the dedicated Datasheet “NTAG I²C *plus*, NFC Forum type 2 Tag compliant IC with I²C interface” (refer to [NTAGI2Cplus]).

2. Download and install latest LPCXpresso

Download latest version from:

https://www.lpcware.com/lpcxpresso/downloads/windows

Install it, than activate free edition – free registration is required.

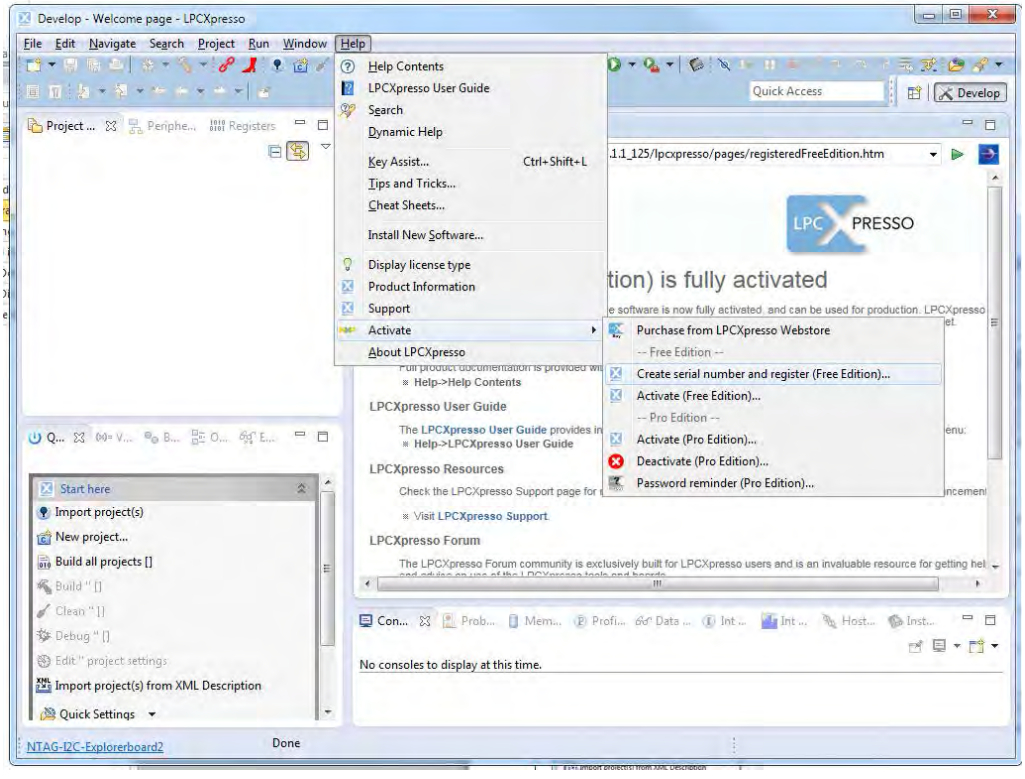

Fig 1. Activate LPCxpresso (Free Edition)

[1] https://www.lpcware.com/lpclink2

3. Importing source files

Download firmware source files from NXP Explorer kit internet pages.

Run LPCXpresso software.

3.1 Create new workspace for new template.

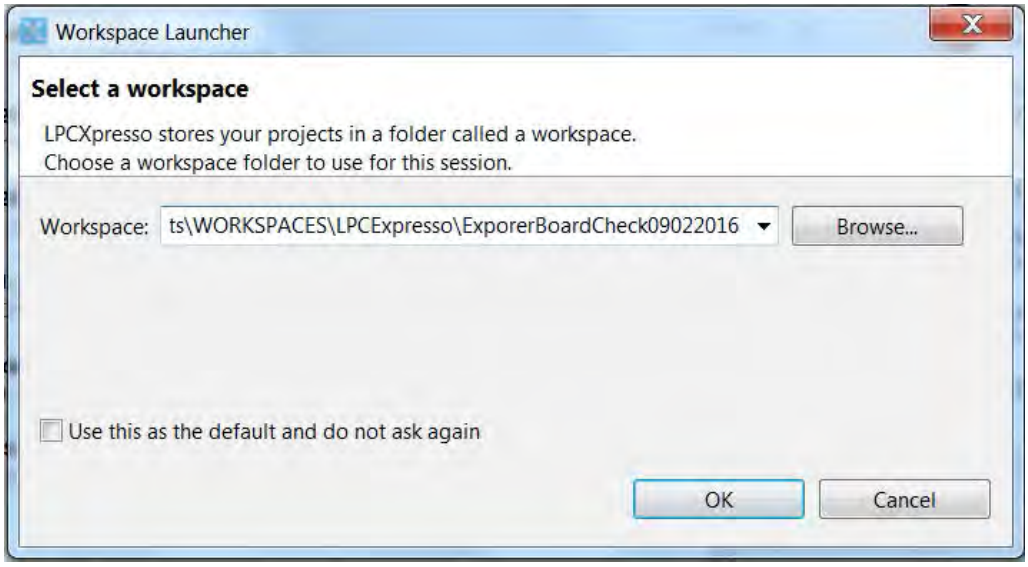

Fig 2. Create new workspace

3.2 Import project

Select “File/Import”, then “General/Existing Project into Workspace”.

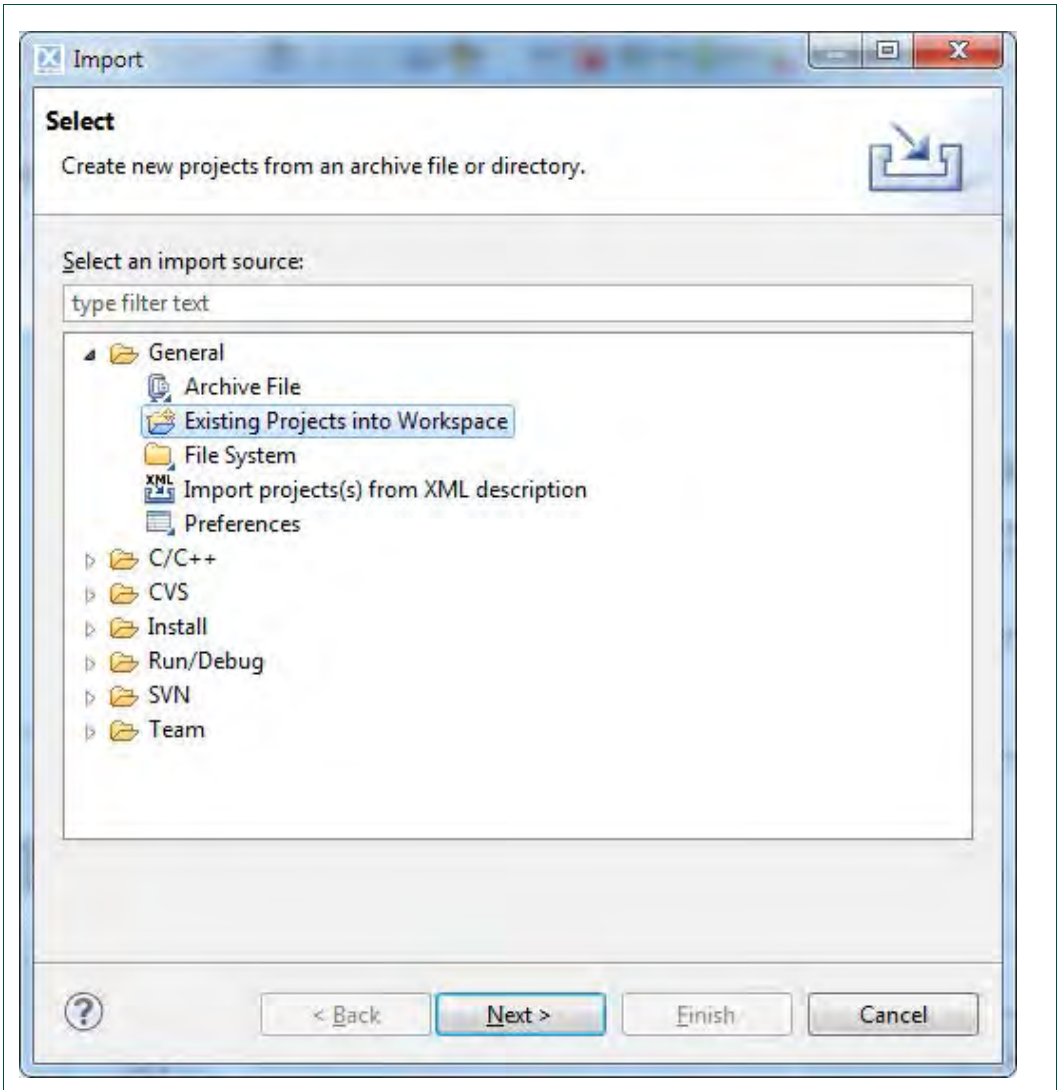

Fig 3. Insert Existing Project into Workspace

Click on “Browse” to the left of “Select Archive File” and select the Project .zip file.

Click “Finnish”, six (6) projects are now imported.

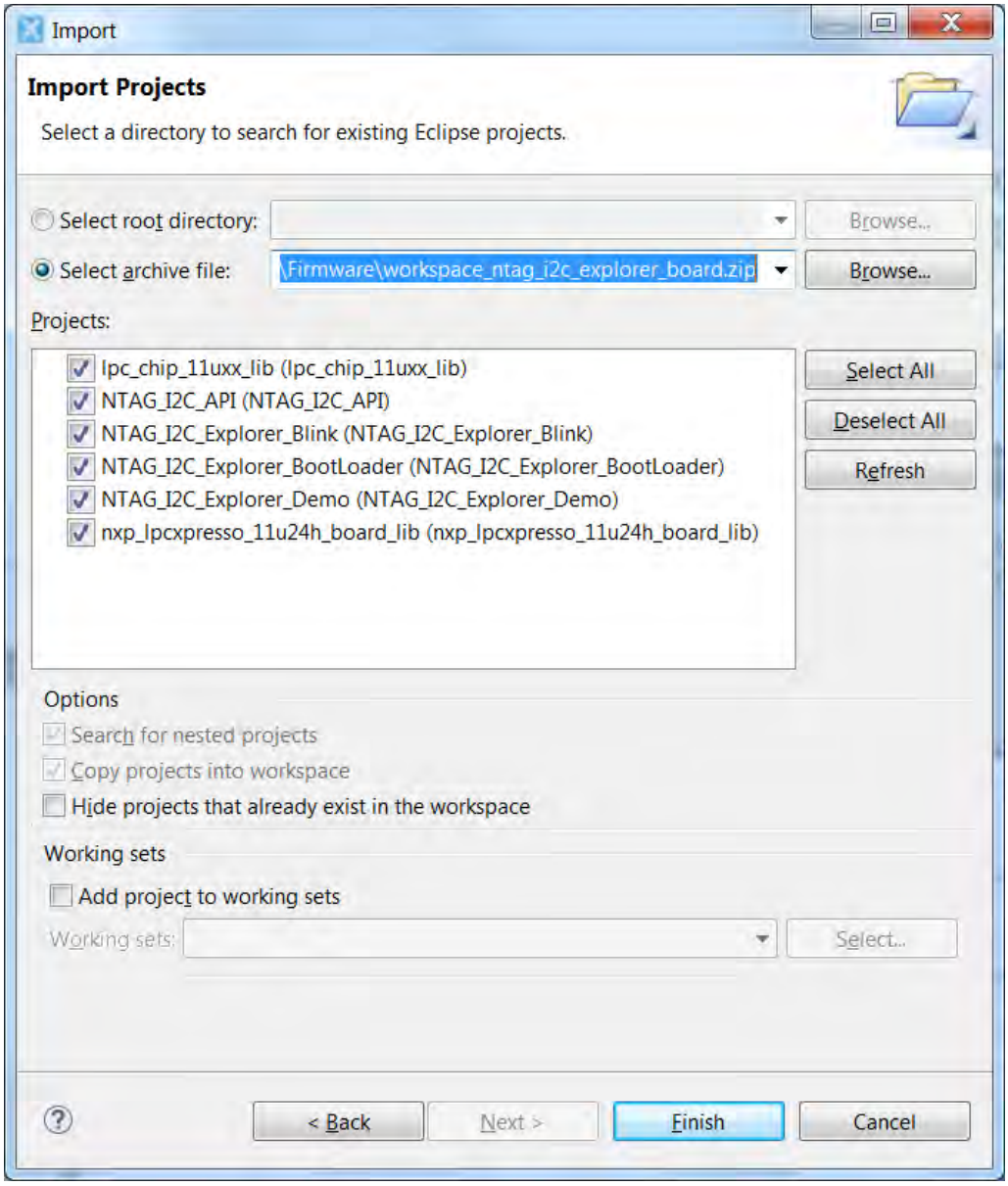

Fig 4. Browse for the project .zip file

4. Programming (flashing) Explorer Board

Connect the LPCLink2 with Explorer Board using 10-pin flat cable using J7 connector on LPCLink2 PCB, then connect LPCLink2 with USB to PC.

If you are using power supply from LPCLink2 you should have jumper on J2 connected.

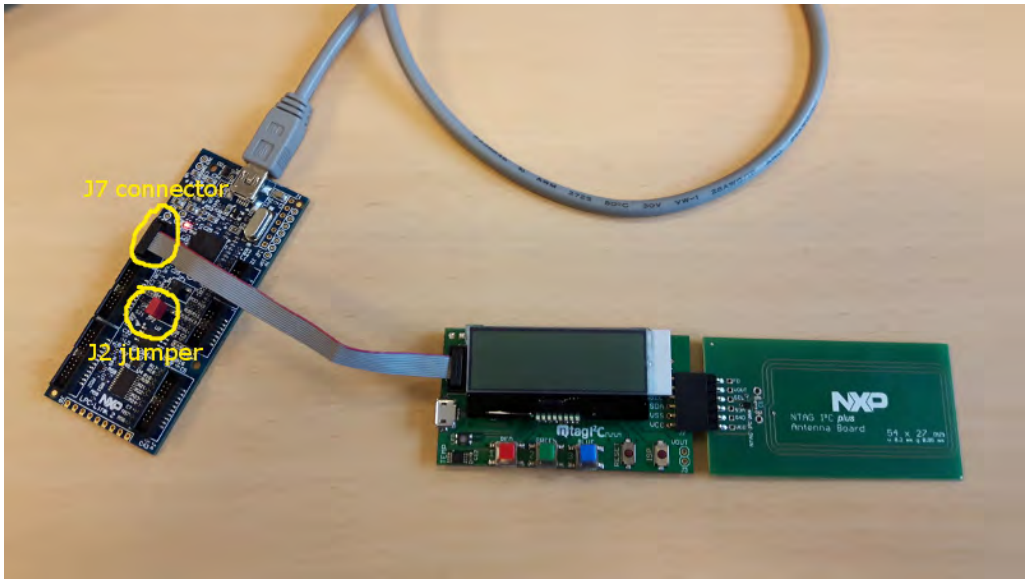

Fig 5. Connection of LPCLink2 to NTAG I²C Explorer Board for programming

4.1 Flash BOOTLOADER

All Demo Boards should be flashed with “NTAG_I2C_LED_Bootloader” firmware before using any Demo firmware and/or latest Android app.

Select the Project “NTAG_I2C_LED_Bootloader” and click on “Program Flash”:

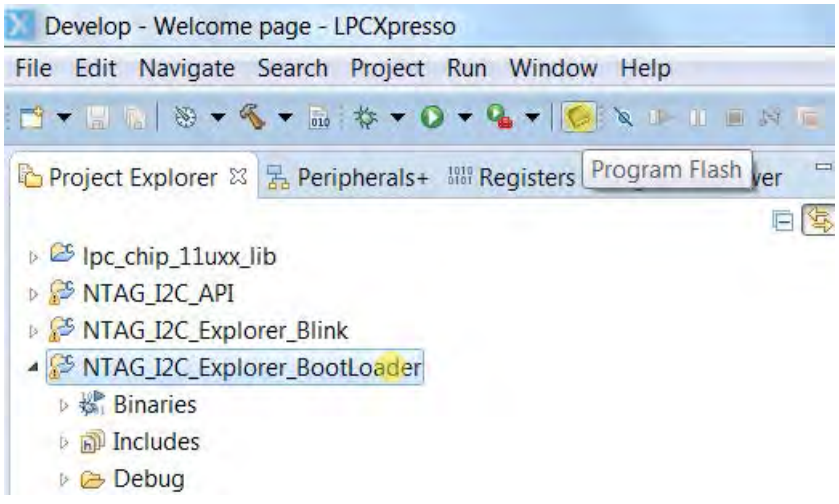

Fig 6. Click on some Project and then “Program Flash”

Check if the right target is selected LPC11xx (NXP LPC11U24/401). If not, please see Troubleshoot section.

Click “Browse…” and search for latest built binary file (.axf).

Press “OK”.

Flashing should start. In case of issues please see Troubleshoot section.

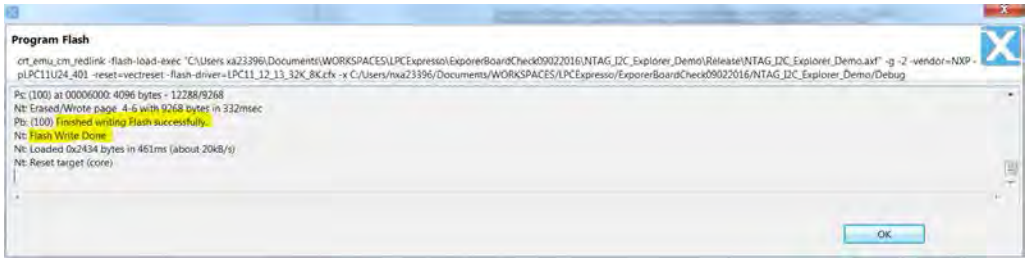

Fig 7. Successful flashing status window pops-up.

4.2 Flash DEMO APPLICATION

Flashing DEMO APP can be done in two ways:

1. Using LPCLink2 and LPCXpresso as described in chapter 4.1
2. Using Android app (NTAG I²C Demo 1.7.6). Detailed procedure is described on page 32 of [UM10966] - User manual NTAG I²C Demo app.

4.3 Test flashed firmware

Fig 8. Explorer Board working

5. Troubleshoot

5.1 No compatible emulators found

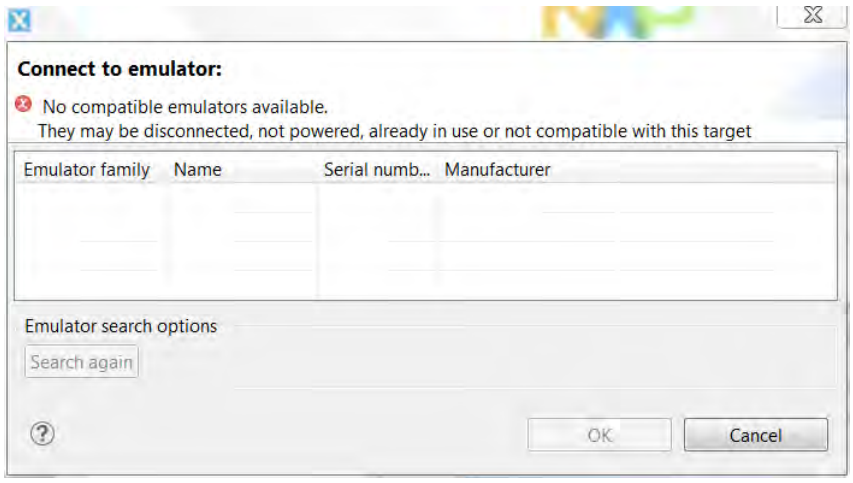

Fig 9. No compatible emulators found

➔ Reconnect the LPCLink2 USB to PC

5.2 Could not connect to core

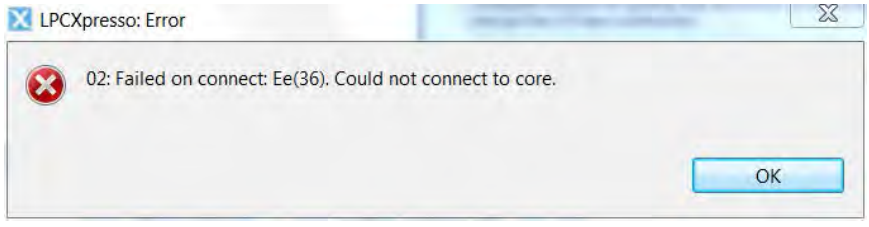

Fig 10. Could not connect to core

➔ Check your flat cable connection

➔ Restart redlinksrv.exe

5.3 Firmware size is too big

```
c:/nxp/lpcxpresso_7.9.0_455/lpcxpresso/tools/bin/../lib/gcc
/arm-none-eabi/4.9.3/../../../../arm-none-eabi/bin/ld.exe:
NTAG_I2C_Explorer_Demo.axf section `.text' will not fit in
region `MFlash32'
c:/nxp/lpcxpresso_7.9.0_455/lpcxpresso/tools/bin/../lib/gcc
/arm-none-eabi/4.9.3/../../../../arm-none-eabi/bin/ld.exe:
region `MFlash32' overflowed by 200 bytes
collect2.exe: error: ld returned 1 exit status
make: *** [NTAG_I2C_Explorer_Demo.axf] Error 1
```

Fig 11. Firmware size is too big.

➔ Right click Project you are trying to flash. Left click “Properties”. Under “C/C++ Build” – “Settings”, in the tab “Tool Settings” – “Optimization, set “Optimization Level” to “Optimize (-O0)”.

Re-build sources and flash again.

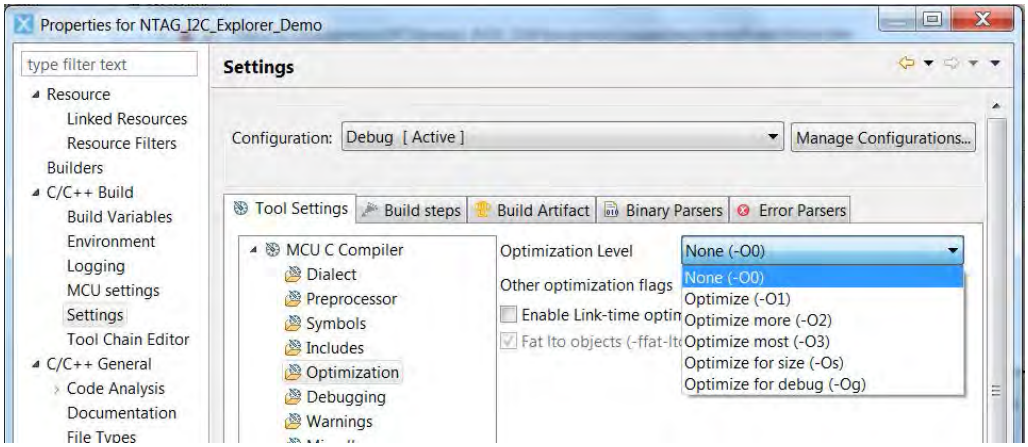

Fig 12. Set optimization level

6. References

[NTAGI2Cplus] NT3H2111/NT3H2211, NTAG I²C *plus*, NFC Forum Type 2 Tag compliant IC with I²C interface

http://www.nxp.com/documents/data_sheet/NT3H2111_2211.pdf

[UM10966] NTAG I²C Demo app

www.nxp.com/documents/user_manual/UM10966.pdf

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