



NFC FORUM DTA

QUICK START GUIDE

[Abstract](#)

A quick start guide to use the Nfcrdlib_NFC_Forum_DTA_ComplApp application for NFC Forum compliance Digital Protocol with NXP NFC Reader Library for NXP NFC Reader/Controller IC's

Version 1.0



Contents

1. Introduction	2
2. Execution Environment.....	2
3. Prerequisite.....	3
4. ICS IXIT configuration.....	3
5. GPIO and LED Configuration	3
6. DTA Execution and Pattern Number configuration	4

1. Introduction

This document contains the basic information necessary to run the NFC Forum Compliance DTA application for NXP NFC Reader Library – “Nfcrdlib_NFC_Forum_DTA_ComplApp”.

2. Execution Environment

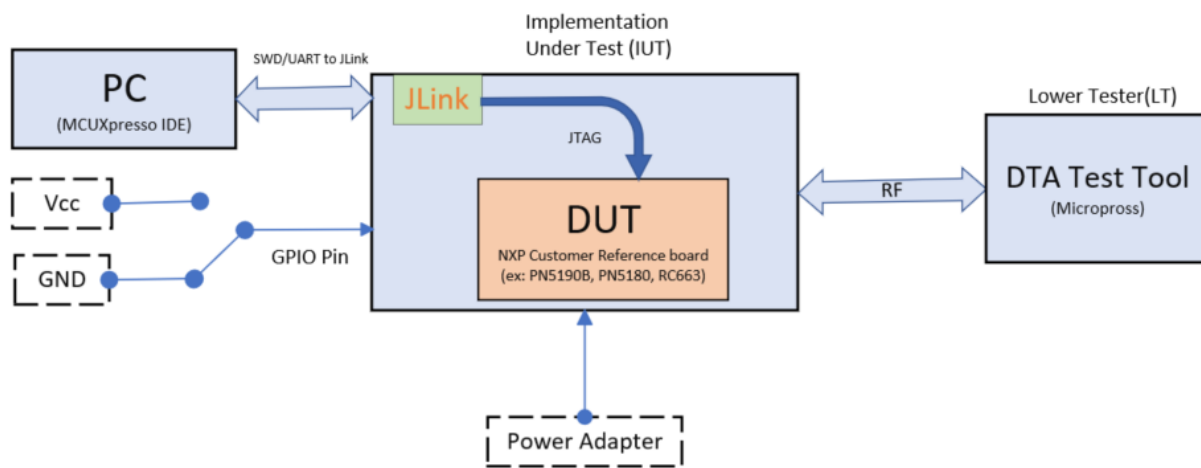


Fig.1 Overview of Test environment for running NFC Forum DTA Application

The DTA test setup consists of the following components:

1. IUT (Implementation under test):

- The Reader library Nfcrdlib_NFC_Forum_DTA_ComplApp application shall run on the DUT (Device Under Test). When NFC Readers are used, the DTA application is executed on Host microcontroller. In case of NFC Controllers, DTA application is executed on the NFC controller flash.
- One of the GPIO pins/ USER_BUTTON (SW1) in the DUT shall be used to interrupt the DTA application loop, to enable changing the test parameters like pattern number.

2. IUT Host Machine:

- This is a PC/Laptop running a terminal (MCUXpresso) through which test inputs can be feed to the Nfcrdlib_NFC_Forum_DTA_ComplApp application. Prints from the application shall be displayed here.
- When using MCUXpresso, the IO stream is transported via SWD interface. In this case, LPC semi-hosting library is used.

3. LT (Lower Tester):

- The Lower Tester shall be the third-party NFC Compliance test tool which will comprise a Test hardware tool and a Software Test suite running on a Host PC.
- Nfcrdlib_NFC_Forum_DTA_ComplApp application has been tested with NFC Compliance test solution from NI/Micropross.

3. Prerequisite

Refer Nfcrdlib_NFC_Forum_DTA_ComplApp application Readme.txt for HW configuration, tools and supported platforms.

4. ICS IXIT configuration

The ICS_IXIT JSON and XML files are available for Micropross tool at
“..\Nfcrdlib_NFC_Forum_DTA_ComplApp\docs\ConfigFiles\Micropross”.

- Reader Device Class: CR13_DP_Reader_ICS_IXIT.json and CR13_DP_Reader_TPG_ICS_IXIT.xml
- CE_Device_Class : CR13_DP_CE_ICS_IXIT.json and CR13_DP_CE_TPG_ICS_IXIT.xml
For PN7462AU IC, CR13_DP_CE_ICS_IXIT_PN7462AU.json shall be used.
- First load corresponding .JSON File to Micropross tool configuration to update ICS and IXIT parameters, then load corresponding .xml file to filter out the applicable test cases.

5. GPIO and LED Configuration

1. Refer the below table for GPIO configuration which is used for DTA Pattern number configuration.

NFC Reader Board/IC	Board Reference	GPIO Pin Details
PNEV5180B v2.0	J201, Pin1(TX)	Port0, Pin2
CLEV6630B v2.0	J201, Pin1(TX)	Port0, Pin2
PNEV7462C	GPIO1	GPIO1
PNEV5190B v1.0	TP8	PortD, Pin12
PNEV7642A	SW1	GPIO5

- LED indication is provided to indicate DTA application loop execution status.
LED ON indicates DTA loop is running, OFF indicates application is waiting for Pattern number.

Refer the below table for LED configuration.

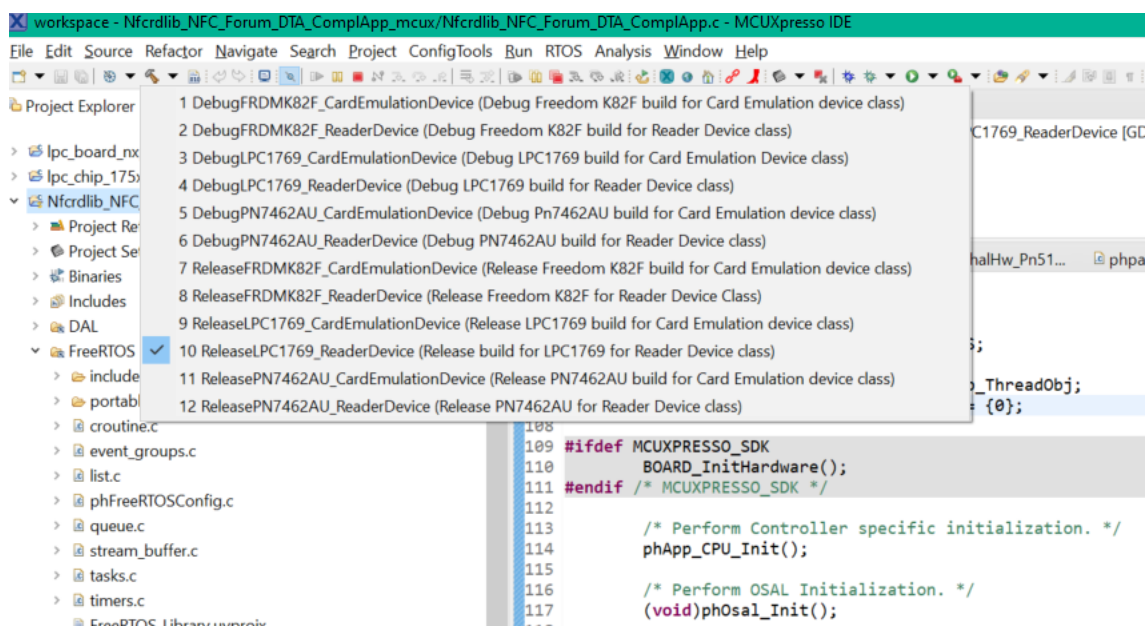
NFC Reader Board/IC	Board Reference	LED Pin Details
PNEV5180B v2.0	LD201 (RED LED)	Port2, Pin0
CLEV6630B v2.0	LD201 (RED LED)	Port2, Pin0
PNEV7462C	GPIO LED12 (RED LED)	GPIO12
PNEV5190B v1.0	D3 (RED LED)	PortC, Pin7
PNEV7642A	GPIO3 (RED LED)	GPIO3

6. DTA Execution and Pattern Number configuration

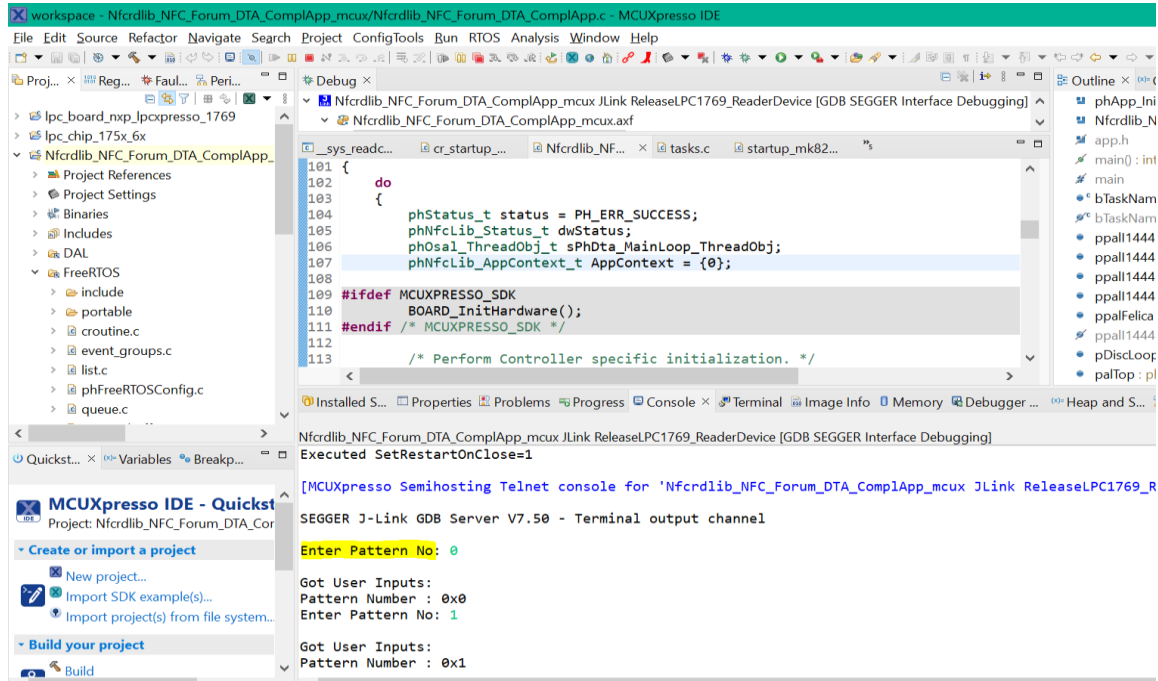
- It is recommended to compile and execute DTA application in Release build for NFC Forum validation.
For PN7642 IC, load “Nfcrdlib_NFC_Forum_DTA_ComplApp_Freertos_Full” application from PN7642 SDK and compile in Release mode.
- The build configurations to compile DTA application in Release build for Reader mode and Card mode are shown in the below screen shot.

For Reader Mode : Release”Platform”_ReaderDevice

For Card Mode : Release”Platform”_CardEmulationDevice



3. After loading DTA application to DUT, Pattern number shall be provided through MCUXpresso console as mentioned in the below screen shot.



4. To change DTA pattern number without HW reset, GPIO/ USER_BUTTON (SW1) input shall be used.
5. In some cases, the pattern number must be changed without resetting the DUT. For example, each Tag Operation WRITE test case must be executed immediately after the corresponding Tag Operation READ test case execution (A kind of data loop back, as mentioned in DTA specification).
6. GPIO (mentioned in previous section) need to be shorted to GND/ press USER_BUTTON (SW1) on the board to interrupt DTA application for pattern number change.
7. Refer DTA_PatternNumber_Guide.xlsx (Path: ..\Nfcrlib_NFC_Forum_DTA_ComplApp\docs) for DTA Pattern number related information.
NOTE: For CE Device Class all tests shall be executed with pattern number zero, hence input for pattern number shall not be asked. By default, application shall execute pattern number zero.